2009 Science Specifications

for the

2010-2011 Florida State Adoption

of

Instructional Materials

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Florida Perspective

Florida's A++ Plan for Education and Highest Quality Instructional Materials

The fundamental premise at the core of the state's education policy is unequivocal: every child can learn and no child should be left behind. The goal of Florida's A++ Plan for Education is to raise student achievement to world-class levels by reaffirming high standards, developing assessments, and ensuring accountability. Florida's reform effort is based on a commitment to continuous quality improvement in every school across the state. As such, it calls for schools to articulate a fundamentally new direction for instruction and to re-examine the ways in which the day-to-day business of schools is conducted.

Instructional Materials submitted for adoption in the State of Florida are correlated to Florida's Next Generation Sunshine State Standards and benchmarks to ensure alignment to the state's assessment and accountability measurements. The ultimate goal of Florida's Adoption Process is to provide the highest quality instructional materials to our teachers and students.

Priorities for Discipline-Specific Literacy

All instructional material programs submitted for adoption consideration must provide evidence of integration with other areas of instruction by supporting the notion that students in grades K-2 are learning to read, and students in grades 3-12 are reading to learn. Instructional materials for science must reflect the demands of reading, writing, and oral language that are specific to science. Throughout each of these grade levels, instructional materials should include vocabulary development, cognitive reasoning, and reading acquisition skills specific to literacy in science. For example, an essential literacy skill related to text type in science is interpreting informational or technical text and diagrams. Additionally, reading is a complex process and highly utilized across all content area assignments. Therefore, all submissions must integrate and carefully scaffold reading and literacy instruction to directly align with the corresponding text within each lesson. Reading and writing instruction and assignments must align with all content area instruction. Writing must also be integrated across the curriculum.

Universal Design for Curriculum Access

Because Florida will not have a separate call for special education students, publishers who submit material for consideration will be required to incorporate strategies, materials, activities, etc. that consider the special needs of these students. In providing for students with special needs, Florida evaluators will be guided by the research reported in the document *Universal Design for Curriculum Access*. The following Web sites can be accessed for detailed information on this research:
http://www.trace.wisc.edu/
http://www.cast.org

Although Florida is not having a separate call for Exceptional Student Education (ESE), that is not to say that all materials will be equally suitable for all children. Florida's State Adoption Committees may, as always, identify some submissions as "especially suitable" for a particular group of students. Some groups may be reading below grade level or above grade level, may include reluctant readers or students with disabilities. Committee comments appear with adopted titles in the Florida Catalog of Adopted Materials and serve as a guide for teachers and/or administrators in search of materials.

Each State Adoption Committee has at least one member, though usually more than one, who is or has been a certified teacher of ESE students.

Accommodations and Modifications The following summary of information from the Department of Education guide *Accommodations: Assisting Students with Disabilities* (2003) is of help in addressing the ways that materials may be developed or changed to meet the needs of students of varied abilities:

Accommodations are changes that can be made in HOW students learn. Accommodations are really "whatever it takes" to assure students with disabilities the opportunity to participate as fully as possible in the general curriculum and ultimately earn a diploma.

Accommodations:

- do not lessen achievement expectations.
- are a wide range of techniques and support systems that help students with disabilities work around any limitations that result from their disability. Examples include Braille textbooks or books on tape.
- may be needed by one student but frequently can benefit many or most students in a classroom.
- should be enabling, necessary, and used congruently for both instruction and assessment

Accommodations may be provided in five general areas:

- Instructional methods and materials
- Assignments and classroom assessments
- Time demands and scheduling
- Learning environment
- Use of special communication systems

Specific suggestions for accommodations in instructional materials and methods based on area of need are found in Chapter 3: What Can You Change.

Modifications, on the other hand, are changes that can be made to WHAT students are expected to learn. They are used primarily for students who cannot meet the Sunshine State Standards for their grade level and require a modified curriculum. Modifications change the goals and expectations for students.

Modifications may include:

- partial completion of program or course requirements
- curriculum expectations below age or grade level
- alternate assessment criteria
- alternate curricular goals

Florida's Vision for Science Education

The increasing role of science in the modern world is resulting in more focused attention on K-12 science education. The inclusion of science, along with language arts and mathematics, in the No Child Left Behind Act is a reflection of the growing importance of science education in the nation.

Understanding scientific concepts is fundamental to improving quality of life, harnessing natural resources, and preserving the environment. Developing a future workforce prepared to meet the challenges of the 21st century requires proficiency in science for all students, not just for those who will become critical contributors to the scientific enterprise, such as scientists, engineers, and medical professionals. Developing a deep understanding of scientific concepts and skills in scientific literacy is essential for *all* students in order to prepare our future workforce and to prepare citizens to participate as critical thinkers and decision makers in society.

Florida is Committed to Adopting Comprehensive, Focused Science Education Instructional Materials

Florida intends to adopt instructional materials that reflect the philosophy of teaching a smaller number of science concepts with a greater depth of understanding. This means focusing on the Big Ideas and Supporting Ideas for each grade level in K-8 and focusing on standards in grades 9-12, incorporating the use of content from prior grades, and not requiring or including content that is more appropriate at future grade levels or in other courses. Effective instructional materials for science should support teaching and learning of science that includes moving students from concrete ideas about the natural world to abstract thinking and provides multiple methods and opportunities for students to construct their own science knowledge.

Florida's Science Education Instructional Materials Must Include the Following Critical Components of K-12 Science Teaching and Learning

- **Standards-Based Teaching and Learning**: The Next Generation Sunshine State Standards provide the focus and foundation for science teaching and learning in Florida. All components of curriculum, instruction, and assessment should be developed from the standards. The new science standards are arranged within eighteen "Big Ideas" to allow for meaningful student learning progressions throughout grades K-12.
- **Integration of Science Content and Science Process**: Science education in Florida is based on a framework of science as the integration of science content and science process skills. This framework goes beyond the distinction between the scientific body of knowledge (facts, theories, and laws) and science process skills (observation, experimental design, data collection and analysis, and drawing conclusions), and focuses on the inextricable link between science knowledge and science skills.

- **Emphasis on the Nature of Science**: Scientists use a wide variety of approaches and problem-solving methods in their work. There is no single "scientific method" used universally by all scientists. The practice of science is not carried out in isolation, but involves a network of scientists, and employs a wide array of technological tools and communication methods. All domains of science are based on data and evidence. Because hypotheses, models, and theories are based on empirical evidence, they are subject to revision. Effective teaching and learning of science should reflect the way that science is actually practiced and should model the way that scientists operate in the real world. Proficiency in science begins with understanding science as a process of building theories from evidence and developing the same skills that scientists demonstrate.
- **Dynamic Data-Based Instruction**: Effective teaching and learning of science occurs when teachers have the time and opportunity to evaluate and use the results of students' assessments to improve instruction. Formative assessments that are truly instructionally-supportive are those which elicit information about students' understanding of science concepts and have the ability to affect real and meaningful change in the classroom by providing data that empowers teachers to make judgments about how to continuously improve instruction.
- **The Language and History of Science**: It is important for students to have a clear understanding of the specific meanings of words in science that may differ from the words' everyday use, such as "theory," "fact," "observation," "data," "evidence," and "conclusion." It is also important for students to have many opportunities to explore the relationships among science concepts and the contributions of scientists in order to make connections between the process of doing science and the science content.
- **Early Development of Science Knowledge and Skills**: Recent research shows that young children have a more advanced ability to reason scientifically than previously assumed. When children as young as kindergarten age are challenged to reason about a problem or an observation, they begin to develop critical thinking skills and to develop the foundation and confidence needed for a natural progression to higher level scientific thinking.
- **Focus on Understanding Concepts**: Proficiency in science comes from understanding and applying a particular concept, rather than memorizing the definition. Students need the opportunity to reflect and reinforce their understanding of science concepts.
- **Focus on Big Ideas**: A deep understanding of a smaller number of learning targets builds science proficiency better than a broad memorization of several concepts. The new science standards are designed to allow more time for students to develop conceptual understanding through inquiry-based situations, projects, and laboratory experiments.
- **Targeting Misconceptions**: Students come to science classes with pre-conceived notions, and sometimes misconceptions, about the natural world. Effective science teaching takes these notions into account and enables students to make the journey from their understanding to a more scientific view. Instructional materials should reflect this philosophy and should take advantage of opportunities to target and re-direct common science misconceptions.
- **Integration of Technology Skills and Tools**: Effective teaching and learning of science includes engaging activities requiring skills in the use of calculators, laboratory apparatus, electronic data-collecting probe-ware, and computer software.

Publisher Submissions for Florida's 2010-2011 Science Adoption

Florida will accept for consideration bids for science instructional materials configured as follows:

Grades K-5	
General Sciences, Grades K-5	
Elementary Science: Series Only	
Course Code	**Course Title**
5020010	Science – Grade Kindergarten
5020020	Science – Grade One
5020030	Science – Grade Two
5020040	Science – Grade Three
5020050	Science – Grade Four
5020060	Science – Grade Five

Grades 6-8	
Biological Sciences, Grades 6-8	
Course Code	**Course Title**
2000010	M/J Life Science
2000020	M/J Life Science, Advanced
Earth/Space Sciences, Grades 6-8	
Course Code	**Course Title**
2001010	M/J Earth/Space Science
2001020	M/J Earth/Space Science, Advanced
Physical Sciences, Grades 6-8	
Course Code	**Course Title**
2003010	M/J Physical Science
2003020	M/J Physical Science, Advanced
General Sciences, Grades 6-8	
Middle/Junior Comprehensive Science: Series Only	
2002040	M/J Comprehensive Science I
2002070	M/J Comprehensive Science II
2002100	M/J Comprehensive Science III
Middle/Junior Comprehensive Advanced Science: Series Only	
2002050	M/J Comprehensive Science I, Advanced
2002080	M/J Comprehensive Science II, Advanced
2002110	M/J Comprehensive Science III, Advanced

Grades 9-12	
Biological Sciences, Grades 9-12	
Course Code	**Course Title**
2000310	Biology I
2000320	Biology I Honors
2000330	Biology II
2000430	Biology Technology
2000370	Botany
2000380	Ecology
2000440	Genetics
2000390	Limnology
2000410	Zoology
2000350	Anatomy and Physiology
2000360	Anatomy and Physiology Honors
2000340	Advanced Placement Biology
Earth/Space Sciences, Grades 9-12	
Course Code	**Course Title**
2001310	Earth/Space Science
2001320	Earth/Space Science Honors
2001350	Astronomy Solar/Galactic Science
2020910	Astronomy Solar/Galactic Science Honors
2002330	Space Technology and Engineering
Physical Sciences, Grades 9-12	
Course Code	**Course Title**
2003340	Chemistry I
2003350	Chemistry I Honors
2003360	Chemistry II
2003400	Nuclear Radiation
2020710	Nuclear Radiation Honors
2003310	Physical Science
2003320	Physical Science Honors
2003380	Physics I
2003390	Physics I Honors
2003410	Physics II
2003600	Principles of Technology I
2003610	Principles of Technology II
2003370	Advanced Placement Chemistry
2003420	Advanced Placement Physics B
2003430	Advanced Placement Physics C

Integrated Sciences, Grades 9-12	
Course Code	**Course Title**
3027019	Biotechnology I
3027020	Biotechnology II
2001340	Environmental Science
2002480	Forensic Science I
2002490	Forensic Science II
2002500	Marine Science I
2002510	Marine Science I Honors
2002520	Marine Science II
2002530	Marine Science II Honors
2002540	Solar Energy I
2002550	Solar Energy II
2001380	Advanced Placement Environmental Science
High School Integrated Science: Series Only (Series may be I-III, I-IV, or I-V)	
2002400	Integrated Science I
2002420	Integrated Science II
2002440	Integrated Science III
2002460	Integrated Science IV
2002470	Integrated Science V
High School Integrated Science Honors: Series Only	
2002410	Integrated Science I Honors
2002430	Integrated Science II Honors
2002450	Integrated Science III Honors

General Description for Publishers' Submissions

Next Generation Sunshine State Standards for Science

The Next Generation Sunshine State Standards for Science were approved and adopted by the State Board of Education in February 2008. **The revised science standards reflect a focus on building a deeper understanding of a smaller number of topics for each science course.** The standards and benchmarks provide the focus for standards-based teaching and learning in Florida's K-12 schools. The Next Generation Sunshine State Standards for Science can be found online at http://www.floridastandards.org/Standards/FLStandardSearch.aspx.

Features of the Next Generation Sunshine State Standards for Science:

- The 2008 revision of the Sunshine State Standards for Science resulted in standards that define a smaller number of learning targets. The new science standards are arranged within eighteen "Big Ideas" to foster student learning progressions that are developed from K-12. The new science standards are grouped into four Bodies of Knowledge:
    - Earth and Space Science
    - Life Science
    - Physical Science
    - Nature of Science
- The revised standards provide content specific benchmarks to guide instruction; these benchmarks have been aligned with each science course at each grade level.
- Grades K-8: The science benchmarks for grades K-8 are grade level specific and are built around 8-12 "Big Ideas" grouped within the four Bodies of Knowledge. The Big Ideas provide a framework for the development of essential concepts in science for each grade level.
- Grades 9-12: The science benchmarks for grades 9-12 are grade span specific and are built around standards which are grouped within the four Bodies of Knowledge. The standards provide a framework for the development of essential concepts in science in this grade span.
- The benchmark codes, standard numbers, and Big Idea numbers are intended for coding purposes only and are not intended to imply order of instruction or degree of importance.
- The average number of benchmarks for each grade in the K-8 grade band has been reduced by about 50%. The revised science standards are designed to allow teachers and students to focus on a smaller number of learning targets and to develop a greater depth of understanding. **Instructional materials should reflect this focus and should not include material that goes beyond the scope of the concepts for a particular grade level or course.**
- The revised science standards are designed to introduce science concepts and vocabulary at developmentally appropriate grade levels. **Instructional materials should reflect this design and should not require the use of science concepts or vocabulary at a grade level earlier than that designated in the standards.**

- Committees of educators evaluated each science benchmark for cognitive complexity using an adapted version of Dr. Norman Webb's Depth of Knowledge classification system. Each science benchmark has been classified into one of three levels of cognitive complexity: high complexity, moderate complexity, or low complexity.

Science Benchmark Codes

Grades K-8

SC	5	E	1	1
Subject	Grade	Body of Knowledge	Big Idea	Benchmark

Grades 9-12

SC	912	E	1	1
Subject	Grade Span	Body of Knowledge	Standard	Benchmark

Florida Science Course Descriptions

Florida's science course descriptions were evaluated and revised in 2008 by committees of educators in order to ensure coherence, focus, and rigor for each course description and in order to ensure alignment to the new science standards. The revised science course descriptions, which reflect the emphasis on building a deeper understanding of a smaller number of learning targets, can be found online at http://www.floridastandards.org/Courses/CourseDescriptionSearch.aspx.

Please note that the science course descriptions are subject to State Board of Education approval. The draft course descriptions are scheduled for submission to the State Board of Education in July 2009.

Features of the revised Florida Science Course Descriptions:

- The Nature of Science Body of Knowledge benchmarks are embedded within each science course description at all grade levels**. Instructional materials should reflect this approach and should integrate the Nature of Science benchmarks throughout the entire curriculum and not isolate the benchmarks into a separate unit.**
- Each science course description for grades 6-12 includes two language arts benchmarks and two mathematics benchmarks. These benchmarks were identified by the committees as essential skills to be embedded in each science course. In addition, some science course descriptions include related health benchmarks. **Instructional materials should reflect this emphasis on embedded language arts, mathematics, and health benchmarks.**
- The order of the related benchmarks listed for each science course description is not intended to imply order of instruction or degree of importance.
- Access Points have been developed for each science benchmark in order to provide access to the general education curriculum for students with significant cognitive

disabilities. The Access Points are learning targets that reflect the core intent of the standards with reduced levels of complexity. The three levels of complexity are participatory, supported, and independent. *The Access Points are intended for use only for students with significant cognitive disabilities.*

National Science Education Standards

If the publisher's Science Instructional Materials are aligned with the National Science Education Standards produced by the National Research Council, the Florida Department of Education would like a copy of a correlation document showing the alignment. Please mail this correlation document along with the other bidders' documentation to 325 West Gaines Street, Suite 424, Tallahassee, FL 32399-0400. The National Science Education Standards can be found at http://www.nsta.org/publications/nses.aspx.

Florida Course Descriptions
Science 2009

Structure of the Florida Science Course Descriptions

The Next Generation Sunshine State Standards provide the focus and foundation for Florida's science course descriptions for grades K-12. The science standards are grouped into four Bodies of Knowledge:

- •Nature of Science *
- •Earth and Space Science
- •Physical Science
- •Life Science

*The benchmarks within the Nature of Science Body of Knowledge represent the global aspects of science and should be combined with the science content benchmarks from the other three Bodies of Knowledge. These benchmarks should not be taught and assessed in isolation, but should be embedded within curriculum and instruction throughout the course.

Grades K-5

For grades K-5, each Body of Knowledge includes four or more Big Ideas which provide a framework for the development of essential science concepts. Each Big Idea includes content-specific benchmarks to guide instruction.

Body of Knowledge: Nature of Science (N)

Big Idea 1: The Practice of Science

A. Scientific inquiry is a multifaceted activity; The processes of science include the formulation of scientifically investigable questions, construction of investigations into those questions, the collection of appropriate data, the evaluation of the meaning of those data, and the communication of this evaluation.
B. The processes of science frequently do not correspond to the traditional portrayal of "the scientific method."
C. Scientific argumentation is a necessary part of scientific inquiry and plays an important role in the generation and validation of scientific knowledge.
D. Scientific knowledge is based on observation and inference; it is important to recognize that these are very different things. Not only does science require creativity in its methods and processes, but also in its questions and explanations.

Big Idea 2: The Characteristics of Scientific Knowledge

A. Scientific knowledge is based on empirical evidence, and is appropriate for understanding the natural world, but it provides only a limited understanding of the supernatural, aesthetic, or other ways of knowing, such as art, philosophy, or religion.
B. Scientific knowledge is durable and robust, but open to change.
C. Because science is based on empirical evidence it strives for objectivity, but as it is a human endeavor the processes, methods, and knowledge of science include subjectivity, as well as creativity and discovery.

Big Idea 3: The Role of Theories, Laws, Hypotheses, and Models

The terms that describe examples of scientific knowledge, for example; "theory," "law," "hypothesis," and "model" have very specific meanings and functions within science.

Body of Knowledge: Earth and Space Science (E)

Big Idea 5: Earth in Space and Time

Humans continue to explore Earth's place in space. Gravity and energy influence the formation of galaxies, including our own Milky Way Galaxy, stars, the Solar System, and Earth. Humankind's need to explore continues to lead to the development of knowledge and understanding of our Solar System.

Big Idea 6: Earth Structures

Humans continue to explore the composition and structure of the surface of the Earth. External sources of energy have continuously altered the features of Earth by means of both constructive and destructive forces. All life, including human civilization, is dependent on Earth's water and natural resources.

Big Idea 7: Earth Systems and Patterns

Humans continue to explore the interactions among water, air, and land. Air and water are in constant motion that results in changing conditions that can be observed over time.

Body of Knowledge: Physical Science (P)

Big Idea 8: Properties of Matter

A. All objects and substances in the world are made of matter. Matter has two fundamental properties: matter takes up space and matter has mass.
B. Objects and substances can be classified by their physical and chemical properties.
Mass is the amount of matter (or "stuff") in an object. Weight, on the other hand, is the measure of force of attraction (gravitational force) between an object and Earth.
The concepts of mass and weight are complicated and potentially confusing to elementary students. Hence, the more familiar term of "weight" is recommended for use to stand for both mass and weight in grades K-5. By grades 6-8, students are expected to understand the distinction between mass and weight, and use them appropriately.

Big Idea 9: Changes in Matter

A. Matter can undergo a variety of changes.
B. Matter can be changed physically or chemically.

Big Idea 10: Forms of Energy

A. Energy is involved in all physical processes and is a unifying concept in many areas of science.
B. Energy exists in many forms and has the ability to do work or cause a change.

Big Idea 11: Energy Transfer and Transformations

A. Waves involve a transfer of energy without a transfer of matter.
B. Water and sound waves transfer energy through a material.
C. Light waves can travel through a vacuum and through matter.

Big Idea 12: Motion of Objects

A. Motion is a key characteristic of all matter that can be observed, described, and measured.
B. The motion of objects can be changed by forces.

Big Idea 13: Forces and Changes in Motion

A. It takes energy to change the motion of objects.
B. Energy change is understood in terms of forces--pushes or pulls.
C. Some forces act through physical contact, while others act at a distance.

Body of Knowledge: Life Science (L)

Big Idea 14: Organization and Development of Living Organisms

A. All plants and animals, including humans, are alike in some ways and different in others.
B. All plants and animals, including humans, have internal parts and external structures that function to keep them alive and help them grow and reproduce.
C. Humans can better understand the natural world through careful observation.

Big Idea 15: Diversity and Evolution of Living Organisms

A. Earth is home to a great diversity of living things, but changes in the environment can affect their survival.
B. Individuals of the same kind often differ in their characteristics and sometimes the differences give individuals an advantage in surviving and reproducing.

Big Idea 16: Heredity and Reproduction

A. Offspring of plants and animals are similar to, but not exactly like, their parents or each other.
B. Life cycles vary among organisms, but reproduction is a major stage in the life cycle of all organisms.

Big Idea 17: Interdependence

A. Plants and animals, including humans, interact with and depend upon each other and their environment to satisfy their basic needs.B. Both human activities and natural events can have major impacts on the environment.C. Energy flows from the sun through producers to consumers.

Grades 6-8

For grades 6-8, each Body of Knowledge includes four or more Big Ideas which provide a framework for the development of essential science concepts. Each Big Idea includes content-specific benchmarks to guide instruction.

Body of Knowledge: Nature of Science (N)

Big Idea 1: The Practice of Science

A. Scientific inquiry is a multifaceted activity; The processes of science include the formulation of scientifically investigable questions, construction of investigations into those questions, the collection of appropriate data, the evaluation of the meaning of those data, and the communication of this evaluation.
B. The processes of science frequently do not correspond to the traditional portrayal of "the scientific method."
C. Scientific argumentation is a necessary part of scientific inquiry and plays an important role in the generation and validation of scientific knowledge.
D. Scientific knowledge is based on observation and inference; it is important to recognize that these are very different things. Not only does science require creativity in its methods and processes, but also in its questions and explanations.

Big Idea 2: The Characteristics of Scientific Knowledge

A. Scientific knowledge is based on empirical evidence, and is appropriate for understanding the natural world, but it provides only a limited understanding of the supernatural, aesthetic, or other ways of knowing, such as art, philosophy, or religion.
B. Scientific knowledge is durable and robust, but open to change.
C. Because science is based on empirical evidence it strives for objectivity, but as it is a human endeavor the processes, methods, and knowledge of science include subjectivity, as well as creativity and discovery.

Big Idea 3: The Role of Theories, Laws, Hypotheses, and Models

The terms that describe examples of scientific knowledge, for example; "theory," "law," "hypothesis," and "model" have very specific meanings and functions within science.

Big Idea 4: Science and Society

As tomorrows citizens, students should be able to identify issues about which society could provide input, formulate scientifically investigable questions about those issues, construct investigations of their questions, collect and evaluate data from their investigations, and develop scientific recommendations based upon their findings.

Body of Knowledge: Earth and Space Science (E)

Big Idea 5: Earth in Space and Time

The origin and eventual fate of the Universe still remains one of the greatest questions in science. Gravity and energy influence the formation of galaxies, including our own Milky Way Galaxy, stars, the planetary systems, and Earth. Humankind's need to explore continues to lead to the development of knowledge and understanding of the nature of the Universe.

Big Idea 6: Earth Structures

Over geologic time, internal and external sources of energy have continuously altered the features of Earth by means of both constructive and destructive forces. All life, including human civilization, is dependent on Earth's internal and external energy and material resources.

Big Idea 7: Earth Systems and Patterns

The scientific theory of the evolution of Earth states that changes in our planet are driven by the flow of energy and the cycling of matter through dynamic interactions among the atmosphere, hydrosphere, cryosphere, geosphere, and biosphere, and the resources used to sustain human civilization on Earth.

Body of Knowledge: Physical Science (P)

Big Idea 8: Properties of Matter

A. All objects and substances in the world are made of matter. Matter has two fundamental properties: matter takes up space and matter has mass which gives it inertia.
B. Objects and substances can be classified by their physical and chemical properties.
Mass is the amount of matter (or "stuff") in an object. Weight, on the other hand, is the measure of force of attraction (gravitational force) between an object and Earth.
The concepts of mass and weight are complicated and potentially confusing to elementary students. Hence, the more familiar term of "weight" is recommended for use to stand for both mass and weight in grades K-5. By grades 6-8, students are expected to understand the distinction between mass and weight, and use them appropriately.

Big Idea 9: Changes in Matter

A. Matter can undergo a variety of changes.
B. When matter is changed physically, generally no changes occur in the structure of the atoms or molecules composing the matter.
C. When matter changes chemically, a rearrangement of bonds between the atoms occurs. This results in new substances with new properties.

Big Idea 10: Energy

A. Energy is involved in all physical and chemical processes. It is conserved, and can be transformed from one form to another and into work. At the atomic and nuclear levels energy is not continuous but exists in discrete amounts. Energy and mass are related through Einstein's equation E=mc².
B. The properties of atomic nuclei are responsible for energy-related phenomena such as radioactivity, fission and fusion.
C. Changes in entropy and energy that accompany chemical reactions influence reaction paths. Chemical reactions result in the release or absorption of energy.

Big Idea 11: Energy Transfer and Transformations

A. Waves involve a transfer of energy without a transfer of matter.
B. Water and sound waves transfer energy through a material.
C. Light waves can travel through a vacuum and through matter.
D. The Law of Conservation of Energy: Energy is conserved as it transfers from one object to another and from one form to another.

Big Idea 12: Motion of Objects

A. Motion is a key characteristic of all matter that can be observed, described, and measured.
B. The motion of objects can be changed by forces.

Big Idea 13: Forces and Changes in Motion

A. It takes energy to change the motion of objects.
B. Energy change is understood in terms of forces--pushes or pulls.
C. Some forces act through physical contact, while others act at a distance.

Body of Knowledge: Life Science (L)

Big Idea 14: Organization and Development of Living Organisms

A. All living things share certain characteristics.
B. The scientific theory of cells, also called cell theory, is a fundamental organizing principle of life on Earth.
C. Life can be organized in a functional and structural hierarchy.
D. Life is maintained by various physiological functions essential for growth, reproduction, and homeostasis.

Big Idea 15: Diversity and Evolution of Living Organisms

A. The scientific theory of evolution is the organizing principle of life science.
B. The scientific theory of evolution is supported by multiple forms of evidence.
C. Natural Selection is a primary mechanism leading to change over time in organisms.

Big Idea 16: Heredity and Reproduction

A. DNA stores and transmits genetic information. Genes are sets of instructions encoded in the structure of DNA.
B. Genetic information is passed from generation to generation by DNA in all organisms and accounts for similarities in related individuals.
C. Manipulation of DNA in organisms has led to commercial production of biological molecules on a large scale and genetically modified organisms.
D. Reproduction is characteristic of living things and is essential for the survival of species.

Big Idea 17: Interdependence

A. Plants and animals, including humans, interact with and depend upon each other and their environment to satisfy their basic needs.
B. Both human activities and natural events can have major impacts on the environment.
C. Energy flows from the sun through producers to consumers.

Big Idea 18: Matter and Energy Transformations

A. Living things all share basic needs for life.
B. Living organisms acquire the energy they need for life processes through various metabolic pathways (photosynthesis and cellular respiration).
C. Matter and energy are recycled through cycles such as the carbon cycle.

Grades 9-12

For grades 9-12, each Body of Knowledge includes grade-span standards which provide a framework for the development of essential science concepts. Each standard includes content-specific benchmarks to guide instruction.

Body of Knowledge: Nature of Science (N)

Standard 1: The Practice of Science

A. Scientific inquiry is a multifaceted activity; The processes of science include the formulation of scientifically investigable questions, construction of investigations into those questions, the collection of appropriate data, the evaluation of the meaning of those data, and the communication of this evaluation.
B. The processes of science frequently do not correspond to the traditional portrayal of "the scientific method."
C. Scientific argumentation is a necessary part of scientific inquiry and plays an important role in the generation and validation of scientific knowledge.
D. Scientific knowledge is based on observation and inference; it is important to recognize that these are very different things. Not only does science require creativity in its methods and processes, but also in its questions and explanations.

Standard 2: The Characteristics of Scientific Knowledge

A. Scientific knowledge is based on empirical evidence, and is appropriate for understanding the natural world, but it provides only a limited understanding of the supernatural, aesthetic, or other ways of knowing, such as art, philosophy, or religion.
B. Scientific knowledge is durable and robust, but open to change.
C. Because science is based on empirical evidence it strives for objectivity, but as it is a human endeavor the processes, methods, and knowledge of science include subjectivity, as well as creativity and discovery.

Standard 3: The Role of Theories, Laws, Hypotheses, and Models

The terms that describe examples of scientific knowledge, for example: "theory," "law," "hypothesis" and "model" have very specific meanings and functions within science.

Standard 4: Science and Society

As tomorrows citizens, students should be able to identify issues about which society could provide input, formulate scientifically investigable questions about those issues, construct investigations of their questions, collect and evaluate data from their investigations, and develop scientific recommendations based upon their findings.

Body of Knowledge: Earth and Space Science (E)

Standard 5: Earth in Space and Time

The origin and eventual fate of the Universe still remains one of the greatest questions in science. Gravity and energy influence the development and life cycles of galaxies, including our own Milky Way Galaxy, stars, the planetary systems, Earth, and residual material left from the formation of the Solar System. Humankind’s need to explore continues to lead to the development of knowledge and understanding of the nature of the Universe.

Standard 6: Earth Structures

The scientific theory of plate tectonics provides the framework for much of modern geology. Over geologic time, internal and external sources of energy have continuously altered the features of Earth by means of both constructive and destructive forces. All life, including human civilization, is dependent on Earth's internal and external energy and material resources.

Standard 7: Earth Systems and Patterns

The scientific theory of the evolution of Earth states that changes in our planet are driven by the flow of energy and the cycling of matter through dynamic interactions among the atmosphere, hydrosphere, cryosphere, geosphere, and biosphere, and the resources used to sustain human civilization on Earth.

Body of Knowledge: Physical Science (P)

Standard 8: Matter

A. A working definition of matter is that it takes up space, has mass, and has measurable properties. Matter is comprised of atomic, subatomic, and elementary particles.
B. Electrons are key to defining chemical and some physical properties, reactivity, and molecular structures. Repeating (periodic) patterns of physical and chemical properties occur among elements that define groups of elements with similar properties. The periodic table displays the repeating patterns, which are related to the atom's outermost electrons. Atoms bond with each other to form compounds.
C. In a chemical reaction, one or more reactants are transformed into one or more new products. Many factors shape the nature of products and the rates of reaction.
D. Carbon-based compounds are building-blocks of known life forms on earth and numerous useful natural and synthetic products.

Standard 10: Energy

A. Energy is involved in all physical and chemical processes. It is conserved, and can be transformed from one form to another and into work. At the atomic and nuclear levels energy is not continuous but exists in discrete amounts. Energy and mass are related through Einstein's equation E=mc².
B. The properties of atomic nuclei are responsible for energy-related phenomena such as radioactivity, fission and fusion.
C. Changes in entropy and energy that accompany chemical reactions influence reaction paths. Chemical reactions result in the release or absorption of energy.

Standard 12: Motion

A. Motion can be measured and described qualitatively and quantitatively. Net forces create a change in motion. When objects travel at speeds comparable to the speed of light, Einstein's special theory of relativity applies.
B. Momentum is conserved under well-defined conditions. A change in momentum occurs when a net force is applied to an object over a time interval.
C. The Law of Universal Gravitation states that gravitational forces act on all objects irrespective of their size and position.
D. Gases consist of great numbers of molecules moving in all directions. The behavior of gases can be modeled by the kinetic molecular theory.
E. Chemical reaction rates change with conditions under which they occur. Chemical equilibrium is a dynamic state in which forward and reverse processes occur at the same rates.

Body of Knowledge: Life Science (L)

Standard 14: Organization and Development of Living Organisms

A. Cells have characteristic structures and functions that make them distinctive.
B. Processes in a cell can be classified broadly as growth, maintenance, reproduction, and homeostasis.
C. Life can be organized in a functional and structural hierarchy ranging from cells to the biosphere.
D. Most multicellular organisms are composed of organ systems whose structures reflect their particular function.

Standard 15: Diversity and Evolution of Living Organisms

A. The scientific theory of evolution is the fundamental concept underlying all of biology.
B. The scientific theory of evolution is supported by multiple forms of scientific evidence.
C. Organisms are classified based on their evolutionary history.
D. Natural selection is a primary mechanism leading to evolutionary change.

Standard 16: Heredity and Reproduction

A. DNA stores and transmits genetic information. Genes are sets of instructions encoded in the structure of DNA.
B. Genetic information is passed from generation to generation by DNA in all organisms and accounts for similarities in related individuals.
C. Manipulation of DNA in organisms has led to commercial production of biological molecules on a large scale and genetically modified organisms.
D. Reproduction is characteristic of living things and is essential for the survival of species.

Standard 17: Interdependence

A. The distribution and abundance of organisms is determined by the interactions between organisms, and between organisms and the non-living environment.
B. Energy and nutrients move within and between biotic and abiotic components of ecosystems via physical, chemical and biological processes.
C. Human activities and natural events can have profound effects on populations, biodiversity and ecosystem processes.

Standard 18: Matter and Energy Transformations

A. All living things are composed of four basic categories of macromolecules and share the same basic needs for life.
B. Living organisms acquire the energy they need for life processes through various metabolic pathways (primarily photosynthesis and cellular respiration).
C. Chemical reactions in living things follow basic rules of chemistry and are usually regulated by enzymes.
D. The unique chemical properties of carbon and water make life on Earth possible.

Laboratory Component for Grades 6-8 and 9-12

Laboratory investigations which include the use of scientific inquiry, research, measurement, problem solving, laboratory apparatus and technologies, experimental procedures, and safety procedures are an integral part of the science courses for grades 6-12.

Science Benchmark Codes

Grades K-8

SC	5	E	5	1
Subject	Grade	Body of Knowledge	Big Idea	Benchmark

Grades 9-12

SC	912	E	5	1
Subject	Grade Span	Body of Knowledge	Standard	Benchmark

Access Points for Students with Significant Cognitive Disabilities

The Access Points were developed to provide access to the general education curriculum for students with significant cognitive disabilities. The Access Points reflect the core intent of the standards with reduced levels of complexity. The three levels of complexity are participatory, supported, and independent, with the participatory level being the least complex. The Florida Alternate Assessment will measure achievement on the Access Points for students with significant cognitive disabilities.

Science Access Point Codes

Grades K-8

SC	5	E	1	1	In	a
Subject	Grade	Body of Knowledge	Big Idea	Benchmark	*Complexity level	Access Point

Grades 9-12

SC	912	E	1	1	In	a
Subject	Grade Span	Body of Knowledge	Standard	Benchmark	*Complexity level	Access Point

*The three levels of complexity for the Access Points are:

- In – Independent
- Su – Supported
- Pa – Participatory

5020010 Science - Grade Kindergarten

Section: Basic and Adult Education
Grade Group: Elementary Grades PreK-5
Subject: Science
Domain: General Sciences
Course Length: Year
Level: 0

This course description incorporates the following Next Generation Sunshine State Standards for standards-based teaching and learning.

Benchmarks

Benchmark Code	Benchmark Descriptor	Depth of Knowledge
SC.K.N.1.1	Collaborate with a partner to collect information.	Low
SC.K.N.1.2	Make observations of the natural world and know that they are descriptors collected using the five senses.	Moderate
SC.K.N.1.3	Keep records as appropriate -- such as pictorial records -- of investigations conducted.	Moderate
SC.K.N.1.4	Observe and create a visual representation of an object which includes its major features.	High
SC.K.N.1.5	Recognize that learning can come from careful observation.	Moderate
SC.K.E.5.1	Explore the Law of Gravity by investigating how objects are pulled toward the ground unless something holds them up.	Moderate
SC.K.E.5.2	Recognize the repeating pattern of day and night.	Low
SC.K.E.5.3	Recognize that the Sun can only be seen in the daytime.	Low
SC.K.E.5.4	Observe that sometimes the Moon can be seen at night and sometimes during the day.	Moderate
SC.K.E.5.5	Observe that things can be big and things can be small as seen from Earth.	High
SC.K.E.5.6	Observe that some objects are far away and some are nearby as seen from Earth.	High
SC.K.P.8.1	Sort objects by observable properties, such as size, shape, color, temperature (hot or cold), weight (heavy or light) and texture.	Moderate
SC.K.P.9.1	Recognize that the shape of materials such as paper and clay can be changed by cutting, tearing, crumpling, smashing, or rolling.	Low
SC.K.P.10.1	Observe that things that make sound vibrate.	Low

SC.K.P.12.1	Investigate that things move in different ways, such as fast, slow, etc.	High
SC.K.P.13.1	Observe that a push or a pull can change the way an object is moving.	Low
SC.K.L.14.1	Recognize the five senses and related body parts.	Low
SC.K.L.14.2	Recognize that some books and other media portray animals and plants with characteristics and behaviors they do not have in real life.	Moderate
SC.K.L.14.3	Observe plants and animals, describe how they are alike and how they are different in the way they look and in the things they do.	Moderate

Access Points for Students with Significant Cognitive Disabilities

Access Point Code	Access Point Descriptor
SC.K.N.1.In.a	Identify a partner to obtain information.
SC.K.N.1.Su.b	Identify information about objects in the natural world through observation.
SC.K.N.1.Su.c	Observe, explore, and match pictures to real objects.
SC.K.E.5.In.a	Identify that objects can fall to the ground unless something stops them.
SC.K.E.5.Su.b	Identify one common activity that occurs in the day and one that occurs in the night.
SC.K.E.5.Pa.c	Associate the Sun with daytime.
SC.K.P.8.In.a	Sort objects by observable properties, such as size, shape, or color.
SC.K.P.9.In.a	Recognize that the shape of objects, such as paper, changes when cut, torn, or crumpled.
SC.K.P.10.In.a	Identify objects that create specific sounds.
SC.K.P.12.In.a	Identify ways that things move, such as fast or slow.
SC.K.P.13.In.a	Demonstrate pushing or pulling of an object to make it move.
SC.K.L.14.In.a	Recognize the senses of sight, hearing, and smell and related body parts.
SC.K.L.14.Su.b	Distinguish a real animal and an animal that is not a living thing, such as a toy animal.

5020020 Science - Grade One

Section: Basic and Adult Education
Grade Group: Elementary Grades PreK-5
Subject: Science
Domain: General Sciences
Course Length: Year
Level: 0

This course description incorporates the following Next Generation Sunshine State Standards for standards-based teaching and learning.

Benchmarks

Benchmark Code	Benchmark Descriptor	Depth of Knowledge
SC.1.N.1.1	Raise questions about the natural world, investigate them in teams through free exploration, and generate appropriate explanations based on those explorations.	High
SC.1.N.1.2	Using the five senses as tools, make careful observations, describe objects in terms of number, shape, texture, size, weight, color, and motion, and compare their observations with others.	Moderate
SC.1.N.1.3	Keep records as appropriate - such as pictorial and written records - of investigations conducted.	Moderate
SC.1.N.1.4	Ask "how do you know?" in appropriate situations.	Moderate
SC.1.E.5.1	Observe and discuss that there are more stars in the sky than anyone can easily count and that they are not scattered evenly in the sky.	Moderate
SC.1.E.5.2	Explore the Law of Gravity by demonstrating that Earth's gravity pulls any object on or near Earth toward it even though nothing is touching the object.	Moderate

SC.1.E.5.3	Investigate how magnifiers make things appear bigger and help people see things they could not see without them.	Moderate
SC.1.E.5.4	Identify the beneficial and harmful properties of the Sun.	Moderate
SC.1.E.6.1	Recognize that water, rocks, soil, and living organisms are found on Earth's surface.	Low
SC.1.E.6.2	Describe the need for water and how to be safe around water.	Moderate
SC.1.E.6.3	Recognize that some things in the world around us happen fast and some happen slowly.	High
SC.1.P.8.1	Sort objects by observable properties, such as size, shape, color, temperature (hot or cold), weight (heavy or light), texture, and whether objects sink or float.	Moderate
SC.1.P.12.1	Demonstrate and describe the various ways that objects can move, such as in a straight line, zigzag, back-and-forth, round-and-round, fast, and slow.	Moderate
SC.1.P.13.1	Demonstrate that the way to change the motion of an object is by applying a push or a pull.	Moderate
SC.1.L.14.1	Make observations of living things and their environment using the five senses.	Low
SC.1.L.14.2	Identify the major parts of plants, including stem, roots, leaves, and flowers.	Low
SC.1.L.14.3	Differentiate between living and nonliving things.	High
SC.1.L.16.1	Make observations that plants and animals closely resemble their parents, but variations exist among individuals within a population.	Low
SC.1.L.17.1	Through observation, recognize that all plants and animals, including humans, need the basic necessities of air, water, food, and space.	Low

Access Points for Students with Significant Cognitive Disabilities

Access Point Code	Access Point Descriptor
SC.1.N.1.In.a	Request information about the environment.
SC.1.N.1.Su.b	Recognize differences in objects through observation of size, shape, or color
SC.1.E.5.In.a	Identify that there are many stars in the sky.
SC.1.E.5.Su.b	Indicate the location of an object before and after it falls.
SC.1.E.5.Pa.c	Recognize a familiar object enlarged by magnification.
SC.1.E.6.In.a	Identify rocks, water, and living things in the environment.
SC.1.E.6.Su.b	Identify reasons people need water.
SC.1.E.6.Pa.c	Recognize an action as fast or slow.
SC.1.P.8.In.a	Sort objects by observable properties, such as size, shape, color, or texture.
SC.1.P.12.In.a	Demonstrate and identify that objects can move in different ways, such as up and down, in a straight line, and back and forth.
SC.1.P.13.In.a	Identify the effect that a push or pull has on an object, such as changing the way an object moves.
SC.1.L.14.In.a	Use sight, hearing, and smell to make observations.
SC.1.L.14.Su.b	Recognize the leaf and flower of a plant.
SC.1.L.14.Pa.c	Recognize self and others as living things.
SC.1.L.16.In.a	Match offspring of specific animals to adult animals.
SC.1.L.17.In.a	Observe and recognize that plants and animals need water and food.

5020030 Science - Grade Two

Section: Basic and Adult Education
Grade Group: Elementary Grades PreK-5
Subject: Science
Domain: General Sciences
Course Length: Year
Level: 0

This course description incorporates the following Next Generation Sunshine State Standards for standards-based teaching and learning.

Benchmarks

Benchmark Code	Benchmark Descriptor	Depth of Knowledge
SC.2.N.1.1	Raise questions about the natural world, investigate them in teams through free exploration and systematic observations, and generate appropriate explanations based on those explorations.	High
SC.2.N.1.2	Compare the observations made by different groups using the same tools.	Moderate
SC.2.N.1.3	Ask "how do you know?" in appropriate situations and attempt reasonable answers when asked the same question by others.	High
SC.2.N.1.4	Explain how particular scientific investigations should yield similar conclusions when repeated.	High
SC.2.N.1.5	Distinguish between empirical observation (what you see, hear, feel, smell, or taste) and ideas or inferences (what you think).	Moderate
SC.2.N.1.6	Explain how scientists alone or in groups are always investigating new ways to solve problems.	Moderate
SC.2.E.6.1	Recognize that Earth is made up of rocks. Rocks come in many sizes and shapes.	Moderate
SC.2.E.6.2	Describe how small pieces of rock and dead plant and animal parts can be the basis of soil and explain the process by which soil is formed.	High
SC.2.E.6.3	Classify soil types based on color, texture (size of particles), the ability to retain water, and the ability to support the growth of plants.	High
SC.2.E.7.1	Compare and describe changing patterns in nature that repeat themselves, such as weather conditions including temperature and precipitation, day to day and season to season.	Moderate
SC.2.E.7.2	Investigate by observing and measuring, that the Sun's energy directly and indirectly warms the water, land, and air.	High
SC.2.E.7.3	Investigate, observe and describe how water left in an open container disappears (evaporates), but water in a closed container does not disappear (evaporate).	High
SC.2.E.7.4	Investigate that air is all around us and that moving air is wind.	High
SC.2.E.7.5	State the importance of preparing for severe weather, lightning, and other weather related events.	Low
SC.2.P.8.1	Observe and measure objects in terms of their properties, including size, shape, color, temperature, weight, texture, sinking or floating in water, and attraction and repulsion of magnets.	Low
SC.2.P.8.2	Identify objects and materials as solid, liquid, or gas.	Low
SC.2.P.8.3	Recognize that solids have a definite shape and that liquids and gases take the shape of their container.	Low
SC.2.P.8.4	Observe and describe water in its solid, liquid, and gaseous states.	Low
SC.2.P.8.5	Measure and compare temperatures taken every day at the same time.	Moderate
SC.2.P.8.6	Measure and compare the volume of liquids using containers of various shapes and sizes.	Moderate
SC.2.P.9.1	Investigate that materials can be altered to change some of their properties, but not all materials respond the same way to any one alteration.	High

SC.2.P.10.1	Discuss that people use electricity or other forms of energy to cook their food, cool or warm their homes, and power their cars.	Low
SC.2.P.13.1	Investigate the effect of applying various pushes and pulls on different objects.	High
SC.2.P.13.2	Demonstrate that magnets can be used to make some things move without touching them.	Low
SC.2.P.13.3	Recognize that objects are pulled toward the ground unless something holds them up.	Low
SC.2.P.13.4	Demonstrate that the greater the force (push or pull) applied to an object, the greater the change in motion of the object.	Moderate
SC.2.L.14.1	Distinguish human body parts (brain, heart, lungs, stomach, muscles, and skeleton) and their basic functions.	Moderate
SC.2.L.16.1	Observe and describe major stages in the life cycles of plants and animals, including beans and butterflies.	Moderate
SC.2.L.17.1	Compare and contrast the basic needs that all living things, including humans, have for survival.	Moderate
SC.2.L.17.2	Recognize and explain that living things are found all over Earth, but each is only able to live in habitats that meet its basic needs.	Moderate

Access Points for Students with Significant Cognitive Disabilities

Access Point Code	Access Point Descriptor
SC.2.N.1.In.a	Ask questions and make observations about things in the natural world.
SC.2.N.1.Su.b	Identify characteristics of objects based on observation.
SC.2.N.1.Pa.c	Recognize common objects in different environments.
SC.2.E.6.In.a	Sort rocks according to size and shape.
SC.2.E.6.Su.b	Identify small pieces of rock in the soil.
SC.2.E.7.In.a	Identify common weather patterns associated with each season.
SC.2.E.7.Su.b	Recognize that items outside are heated by the Sun.
SC.2.E.7.Pa.c	Indicate awareness of air moving.
SC.2.P.8.In.a	Identify objects by observable properties, such as, size, shape, color,
SC.2.P.8.Su.b	Recognize water in solid or liquid states.
SC.2.P.8.Pa.c	Recognize different containers that hold liquids.
SC.2.P.9.In.a	Explore and identify that observable properties of materials can be changed.
SC.2.P.10.In.a	Identify ways people use electricity in their lives.
SC.2.P.13.In.a	Observe and identify that pushing or pulling an object can change the direction of movement of the object.
SC.2.P.13.Su.b	Use magnets to cause objects to move.
SC.2.L.14.In.a	Identify major external body parts, such as hands and legs, and their uses.
SC.2.L.16.In.a	Observe and recognize the major stages in the life cycles of plants and animals.
SC.2.L.17.In.a	Identify the basic needs of living things, including water, food, and air.
SC.2.L.17.Su.b	Recognize that many kinds of living things are found in the environment.

5020040 Science - Grade Three

Section: Basic and Adult Education
Grade Group: Elementary Grades PreK-5
Subject: Science
Domain: General Sciences
Course Length: Year
Level: 0

This course description incorporates the following Next Generation Sunshine State Standards for standards-based teaching and learning.

Benchmarks

Benchmark Code	Benchmark Descriptor	Depth of Knowledge
SC.3.N.1.1	Raise questions about the natural world, investigate them individually and in teams through free exploration and systematic investigations, and generate appropriate explanations based on those explorations.	High
SC.3.N.1.2	Compare the observations made by different groups using the same tools and seek reasons to explain the differences across groups.	High
SC.3.N.1.3	Keep records as appropriate, such as pictorial, written, or simple charts and graphs, of investigations conducted.	Moderate
SC.3.N.1.4	Recognize the importance of communication among scientists.	Moderate
SC.3.N.1.5	Recognize that scientists question, discuss, and check each others' evidence and explanations.	Moderate
SC.3.N.1.6	Infer based on observation.	High
SC.3.N.1.7	Explain that empirical evidence is information, such as observations or measurements, that is used to help validate explanations of natural phenomena.	High
SC.3.N.3.1	Recognize that words in science can have different or more specific meanings than their use in everyday language; for example, energy, cell, heat/cold, and evidence.	Moderate
SC.3.N.3.2	Recognize that scientists use models to help understand and explain how things work.	Low
SC.3.N.3.3	Recognize that all models are approximations of natural phenomena; as such, they do not perfectly account for all observations.	Moderate
SC.3.E.5.1	Explain that stars can be different; some are smaller, some are larger, and some appear brighter than others; all except the Sun are so far away that they look like points of light.	High
SC.3.E.5.2	Identify the Sun as a star that emits energy; some of it in the form of light.	Moderate
SC.3.E.5.3	Recognize that the Sun appears large and bright because it is the closest star to Earth.	High
SC.3.E.5.4	Explore the Law of Gravity by demonstrating that gravity is a force that can be overcome.	High
SC.3.E.5.5	Investigate that the number of stars that can be seen through telescopes is dramatically greater than those seen by the unaided eye.	Moderate
SC.3.E.6.1	Demonstrate that radiant energy from the Sun can heat objects and when the Sun is not present, heat may be lost.	High
SC.3.P.8.1	Measure and compare temperatures of various samples of solids and liquids.	Moderate
SC.3.P.8.2	Measure and compare the mass and volume of solids and liquids.	Moderate
SC.3.P.8.3	Compare materials and objects according to properties such as size, shape, color, texture, and hardness.	Moderate
SC.3.P.9.1	Describe the changes water undergoes when it changes state through heating and cooling by using familiar scientific terms such as melting, freezing, boiling, evaporation, and condensation.	Moderate

SC.3.P.10.1	Identify some basic forms of energy such as light, heat, sound, electrical, and mechanical.	Low
SC.3.P.10.2	Recognize that energy has the ability to cause motion or create change.	Low
SC.3.P.10.3	Demonstrate that light travels in a straight line until it strikes an object or travels from one medium to another.	Moderate
SC.3.P.10.4	Demonstrate that light can be reflected, refracted, and absorbed.	Moderate
SC.3.P.11.1	Investigate, observe, and explain that things that give off light often also give off heat.	High
SC.3.P.11.2	Investigate, observe, and explain that heat is produced when one object rubs against another, such as rubbing one's hands together.	High
SC.3.L.14.1	Describe structures in plants and their roles in food production, support, water and nutrient transport, and reproduction.	Moderate
SC.3.L.14.2	Investigate and describe how plants respond to stimuli (heat, light, gravity), such as the way plant stems grow toward light and their roots grow downward in response to gravity.	High
SC.3.L.15.1	Classify animals into major groups (mammals, birds, reptiles, amphibians, fish, arthropods, vertebrates and invertebrates, those having live births and those which lay eggs) according to their physical characteristics and behaviors.	Moderate
SC.3.L.15.2	Classify flowering and nonflowering plants into major groups such as those that produce seeds, or those like ferns and mosses that produce spores, according to their physical characteristics.	Moderate
SC.3.L.17.1	Describe how animals and plants respond to changing seasons.	Moderate
SC.3.L.17.2	Recognize that plants use energy from the Sun, air, and water to make their own food.	Low

Access Points for Students with Significant Cognitive Disabilities

Access Point Code	Access Point Descriptor
SC.3.N.1.In.a	Ask questions, explore, observe, and identify outcomes.
SC.3.N.1.Su.b	Work with a partner to make observations.
SC.3.N.1.Pa.c	Recognize that people share information.
SC.3.N.3.In.a	Recognize meanings of words used in science, such as energy, temperature, and gravity.
SC.3.N.3.Su.b	Recognize that models represent real things.
SC.3.E.5.In.a	Recognize that stars in the sky look different from each other.
SC.3.E.5.Su.b	Recognize that the Sun gives off light.
SC.3.E.5.Pa.c	Recognize that an object can be stopped from falling.
SC.3.E.5.In.d	Observe and describe ways to keep an object from falling due to gravity.
SC.3.E.5.Su.e	Recognize a telescope as a tool to view stars in space.
SC.3.E.6.In.a	Identify that energy from the Sun heats objects.
SC.3.P.8.In.a	Observe and identify the colder/hotter temperature measured on a thermometer.
SC.3.P.8.Su.b	Sort solid objects by weight (heavy and light).
SC.3.P.8.Pa.c	Match objects by an observable property, such as size, shape, and color.
SC.3.P.9.In.a	Describe changes in the state of water as a result of freezing and melting.
SC.3.P.10.In.a	Recognize forms of energy, such as light, heat, electrical, and energy of motion.
SC.3.P.10.Su.b	Recognize examples of sources of light, such as the Sun or a flashlight.
SC.3.P.11.In.a	Identify that objects that give off light often give off heat.
SC.3.P.11.Su.b	Observe and recognize that rubbing objects together causes heat.

SC.3.L.14.In.a	Identify the major parts of a plant, including seed, root, stem, leaf, and flower, and their functions.
SC.3.L.14.Su.b	Recognize that plants grow toward light and roots grow down in the soil.
SC.3.L.15.In.a	Classify animals by a similar physical characteristic, such as fur, feathers, and number of legs.
SC.3.L.15.Su.b	Sort common plants by observable characteristics.
SC.3.L.17.In.a	Identify changes in the appearance of animals and plants throughout the year.
SC.3.L.17.Su.b	Recognize that plants need light to grow.

5020050 Science - Grade Four

Section: Basic and Adult Education
Grade Group: Elementary Grades PreK-5
Subject: Science
Domain: General Sciences
Course Length: Year
Level: 0

This course description incorporates the following Next Generation Sunshine State Standards for standards-based teaching and learning.

Benchmarks

Benchmark Code	Benchmark Descriptor	Depth of Knowledge
SC.4.N.1.1	Raise questions about the natural world, use appropriate reference materials that support understanding to obtain information (identifying the source), conduct both individual and team investigations through free exploration and systematic investigations,	High
SC.4.N.1.2	Compare the observations made by different groups using multiple tools and seek reasons to explain the differences across groups.	High
SC.4.N.1.3	Explain that science does not always follow a rigidly defined method ("the scientific method") but that science does involve the use of observations and empirical evidence.	Moderate
SC.4.N.1.4	Attempt reasonable answers to scientific questions and cite evidence in support.	High
SC.4.N.1.5	Compare the methods and results of investigations done by other classmates.	Moderate
SC.4.N.1.6	Keep records that describe observations made, carefully distinguishing actual observations from ideas and inferences about the observations.	High
SC.4.N.1.7	Recognize and explain that scientists base their explanations on evidence.	Moderate
SC.4.N.1.8	Recognize that science involves creativity in designing experiments.	Moderate
SC.4.N.2.1	Explain that science focuses solely on the natural world.	Moderate
SC.4.N.3.1	Explain that models can be three dimensional, two dimensional, an explanation in your mind, or a computer model.	Moderate
SC.4.E.5.1	Observe that the patterns of stars in the sky stay the same although they appear to shift across the sky nightly, and different stars can be seen in different seasons.	High
SC.4.E.5.2	Describe the changes in the observable shape of the moon over the course of about a month.	Moderate
SC.4.E.5.3	Recognize that Earth revolves around the Sun in a year and rotates on its axis in a 24-hour day.	Moderate
SC.4.E.5.4	Relate that the rotation of Earth (day and night) and apparent movements of the Sun, Moon, and stars are connected.	High
SC.4.E.5.5	Investigate and report the effects of space research and exploration on the economy and culture of Florida.	High

SC.4.E.6.1	Identify the three categories of rocks: igneous, (formed from molten rock); sedimentary (pieces of other rocks and fossilized organisms); and metamorphic (formed from heat and pressure).	Low
SC.4.E.6.2	Identify the physical properties of common earth-forming minerals, including hardness, color, luster, cleavage, and streak color, and recognize the role of minerals in the formation of rocks.	Moderate
SC.4.E.6.3	Recognize that humans need resources found on Earth and that these are either renewable or nonrenewable.	Moderate
SC.4.E.6.4	Describe the basic differences between physical weathering (breaking down of rock by wind, water, ice, temperature change, and plants) and erosion (movement of rock by gravity, wind, water, and ice).	Moderate
SC.4.E.6.5	Investigate how technology and tools help to extend the ability of humans to observe very small things and very large things.	High
SC.4.E.6.6	Identify resources available in Florida (water, phosphate, oil, limestone, silicon, wind, and solar energy).	Low
SC.4.P.8.1	Measure and compare objects and materials based on their physical properties including: mass, shape, volume, color, hardness, texture, odor, taste, attraction to magnets.	Moderate
SC.4.P.8.2	Identify properties and common uses of water in each of its states.	Low
SC.4.P.8.3	Explore the Law of Conservation of Mass by demonstrating that the mass of a whole object is always the same as the sum of the masses of its parts.	Moderate
SC.4.P.8.4	Investigate and describe that magnets can attract magnetic materials and attract and repel other magnets.	High
SC.4.P.9.1	Identify some familiar changes in materials that result in other materials with different characteristics, such as decaying animal or plant matter, burning, rusting, and cooking.	Low
SC.4.P.10.1	Observe and describe some basic forms of energy, including light, heat, sound, electrical, and the energy of motion.	Moderate
SC.4.P.10.2	Investigate and describe that energy has the ability to cause motion or create change.	Moderate
SC.4.P.10.3	Investigate and explain that sound is produced by vibrating objects and that pitch depends on how fast or slow the object vibrates.	High
SC.4.P.10.4	Describe how moving water and air are sources of energy and can be used to move things.	Moderate
SC.4.P.11.1	Recognize that heat flows from a hot object to a cold object and that heat flow may cause materials to change temperature.	Low
SC.4.P.11.2	Identify common materials that conduct heat well or poorly.	Low
SC.4.P.12.1	Recognize that an object in motion always changes its position and may change its direction.	Low
SC.4.P.12.2	Investigate and describe that the speed of an object is determined by the distance it travels in a unit of time and that objects can move at different speeds.	Moderate
SC.4.L.16.1	Identify processes of sexual reproduction in flowering plants, including pollination, fertilization (seed production), seed dispersal, and germination.	Moderate
SC.4.L.16.2	Explain that although characteristics of plants and animals are inherited, some characteristics can be affected by the environment.	High
SC.4.L.16.3	Recognize that animal behaviors may be shaped by heredity and learning.	High
SC.4.L.16.4	Compare and contrast the major stages in the life cycles of Florida plants and animals, such as those that undergo incomplete and complete metamorphosis, and flowering and nonflowering seed-bearing plants.	Moderate
SC.4.L.17.1	Compare the seasonal changes in Florida plants and animals to those in other regions of the country.	Moderate

SC.4.L.17.2	Explain that animals, including humans, cannot make their own food and that when animals eat plants or other animals, the energy stored in the food source is passed to them.	Moderate
SC.4.L.17.3	Trace the flow of energy from the Sun as it is transferred along the food chain through the producers to the consumers.	Moderate
SC.4.L.17.4	Recognize ways plants and animals, including humans, can impact the environment.	High

Access Points for Students with Significant Cognitive Disabilities

Access Point Code	Access Point Descriptor
SC.4.N.1.In.a	Ask a question about the natural world and use selected reference material to find information, observe, explore, and identify findings.
	Identify that a hot object will make a cold object warm when they touch.
SC.4.N.1.Su.b	Identify information based on observations of self and others.
SC.4.N.1.Pa.c	Select an object or picture to represent observed events.
SC.4.N.2.In.a	Identify that science focuses on the natural world.
SC.4.N.3.In.a	Identify different types of models, such as a replica, a picture, or an animation.
SC.4.E.5.In.a	Identify that there are many stars in the sky with some that create patterns.
SC.4.E.5.Su.b	Identify a full moon and a half (quarter) moon.
SC.4.E.5.Pa.c	Identify morning, noon, and night.
SC.4.E.6.In.a	Recognize that rocks are classified by the way they are formed, such as sedimentary.
SC.4.E.6.Su.b	Sort common minerals, such as rock salt, talc, gold, and silver, by their physical properties (luster and color).
SC.4.E.6.Pa.c	Recognize the universal symbol for recycling.
SC.4.P.8.In.a	Compare objects and materials based on physical properties, such as size, shape, color, texture, weight, hardness, odor, taste, and temperature.
SC.4.P.8.Su.b	Identify uses of water in solid or liquid states.
SC.4.P.8.Pa.c	Recognize that some objects have parts.
SC.4.P.9.In.a	Observe and describe properties of materials that have been changed into other materials, such as decayed leaves of a plant.
SC.4.P.10.In.a	Identify forms of energy, such as light, heat, electrical, and energy of motion.
SC.4.P.10.Su.b	Recognize the results of using electrical energy (turning on television); heat energy (burning wood); and energy of motion (rolling ball).
SC.4.P.10.Pa.c	Recognize that moving air can move objects.
SC.4.P.11.Su.b	Recognize a common material that is a strong conductor of heat, such as metal.
SC.4.P.12.In.a	Identify that the position of an object changes when the object is in motion.
SC.4.P.12.Su.b	Identify objects that move at different speeds.
SC.4.L.16.In.a	Identify that insects spread pollen to help flowering plants make seeds.
SC.4.L.16.Su.b	Recognize behaviors of common animals.
SC.4.L.16.Pa.c	Match offspring of animals with parents.
SC.4.L.17.In.a	Identify seasonal changes in Florida plants and animals.
SC.4.L.17.Su.b	Recognize that animals (consumers) eat plants or other animals for their food.
SC.4.L.17.Pa.c	Recognize ways that people can help improve the immediate environment, such as cleaning up trash.

5020060 Science - Grade Five

Section: Basic and Adult Education
Grade Group: Elementary Grades PreK-5
Subject: Science
Domain: General Sciences
Course Length: Year
Level: 0

This course description incorporates the following Next Generation Sunshine State Standards for standards-based teaching and learning.

Benchmarks

Benchmark Code	Benchmark Descriptor	Depth of Knowledge
SC.5.N.1.1	Define a problem, use appropriate reference materials to support scientific understanding, plan and carry out scientific investigations of various types such as: systematic observations, experiments requiring the identification of variables, collecting an	High
SC.5.N.1.2	Explain the difference between an experiment and other types of scientific investigation.	Moderate
SC.5.N.1.3	Recognize and explain the need for repeated experimental trials.	Moderate
SC.5.N.1.4	Identify a control group and explain its importance in an experiment.	Moderate
SC.5.N.1.5	Recognize and explain that authentic scientific investigation frequently does not parallel the steps of "the scientific method."	Moderate
SC.5.N.1.6	Recognize and explain the difference between personal opinion/interpretation and verified observation.	Moderate
SC.5.N.2.1	Recognize and explain that science is grounded in empirical observations that are testable; explanation must always be linked with evidence.	Moderate
SC.5.N.2.2	Recognize and explain that when scientific investigations are carried out, the evidence produced by those investigations should be replicable by others.	Moderate
SC.5.E.5.1	Recognize that a galaxy consists of gas, dust, and many stars, including any objects orbiting the stars. Identify our home galaxy as the Milky Way.	Low
SC.5.E.5.2	Recognize the major common characteristics of all planets and compare/contrast the properties of inner and outer planets.	Moderate
SC.5.E.5.3	Distinguish among the following objects of the Solar System -- Sun, planets, moons, asteroids, comets -- and identify Earth's position in it.	High
SC.5.E.7.1	Create a model to explain the parts of the water cycle. Water can be a gas, a liquid, or a solid and can go back and forth from one state to another.	High
SC.5.E.7.2	Recognize that the ocean is an integral part of the water cycle and is connected to all of Earth's water reservoirs via evaporation and precipitation processes.	Moderate
SC.5.E.7.3	Recognize how air temperature, barometric pressure, humidity, wind speed and direction, and precipitation determine the weather in a particular place and time.	Moderate
SC.5.E.7.4	Distinguish among the various forms of precipitation (rain, snow, sleet, and hail), making connections to the weather in a particular place and time.	High
SC.5.E.7.5	Recognize that some of the weather-related differences, such as temperature and humidity, are found among different environments, such as swamps, deserts, and mountains.	Moderate
SC.5.E.7.6	Describe characteristics (temperature and precipitation) of different climate zones as they relate to latitude, elevation, and proximity to bodies of water.	High
SC.5.E.7.7	Design a family preparedness plan for natural disasters and identify the reasons for having such a plan.	Moderate
SC.5.P.8.1	Compare and contrast the basic properties of solids, liquids, and gases, such as mass, volume, color, texture, and temperature.	Moderate

SC.5.P.8.2	Investigate and identify materials that will dissolve in water and those that will not and identify the conditions that will speed up or slow down the dissolving process.	High
SC.5.P.8.3	Demonstrate and explain that mixtures of solids can be separated based on observable properties of their parts such as particle size, shape, color, and magnetic attraction.	Moderate
SC.5.P.8.4	Explore the scientific theory of atoms (also called atomic theory) by recognizing that all matter is composed of parts that are too small to be seen without magnification.	Low
SC.5.P.9.1	Investigate and describe that many physical and chemical changes are affected by temperature.	High
SC.5.P.10.1	Investigate and describe some basic forms of energy, including light, heat, sound, electrical, chemical, and mechanical.	Moderate
SC.5.P.10.2	Investigate and explain that energy has the ability to cause motion or create change.	High
SC.5.P.10.3	Investigate and explain that an electrically-charged object can attract an uncharged object and can either attract or repel another charged object without any contact between the objects.	High
SC.5.P.10.4	Investigate and explain that electrical energy can be transformed into heat, light, and sound energy, as well as the energy of motion.	High
SC.5.P.11.1	Investigate and illustrate the fact that the flow of electricity requires a closed circuit (a complete loop).	Moderate
SC.5.P.11.2	Identify and classify materials that conduct electricity and materials that do not.	Moderate
SC.5.P.13.1	Identify familiar forces that cause objects to move, such as pushes or pulls, including gravity acting on falling objects.	Low
SC.5.P.13.2	Investigate and describe that the greater the force applied to it, the greater the change in motion of a given object.	Moderate
SC.5.P.13.3	Investigate and describe that the more mass an object has, the less effect a given force will have on the object's motion.	Moderate
SC.5.P.13.4	Investigate and explain that when a force is applied to an object but it does not move, it is because another opposing force is being applied by something in the environment so that the forces are balanced.	High
SC.5.L.14.1	Identify the organs in the human body and describe their functions, including the skin, brain, heart, lungs, stomach, liver, intestines, pancreas, muscles and skeleton, reproductive organs, kidneys, bladder, and sensory organs.	Moderate
SC.5.L.14.2	Compare and contrast the function of organs and other physical structures of plants and animals, including humans, for example: some animals have skeletons for support -- some with internal skeletons others with exoskeletons -- while some plants have stem	Moderate
SC.5.L.15.1	Describe how, when the environment changes, differences between individuals allow some plants and animals to survive and reproduce while others die or move to new locations.	High
SC.5.L.17.1	Compare and contrast adaptations displayed by animals and plants that enable them to survive in different environments such as life cycles variations, animal behaviors and physical characteristics.	Moderate

Access Points for Students with Significant Cognitive Disabilities

Access Point Code	Access Point Descriptor
SC.5.N.1.In.a	Ask a question about the natural world, use selected reference materials to find information, work with others to carry out a simple experiment, and share results.

SC.5.N.1.Su.b	Identify the result of a simple experiment.
SC.5.N.2.In.a	Identify that science knowledge is based on observations and evidence.
SC.5.N.2.Su.b	Recognize the importance of following correct procedures when carrying out science experiments.
SC.5.E.5.In.a	Identify that a galaxy is made of a very large number of stars and the planets that orbit them.
SC.5.E.5.Su.b	Recognize that surface of planet Earth is covered by water and land.
SC.5.E.7.In.a	Label the state of water in each stage of the water cycle.
SC.5.E.7.Su.b	Observe and recognize that water evaporates over time.
SC.5.E.7.Pa.c	Recognize the weather conditions including hot/cold and raining/not raining during the day.
SC.5.P.8.In.a	Identify basic properties of solids, liquids, and gases, such as color, texture, and temperature.
SC.5.P.8.Su.b	Recognize examples of materials that will dissolve in water.
SC.5.P.8.Pa.c	Separate a group of objects into its parts.
SC.5.P.9.In.a	Observe and identify that heating and cooling can change the properties of materials.
SC.5.P.10.In.a	Identify forms of energy, including heat, light, sound, electrical, and mechanical.
SC.5.P.10.Su.b	Recognize that energy is required to cause motion.
SC.5.P.10.Pa.c	Demonstrate pushing away (repulsion) and pulling (attraction).
SC.5.P.11.In.a	Identify the power source and wires (conductors) in an electrical circuit.
SC.5.P.11.Su.b	Recognize a material that conducts electricity.
SC.5.P.13.In.a	Distinguish between movement of an object caused by gravity and movement caused by pushes and pulls.
SC.5.P.13.Su.b	Recognize that a heavier object is harder to move than a light one.
SC.5.L.15.In.a	Identify ways that plants and animals can be affected by changes in their habitats, such as lack of food or water, disease, or reduced space.
SC.5.L.17.In.a	Identify features of common plants and animals that enable them to survive in different habitats (environments).

2000010 M/J Life Science

Section: Basic and Adult Education
Grade Group: Middle School Grades 6-8
Subject: Science
Domain: Biological Sciences
Course Length: Year
Level: 2

This course description incorporates the following Next Generation Sunshine State Standards for standards-based teaching and learning.

Benchmarks

Benchmark Code	Benchmark Descriptor	Depth of Knowledge
SC.6.N.1.1	Define a problem from the sixth grade curriculum, use appropriate reference materials to support scientific understanding, plan and carry out scientific investigation of various types, such as systematic observations or experiments, identify variables, co	High
SC.6.N.1.2	Explain why scientific investigations should be replicable.	High
SC.6.N.1.3	Explain the difference between an experiment and other types of scientific investigation, and explain the relative benefits and limitations of each.	High

SC.6.N.1.4	Discuss, compare, and negotiate methods used, results obtained, and explanations among groups of students conducting the same investigation.	High
SC.6.N.1.5	Recognize that science involves creativity, not just in designing experiments, but also in creating explanations that fit evidence.	Moderate
SC.6.N.2.1	Distinguish science from other activities involving thought.	Moderate
SC.6.N.2.2	Explain that scientific knowledge is durable because it is open to change as new evidence or interpretations are encountered.	Moderate
SC.6.N.2.3	Recognize that scientists who make contributions to scientific knowledge come from all kinds of backgrounds and possess varied talents, interests, and goals.	Low
SC.6.N.3.1	Recognize and explain that a scientific theory is a well-supported and widely accepted explanation of nature and is not simply a claim posed by an individual. Thus, the use of the term theory in science is very different than how it is used in everyday	Moderate
SC.6.N.3.2	Recognize and explain that a scientific law is a description of a specific relationship under given conditions in the natural world. Thus, scientific laws are different from societal laws.	Moderate
SC.6.N.3.3	Give several examples of scientific laws.	Low
SC.6.N.3.4	Identify the role of models in the context of the sixth grade science benchmarks.	Moderate
SC.6.L.14.1	Describe and identify patterns in the hierarchical organization of organisms from atoms to molecules and cells to tissues to organs to organ systems to organisms.	Low
SC.6.L.14.2	Investigate and explain the components of the scientific theory of cells (cell theory): all organisms are composed of cells (single-celled or multi-cellular), all cells come from pre-existing cells, and cells are the basic unit of life.	Moderate
SC.6.L.14.3	Recognize and explore how cells of all organisms undergo similar processes to maintain homeostasis, including extracting energy from food, getting rid of waste, and reproducing.	Moderate
SC.6.L.14.4	Compare and contrast the structure and function of major organelles of plant and animal cells, including cell wall, cell membrane, nucleus, cytoplasm, chloroplasts, mitochondria, and vacuoles.	Moderate
SC.6.L.14.5	Identify and investigate the general functions of the major systems of the human body (digestive, respiratory, circulatory, reproductive, excretory, immune, nervous, and musculoskeletal) and describe ways these systems interact with each other to maintain	High
SC.6.L.14.6	Compare and contrast types of infectious agents that may infect the human body, including viruses, bacteria, fungi, and parasites.	Moderate
SC.6.L.15.1	Analyze and describe how and why organisms are classified according to shared characteristics with emphasis on the Linnaean system combined with the concept of Domains.	High
SC.7.N.1.1	Define a problem from the seventh grade curriculum, use appropriate reference materials to support scientific understanding, plan and carry out scientific investigation of various types, such as systematic observations or experiments, identify variables,	High
SC.7.N.1.2	Differentiate replication (by others) from repetition (multiple trials).	Moderate
SC.7.N.1.3	Distinguish between an experiment (which must involve the identification and control of variables) and other forms of scientific investigation and explain that not all scientific knowledge is derived from experimentation.	Moderate
SC.7.N.1.4	Identify test variables (independent variables) and outcome variables (dependent variables) in an experiment.	Low
SC.7.N.1.5	Describe the methods used in the pursuit of a scientific explanation as seen in different fields of science such as biology, geology, and physics.	Moderate

SC.7.N.1.6	Explain that empirical evidence is the cumulative body of observations of a natural phenomenon on which scientific explanations are based.	Moderate
SC.7.N.1.7	Explain that scientific knowledge is the result of a great deal of debate and confirmation within the science community.	Moderate
SC.7.N.2.1	Identify an instance from the history of science in which scientific knowledge has changed when new evidence or new interpretations are encountered.	Low
SC.7.N.3.1	Recognize and explain the difference between theories and laws and give several examples of scientific theories and the evidence that supports them.	High
SC.7.N.3.2	Identify the benefits and limitations of the use of scientific models.	Moderate
SC.7.L.15.1	Recognize that fossil evidence is consistent with the scientific theory of evolution that living things evolved from earlier species.	Moderate
SC.7.L.15.2	Explore the scientific theory of evolution by recognizing and explaining ways in which genetic variation and environmental factors contribute to evolution by natural selection and diversity of organisms.	High
SC.7.L.15.3	Explore the scientific theory of evolution by relating how the inability of a species to adapt within a changing environment may contribute to the extinction of that species.	High
SC.7.L.16.1	Understand and explain that every organism requires a set of instructions that specifies its traits, that this hereditary information (DNA) contains genes located in the chromosomes of each cell, and that heredity is the passage of these instructions from	High
SC.7.L.16.2	Determine the probabilities for genotype and phenotype combinations using Punnett Squares and pedigrees.	Moderate
SC.7.L.16.3	Compare and contrast the general processes of sexual reproduction requiring meiosis and asexual reproduction requiring mitosis.	Moderate
SC.7.L.16.4	Recognize and explore the impact of biotechnology (cloning, genetic engineering, artificial selection) on the individual, society and the environment.	High
SC.7.L.17.1	Explain and illustrate the roles of and relationships among producers, consumers, and decomposers in the process of energy transfer in a food web.	High
SC.7.L.17.2	Compare and contrast the relationships among organisms such as mutualism, predation, parasitism, competition, and commensalism.	Moderate
SC.7.L.17.3	Describe and investigate various limiting factors in the local ecosystem and their impact on native populations, including food, shelter, water, space, disease, parasitism, predation, and nesting sites.	High
SC.8.N.1.1	Define a problem from the eighth grade curriculum using appropriate reference materials to support scientific understanding, plan and carry out scientific investigations of various types, such as systematic observations or experiments, identify variables,	High
SC.8.N.1.2	Design and conduct a study using repeated trials and replication.	High
SC.8.N.1.3	Use phrases such as "results support" or "fail to support" in science, understanding that science does not offer conclusive 'proof' of a knowledge claim.	Moderate
SC.8.N.1.4	Explain how hypotheses are valuable if they lead to further investigations, even if they turn out not to be supported by the data.	High
SC.8.N.1.5	Analyze the methods used to develop a scientific explanation as seen in different fields of science.	High
SC.8.N.1.6	Understand that scientific investigations involve the collection of relevant empirical evidence, the use of logical reasoning, and the application of imagination in devising hypotheses, predictions, explanations and models to make sense of the collected e	Moderate
SC.8.N.2.1	Distinguish between scientific and pseudoscientific ideas.	Moderate

SC.8.N.2.2	Discuss what characterizes science and its methods.	Moderate
SC.8.N.3.1	Select models useful in relating the results of their own investigations.	High
SC.8.N.3.2	Explain why theories may be modified but are rarely discarded.	High
SC.8.N.4.1	Explain that science is one of the processes that can be used to inform decision making at the community, state, national, and international levels.	Moderate
SC.8.N.4.2	Explain how political, social, and economic concerns can affect science, and vice versa.	High
SC.8.L.18.1	Describe and investigate the process of photosynthesis, such as the roles of light, carbon dioxide, water and chlorophyll; production of food; release of oxygen.	High
SC.8.L.18.2	Describe and investigate how cellular respiration breaks down food to provide energy and releases carbon dioxide.	High
SC.8.L.18.3	Construct a scientific model of the carbon cycle to show how matter and energy are continuously transferred within and between organisms and their physical environment.	High
SC.8.L.18.4	Cite evidence that living systems follow the Laws of Conservation of Mass and Energy.	High
MA.6.S.6.2	Select and analyze the measures of central tendency or variability to represent, describe, analyze, and/or summarize a data set for the purposes of answering questions appropriately.	High
MA.6.A.3.6	Construct and analyze tables, graphs, and equations to describe linear functions and other simple relations using both common language and algebraic notation.	High
LA.6.4.2.2	The student will record information (e.g., observations, notes, lists, charts, legends) related to a topic, including visual aids to organize and record information and include a list of sources used;	
LA.6.2.2.3	The student will organize information to show understanding (e.g., representing main ideas within text through charting, mapping, paraphrasing, summarizing, or comparing/contrasting);	
HE.6.C.1.4	Recognize how heredity can affect personal health.	
HE.6.C.1.8	Explain how body systems are impacted by hereditary factors and infectious agents.	

Access Points for Students with Significant Cognitive Disabilities

Access Point Code	Access Point Descriptor
SC.6.N.1.In.a	Identify a problem from the sixth grade curriculum, use reference materials to gather information, carry out an experiment, collect and record data, and report results.
SC.6.N.1.Su.b	Recognize that experiments involve procedures that can be repeated the same way by others.
SC.6.N.1.Pa.c	Recognize that people conduct activities and share information about science.
SC.6.N.2.In.a	Identify familiar topics included in the study of science.
SC.6.N.2.Su.b	Recognize that scientific knowledge changes when new things are discovered.
SC.6.N.3.In.a	Identify that a scientific theory is an explanation of nature supported by evidence.
SC.6.N.3.Su.b	Recognize events that are based on scientific laws, such as the law of gravity.
SC.6.L.14.In.a	Identify how the major structures of plants and organs of animals work as parts of larger systems, such as the heart is part of the circulatory system that pumps blood.
SC.6.L.14.Su.b	Recognize that there are smaller parts in all living things, too small to be seen without magnification, called cells.
SC.6.L.14.Pa.c	Recognize body parts related to basic needs, such as mouth for eating.
SC.6.L.15.In.a	Classify animals into major groups, such as insects, fish, reptiles, mammals, and birds.

SC.7.N.1.In.a	Identify a problem from the seventh grade curriculum, use reference materials to gather information, carry out an experiment, collect and record data, and report results.
SC.7.N.1.Su.b	Recognize what is tested in a simple experiment (dependent variable).
SC.7.N.1.Pa.c	Associate objects and activities with science.
SC.7.N.2.In.a	Identify an example of a change in scientific knowledge based on new evidence or new interpretations.
SC.7.N.3.In.a	Identify that scientific theories are explanations and laws describe relationships, and both are supported by evidence.
SC.7.N.3.Su.b	Recognize a benefit of using a model to explain how things work.
SC.7.L.15.In.a	Recognize that fossils help people learn about living things that lived a very long time ago.
SC.7.L.15.Su.b	Recognize that common plants or animals have special features that enable them to live in their environment, such as a as a fish has gills so it can live underwater.
SC.7.L.16.In.a	Explain that some characteristics are passed from parent to child (inherited).
SC.7.L.16.Su.b	Recognize that animals, including humans, inherit some characteristics from one parent and some from the other.
SC.7.L.16.Pa.c	Recognize common products, such as medicine, developed through science.
SC.7.L.17.In.a	Identify that in a simple food chain, energy transfers from the Sun to plants (producers), to animals (consumers), and to organisms that cause decay (decomposers).
SC.7.L.17.Su.b	Recognize how living things affect each other in their habitat (ecosystem).
SC.7.L.17.Pa.c	Recognize what happens when animals don't get food and water.
SC.8.N.1.In.a	Identify a problem from the eighth grade curriculum, use reference materials to gather information, carry out an experiment, collect and record data, and report results.
SC.8.N.1.Su.b	Recognize a possible explanation (hypothesis) for a science problem.
SC.8.N.2.In.a	Identify that scientific knowledge must be supported by evidence.
SC.8.N.3.In.a	Identify models used in the context of one's own study of science.
SC.8.N.3.Su.b	Recognize that scientific theories can change.
SC.8.N.4.In.a	Identify ways that science processes can be used to make informed decisions in the community, state, and nation.
SC.8.L.18.In.a	Identify structures in plants that enable them to use the energy from the Sun to make their own food through a process called photosynthesis.
SC.8.L.18.Su.b	Recognize that plants and animals get energy from food.

2000020 M/J Life Science, Advanced

Section: Basic and Adult Education

Grade Group: Middle School Grades 6-8

Subject: Science

Domain: Biological Sciences

Course Length: Year

Level: 3

This course description incorporates the following Next Generation Sunshine State Standards for standards-based teaching and learning.

Benchmarks

Benchmark Code	Benchmark Descriptor	Depth of Knowledge
SC.6.N.1.1	Define a problem from the sixth grade curriculum, use appropriate reference materials to support scientific understanding, plan and carry out scientific investigation of various types, such as systematic observations or experiments, identify variables, co	High

SC.6.N.1.2	Explain why scientific investigations should be replicable.	High
SC.6.N.1.3	Explain the difference between an experiment and other types of scientific investigation, and explain the relative benefits and limitations of each.	High
SC.6.N.1.4	Discuss, compare, and negotiate methods used, results obtained, and explanations among groups of students conducting the same investigation.	High
SC.6.N.1.5	Recognize that science involves creativity, not just in designing experiments, but also in creating explanations that fit evidence.	Moderate
SC.6.N.2.1	Distinguish science from other activities involving thought.	Moderate
SC.6.N.2.2	Explain that scientific knowledge is durable because it is open to change as new evidence or interpretations are encountered.	Moderate
SC.6.N.2.3	Recognize that scientists who make contributions to scientific knowledge come from all kinds of backgrounds and possess varied talents, interests, and goals.	Low
SC.6.N.3.1	Recognize and explain that a scientific theory is a well-supported and widely accepted explanation of nature and is not simply a claim posed by an individual. Thus, the use of the term theory in science is very different than how it is used in everyday	Moderate
SC.6.N.3.2	Recognize and explain that a scientific law is a description of a specific relationship under given conditions in the natural world. Thus, scientific laws are different from societal laws.	Moderate
SC.6.N.3.3	Give several examples of scientific laws.	Low
SC.6.N.3.4	Identify the role of models in the context of the sixth grade science benchmarks.	Moderate
SC.6.L.14.1	Describe and identify patterns in the hierarchical organization of organisms from atoms to molecules and cells to tissues to organs to organ systems to organisms.	Low
SC.6.L.14.2	Investigate and explain the components of the scientific theory of cells (cell theory): all organisms are composed of cells (single-celled or multi-cellular), all cells come from pre-existing cells, and cells are the basic unit of life.	Moderate
SC.6.L.14.3	Recognize and explore how cells of all organisms undergo similar processes to maintain homeostasis, including extracting energy from food, getting rid of waste, and reproducing.	Moderate
SC.6.L.14.4	Compare and contrast the structure and function of major organelles of plant and animal cells, including cell wall, cell membrane, nucleus, cytoplasm, chloroplasts, mitochondria, and vacuoles.	Moderate
SC.6.L.14.5	Identify and investigate the general functions of the major systems of the human body (digestive, respiratory, circulatory, reproductive, excretory, immune, nervous, and musculoskeletal) and describe ways these systems interact with each other to maintain	High
SC.6.L.14.6	Compare and contrast types of infectious agents that may infect the human body, including viruses, bacteria, fungi, and parasites.	Moderate
SC.6.L.15.1	Analyze and describe how and why organisms are classified according to shared characteristics with emphasis on the Linnaean system combined with the concept of Domains.	High
SC.7.N.1.1	Define a problem from the seventh grade curriculum, use appropriate reference materials to support scientific understanding, plan and carry out scientific investigation of various types, such as systematic observations or experiments, identify variables,	High
SC.7.N.1.2	Differentiate replication (by others) from repetition (multiple trials).	Moderate
SC.7.N.1.3	Distinguish between an experiment (which must involve the identification and control of variables) and other forms of scientific investigation and explain that not all scientific knowledge is derived from experimentation.	Moderate
SC.7.N.1.4	Identify test variables (independent variables) and outcome variables (dependent variables) in an experiment.	Low

SC.7.N.1.5	Describe the methods used in the pursuit of a scientific explanation as seen in different fields of science such as biology, geology, and physics.	Moderate
SC.7.N.1.6	Explain that empirical evidence is the cumulative body of observations of a natural phenomenon on which scientific explanations are based.	Moderate
SC.7.N.1.7	Explain that scientific knowledge is the result of a great deal of debate and confirmation within the science community.	Moderate
SC.7.N.2.1	Identify an instance from the history of science in which scientific knowledge has changed when new evidence or new interpretations are encountered.	Low
SC.7.N.3.1	Recognize and explain the difference between theories and laws and give several examples of scientific theories and the evidence that supports them.	High
SC.7.N.3.2	Identify the benefits and limitations of the use of scientific models.	Moderate
SC.7.L.15.1	Recognize that fossil evidence is consistent with the scientific theory of evolution that living things evolved from earlier species.	Moderate
SC.7.L.15.2	Explore the scientific theory of evolution by recognizing and explaining ways in which genetic variation and environmental factors contribute to evolution by natural selection and diversity of organisms.	High
SC.7.L.15.3	Explore the scientific theory of evolution by relating how the inability of a species to adapt within a changing environment may contribute to the extinction of that species.	High
SC.7.L.16.1	Understand and explain that every organism requires a set of instructions that specifies its traits, that this hereditary information (DNA) contains genes located in the chromosomes of each cell, and that heredity is the passage of these instructions from	High
SC.7.L.16.2	Determine the probabilities for genotype and phenotype combinations using Punnett Squares and pedigrees.	Moderate
SC.7.L.16.3	Compare and contrast the general processes of sexual reproduction requiring meiosis and asexual reproduction requiring mitosis.	Moderate
SC.7.L.16.4	Recognize and explore the impact of biotechnology (cloning, genetic engineering, artificial selection) on the individual, society and the environment.	High
SC.7.L.17.1	Explain and illustrate the roles of and relationships among producers, consumers, and decomposers in the process of energy transfer in a food web.	High
SC.7.L.17.2	Compare and contrast the relationships among organisms such as mutualism, predation, parasitism, competition, and commensalism.	Moderate
SC.7.L.17.3	Describe and investigate various limiting factors in the local ecosystem and their impact on native populations, including food, shelter, water, space, disease, parasitism, predation, and nesting sites.	High
SC.8.N.1.1	Define a problem from the eighth grade curriculum using appropriate reference materials to support scientific understanding, plan and carry out scientific investigations of various types, such as systematic observations or experiments, identify variables,	High
SC.8.N.1.2	Design and conduct a study using repeated trials and replication.	High
SC.8.N.1.3	Use phrases such as "results support" or "fail to support" in science, understanding that science does not offer conclusive 'proof' of a knowledge claim.	Moderate
SC.8.N.1.4	Explain how hypotheses are valuable if they lead to further investigations, even if they turn out not to be supported by the data.	High
SC.8.N.1.5	Analyze the methods used to develop a scientific explanation as seen in different fields of science.	High

SC.8.N.1.6	Understand that scientific investigations involve the collection of relevant empirical evidence, the use of logical reasoning, and the application of imagination in devising hypotheses, predictions, explanations and models to make sense of the collected e	Moderate
SC.8.N.2.1	Distinguish between scientific and pseudoscientific ideas.	Moderate
SC.8.N.2.2	Discuss what characterizes science and its methods.	Moderate
SC.8.N.3.1	Select models useful in relating the results of their own investigations.	High
SC.8.N.3.2	Explain why theories may be modified but are rarely discarded.	High
SC.8.N.4.1	Explain that science is one of the processes that can be used to inform decision making at the community, state, national, and international levels.	Moderate
SC.8.N.4.2	Explain how political, social, and economic concerns can affect science, and vice versa.	High
SC.8.L.18.1	Describe and investigate the process of photosynthesis, such as the roles of light, carbon dioxide, water and chlorophyll; production of food; release of oxygen.	High
SC.8.L.18.2	Describe and investigate how cellular respiration breaks down food to provide energy and releases carbon dioxide.	High
SC.8.L.18.3	Construct a scientific model of the carbon cycle to show how matter and energy are continuously transferred within and between organisms and their physical environment.	High
SC.8.L.18.4	Cite evidence that living systems follow the Laws of Conservation of Mass and Energy.	High
SC.912.L.14.2	Relate structure to function for the components of plant and animal cells. Explain the role of cell membranes as a highly selective barrier (passive and active transport).	Moderate
SC.912.L.14.3	Compare and contrast the general structures of plant and animal cells. Compare and contrast the general structures of prokaryotic and eukaryotic cells.	Moderate
SC.912.L.15.6	Discuss distinguishing characteristics of the domains and kingdoms of living organisms.	Moderate
SC.912.L.15.13	Describe the conditions required for natural selection, including: overproduction of offspring, inherited variation, and the struggle to survive, which result in differential reproductive success.	Moderate
SC.912.L.16.2	Discuss observed inheritance patterns caused by various modes of inheritance, including dominant, recessive, codominant, sex-linked, polygenic, and multiple alleles.	High
SC.912.L.16.14	Describe the cell cycle, including the process of mitosis. Explain the role of mitosis in the formation of new cells and its importance in maintaining chromosome number during asexual reproduction.	Moderate
SC.912.L.16.16	Describe the process of meiosis, including independent assortment and crossing over. Explain how reduction division results in the formation of haploid gametes or spores.	Moderate
SC.912.L.17.6	Compare and contrast the relationships among organisms, including predation, parasitism, competition, commensalism, and mutualism.	Moderate
SC.912.L.17.9	Use a food web to identify and distinguish producers, consumers, and decomposers. Explain the pathway of energy transfer through trophic levels and the reduction of available energy at successive trophic levels.	Moderate
SC.912.L.18.7	Identify the reactants, products, and basic functions of photosynthesis.	Moderate
SC.912.L.18.8	Identify the reactants, products, and basic functions of aerobic and anaerobic cellular respiration.	Moderate
SC.912.L.18.9	Explain the interrelated nature of photosynthesis and cellular respiration.	Moderate

MA.6.S.6.2	Select and analyze the measures of central tendency or variability to represent, describe, analyze, and/or summarize a data set for the purposes of answering questions appropriately.	High
MA.6.A.3.6	Construct and analyze tables, graphs, and equations to describe linear functions and other simple relations using both common language and algebraic notation.	High
LA.6.4.2.2	The student will record information (e.g., observations, notes, lists, charts, legends) related to a topic, including visual aids to organize and record information and include a list of sources used;	
LA.6.2.2.3	The student will organize information to show understanding (e.g., representing main ideas within text through charting, mapping, paraphrasing, summarizing, or comparing/contrasting);	
HE.6.C.1.4	Recognize how heredity can affect personal health.	
HE.6.C.1.8	Explain how body systems are impacted by hereditary factors and infectious agents.	

Access Points for Students with Significant Cognitive Disabilities

Access Point Code	Access Point Descriptor
SC.6.N.1.In.a	Identify a problem from the sixth grade curriculum, use reference materials to gather information, carry out an experiment, collect and record data, and report results.
SC.6.N.1.Su.b	Recognize that experiments involve procedures that can be repeated the same way by others.
SC.6.N.1.Pa.c	Recognize that people conduct activities and share information about science.
SC.6.N.2.In.a	Identify familiar topics included in the study of science.
SC.6.N.2.Su.b	Recognize that scientific knowledge changes when new things are discovered.
SC.6.N.3.In.a	Identify that a scientific theory is an explanation of nature supported by evidence.
SC.6.N.3.Su.b	Recognize events that are based on scientific laws, such as the law of gravity.
SC.6.L.14.In.a	Identify how the major structures of plants and organs of animals work as parts of larger systems, such as the heart is part of the circulatory system that pumps blood.
SC.6.L.14.Su.b	Recognize that there are smaller parts in all living things, too small to be seen without magnification, called cells.
SC.6.L.14.Pa.c	Recognize body parts related to basic needs, such as mouth for eating.
SC.6.L.15.In.a	Classify animals into major groups, such as insects, fish, reptiles, mammals, and birds.
SC.7.N.1.In.a	Identify a problem from the seventh grade curriculum, use reference materials to gather information, carry out an experiment, collect and record data, and report results.
SC.7.N.1.Su.b	Recognize what is tested in a simple experiment (dependent variable).
SC.7.N.1.Pa.c	Associate objects and activities with science.
SC.7.N.2.In.a	Identify an example of a change in scientific knowledge based on new evidence or new interpretations.
SC.7.N.3.In.a	Identify that scientific theories are explanations and laws describe relationships, and both are supported by evidence.
SC.7.N.3.Su.b	Recognize a benefit of using a model to explain how things work.
SC.7.L.15.In.a	Recognize that fossils help people learn about living things that lived a very long time ago.
SC.7.L.15.Su.b	Recognize that common plants or animals have special features that enable them to live in their environment, such as a as a fish has gills so it can live underwater.
SC.7.L.16.In.a	Explain that some characteristics are passed from parent to child (inherited).

SC.7.L.16.Su.b	Recognize that animals, including humans, inherit some characteristics from one parent and some from the other.
SC.7.L.16.Pa.c	Recognize common products, such as medicine, developed through science.
SC.7.L.17.In.a	Identify that in a simple food chain, energy transfers from the Sun to plants (producers), to animals (consumers), and to organisms that cause decay (decomposers).
SC.7.L.17.Su.b	Recognize how living things affect each other in their habitat (ecosystem).
SC.7.L.17.Pa.c	Recognize what happens when animals don't get food and water.
SC.8.N.1.In.a	Identify a problem from the eighth grade curriculum, use reference materials to gather information, carry out an experiment, collect and record data, and report results.
SC.8.N.1.Su.b	Recognize a possible explanation (hypothesis) for a science problem.
SC.8.N.2.In.a	Identify that scientific knowledge must be supported by evidence.
SC.8.N.3.In.a	Identify models used in the context of one's own study of science.
SC.8.N.3.Su.b	Recognize that scientific theories can change.
SC.8.N.4.In.a	Identify ways that science processes can be used to make informed decisions in the community, state, and nation.
SC.8.L.18.In.a	Identify structures in plants that enable them to use the energy from the Sun to make their own food through a process called photosynthesis.
SC.8.L.18.Su.b	Recognize that plants and animals get energy from food.
SC.912.L.14.In.a	Identify that all living things are made of cells and cells function in similar ways (cell theory).
SC.912.L.14.Su.b	Recognize that cells have different parts and each has a function.
SC.912.L.14.Pa.c	Identify ways to prevent infection from bacteria and viruses, such as hand washing and first aid.
SC.912.L.15.In.a	Identify that prehistoric plants and animals changed over time (evolved) or became extinct.
SC.912.L.15.Su.b	Match organisms to the animal, plant, and fungus kingdoms.
SC.912.L.15.Pa.c	Recognize that animals produce offspring.
SC.912.L.16.In.a	Identify that genes are sets of instructions that determine which characteristics are passed from parent to offspring.
SC.912.L.16.Su.b	Recognize that all organisms have a substance called DNA with unique information.
SC.912.L.16.Pa.c	Recognize that illness can result when parts of our bodies are not working properly.
SC.912.L.17.In.a	Recognize that living things in oceans and fresh water are affected by the location, availability of light, depth of the water, and temperature.
SC.912.L.17.Su.b	Recognize how animals and plants in an ecosystem may be affected by changes to the food supply or climate.
SC.912.L.17.Pa.c	Recognize examples of mutual relationships between people and other living things.
SC.912.L.18.In.a	Identify that carbohydrates, fats, proteins, and nucleic acids (macromolecules) are important for human organisms.
SC.912.L.18.Su.b	Recognize that the function of photosynthesis is to produce food for plants.
SC.912.L.18.Pa.c	Identify that food is a source of energy.

2001010 M/J Earth/Space Science

Section: Basic and Adult Education
Grade Group: Middle School Grades 6-8
Subject: Science
Domain: Earth/Space Sciences
Course Length: Year
Level: 2

This course description incorporates the following Next Generation Sunshine State Standards for standards-based teaching and learning.

Benchmarks

Benchmark Code	Benchmark Descriptor	Depth of Knowledge
SC.6.N.1.1	Define a problem from the sixth grade curriculum, use appropriate reference materials to support scientific understanding, plan and carry out scientific investigation of various types, such as systematic observations or experiments, identify variables, co	High
SC.6.N.1.2	Explain why scientific investigations should be replicable.	High
SC.6.N.1.3	Explain the difference between an experiment and other types of scientific investigation, and explain the relative benefits and limitations of each.	High
SC.6.N.1.4	Discuss, compare, and negotiate methods used, results obtained, and explanations among groups of students conducting the same investigation.	High
SC.6.N.1.5	Recognize that science involves creativity, not just in designing experiments, but also in creating explanations that fit evidence.	Moderate
SC.6.N.2.1	Distinguish science from other activities involving thought.	Moderate
SC.6.N.2.2	Explain that scientific knowledge is durable because it is open to change as new evidence or interpretations are encountered.	Moderate
SC.6.N.2.3	Recognize that scientists who make contributions to scientific knowledge come from all kinds of backgrounds and possess varied talents, interests, and goals.	Low
SC.6.N.3.1	Recognize and explain that a scientific theory is a well-supported and widely accepted explanation of nature and is not simply a claim posed by an individual. Thus, the use of the term theory in science is very different than how it is used in everyday	Moderate
SC.6.N.3.2	Recognize and explain that a scientific law is a description of a specific relationship under given conditions in the natural world. Thus, scientific laws are different from societal laws.	Moderate
SC.6.N.3.3	Give several examples of scientific laws.	Low
SC.6.N.3.4	Identify the role of models in the context of the sixth grade science benchmarks.	Moderate
SC.6.E.6.1	Describe and give examples of ways in which Earth's surface is built up and torn down by physical and chemical weathering, erosion, and deposition.	Moderate
SC.6.E.6.2	Recognize that there are a variety of different landforms on Earth's surface such as coastlines, dunes, rivers, mountains, glaciers, deltas, and lakes and relate these landforms as they apply to Florida.	Moderate
SC.6.E.7.1	Differentiate among radiation, conduction, and convection, the three mechanisms by which heat is transferred through Earth's system.	Moderate
SC.6.E.7.2	Investigate and apply how the cycling of water between the atmosphere and hydrosphere has an effect on weather patterns and climate.	High
SC.6.E.7.3	Describe how global patterns such as the jet stream and ocean currents influence local weather in measurable terms such as temperature, air pressure, wind direction and speed, and humidity and precipitation.	High
SC.6.E.7.4	Differentiate and show interactions among the geosphere, hydrosphere, cryosphere, atmosphere, and biosphere.	High

SC.6.E.7.5	Explain how energy provided by the sun influences global patterns of atmospheric movement and the temperature differences between air, water, and land.	High
SC.6.E.7.6	Differentiate between weather and climate.	Moderate
SC.6.E.7.7	Investigate how natural disasters have affected human life in Florida.	High
SC.6.E.7.8	Describe ways human beings protect themselves from hazardous weather and sun exposure.	Moderate
SC.6.E.7.9	Describe how the composition and structure of the atmosphere protects life and insulates the planet.	Moderate
SC.7.N.1.1	Define a problem from the seventh grade curriculum, use appropriate reference materials to support scientific understanding, plan and carry out scientific investigation of various types, such as systematic observations or experiments, identify variables,	High
SC.7.N.1.2	Differentiate replication (by others) from repetition (multiple trials).	Moderate
SC.7.N.1.3	Distinguish between an experiment (which must involve the identification and control of variables) and other forms of scientific investigation and explain that not all scientific knowledge is derived from experimentation.	Moderate
SC.7.N.1.4	Identify test variables (independent variables) and outcome variables (dependent variables) in an experiment.	Low
SC.7.N.1.5	Describe the methods used in the pursuit of a scientific explanation as seen in different fields of science such as biology, geology, and physics.	Moderate
SC.7.N.1.6	Explain that empirical evidence is the cumulative body of observations of a natural phenomenon on which scientific explanations are based.	Moderate
SC.7.N.1.7	Explain that scientific knowledge is the result of a great deal of debate and confirmation within the science community.	Moderate
SC.7.N.2.1	Identify an instance from the history of science in which scientific knowledge has changed when new evidence or new interpretations are encountered.	Low
SC.7.N.3.1	Recognize and explain the difference between theories and laws and give several examples of scientific theories and the evidence that supports them.	High
SC.7.N.3.2	Identify the benefits and limitations of the use of scientific models.	Moderate
SC.7.E.6.1	Describe the layers of the solid Earth, including the lithosphere, the hot convecting mantle, and the dense metallic liquid and solid cores.	Moderate
SC.7.E.6.2	Identify the patterns within the rock cycle and relate them to surface events (weathering and erosion) and sub-surface events (plate tectonics and mountain building).	High
SC.7.E.6.3	Identify current methods for measuring the age of Earth and its parts, including the law of superposition and radioactive dating.	Moderate
SC.7.E.6.4	Explain and give examples of how physical evidence supports scientific theories that Earth has evolved over geologic time due to natural processes.	High
SC.7.E.6.5	Explore the scientific theory of plate tectonics by describing how the movement of Earth's crustal plates causes both slow and rapid changes in Earth's surface, including volcanic eruptions, earthquakes, and mountain building.	Moderate
SC.7.E.6.6	Identify the impact that humans have had on Earth, such as deforestation, urbanization, desertification, erosion, air and water quality, changing the flow of water.	Moderate
SC.7.E.6.7	Recognize that heat flow and movement of material within Earth causes earthquakes and volcanic eruptions, and creates mountains and ocean basins.	Moderate
SC.8.N.1.1	Define a problem from the eighth grade curriculum using appropriate reference materials to support scientific understanding, plan and carry out scientific investigations of various types, such as systematic observations or experiments, identify variables,	High

SC.8.N.1.2	Design and conduct a study using repeated trials and replication.	High
SC.8.N.1.3	Use phrases such as "results support" or "fail to support" in science, understanding that science does not offer conclusive 'proof' of a knowledge claim.	Moderate
SC.8.N.1.4	Explain how hypotheses are valuable if they lead to further investigations, even if they turn out not to be supported by the data.	High
SC.8.N.1.5	Analyze the methods used to develop a scientific explanation as seen in different fields of science.	High
SC.8.N.1.6	Understand that scientific investigations involve the collection of relevant empirical evidence, the use of logical reasoning, and the application of imagination in devising hypotheses, predictions, explanations and models to make sense of the collected e	Moderate
SC.8.N.2.1	Distinguish between scientific and pseudoscientific ideas.	Moderate
SC.8.N.2.2	Discuss what characterizes science and its methods.	Moderate
SC.8.N.3.1	Select models useful in relating the results of their own investigations.	High
SC.8.N.3.2	Explain why theories may be modified but are rarely discarded.	High
SC.8.N.4.1	Explain that science is one of the processes that can be used to inform decision making at the community, state, national, and international levels.	Moderate
SC.8.N.4.2	Explain how political, social, and economic concerns can affect science, and vice versa.	High
SC.8.E.5.1	Recognize that there are enormous distances between objects in space and apply our knowledge of light and space travel to understand this distance.	Moderate
SC.8.E.5.2	Recognize that the universe contains many billions of galaxies and that each galaxy contains many billions of stars.	Low
SC.8.E.5.3	Distinguish the hierarchical relationships between planets and other astronomical bodies relative to solar system, galaxy, and universe, including distance, size, and composition.	High
SC.8.E.5.4	Explore the Law of Universal Gravitation by explaining the role that gravity plays in the formation of planets, stars, and solar systems and in determining their motions.	High
SC.8.E.5.5	Describe and classify specific physical properties of stars: apparent magnitude (brightness), temperature (color), size, and luminosity (absolute brightness).	Moderate
SC.8.E.5.6	Create models of solar properties including: rotation, structure of the Sun, convection, sunspots, solar flares, and prominences.	Low
SC.8.E.5.7	Compare and contrast the properties of objects in the Solar System including the Sun, planets, and moons to those of Earth, such as gravitational force, distance from the Sun, speed, movement, temperature, and atmospheric conditions.	Moderate
SC.8.E.5.8	Compare various historical models of the Solar System, including geocentric and heliocentric.	Moderate
SC.8.E.5.9	Explain the impact of objects in space on each other including:	High
SC.8.E.5.10	Assess how technology is essential to science for such purposes as access to outer space and other remote locations, sample collection, measurement, data collection and storage, computation, and communication of information.	High
SC.8.E.5.11	Identify and compare characteristics of the electromagnetic spectrum such as wavelength, frequency, use, and hazards and recognize its application to an understanding of planetary images and satellite photographs.	High
SC.8.E.5.12	Summarize the effects of space exploration on the economy and culture of Florida.	Moderate

MA.6.S.6.2	Select and analyze the measures of central tendency or variability to represent, describe, analyze, and/or summarize a data set for the purposes of answering questions appropriately.	High
MA.6.A.3.6	Construct and analyze tables, graphs, and equations to describe linear functions and other simple relations using both common language and algebraic notation.	High
LA.6.4.2.2	The student will record information (e.g., observations, notes, lists, charts, legends) related to a topic, including visual aids to organize and record information and include a list of sources used;	
LA.6.2.2.3	The student will organize information to show understanding (e.g., representing main ideas within text through charting, mapping, paraphrasing, summarizing, or comparing/contrasting);	
HE.6.C.1.3	Identify environmental factors that affect personal health.	

Access Points for Students with Significant Cognitive Disabilities

Access Point Code	Access Point Descriptor
SC.6.N.1.In.a	Identify a problem from the sixth grade curriculum, use reference materials to gather information, carry out an experiment, collect and record data, and report results.
SC.6.N.1.Su.b	Recognize that experiments involve procedures that can be repeated the same way by others.
SC.6.N.1.Pa.c	Recognize that people conduct activities and share information about science.
SC.6.N.2.In.a	Identify familiar topics included in the study of science.
SC.6.N.2.Su.b	Recognize that scientific knowledge changes when new things are discovered.
SC.6.N.3.In.a	Identify that a scientific theory is an explanation of nature supported by evidence.
SC.6.N.3.Su.b	Recognize events that are based on scientific laws, such as the law of gravity.
SC.6.E.6.In.a	Describe how weathering and erosion reshape the Earth's surface.
SC.6.E.6.Su.b	Recognize different landforms in Florida, including beaches (coastlines), rivers, and lakes.
SC.6.E.7.In.a	Recognize that heat is a flow of energy that moves through Earth's land, air, and water in different ways, including conduction, convection, and radiation.
SC.6.E.7.Su.b	Recognize parts of the water cycle such as clouds (condensation), rain (precipitation), and evaporation.
SC.6.E.7.Pa.c	Recognize different types of weather conditions, including hot/cold, raining/not raining, and windy/calm.
SC.7.N.1.In.a	Identify a problem from the seventh grade curriculum, use reference materials to gather information, carry out an experiment, collect and record data, and report results.
SC.7.N.1.Su.b	Recognize what is tested in a simple experiment (dependent variable).
SC.7.N.1.Pa.c	Associate objects and activities with science.
SC.7.N.2.In.a	Identify an example of a change in scientific knowledge based on new evidence or new interpretations.
SC.7.N.3.In.a	Identify that scientific theories are explanations and laws describe relationships, and both are supported by evidence.
SC.7.N.3.Su.b	Recognize a benefit of using a model to explain how things work.
SC.7.E.6.In.a	Identify that Earth has three layers (crust, mantle, and core) and describe the inside (core) as the hottest layer.
SC.7.E.6.Su.b	Recognize that mountains change size and shape over a long period of time.
SC.7.E.6.Pa.c	Recognize that ground on the Earth's surface changes over time.

SC.8.N.1.In.a	Identify a problem from the eighth grade curriculum, use reference materials to gather information, carry out an experiment, collect and record data, and report results.
SC.8.N.1.Su.b	Recognize a possible explanation (hypothesis) for a science problem.
SC.8.N.2.In.a	Identify that scientific knowledge must be supported by evidence.
SC.8.N.3.In.a	Identify models used in the context of one's own study of science.
SC.8.N.3.Su.b	Recognize that scientific theories can change.
SC.8.N.4.In.a	Identify ways that science processes can be used to make informed decisions in the community, state, and nation.
SC.8.E.5.In.a	Compare the distances of the Moon, the Sun, and other stars from the Earth.
SC.8.E.5.In.b	Identify that the Earth and Sun are a part of the Milky Way galaxy.
SC.8.E.5.Su.b	Recognize that the Solar System is part of a galaxy.
SC.8.E.5.Pa.c	Recognize the four seasons.
SC.8.E.5.Su.c	Identify that there are planets and moons in the Solar System.
SC.8.E.5.Pa.d	Recognize a technology tool created for space exploration and adapted for personal use, such as computers, telescopes, or satellites.

2001020 M/J Earth/Space Science, Advanced

Section: Basic and Adult Education
Grade Group: Middle School Grades 6-8
Subject: Science
Domain: Earth/Space Sciences
Course Length: Year
Level: 3

This course description incorporates the following Next Generation Sunshine State Standards for standards-based teaching and learning.

Benchmarks

Benchmark Code	Benchmark Descriptor	Depth of Knowledge
SC.6.N.1.1	Define a problem from the sixth grade curriculum, use appropriate reference materials to support scientific understanding, plan and carry out scientific investigation of various types, such as systematic observations or experiments, identify variables, co	High
SC.6.N.1.2	Explain why scientific investigations should be replicable.	High
SC.6.N.1.3	Explain the difference between an experiment and other types of scientific investigation, and explain the relative benefits and limitations of each.	High
SC.6.N.1.4	Discuss, compare, and negotiate methods used, results obtained, and explanations among groups of students conducting the same investigation.	High
SC.6.N.1.5	Recognize that science involves creativity, not just in designing experiments, but also in creating explanations that fit evidence.	Moderate
SC.6.N.2.1	Distinguish science from other activities involving thought.	Moderate
SC.6.N.2.2	Explain that scientific knowledge is durable because it is open to change as new evidence or interpretations are encountered.	Moderate
SC.6.N.2.3	Recognize that scientists who make contributions to scientific knowledge come from all kinds of backgrounds and possess varied talents, interests, and goals.	Low
SC.6.N.3.1	Recognize and explain that a scientific theory is a well-supported and widely accepted explanation of nature and is not simply a claim posed by an individual. Thus, the use of the term theory in science is very different than how it is used in everyday	Moderate

SC.6.N.3.2	Recognize and explain that a scientific law is a description of a specific relationship under given conditions in the natural world. Thus, scientific laws are different from societal laws.	Moderate
SC.6.N.3.3	Give several examples of scientific laws.	Low
SC.6.N.3.4	Identify the role of models in the context of the sixth grade science benchmarks.	Moderate
SC.6.E.6.1	Describe and give examples of ways in which Earth's surface is built up and torn down by physical and chemical weathering, erosion, and deposition.	Moderate
SC.6.E.6.2	Recognize that there are a variety of different landforms on Earth's surface such as coastlines, dunes, rivers, mountains, glaciers, deltas, and lakes and relate these landforms as they apply to Florida.	Moderate
SC.6.E.7.1	Differentiate among radiation, conduction, and convection, the three mechanisms by which heat is transferred through Earth's system.	Moderate
SC.6.E.7.2	Investigate and apply how the cycling of water between the atmosphere and hydrosphere has an effect on weather patterns and climate.	High
SC.6.E.7.3	Describe how global patterns such as the jet stream and ocean currents influence local weather in measurable terms such as temperature, air pressure, wind direction and speed, and humidity and precipitation.	High
SC.6.E.7.4	Differentiate and show interactions among the geosphere, hydrosphere, cryosphere, atmosphere, and biosphere.	High
SC.6.E.7.5	Explain how energy provided by the sun influences global patterns of atmospheric movement and the temperature differences between air, water, and land.	High
SC.6.E.7.6	Differentiate between weather and climate.	Moderate
SC.6.E.7.7	Investigate how natural disasters have affected human life in Florida.	High
SC.6.E.7.8	Describe ways human beings protect themselves from hazardous weather and sun exposure.	Moderate
SC.6.E.7.9	Describe how the composition and structure of the atmosphere protects life and insulates the planet.	Moderate
SC.7.N.1.1	Define a problem from the seventh grade curriculum, use appropriate reference materials to support scientific understanding, plan and carry out scientific investigation of various types, such as systematic observations or experiments, identify variables,	High
SC.7.N.1.2	Differentiate replication (by others) from repetition (multiple trials).	Moderate
SC.7.N.1.3	Distinguish between an experiment (which must involve the identification and control of variables) and other forms of scientific investigation and explain that not all scientific knowledge is derived from experimentation.	Moderate
SC.7.N.1.4	Identify test variables (independent variables) and outcome variables (dependent variables) in an experiment.	Low
SC.7.N.1.5	Describe the methods used in the pursuit of a scientific explanation as seen in different fields of science such as biology, geology, and physics.	Moderate
SC.7.N.1.6	Explain that empirical evidence is the cumulative body of observations of a natural phenomenon on which scientific explanations are based.	Moderate
SC.7.N.1.7	Explain that scientific knowledge is the result of a great deal of debate and confirmation within the science community.	Moderate
SC.7.N.2.1	Identify an instance from the history of science in which scientific knowledge has changed when new evidence or new interpretations are encountered.	Low
SC.7.N.3.1	Recognize and explain the difference between theories and laws and give several examples of scientific theories and the evidence that supports them.	High
SC.7.N.3.2	Identify the benefits and limitations of the use of scientific models.	Moderate

SC.7.E.6.1	Describe the layers of the solid Earth, including the lithosphere, the hot convecting mantle, and the dense metallic liquid and solid cores.	Moderate
SC.7.E.6.2	Identify the patterns within the rock cycle and relate them to surface events (weathering and erosion) and sub-surface events (plate tectonics and mountain building).	High
SC.7.E.6.3	Identify current methods for measuring the age of Earth and its parts, including the law of superposition and radioactive dating.	Moderate
SC.7.E.6.4	Explain and give examples of how physical evidence supports scientific theories that Earth has evolved over geologic time due to natural processes.	High
SC.7.E.6.5	Explore the scientific theory of plate tectonics by describing how the movement of Earth's crustal plates causes both slow and rapid changes in Earth's surface, including volcanic eruptions, earthquakes, and mountain building.	Moderate
SC.7.E.6.6	Identify the impact that humans have had on Earth, such as deforestation, urbanization, desertification, erosion, air and water quality, changing the flow of water.	Moderate
SC.7.E.6.7	Recognize that heat flow and movement of material within Earth causes earthquakes and volcanic eruptions, and creates mountains and ocean basins.	Moderate
SC.8.N.1.1	Define a problem from the eighth grade curriculum using appropriate reference materials to support scientific understanding, plan and carry out scientific investigations of various types, such as systematic observations or experiments, identify variables,	High
SC.8.N.1.2	Design and conduct a study using repeated trials and replication.	High
SC.8.N.1.3	Use phrases such as "results support" or "fail to support" in science, understanding that science does not offer conclusive 'proof' of a knowledge claim.	Moderate
SC.8.N.1.4	Explain how hypotheses are valuable if they lead to further investigations, even if they turn out not to be supported by the data.	High
SC.8.N.1.5	Analyze the methods used to develop a scientific explanation as seen in different fields of science.	High
SC.8.N.1.6	Understand that scientific investigations involve the collection of relevant empirical evidence, the use of logical reasoning, and the application of imagination in devising hypotheses, predictions, explanations and models to make sense of the collected e	Moderate
SC.8.N.2.1	Distinguish between scientific and pseudoscientific ideas.	Moderate
SC.8.N.2.2	Discuss what characterizes science and its methods.	Moderate
SC.8.N.3.1	Select models useful in relating the results of their own investigations.	High
SC.8.N.3.2	Explain why theories may be modified but are rarely discarded.	High
SC.8.N.4.1	Explain that science is one of the processes that can be used to inform decision making at the community, state, national, and international levels.	Moderate
SC.8.N.4.2	Explain how political, social, and economic concerns can affect science, and vice versa.	High
SC.8.E.5.1	Recognize that there are enormous distances between objects in space and apply our knowledge of light and space travel to understand this distance.	Moderate
SC.8.E.5.2	Recognize that the universe contains many billions of galaxies and that each galaxy contains many billions of stars.	Low
SC.8.E.5.3	Distinguish the hierarchical relationships between planets and other astronomical bodies relative to solar system, galaxy, and universe, including distance, size, and composition.	High
SC.8.E.5.4	Explore the Law of Universal Gravitation by explaining the role that gravity plays in the formation of planets, stars, and solar systems and in determining their motions.	High

SC.8.E.5.5	Describe and classify specific physical properties of stars: apparent magnitude (brightness), temperature (color), size, and luminosity (absolute brightness).	Moderate
SC.8.E.5.6	Create models of solar properties including: rotation, structure of the Sun, convection, sunspots, solar flares, and prominences.	Low
SC.8.E.5.7	Compare and contrast the properties of objects in the Solar System including the Sun, planets, and moons to those of Earth, such as gravitational force, distance from the Sun, speed, movement, temperature, and atmospheric conditions.	Moderate
SC.8.E.5.8	Compare various historical models of the Solar System, including geocentric and heliocentric.	Moderate
SC.8.E.5.9	Explain the impact of objects in space on each other including:	High
SC.8.E.5.10	Assess how technology is essential to science for such purposes as access to outer space and other remote locations, sample collection, measurement, data collection and storage, computation, and communication of information.	High
SC.8.E.5.11	Identify and compare characteristics of the electromagnetic spectrum such as wavelength, frequency, use, and hazards and recognize its application to an understanding of planetary images and satellite photographs.	High
SC.8.E.5.12	Summarize the effects of space exploration on the economy and culture of Florida.	Moderate
SC.912.E.5.4	Explain the physical properties of the Sun and its dynamic nature and connect them to conditions and events on Earth.	High
SC.912.E.6.1	Describe and differentiate the layers of Earth and the interactions among them.	Moderate
SC.912.E.6.2	Connect surface features to surface processes that are responsible for their formation.	Moderate
SC.912.E.6.3	Analyze the scientific theory of plate tectonics and identify related major processes and features as a result of moving plates.	High
SC.912.E.7.3	Differentiate and describe the various interactions among Earth systems, including: atmosphere, hydrosphere, cryosphere, geosphere, and biosphere.	High
SC.912.E.7.5	Predict future weather conditions based on present observations and conceptual models and recognize limitations and uncertainties of such predictions.	High
SC.912.E.7.6	Relate the formation of severe weather to the various physical factors.	Moderate
MA.6.S.6.2	Select and analyze the measures of central tendency or variability to represent, describe, analyze, and/or summarize a data set for the purposes of answering questions appropriately.	High
MA.6.A.3.6	Construct and analyze tables, graphs, and equations to describe linear functions and other simple relations using both common language and algebraic notation.	High
LA.6.4.2.2	The student will record information (e.g., observations, notes, lists, charts, legends) related to a topic, including visual aids to organize and record information and include a list of sources used;	
LA.6.2.2.3	The student will organize information to show understanding (e.g., representing main ideas within text through charting, mapping, paraphrasing, summarizing, or comparing/contrasting);	
HE.6.C.1.3	Identify environmental factors that affect personal health.	

Access Points for Students with Significant Cognitive Disabilities

Access Point Code	Access Point Descriptor
SC.6.N.1.In.a	Identify a problem from the sixth grade curriculum, use reference materials to gather information, carry out an experiment, collect and record data, and report results.
SC.6.N.1.Su.b	Recognize that experiments involve procedures that can be repeated the same way by others.

SC.6.N.1.Pa.c	Recognize that people conduct activities and share information about science.
SC.6.N.2.In.a	Identify familiar topics included in the study of science.
SC.6.N.2.Su.b	Recognize that scientific knowledge changes when new things are discovered.
SC.6.N.3.In.a	Identify that a scientific theory is an explanation of nature supported by evidence.
SC.6.N.3.Su.b	Recognize events that are based on scientific laws, such as the law of gravity.
SC.6.E.6.In.a	Describe how weathering and erosion reshape the Earth's surface.
SC.6.E.6.Su.b	Recognize different landforms in Florida, including beaches (coastlines), rivers, and lakes.
SC.6.E.7.In.a	Recognize that heat is a flow of energy that moves through Earth's land, air, and water in different ways, including conduction, convection, and radiation.
SC.6.E.7.Su.b	Recognize parts of the water cycle such as clouds (condensation), rain (precipitation), and evaporation.
SC.6.E.7.Pa.c	Recognize different types of weather conditions, including hot/cold, raining/not raining, and windy/calm.
SC.7.N.1.In.a	Identify a problem from the seventh grade curriculum, use reference materials to gather information, carry out an experiment, collect and record data, and report results.
SC.7.N.1.Su.b	Recognize what is tested in a simple experiment (dependent variable).
SC.7.N.1.Pa.c	Associate objects and activities with science.
SC.7.N.2.In.a	Identify an example of a change in scientific knowledge based on new evidence or new interpretations.
SC.7.N.3.In.a	Identify that scientific theories are explanations and laws describe relationships, and both are supported by evidence.
SC.7.N.3.Su.b	Recognize a benefit of using a model to explain how things work.
SC.7.E.6.In.a	Identify that Earth has three layers (crust, mantle, and core) and describe the inside (core) as the hottest layer.
SC.7.E.6.Su.b	Recognize that mountains change size and shape over a long period of time.
SC.7.E.6.Pa.c	Recognize that ground on the Earth's surface changes over time.
SC.8.N.1.In.a	Identify a problem from the eighth grade curriculum, use reference materials to gather information, carry out an experiment, collect and record data, and report results.
SC.8.N.1.Su.b	Recognize a possible explanation (hypothesis) for a science problem.
SC.8.N.2.In.a	Identify that scientific knowledge must be supported by evidence.
SC.8.N.3.In.a	Identify models used in the context of one's own study of science.
SC.8.N.3.Su.b	Recognize that scientific theories can change.
SC.8.N.4.In.a	Identify ways that science processes can be used to make informed decisions in the community, state, and nation.
SC.8.E.5.In.a	Compare the distances of the Moon, the Sun, and other stars from the Earth.
SC.8.E.5.In.b	Identify that the Earth and Sun are a part of the Milky Way galaxy.
SC.8.E.5.Su.b	Recognize that the Solar System is part of a galaxy.
SC.8.E.5.Pa.c	Recognize the four seasons.
SC.8.E.5.Su.c	Identify that there are planets and moons in the Solar System.
SC.8.E.5.Pa.d	Recognize a technology tool created for space exploration and adapted for personal use, such as computers, telescopes, or satellites.
SC.912.E.5.In.a	Recognize that the Milky Way is part of the expanding universe.
SC.912.E.5.Su.b	Recognize that stars are made of burning gases.
SC.912.E.5.Pa.c	Observe and recognize effects of the Sun on Earth, such as temperature changes.

SC.912.E.6.In.a	Describe the three layers of Earth (core, mantle, and crust).
SC.912.E.6.Su.b	Identify types of surface features, such as hills and valleys.
SC.912.E.7.In.a	Identify cycles that occur on Earth, such as the water and carbon cycles, and the role energy plays in them.
SC.912.E.7.Su.b	Recognize that currents move the ocean water around Earth.
SC.912.E.7.Pa.c	Recognize that humans, plants, and animals live on the Earth (biosphere).

2003010 M/J Physical Science

Section: Basic and Adult Education
Grade Group: Middle School Grades 6-8
Subject: Science
Domain: Physical Sciences
Course Length: Year
Level: 2

This course description incorporates the following Next Generation Sunshine State Standards for standards-based teaching and learning.

Benchmarks

Benchmark Code	Benchmark Descriptor	Depth of Knowledge
SC.6.N.1.1	Define a problem from the sixth grade curriculum, use appropriate reference materials to support scientific understanding, plan and carry out scientific investigation of various types, such as systematic observations or experiments, identify variables, co	High
SC.6.N.1.2	Explain why scientific investigations should be replicable.	High
SC.6.N.1.3	Explain the difference between an experiment and other types of scientific investigation, and explain the relative benefits and limitations of each.	High
SC.6.N.1.4	Discuss, compare, and negotiate methods used, results obtained, and explanations among groups of students conducting the same investigation.	High
SC.6.N.1.5	Recognize that science involves creativity, not just in designing experiments, but also in creating explanations that fit evidence.	Moderate
SC.6.N.2.1	Distinguish science from other activities involving thought.	Moderate
SC.6.N.2.2	Explain that scientific knowledge is durable because it is open to change as new evidence or interpretations are encountered.	Moderate
SC.6.N.2.3	Recognize that scientists who make contributions to scientific knowledge come from all kinds of backgrounds and possess varied talents, interests, and goals.	Low
SC.6.N.3.1	Recognize and explain that a scientific theory is a well-supported and widely accepted explanation of nature and is not simply a claim posed by an individual. Thus, the use of the term theory in science is very different than how it is used in everyday	Moderate
SC.6.N.3.2	Recognize and explain that a scientific law is a description of a specific relationship under given conditions in the natural world. Thus, scientific laws are different from societal laws.	Moderate
SC.6.N.3.3	Give several examples of scientific laws.	Low
SC.6.N.3.4	Identify the role of models in the context of the sixth grade science benchmarks.	Moderate
SC.6.P.11.1	Explore the Law of Conservation of Energy by differentiating between potential and kinetic energy. Identify situations where kinetic energy is transformed into potential energy and vice versa.	Moderate
SC.6.P.12.1	Measure and graph distance versus time for an object moving at a constant speed. Interpret this relationship.	High
SC.6.P.13.1	Investigate and describe types of forces including contact forces and forces acting at a distance, such as electrical, magnetic, and gravitational.	Moderate

SC.6.P.13.2	Explore the Law of Gravity by recognizing that every object exerts gravitational force on every other object and that the force depends on how much mass the objects have and how far apart they are.	Low
SC.6.P.13.3	Investigate and describe that an unbalanced force acting on an object changes its speed, or direction of motion, or both.	Moderate
SC.7.N.1.1	Define a problem from the seventh grade curriculum, use appropriate reference materials to support scientific understanding, plan and carry out scientific investigation of various types, such as systematic observations or experiments, identify variables,	High
SC.7.N.1.2	Differentiate replication (by others) from repetition (multiple trials).	Moderate
SC.7.N.1.3	Distinguish between an experiment (which must involve the identification and control of variables) and other forms of scientific investigation and explain that not all scientific knowledge is derived from experimentation.	Moderate
SC.7.N.1.4	Identify test variables (independent variables) and outcome variables (dependent variables) in an experiment.	Low
SC.7.N.1.5	Describe the methods used in the pursuit of a scientific explanation as seen in different fields of science such as biology, geology, and physics.	Moderate
SC.7.N.1.6	Explain that empirical evidence is the cumulative body of observations of a natural phenomenon on which scientific explanations are based.	Moderate
SC.7.N.1.7	Explain that scientific knowledge is the result of a great deal of debate and confirmation within the science community.	Moderate
SC.7.N.2.1	Identify an instance from the history of science in which scientific knowledge has changed when new evidence or new interpretations are encountered.	Low
SC.7.N.3.1	Recognize and explain the difference between theories and laws and give several examples of scientific theories and the evidence that supports them.	High
SC.7.N.3.2	Identify the benefits and limitations of the use of scientific models.	Moderate
SC.7.P.10.1	Illustrate that the sun's energy arrives as radiation with a wide range of wavelengths, including infrared, visible, and ultraviolet, and that white light is made up of a spectrum of many different colors.	Low
SC.7.P.10.2	Observe and explain that light can be reflected, refracted, and/or absorbed.	High
SC.7.P.10.3	Recognize that light waves, sound waves, and other waves move at different speeds in different materials.	Low
SC.7.P.11.1	Recognize that adding heat to or removing heat from a system may result in a temperature change and possibly a change of state.	Low
SC.7.P.11.2	Investigate and describe the transformation of energy from one form to another.	Moderate
SC.7.P.11.3	Cite evidence to explain that energy cannot be created nor destroyed, only changed from one form to another.	High
SC.7.P.11.4	Observe and describe that heat flows in predictable ways, moving from warmer objects to cooler ones until they reach the same temperature.	Moderate
SC.8.N.1.1	Define a problem from the eighth grade curriculum using appropriate reference materials to support scientific understanding, plan and carry out scientific investigations of various types, such as systematic observations or experiments, identify variables,	High
SC.8.N.1.2	Design and conduct a study using repeated trials and replication.	High
SC.8.N.1.3	Use phrases such as "results support" or "fail to support" in science, understanding that science does not offer conclusive 'proof' of a knowledge claim.	Moderate
SC.8.N.1.4	Explain how hypotheses are valuable if they lead to further investigations, even if they turn out not to be supported by the data.	High

SC.8.N.1.5	Analyze the methods used to develop a scientific explanation as seen in different fields of science.	High
SC.8.N.1.6	Understand that scientific investigations involve the collection of relevant empirical evidence, the use of logical reasoning, and the application of imagination in devising hypotheses, predictions, explanations and models to make sense of the collected e	Moderate
SC.8.N.2.1	Distinguish between scientific and pseudoscientific ideas.	Moderate
SC.8.N.2.2	Discuss what characterizes science and its methods.	Moderate
SC.8.N.3.1	Select models useful in relating the results of their own investigations.	High
SC.8.N.3.2	Explain why theories may be modified but are rarely discarded.	High
SC.8.N.4.1	Explain that science is one of the processes that can be used to inform decision making at the community, state, national, and international levels.	Moderate
SC.8.N.4.2	Explain how political, social, and economic concerns can affect science, and vice versa.	High
SC.8.P.8.1	Explore the scientific theory of atoms (also known as atomic theory) by using models to explain the motion of particles in solids, liquids, and gases.	Moderate
SC.8.P.8.2	Differentiate between weight and mass recognizing that weight is the amount of gravitational pull on an object and is distinct from, though proportional to, mass.	Moderate
SC.8.P.8.3	Explore and describe the densities of various materials through measurement of their masses and volumes.	Moderate
SC.8.P.8.4	Classify and compare substances on the basis of characteristic physical properties that can be demonstrated or measured; for example, density, thermal or electrical conductivity, solubility, magnetic properties, melting and boiling points, and know that t	Moderate
SC.8.P.8.5	Recognize that there are a finite number of elements and that their atoms combine in a multitude of ways to produce compounds that make up all of the living and nonliving things that we encounter.	Low
SC.8.P.8.6	Recognize that elements are grouped in the periodic table according to similarities of their properties.	Low
SC.8.P.8.7	Explore the scientific theory of atoms (also known as atomic theory) by recognizing that atoms are the smallest unit of an element and are composed of sub-atomic particles (electrons surrounding a nucleus containing protons and neutrons).	Low
SC.8.P.8.8	Identify basic examples of and compare and classify the properties of compounds, including acids, bases, and salts.	Moderate
SC.8.P.8.9	Distinguish among mixtures (including solutions) and pure substances.	Moderate
SC.8.P.9.1	Explore the Law of Conservation of Mass by demonstrating and concluding that mass is conserved when substances undergo physical and chemical changes.	High
SC.8.P.9.2	Differentiate between physical changes and chemical changes.	Moderate
SC.8.P.9.3	Investigate and describe how temperature influences chemical changes.	High
MA.6.S.6.2	Select and analyze the measures of central tendency or variability to represent, describe, analyze, and/or summarize a data set for the purposes of answering questions appropriately.	High
MA.6.A.3.6	Construct and analyze tables, graphs, and equations to describe linear functions and other simple relations using both common language and algebraic notation.	High
LA.6.4.2.2	The student will record information (e.g., observations, notes, lists, charts, legends) related to a topic, including visual aids to organize and record information and include a list of sources used;	

LA.6.2.2.3	The student will organize information to show understanding (e.g., representing main ideas within text through charting, mapping, paraphrasing, summarizing, or comparing/contrasting);

Access Points for Students with Significant Cognitive Disabilities

Access Point Code	Access Point Descriptor
SC.6.N.1.In.a	Identify a problem from the sixth grade curriculum, use reference materials to gather information, carry out an experiment, collect and record data, and report results.
SC.6.N.1.Su.b	Recognize that experiments involve procedures that can be repeated the same way by others.
SC.6.N.1.Pa.c	Recognize that people conduct activities and share information about science.
SC.6.N.2.In.a	Identify familiar topics included in the study of science.
SC.6.N.2.Su.b	Recognize that scientific knowledge changes when new things are discovered.
SC.6.N.3.In.a	Identify that a scientific theory is an explanation of nature supported by evidence.
SC.6.N.3.Su.b	Recognize events that are based on scientific laws, such as the law of gravity.
SC.6.P.11.In.a	Identify energy as stored (potential) or expressed in motion (kinetic).
SC.6.P.12.In.a	Identify that speed describes the distance and time in which an object is moving, such as miles per hour.
SC.6.P.13.In.a	Identify examples of gravitational and contact forces, such as falling objects or push and pull.
SC.6.P.13.Su.b	Recognize that force can change the speed and direction of an object in motion.
SC.6.P.13.Pa.c	Recognize the speed (fast or slow) of a moving object.
SC.7.N.1.In.a	Identify a problem from the seventh grade curriculum, use reference materials to gather information, carry out an experiment, collect and record data, and report results.
SC.7.N.1.Su.b	Recognize what is tested in a simple experiment (dependent variable).
SC.7.N.1.Pa.c	Associate objects and activities with science.
SC.7.N.2.In.a	Identify an example of a change in scientific knowledge based on new evidence or new interpretations.
SC.7.N.3.In.a	Identify that scientific theories are explanations and laws describe relationships, and both are supported by evidence.
SC.7.N.3.Su.b	Recognize a benefit of using a model to explain how things work.
SC.7.P.10.In.a	Identify that white (visible) light has many colors, such as when viewed with a prism.
SC.7.P.10.Su.b	Recognize that light can be reflected.
SC.7.P.10.Pa.c	Match light and sound to their sources.
SC.7.P.11.In.a	Identify that when heat is added or taken away, a temperature change occurs.
SC.7.P.11.Su.b	Recognize that energy can change forms, such as electricity produces light and heat in a lamp.
SC.8.N.1.In.a	Identify a problem from the eighth grade curriculum, use reference materials to gather information, carry out an experiment, collect and record data, and report results.
SC.8.N.1.Su.b	Recognize a possible explanation (hypothesis) for a science problem.
SC.8.N.2.In.a	Identify that scientific knowledge must be supported by evidence.
SC.8.N.3.In.a	Identify models used in the context of one's own study of science.
SC.8.N.3.Su.b	Recognize that scientific theories can change.
SC.8.N.4.In.a	Identify ways that science processes can be used to make informed decisions in the community, state, and nation.

SC.8.P.8.In.a	Compare properties of solids, liquids, and gases.
SC.8.P.8.Su.b	Compare the weight of different sized objects.
SC.8.P.8.Pa.c	Recognize substances by physical properties, such as weight (heavy and light), size (big and small), and temperature (hot and cold).
SC.8.P.9.In.a	Observe and classify changes in matter as physical (reversible) or chemical (irreversible).
SC.8.P.9.Su.b	Observe and recognize changes caused by heat on substances.

2003020 M/J Physical Science, Advanced

Section: Basic and Adult Education
Grade Group: Middle School Grades 6-8
Subject: Science
Domain: Physical Sciences
Course Length: Year
Level: 3

This course description incorporates the following Next Generation Sunshine State Standards for standards-based teaching and learning.

Benchmarks

Benchmark Code	Benchmark Descriptor	Depth of Knowledge
SC.6.N.1.1	Define a problem from the sixth grade curriculum, use appropriate reference materials to support scientific understanding, plan and carry out scientific investigation of various types, such as systematic observations or experiments, identify variables, co	High
SC.6.N.1.2	Explain why scientific investigations should be replicable.	High
SC.6.N.1.3	Explain the difference between an experiment and other types of scientific investigation, and explain the relative benefits and limitations of each.	High
SC.6.N.1.4	Discuss, compare, and negotiate methods used, results obtained, and explanations among groups of students conducting the same investigation.	High
SC.6.N.1.5	Recognize that science involves creativity, not just in designing experiments, but also in creating explanations that fit evidence.	Moderate
SC.6.N.2.1	Distinguish science from other activities involving thought.	Moderate
SC.6.N.2.2	Explain that scientific knowledge is durable because it is open to change as new evidence or interpretations are encountered.	Moderate
SC.6.N.2.3	Recognize that scientists who make contributions to scientific knowledge come from all kinds of backgrounds and possess varied talents, interests, and goals.	Low
SC.6.N.3.1	Recognize and explain that a scientific theory is a well-supported and widely accepted explanation of nature and is not simply a claim posed by an individual. Thus, the use of the term theory in science is very different than how it is used in everyday	Moderate
SC.6.N.3.2	Recognize and explain that a scientific law is a description of a specific relationship under given conditions in the natural world. Thus, scientific laws are different from societal laws.	Moderate
SC.6.N.3.3	Give several examples of scientific laws.	Low
SC.6.N.3.4	Identify the role of models in the context of the sixth grade science benchmarks.	Moderate
SC.6.P.11.1	Explore the Law of Conservation of Energy by differentiating between potential and kinetic energy. Identify situations where kinetic energy is transformed into potential energy and vice versa.	Moderate
SC.6.P.12.1	Measure and graph distance versus time for an object moving at a constant speed. Interpret this relationship.	High
SC.6.P.13.1	Investigate and describe types of forces including contact forces and forces acting at a distance, such as electrical, magnetic, and gravitational.	Moderate

SC.6.P.13.2	Explore the Law of Gravity by recognizing that every object exerts gravitational force on every other object and that the force depends on how much mass the objects have and how far apart they are.	Low
SC.6.P.13.3	Investigate and describe that an unbalanced force acting on an object changes its speed, or direction of motion, or both.	Moderate
SC.7.N.1.1	Define a problem from the seventh grade curriculum, use appropriate reference materials to support scientific understanding, plan and carry out scientific investigation of various types, such as systematic observations or experiments, identify variables,	High
SC.7.N.1.2	Differentiate replication (by others) from repetition (multiple trials).	Moderate
SC.7.N.1.3	Distinguish between an experiment (which must involve the identification and control of variables) and other forms of scientific investigation and explain that not all scientific knowledge is derived from experimentation.	Moderate
SC.7.N.1.4	Identify test variables (independent variables) and outcome variables (dependent variables) in an experiment.	Low
SC.7.N.1.5	Describe the methods used in the pursuit of a scientific explanation as seen in different fields of science such as biology, geology, and physics.	Moderate
SC.7.N.1.6	Explain that empirical evidence is the cumulative body of observations of a natural phenomenon on which scientific explanations are based.	Moderate
SC.7.N.1.7	Explain that scientific knowledge is the result of a great deal of debate and confirmation within the science community.	Moderate
SC.7.N.2.1	Identify an instance from the history of science in which scientific knowledge has changed when new evidence or new interpretations are encountered.	Low
SC.7.N.3.1	Recognize and explain the difference between theories and laws and give several examples of scientific theories and the evidence that supports them.	High
SC.7.N.3.2	Identify the benefits and limitations of the use of scientific models.	Moderate
SC.7.P.10.1	Illustrate that the sun's energy arrives as radiation with a wide range of wavelengths, including infrared, visible, and ultraviolet, and that white light is made up of a spectrum of many different colors.	Low
SC.7.P.10.2	Observe and explain that light can be reflected, refracted, and/or absorbed.	High
SC.7.P.10.3	Recognize that light waves, sound waves, and other waves move at different speeds in different materials.	Low
SC.7.P.11.1	Recognize that adding heat to or removing heat from a system may result in a temperature change and possibly a change of state.	Low
SC.7.P.11.2	Investigate and describe the transformation of energy from one form to another.	Moderate
SC.7.P.11.3	Cite evidence to explain that energy cannot be created nor destroyed, only changed from one form to another.	High
SC.7.P.11.4	Observe and describe that heat flows in predictable ways, moving from warmer objects to cooler ones until they reach the same temperature.	Moderate
SC.8.N.1.1	Define a problem from the eighth grade curriculum using appropriate reference materials to support scientific understanding, plan and carry out scientific investigations of various types, such as systematic observations or experiments, identify variables,	High
SC.8.N.1.2	Design and conduct a study using repeated trials and replication.	High
SC.8.N.1.3	Use phrases such as "results support" or "fail to support" in science, understanding that science does not offer conclusive 'proof' of a knowledge claim.	Moderate
SC.8.N.1.4	Explain how hypotheses are valuable if they lead to further investigations, even if they turn out not to be supported by the data.	High

SC.8.N.1.5	Analyze the methods used to develop a scientific explanation as seen in different fields of science.	High
SC.8.N.1.6	Understand that scientific investigations involve the collection of relevant empirical evidence, the use of logical reasoning, and the application of imagination in devising hypotheses, predictions, explanations and models to make sense of the collected e	Moderate
SC.8.N.2.1	Distinguish between scientific and pseudoscientific ideas.	Moderate
SC.8.N.2.2	Discuss what characterizes science and its methods.	Moderate
SC.8.N.3.1	Select models useful in relating the results of their own investigations.	High
SC.8.N.3.2	Explain why theories may be modified but are rarely discarded.	High
SC.8.N.4.1	Explain that science is one of the processes that can be used to inform decision making at the community, state, national, and international levels.	Moderate
SC.8.N.4.2	Explain how political, social, and economic concerns can affect science, and vice versa.	High
SC.8.P.8.1	Explore the scientific theory of atoms (also known as atomic theory) by using models to explain the motion of particles in solids, liquids, and gases.	Moderate
SC.8.P.8.2	Differentiate between weight and mass recognizing that weight is the amount of gravitational pull on an object and is distinct from, though proportional to, mass.	Moderate
SC.8.P.8.3	Explore and describe the densities of various materials through measurement of their masses and volumes.	Moderate
SC.8.P.8.4	Classify and compare substances on the basis of characteristic physical properties that can be demonstrated or measured; for example, density, thermal or electrical conductivity, solubility, magnetic properties, melting and boiling points, and know that t	Moderate
SC.8.P.8.5	Recognize that there are a finite number of elements and that their atoms combine in a multitude of ways to produce compounds that make up all of the living and nonliving things that we encounter.	Low
SC.8.P.8.6	Recognize that elements are grouped in the periodic table according to similarities of their properties.	Low
SC.8.P.8.7	Explore the scientific theory of atoms (also known as atomic theory) by recognizing that atoms are the smallest unit of an element and are composed of sub-atomic particles (electrons surrounding a nucleus containing protons and neutrons).	Low
SC.8.P.8.8	Identify basic examples of and compare and classify the properties of compounds, including acids, bases, and salts.	Moderate
SC.8.P.8.9	Distinguish among mixtures (including solutions) and pure substances.	Moderate
SC.8.P.9.1	Explore the Law of Conservation of Mass by demonstrating and concluding that mass is conserved when substances undergo physical and chemical changes.	High
SC.8.P.9.2	Differentiate between physical changes and chemical changes.	Moderate
SC.8.P.9.3	Investigate and describe how temperature influences chemical changes.	High
SC.912.P.8.1	Differentiate among the four states of matter.	Moderate
SC.912.P.8.2	Differentiate between physical and chemical properties and physical and chemical changes of matter.	Moderate
SC.912.P.8.4	Explore the scientific theory of atoms (also known as atomic theory) by describing the structure of atoms in terms of protons, neutrons and electrons, and differentiate among these particles in terms of their mass, electrical charges and locations within	High
SC.912.P.8.5	Relate properties of atoms and their position in the periodic table to the arrangement of their electrons.	Moderate

SC.912.P.8.7	Interpret formula representations of molecules and compounds in terms of composition and structure.	Moderate
SC.912.P.8.11	Relate acidity and basicity to hydronium and hydroxyl ion concentration and pH.	Moderate
SC.912.P.10.1	Differentiate among the various forms of energy and recognize that they can be transformed from one form to others.	Moderate
SC.912.P.10.4	Describe heat as the energy transferred by convection, conduction, and radiation, and explain the connection of heat to change in temperature or states of matter.	High
SC.912.P.10.5	Relate temperature to the average molecular kinetic energy.	Moderate
MA.6.S.6.2	Select and analyze the measures of central tendency or variability to represent, describe, analyze, and/or summarize a data set for the purposes of answering questions appropriately.	High
MA.6.A.3.6	Construct and analyze tables, graphs, and equations to describe linear functions and other simple relations using both common language and algebraic notation.	High
LA.6.4.2.2	The student will record information (e.g., observations, notes, lists, charts, legends) related to a topic, including visual aids to organize and record information and include a list of sources used;	
LA.6.2.2.3	The student will organize information to show understanding (e.g., representing main ideas within text through charting, mapping, paraphrasing, summarizing, or comparing/contrasting);	

Access Points for Students with Significant Cognitive Disabilities

Access Point Code	Access Point Descriptor
SC.6.N.1.In.a	Identify a problem from the sixth grade curriculum, use reference materials to gather information, carry out an experiment, collect and record data, and report results.
SC.6.N.1.Su.b	Recognize that experiments involve procedures that can be repeated the same way by others.
SC.6.N.1.Pa.c	Recognize that people conduct activities and share information about science.
SC.6.N.2.In.a	Identify familiar topics included in the study of science.
SC.6.N.2.Su.b	Recognize that scientific knowledge changes when new things are discovered.
SC.6.N.3.In.a	Identify that a scientific theory is an explanation of nature supported by evidence.
SC.6.N.3.Su.b	Recognize events that are based on scientific laws, such as the law of gravity.
SC.6.P.11.In.a	Identify energy as stored (potential) or expressed in motion (kinetic).
SC.6.P.12.In.a	Identify that speed describes the distance and time in which an object is moving, such as miles per hour.
SC.6.P.13.In.a	Identify examples of gravitational and contact forces, such as falling objects or push and pull.
SC.6.P.13.Su.b	Recognize that force can change the speed and direction of an object in motion.
SC.6.P.13.Pa.c	Recognize the speed (fast or slow) of a moving object.
SC.7.N.1.In.a	Identify a problem from the seventh grade curriculum, use reference materials to gather information, carry out an experiment, collect and record data, and report results.
SC.7.N.1.Su.b	Recognize what is tested in a simple experiment (dependent variable).
SC.7.N.1.Pa.c	Associate objects and activities with science.
SC.7.N.2.In.a	Identify an example of a change in scientific knowledge based on new evidence or new interpretations.
SC.7.N.3.In.a	Identify that scientific theories are explanations and laws describe relationships, and both are supported by evidence.

SC.7.N.3.Su.b	Recognize a benefit of using a model to explain how things work.
SC.7.P.10.In.a	Identify that white (visible) light has many colors, such as when viewed with a prism.
SC.7.P.10.Su.b	Recognize that light can be reflected.
SC.7.P.10.Pa.c	Match light and sound to their sources.
SC.7.P.11.In.a	Identify that when heat is added or taken away, a temperature change occurs.
SC.7.P.11.Su.b	Recognize that energy can change forms, such as electricity produces light and heat in a lamp.
SC.8.N.1.In.a	Identify a problem from the eighth grade curriculum, use reference materials to gather information, carry out an experiment, collect and record data, and report results.
SC.8.N.1.Su.b	Recognize a possible explanation (hypothesis) for a science problem.
SC.8.N.2.In.a	Identify that scientific knowledge must be supported by evidence.
SC.8.N.3.In.a	Identify models used in the context of one's own study of science.
SC.8.N.3.Su.b	Recognize that scientific theories can change.
SC.8.N.4.In.a	Identify ways that science processes can be used to make informed decisions in the community, state, and nation.
SC.8.P.8.In.a	Compare properties of solids, liquids, and gases.
SC.8.P.8.Su.b	Compare the weight of different sized objects.
SC.8.P.8.Pa.c	Recognize substances by physical properties, such as weight (heavy and light), size (big and small), and temperature (hot and cold).
SC.8.P.9.In.a	Observe and classify changes in matter as physical (reversible) or chemical (irreversible).
SC.8.P.9.Su.b	Observe and recognize changes caused by heat on substances.
SC.912.P.8.In.a	Classify states of matter as solid, liquid, and gaseous.
SC.912.P.8.Su.b	Identify examples of physical and chemical changes.
SC.912.P.8.Pa.c	Recognize that the parts of an object can be put together to make a whole.
SC.912.P.10.In.a	Identify examples of energy being transformed from one form to another (conserved quantity).
SC.912.P.10.Su.b	Recognize the relationship between work and power, such as power is the amount of work a person or machine does.
SC.912.P.10.Pa.c	Recognize the source and recipient of heat transfer.

2002040 M/J Comprehensive Science 1

Section: Basic and Adult Education
Grade Group: Middle School Grades 6-8
Subject: Science
Domain: Earth/Space Sciences
Course Length: Year
Level: 2

This course description incorporates the following Next Generation Sunshine State Standards for standards-based teaching and learning.

Benchmarks

Benchmark Code	Benchmark Descriptor	Depth of Knowledge
SC.6.N.1.1	Define a problem from the sixth grade curriculum, use appropriate reference materials to support scientific understanding, plan and carry out scientific investigation of various types, such as systematic observations or experiments, identify variables, co	High
SC.6.N.1.2	Explain why scientific investigations should be replicable.	High

SC.6.N.1.3	Explain the difference between an experiment and other types of scientific investigation, and explain the relative benefits and limitations of each.	High
SC.6.N.1.4	Discuss, compare, and negotiate methods used, results obtained, and explanations among groups of students conducting the same investigation.	High
SC.6.N.1.5	Recognize that science involves creativity, not just in designing experiments, but also in creating explanations that fit evidence.	Moderate
SC.6.N.2.1	Distinguish science from other activities involving thought.	Moderate
SC.6.N.2.2	Explain that scientific knowledge is durable because it is open to change as new evidence or interpretations are encountered.	Moderate
SC.6.N.2.3	Recognize that scientists who make contributions to scientific knowledge come from all kinds of backgrounds and possess varied talents, interests, and goals.	Low
SC.6.N.3.1	Recognize and explain that a scientific theory is a well-supported and widely accepted explanation of nature and is not simply a claim posed by an individual. Thus, the use of the term theory in science is very different than how it is used in everyday	Moderate
SC.6.N.3.2	Recognize and explain that a scientific law is a description of a specific relationship under given conditions in the natural world. Thus, scientific laws are different from societal laws.	Moderate
SC.6.N.3.3	Give several examples of scientific laws.	Low
SC.6.N.3.4	Identify the role of models in the context of the sixth grade science benchmarks.	Moderate
SC.6.E.6.1	Describe and give examples of ways in which Earth's surface is built up and torn down by physical and chemical weathering, erosion, and deposition.	Moderate
SC.6.E.6.2	Recognize that there are a variety of different landforms on Earth's surface such as coastlines, dunes, rivers, mountains, glaciers, deltas, and lakes and relate these landforms as they apply to Florida.	Moderate
SC.6.E.7.1	Differentiate among radiation, conduction, and convection, the three mechanisms by which heat is transferred through Earth's system.	Moderate
SC.6.E.7.2	Investigate and apply how the cycling of water between the atmosphere and hydrosphere has an effect on weather patterns and climate.	High
SC.6.E.7.3	Describe how global patterns such as the jet stream and ocean currents influence local weather in measurable terms such as temperature, air pressure, wind direction and speed, and humidity and precipitation.	High
SC.6.E.7.4	Differentiate and show interactions among the geosphere, hydrosphere, cryosphere, atmosphere, and biosphere.	High
SC.6.E.7.5	Explain how energy provided by the sun influences global patterns of atmospheric movement and the temperature differences between air, water, and land.	High
SC.6.E.7.6	Differentiate between weather and climate.	Moderate
SC.6.E.7.7	Investigate how natural disasters have affected human life in Florida.	High
SC.6.E.7.8	Describe ways human beings protect themselves from hazardous weather and sun exposure.	Moderate
SC.6.E.7.9	Describe how the composition and structure of the atmosphere protects life and insulates the planet.	Moderate
SC.6.P.11.1	Explore the Law of Conservation of Energy by differentiating between potential and kinetic energy. Identify situations where kinetic energy is transformed into potential energy and vice versa.	Moderate
SC.6.P.12.1	Measure and graph distance versus time for an object moving at a constant speed. Interpret this relationship.	High
SC.6.P.13.1	Investigate and describe types of forces including contact forces and forces acting at a distance, such as electrical, magnetic, and gravitational.	Moderate

SC.6.P.13.2	Explore the Law of Gravity by recognizing that every object exerts gravitational force on every other object and that the force depends on how much mass the objects have and how far apart they are.	Low
SC.6.P.13.3	Investigate and describe that an unbalanced force acting on an object changes its speed, or direction of motion, or both.	Moderate
SC.6.L.14.1	Describe and identify patterns in the hierarchical organization of organisms from atoms to molecules and cells to tissues to organs to organ systems to organisms.	Low
SC.6.L.14.2	Investigate and explain the components of the scientific theory of cells (cell theory): all organisms are composed of cells (single-celled or multi-cellular), all cells come from pre-existing cells, and cells are the basic unit of life.	Moderate
SC.6.L.14.3	Recognize and explore how cells of all organisms undergo similar processes to maintain homeostasis, including extracting energy from food, getting rid of waste, and reproducing.	Moderate
SC.6.L.14.4	Compare and contrast the structure and function of major organelles of plant and animal cells, including cell wall, cell membrane, nucleus, cytoplasm, chloroplasts, mitochondria, and vacuoles.	Moderate
SC.6.L.14.5	Identify and investigate the general functions of the major systems of the human body (digestive, respiratory, circulatory, reproductive, excretory, immune, nervous, and musculoskeletal) and describe ways these systems interact with each other to maintain	High
SC.6.L.14.6	Compare and contrast types of infectious agents that may infect the human body, including viruses, bacteria, fungi, and parasites.	Moderate
SC.6.L.15.1	Analyze and describe how and why organisms are classified according to shared characteristics with emphasis on the Linnaean system combined with the concept of Domains.	High
MA.6.S.6.2	Select and analyze the measures of central tendency or variability to represent, describe, analyze, and/or summarize a data set for the purposes of answering questions appropriately.	High
MA.6.A.3.6	Construct and analyze tables, graphs, and equations to describe linear functions and other simple relations using both common language and algebraic notation.	High
LA.6.4.2.2	The student will record information (e.g., observations, notes, lists, charts, legends) related to a topic, including visual aids to organize and record information and include a list of sources used;	
LA.6.2.2.3	The student will organize information to show understanding (e.g., representing main ideas within text through charting, mapping, paraphrasing, summarizing, or comparing/contrasting);	
HE.6.C.1.3	Identify environmental factors that affect personal health.	
HE.6.C.1.8	Explain how body systems are impacted by hereditary factors and infectious agents.	

Access Points for Students with Significant Cognitive Disabilities

Access Point Code	Access Point Descriptor
SC.6.N.1.In.a	Identify a problem from the sixth grade curriculum, use reference materials to gather information, carry out an experiment, collect and record data, and report results.
SC.6.N.1.Su.b	Recognize that experiments involve procedures that can be repeated the same way by others.
SC.6.N.1.Pa.c	Recognize that people conduct activities and share information about science.
SC.6.N.2.In.a	Identify familiar topics included in the study of science.
SC.6.N.2.Su.b	Recognize that scientific knowledge changes when new things are discovered.

SC.6.N.3.In.a	Identify that a scientific theory is an explanation of nature supported by evidence.
SC.6.N.3.Su.b	Recognize events that are based on scientific laws, such as the law of gravity.
SC.6.E.6.In.a	Describe how weathering and erosion reshape the Earth's surface.
SC.6.E.6.Su.b	Recognize different landforms in Florida, including beaches (coastlines), rivers, and lakes.
SC.6.E.7.In.a	Recognize that heat is a flow of energy that moves through Earth's land, air, and water in different ways, including conduction, convection, and radiation.
SC.6.E.7.Su.b	Recognize parts of the water cycle such as clouds (condensation), rain (precipitation), and evaporation.
SC.6.E.7.Pa.c	Recognize different types of weather conditions, including hot/cold, raining/not raining, and windy/calm.
SC.6.P.11.In.a	Identify energy as stored (potential) or expressed in motion (kinetic).
SC.6.P.12.In.a	Identify that speed describes the distance and time in which an object is moving, such as miles per hour.
SC.6.P.13.In.a	Identify examples of gravitational and contact forces, such as falling objects or push and pull.
SC.6.P.13.Su.b	Recognize that force can change the speed and direction of an object in motion.
SC.6.P.13.Pa.c	Recognize the speed (fast or slow) of a moving object.
SC.6.L.14.In.a	Identify how the major structures of plants and organs of animals work as parts of larger systems, such as the heart is part of the circulatory system that pumps blood.
SC.6.L.14.Su.b	Recognize that there are smaller parts in all living things, too small to be seen without magnification, called cells.
SC.6.L.14.Pa.c	Recognize body parts related to basic needs, such as mouth for eating.
SC.6.L.15.In.a	Classify animals into major groups, such as insects, fish, reptiles, mammals, and birds.

2002070 M/J Comprehensive Science 2

Section: Basic and Adult Education
Grade Group: Middle School Grades 6-8
Subject: Science
Domain: Earth/Space Sciences
Course Length: Year
Level: 2

This course description incorporates the following Next Generation Sunshine State Standards for standards-based teaching and learning.

Benchmarks

Benchmark Code	Benchmark Descriptor	Depth of Knowledge
SC.7.N.1.1	Define a problem from the seventh grade curriculum, use appropriate reference materials to support scientific understanding, plan and carry out scientific investigation of various types, such as systematic observations or experiments, identify variables,	High
SC.7.N.1.2	Differentiate replication (by others) from repetition (multiple trials).	Moderate
SC.7.N.1.3	Distinguish between an experiment (which must involve the identification and control of variables) and other forms of scientific investigation and explain that not all scientific knowledge is derived from experimentation.	Moderate
SC.7.N.1.4	Identify test variables (independent variables) and outcome variables (dependent variables) in an experiment.	Low
SC.7.N.1.5	Describe the methods used in the pursuit of a scientific explanation as seen in different fields of science such as biology, geology, and physics.	Moderate

SC.7.N.1.6	Explain that empirical evidence is the cumulative body of observations of a natural phenomenon on which scientific explanations are based.	Moderate
SC.7.N.1.7	Explain that scientific knowledge is the result of a great deal of debate and confirmation within the science community.	Moderate
SC.7.N.2.1	Identify an instance from the history of science in which scientific knowledge has changed when new evidence or new interpretations are encountered.	Low
SC.7.N.3.1	Recognize and explain the difference between theories and laws and give several examples of scientific theories and the evidence that supports them.	High
SC.7.N.3.2	Identify the benefits and limitations of the use of scientific models.	Moderate
SC.7.E.6.1	Describe the layers of the solid Earth, including the lithosphere, the hot convecting mantle, and the dense metallic liquid and solid cores.	Moderate
SC.7.E.6.2	Identify the patterns within the rock cycle and relate them to surface events (weathering and erosion) and sub-surface events (plate tectonics and mountain building).	High
SC.7.E.6.3	Identify current methods for measuring the age of Earth and its parts, including the law of superposition and radioactive dating.	Moderate
SC.7.E.6.4	Explain and give examples of how physical evidence supports scientific theories that Earth has evolved over geologic time due to natural processes.	High
SC.7.E.6.5	Explore the scientific theory of plate tectonics by describing how the movement of Earth's crustal plates causes both slow and rapid changes in Earth's surface, including volcanic eruptions, earthquakes, and mountain building.	Moderate
SC.7.E.6.6	Identify the impact that humans have had on Earth, such as deforestation, urbanization, desertification, erosion, air and water quality, changing the flow of water.	Moderate
SC.7.E.6.7	Recognize that heat flow and movement of material within Earth causes earthquakes and volcanic eruptions, and creates mountains and ocean basins.	Moderate
SC.7.P.10.1	Illustrate that the sun's energy arrives as radiation with a wide range of wavelengths, including infrared, visible, and ultraviolet, and that white light is made up of a spectrum of many different colors.	Low
SC.7.P.10.2	Observe and explain that light can be reflected, refracted, and/or absorbed.	High
SC.7.P.10.3	Recognize that light waves, sound waves, and other waves move at different speeds in different materials.	Low
SC.7.P.11.1	Recognize that adding heat to or removing heat from a system may result in a temperature change and possibly a change of state.	Low
SC.7.P.11.2	Investigate and describe the transformation of energy from one form to another.	Moderate
SC.7.P.11.3	Cite evidence to explain that energy cannot be created nor destroyed, only changed from one form to another.	High
SC.7.P.11.4	Observe and describe that heat flows in predictable ways, moving from warmer objects to cooler ones until they reach the same temperature.	Moderate
SC.7.L.15.1	Recognize that fossil evidence is consistent with the scientific theory of evolution that living things evolved from earlier species.	Moderate
SC.7.L.15.2	Explore the scientific theory of evolution by recognizing and explaining ways in which genetic variation and environmental factors contribute to evolution by natural selection and diversity of organisms.	High
SC.7.L.15.3	Explore the scientific theory of evolution by relating how the inability of a species to adapt within a changing environment may contribute to the extinction of that species.	High
SC.7.L.16.1	Understand and explain that every organism requires a set of instructions that specifies its traits, that this hereditary information (DNA) contains genes located in the chromosomes of each cell, and that heredity is the passage of these instructions from	High

SC.7.L.16.2	Determine the probabilities for genotype and phenotype combinations using Punnett Squares and pedigrees.	Moderate
SC.7.L.16.3	Compare and contrast the general processes of sexual reproduction requiring meiosis and asexual reproduction requiring mitosis.	Moderate
SC.7.L.16.4	Recognize and explore the impact of biotechnology (cloning, genetic engineering, artificial selection) on the individual, society and the environment.	High
SC.7.L.17.1	Explain and illustrate the roles of and relationships among producers, consumers, and decomposers in the process of energy transfer in a food web.	High
SC.7.L.17.2	Compare and contrast the relationships among organisms such as mutualism, predation, parasitism, competition, and commensalism.	Moderate
SC.7.L.17.3	Describe and investigate various limiting factors in the local ecosystem and their impact on native populations, including food, shelter, water, space, disease, parasitism, predation, and nesting sites.	High
MA.6.S.6.2	Select and analyze the measures of central tendency or variability to represent, describe, analyze, and/or summarize a data set for the purposes of answering questions appropriately.	High
MA.6.A.3.6	Construct and analyze tables, graphs, and equations to describe linear functions and other simple relations using both common language and algebraic notation.	High
LA.7.4.2.2	The student will record information (e.g., observations, notes, lists, charts, legends) related to a topic, including visual aids to organize and record information, as appropriate, and attribute sources of information;	
LA.7.2.2.3	The student will organize information to show understanding (e.g., representing main ideas within text through charting, mapping, paraphrasing, summarizing, or comparing/contrasting);	
HE.7.C.1.4	Describe how heredity can affect personal health.	

Access Points for Students with Significant Cognitive Disabilities

Access Point Code	Access Point Descriptor
SC.7.N.1.In.a	Identify a problem from the seventh grade curriculum, use reference materials to gather information, carry out an experiment, collect and record data, and report results.
SC.7.N.1.Su.b	Recognize what is tested in a simple experiment (dependent variable).
SC.7.N.1.Pa.c	Associate objects and activities with science.
SC.7.N.2.In.a	Identify an example of a change in scientific knowledge based on new evidence or new interpretations.
SC.7.N.3.In.a	Identify that scientific theories are explanations and laws describe relationships, and both are supported by evidence.
SC.7.N.3.Su.b	Recognize a benefit of using a model to explain how things work.
SC.7.E.6.In.a	Identify that Earth has three layers (crust, mantle, and core) and describe the inside (core) as the hottest layer.
SC.7.E.6.Su.b	Recognize that mountains change size and shape over a long period of time.
SC.7.E.6.Pa.c	Recognize that ground on the Earth's surface changes over time.
SC.7.P.10.In.a	Identify that white (visible) light has many colors, such as when viewed with a prism.
SC.7.P.10.Su.b	Recognize that light can be reflected.
SC.7.P.10.Pa.c	Match light and sound to their sources.
SC.7.P.11.In.a	Identify that when heat is added or taken away, a temperature change occurs.
SC.7.P.11.Su.b	Recognize that energy can change forms, such as electricity produces light and heat in a lamp.

SC.7.L.15.In.a	Recognize that fossils help people learn about living things that lived a very long time ago.
SC.7.L.15.Su.b	Recognize that common plants or animals have special features that enable them to live in their environment, such as a as a fish has gills so it can live underwater.
SC.7.L.16.In.a	Explain that some characteristics are passed from parent to child (inherited).
SC.7.L.16.Su.b	Recognize that animals, including humans, inherit some characteristics from one parent and some from the other.
SC.7.L.16.Pa.c	Recognize common products, such as medicine, developed through science.
SC.7.L.17.In.a	Identify that in a simple food chain, energy transfers from the Sun to plants (producers), to animals (consumers), and to organisms that cause decay (decomposers).
SC.7.L.17.Su.b	Recognize how living things affect each other in their habitat (ecosystem).
SC.7.L.17.Pa.c	Recognize what happens when animals don't get food and water.

2002100 M/J Comprehensive Science 3

Section: Basic and Adult Education
Grade Group: Middle School Grades 6-8
Subject: Science
Domain: Earth/Space Sciences
Course Length: Year
Level: 2

This course description incorporates the following Next Generation Sunshine State Standards for standards-based teaching and learning.

Benchmarks

Benchmark Code	Benchmark Descriptor	Depth of Knowledge
SC.8.N.1.1	Define a problem from the eighth grade curriculum using appropriate reference materials to support scientific understanding, plan and carry out scientific investigations of various types, such as systematic observations or experiments, identify variables,	High
SC.8.N.1.2	Design and conduct a study using repeated trials and replication.	High
SC.8.N.1.3	Use phrases such as "results support" or "fail to support" in science, understanding that science does not offer conclusive 'proof' of a knowledge claim.	Moderate
SC.8.N.1.4	Explain how hypotheses are valuable if they lead to further investigations, even if they turn out not to be supported by the data.	High
SC.8.N.1.5	Analyze the methods used to develop a scientific explanation as seen in different fields of science.	High
SC.8.N.1.6	Understand that scientific investigations involve the collection of relevant empirical evidence, the use of logical reasoning, and the application of imagination in devising hypotheses, predictions, explanations and models to make sense of the collected e	Moderate
SC.8.N.2.1	Distinguish between scientific and pseudoscientific ideas.	Moderate
SC.8.N.2.2	Discuss what characterizes science and its methods.	Moderate
SC.8.N.3.1	Select models useful in relating the results of their own investigations.	High
SC.8.N.3.2	Explain why theories may be modified but are rarely discarded.	High
SC.8.N.4.1	Explain that science is one of the processes that can be used to inform decision making at the community, state, national, and international levels.	Moderate
SC.8.N.4.2	Explain how political, social, and economic concerns can affect science, and vice versa.	High
SC.8.E.5.1	Recognize that there are enormous distances between objects in space and apply our knowledge of light and space travel to understand this distance.	Moderate

SC.8.E.5.2	Recognize that the universe contains many billions of galaxies and that each galaxy contains many billions of stars.	Low
SC.8.E.5.3	Distinguish the hierarchical relationships between planets and other astronomical bodies relative to solar system, galaxy, and universe, including distance, size, and composition.	High
SC.8.E.5.4	Explore the Law of Universal Gravitation by explaining the role that gravity plays in the formation of planets, stars, and solar systems and in determining their motions.	High
SC.8.E.5.5	Describe and classify specific physical properties of stars: apparent magnitude (brightness), temperature (color), size, and luminosity (absolute brightness).	Moderate
SC.8.E.5.6	Create models of solar properties including: rotation, structure of the Sun, convection, sunspots, solar flares, and prominences.	Low
SC.8.E.5.7	Compare and contrast the properties of objects in the Solar System including the Sun, planets, and moons to those of Earth, such as gravitational force, distance from the Sun, speed, movement, temperature, and atmospheric conditions.	Moderate
SC.8.E.5.8	Compare various historical models of the Solar System, including geocentric and heliocentric.	Moderate
SC.8.E.5.9	Explain the impact of objects in space on each other including:	High
SC.8.E.5.10	Assess how technology is essential to science for such purposes as access to outer space and other remote locations, sample collection, measurement, data collection and storage, computation, and communication of information.	High
SC.8.E.5.11	Identify and compare characteristics of the electromagnetic spectrum such as wavelength, frequency, use, and hazards and recognize its application to an understanding of planetary images and satellite photographs.	High
SC.8.E.5.12	Summarize the effects of space exploration on the economy and culture of Florida.	Moderate
SC.8.P.8.1	Explore the scientific theory of atoms (also known as atomic theory) by using models to explain the motion of particles in solids, liquids, and gases.	Moderate
SC.8.P.8.2	Differentiate between weight and mass recognizing that weight is the amount of gravitational pull on an object and is distinct from, though proportional to, mass.	Moderate
SC.8.P.8.3	Explore and describe the densities of various materials through measurement of their masses and volumes.	Moderate
SC.8.P.8.4	Classify and compare substances on the basis of characteristic physical properties that can be demonstrated or measured; for example, density, thermal or electrical conductivity, solubility, magnetic properties, melting and boiling points, and know that t	Moderate
SC.8.P.8.5	Recognize that there are a finite number of elements and that their atoms combine in a multitude of ways to produce compounds that make up all of the living and nonliving things that we encounter.	Low
SC.8.P.8.6	Recognize that elements are grouped in the periodic table according to similarities of their properties.	Low
SC.8.P.8.7	Explore the scientific theory of atoms (also known as atomic theory) by recognizing that atoms are the smallest unit of an element and are composed of sub-atomic particles (electrons surrounding a nucleus containing protons and neutrons).	Low
SC.8.P.8.8	Identify basic examples of and compare and classify the properties of compounds, including acids, bases, and salts.	Moderate
SC.8.P.8.9	Distinguish among mixtures (including solutions) and pure substances.	Moderate
SC.8.P.9.1	Explore the Law of Conservation of Mass by demonstrating and concluding that mass is conserved when substances undergo physical and chemical changes.	High
SC.8.P.9.2	Differentiate between physical changes and chemical changes.	Moderate

SC.8.P.9.3	Investigate and describe how temperature influences chemical changes.	High
SC.8.L.18.1	Describe and investigate the process of photosynthesis, such as the roles of light, carbon dioxide, water and chlorophyll; production of food; release of oxygen.	High
SC.8.L.18.2	Describe and investigate how cellular respiration breaks down food to provide energy and releases carbon dioxide.	High
SC.8.L.18.3	Construct a scientific model of the carbon cycle to show how matter and energy are continuously transferred within and between organisms and their physical environment.	High
SC.8.L.18.4	Cite evidence that living systems follow the Laws of Conservation of Mass and Energy.	High
MA.6.S.6.2	Select and analyze the measures of central tendency or variability to represent, describe, analyze, and/or summarize a data set for the purposes of answering questions appropriately.	High
MA.6.A.3.6	Construct and analyze tables, graphs, and equations to describe linear functions and other simple relations using both common language and algebraic notation.	High
LA.8.4.2.2	The student will record information (e.g., observations, notes, lists, charts, legends) related to a topic, including visual aids to organize and record information, as appropriate, and attribute sources of information;	
LA.8.2.2.3	The student will organize information to show understanding or relationships among facts, ideas, and events (e.g., representing key points within text through charting, mapping, paraphrasing, summarizing, or comparing/contrasting);	

Access Points for Students with Significant Cognitive Disabilities

Access Point Code	Access Point Descriptor
SC.8.N.1.In.a	Identify a problem from the eighth grade curriculum, use reference materials to gather information, carry out an experiment, collect and record data, and report results.
SC.8.N.1.Su.b	Recognize a possible explanation (hypothesis) for a science problem.
SC.8.N.2.In.a	Identify that scientific knowledge must be supported by evidence.
SC.8.N.3.In.a	Identify models used in the context of one's own study of science.
SC.8.N.3.Su.b	Recognize that scientific theories can change.
SC.8.N.4.In.a	Identify ways that science processes can be used to make informed decisions in the community, state, and nation.
SC.8.E.5.In.a	Compare the distances of the Moon, the Sun, and other stars from the Earth.
SC.8.E.5.In.b	Identify that the Earth and Sun are a part of the Milky Way galaxy.
SC.8.E.5.Su.b	Recognize that the Solar System is part of a galaxy.
SC.8.E.5.Pa.c	Recognize the four seasons.
SC.8.E.5.Su.c	Identify that there are planets and moons in the Solar System.
SC.8.E.5.Pa.d	Recognize a technology tool created for space exploration and adapted for personal use, such as computers, telescopes, or satellites.
SC.8.P.8.In.a	Compare properties of solids, liquids, and gases.
SC.8.P.8.Su.b	Compare the weight of different sized objects.
SC.8.P.8.Pa.c	Recognize substances by physical properties, such as weight (heavy and light), size (big and small), and temperature (hot and cold).
SC.8.P.9.In.a	Observe and classify changes in matter as physical (reversible) or chemical (irreversible).
SC.8.P.9.Su.b	Observe and recognize changes caused by heat on substances.
SC.8.L.18.In.a	Identify structures in plants that enable them to use the energy from the Sun to make their own food through a process called photosynthesis.

SC.8.L.18.Su.b Recognize that plants and animals get energy from food.

2002050 M/J Comprehensive Science 1, Advanced

Section: Basic and Adult Education
Grade Group: Middle School Grades 6-8
Subject: Science
Domain: Earth/Space Sciences
Course Length: Year
Level: 3

This course description incorporates the following Next Generation Sunshine State Standards for standards-based teaching and learning.

Benchmarks

Benchmark Code	Benchmark Descriptor	Depth of Knowledge
SC.6.N.1.1	Define a problem from the sixth grade curriculum, use appropriate reference materials to support scientific understanding, plan and carry out scientific investigation of various types, such as systematic observations or experiments, identify variables, co	High
SC.6.N.1.2	Explain why scientific investigations should be replicable.	High
SC.6.N.1.3	Explain the difference between an experiment and other types of scientific investigation, and explain the relative benefits and limitations of each.	High
SC.6.N.1.4	Discuss, compare, and negotiate methods used, results obtained, and explanations among groups of students conducting the same investigation.	High
SC.6.N.1.5	Recognize that science involves creativity, not just in designing experiments, but also in creating explanations that fit evidence.	Moderate
SC.6.N.2.1	Distinguish science from other activities involving thought.	Moderate
SC.6.N.2.2	Explain that scientific knowledge is durable because it is open to change as new evidence or interpretations are encountered.	Moderate
SC.6.N.2.3	Recognize that scientists who make contributions to scientific knowledge come from all kinds of backgrounds and possess varied talents, interests, and goals.	Low
SC.6.N.3.1	Recognize and explain that a scientific theory is a well-supported and widely accepted explanation of nature and is not simply a claim posed by an individual. Thus, the use of the term theory in science is very different than how it is used in everyday	Moderate
SC.6.N.3.2	Recognize and explain that a scientific law is a description of a specific relationship under given conditions in the natural world. Thus, scientific laws are different from societal laws.	Moderate
SC.6.N.3.3	Give several examples of scientific laws.	Low
SC.6.N.3.4	Identify the role of models in the context of the sixth grade science benchmarks.	Moderate
SC.6.E.6.1	Describe and give examples of ways in which Earth's surface is built up and torn down by physical and chemical weathering, erosion, and deposition.	Moderate
SC.6.E.6.2	Recognize that there are a variety of different landforms on Earth's surface such as coastlines, dunes, rivers, mountains, glaciers, deltas, and lakes and relate these landforms as they apply to Florida.	Moderate
SC.6.E.7.1	Differentiate among radiation, conduction, and convection, the three mechanisms by which heat is transferred through Earth's system.	Moderate
SC.6.E.7.2	Investigate and apply how the cycling of water between the atmosphere and hydrosphere has an effect on weather patterns and climate.	High
SC.6.E.7.3	Describe how global patterns such as the jet stream and ocean currents influence local weather in measurable terms such as temperature, air pressure, wind direction and speed, and humidity and precipitation.	High

SC.6.E.7.4	Differentiate and show interactions among the geosphere, hydrosphere, cryosphere, atmosphere, and biosphere.	High
SC.6.E.7.5	Explain how energy provided by the sun influences global patterns of atmospheric movement and the temperature differences between air, water, and land.	High
SC.6.E.7.6	Differentiate between weather and climate.	Moderate
SC.6.E.7.7	Investigate how natural disasters have affected human life in Florida.	High
SC.6.E.7.8	Describe ways human beings protect themselves from hazardous weather and sun exposure.	Moderate
SC.6.E.7.9	Describe how the composition and structure of the atmosphere protects life and insulates the planet.	Moderate
SC.6.P.11.1	Explore the Law of Conservation of Energy by differentiating between potential and kinetic energy. Identify situations where kinetic energy is transformed into potential energy and vice versa.	Moderate
SC.6.P.12.1	Measure and graph distance versus time for an object moving at a constant speed. Interpret this relationship.	High
SC.6.P.13.1	Investigate and describe types of forces including contact forces and forces acting at a distance, such as electrical, magnetic, and gravitational.	Moderate
SC.6.P.13.2	Explore the Law of Gravity by recognizing that every object exerts gravitational force on every other object and that the force depends on how much mass the objects have and how far apart they are.	Low
SC.6.P.13.3	Investigate and describe that an unbalanced force acting on an object changes its speed, or direction of motion, or both.	Moderate
SC.6.L.14.1	Describe and identify patterns in the hierarchical organization of organisms from atoms to molecules and cells to tissues to organs to organ systems to organisms.	Low
SC.6.L.14.2	Investigate and explain the components of the scientific theory of cells (cell theory): all organisms are composed of cells (single-celled or multi-cellular), all cells come from pre-existing cells, and cells are the basic unit of life.	Moderate
SC.6.L.14.3	Recognize and explore how cells of all organisms undergo similar processes to maintain homeostasis, including extracting energy from food, getting rid of waste, and reproducing.	Moderate
SC.6.L.14.4	Compare and contrast the structure and function of major organelles of plant and animal cells, including cell wall, cell membrane, nucleus, cytoplasm, chloroplasts, mitochondria, and vacuoles.	Moderate
SC.6.L.14.5	Identify and investigate the general functions of the major systems of the human body (digestive, respiratory, circulatory, reproductive, excretory, immune, nervous, and musculoskeletal) and describe ways these systems interact with each other to maintain	High
SC.6.L.14.6	Compare and contrast types of infectious agents that may infect the human body, including viruses, bacteria, fungi, and parasites.	Moderate
SC.6.L.15.1	Analyze and describe how and why organisms are classified according to shared characteristics with emphasis on the Linnaean system combined with the concept of Domains.	High
SC.912.E.7.3	Differentiate and describe the various interactions among Earth systems, including: atmosphere, hydrosphere, cryosphere, geosphere, and biosphere.	High
SC.912.E.7.5	Predict future weather conditions based on present observations and conceptual models and recognize limitations and uncertainties of such predictions.	High
SC.912.E.7.6	Relate the formation of severe weather to the various physical factors.	Moderate
SC.912.P.10.4	Describe heat as the energy transferred by convection, conduction, and radiation, and explain the connection of heat to change in temperature or states of matter.	High

SC.912.L.14.2	Relate structure to function for the components of plant and animal cells. Explain the role of cell membranes as a highly selective barrier (passive and active transport).	Moderate
SC.912.L.14.3	Compare and contrast the general structures of plant and animal cells. Compare and contrast the general structures of prokaryotic and eukaryotic cells.	Moderate
SC.912.L.16.14	Describe the cell cycle, including the process of mitosis. Explain the role of mitosis in the formation of new cells and its importance in maintaining chromosome number during asexual reproduction.	Moderate
MA.6.S.6.2	Select and analyze the measures of central tendency or variability to represent, describe, analyze, and/or summarize a data set for the purposes of answering questions appropriately.	High
MA.6.A.3.6	Construct and analyze tables, graphs, and equations to describe linear functions and other simple relations using both common language and algebraic notation.	High
LA.6.4.2.2	The student will record information (e.g., observations, notes, lists, charts, legends) related to a topic, including visual aids to organize and record information and include a list of sources used;	
LA.6.2.2.3	The student will organize information to show understanding (e.g., representing main ideas within text through charting, mapping, paraphrasing, summarizing, or comparing/contrasting);	
HE.6.C.1.3	Identify environmental factors that affect personal health.	
HE.6.C.1.8	Explain how body systems are impacted by hereditary factors and infectious agents.	

Access Points for Students with Significant Cognitive Disabilities

Access Point Code	Access Point Descriptor
SC.6.N.1.In.a	Identify a problem from the sixth grade curriculum, use reference materials to gather information, carry out an experiment, collect and record data, and report results.
SC.6.N.1.Su.b	Recognize that experiments involve procedures that can be repeated the same way by others.
SC.6.N.1.Pa.c	Recognize that people conduct activities and share information about science.
SC.6.N.2.In.a	Identify familiar topics included in the study of science.
SC.6.N.2.Su.b	Recognize that scientific knowledge changes when new things are discovered.
SC.6.N.3.In.a	Identify that a scientific theory is an explanation of nature supported by evidence.
SC.6.N.3.Su.b	Recognize events that are based on scientific laws, such as the law of gravity.
SC.6.E.6.In.a	Describe how weathering and erosion reshape the Earth's surface.
SC.6.E.6.Su.b	Recognize different landforms in Florida, including beaches (coastlines), rivers, and lakes.
SC.6.E.7.In.a	Recognize that heat is a flow of energy that moves through Earth's land, air, and water in different ways, including conduction, convection, and radiation.
SC.6.E.7.Su.b	Recognize parts of the water cycle such as clouds (condensation), rain (precipitation), and evaporation.
SC.6.E.7.Pa.c	Recognize different types of weather conditions, including hot/cold, raining/not raining, and windy/calm.
SC.6.P.11.In.a	Identify energy as stored (potential) or expressed in motion (kinetic).
SC.6.P.12.In.a	Identify that speed describes the distance and time in which an object is moving, such as miles per hour.
SC.6.P.13.In.a	Identify examples of gravitational and contact forces, such as falling objects or push and pull.

SC.6.P.13.Su.b	Recognize that force can change the speed and direction of an object in motion.
SC.6.P.13.Pa.c	Recognize the speed (fast or slow) of a moving object.
SC.6.L.14.In.a	Identify how the major structures of plants and organs of animals work as parts of larger systems, such as the heart is part of the circulatory system that pumps blood.
SC.6.L.14.Su.b	Recognize that there are smaller parts in all living things, too small to be seen without magnification, called cells.
SC.6.L.14.Pa.c	Recognize body parts related to basic needs, such as mouth for eating.
SC.6.L.15.In.a	Classify animals into major groups, such as insects, fish, reptiles, mammals, and birds.
SC.912.E.7.In.a	Identify cycles that occur on Earth, such as the water and carbon cycles, and the role energy plays in them.
SC.912.E.7.Su.b	Recognize that currents move the ocean water around Earth.
SC.912.E.7.Pa.c	Recognize that humans, plants, and animals live on the Earth (biosphere).
SC.912.P.10.In.a	Identify examples of energy being transformed from one form to another (conserved quantity).
SC.912.P.10.Su.b	Recognize the relationship between work and power, such as power is the amount of work a person or machine does.
SC.912.P.10.Pa.c	Recognize the source and recipient of heat transfer.
SC.912.L.14.In.a	Identify that all living things are made of cells and cells function in similar ways (cell theory).
SC.912.L.14.Su.b	Recognize that cells have different parts and each has a function.
SC.912.L.14.Pa.c	Identify ways to prevent infection from bacteria and viruses, such as hand washing and first aid.
SC.912.L.16.In.a	Identify that genes are sets of instructions that determine which characteristics are passed from parent to offspring.
SC.912.L.16.Su.b	Recognize that all organisms have a substance called DNA with unique information.
SC.912.L.16.Pa.c	Recognize that illness can result when parts of our bodies are not working properly.

2002080 M/J Comprehensive Science 2, Advanced

Section: Basic and Adult Education

Grade Group: Middle School Grades 6-8

Subject: Science

Domain: Earth/Space Sciences

Course Length: Year

Level: 3

This course description incorporates the following Next Generation Sunshine State Standards for standards-based teaching and learning.

Benchmarks

Benchmark Code	Benchmark Descriptor	Depth of Knowledge
SC.7.N.1.1	Define a problem from the seventh grade curriculum, use appropriate reference materials to support scientific understanding, plan and carry out scientific investigation of various types, such as systematic observations or experiments, identify variables,	High
SC.7.N.1.2	Differentiate replication (by others) from repetition (multiple trials).	Moderate
SC.7.N.1.3	Distinguish between an experiment (which must involve the identification and control of variables) and other forms of scientific investigation and explain that not all scientific knowledge is derived from experimentation.	Moderate
SC.7.N.1.4	Identify test variables (independent variables) and outcome variables (dependent variables) in an experiment.	Low

SC.7.N.1.5	Describe the methods used in the pursuit of a scientific explanation as seen in different fields of science such as biology, geology, and physics.	Moderate
SC.7.N.1.6	Explain that empirical evidence is the cumulative body of observations of a natural phenomenon on which scientific explanations are based.	Moderate
SC.7.N.1.7	Explain that scientific knowledge is the result of a great deal of debate and confirmation within the science community.	Moderate
SC.7.N.2.1	Identify an instance from the history of science in which scientific knowledge has changed when new evidence or new interpretations are encountered.	Low
SC.7.N.3.1	Recognize and explain the difference between theories and laws and give several examples of scientific theories and the evidence that supports them.	High
SC.7.N.3.2	Identify the benefits and limitations of the use of scientific models.	Moderate
SC.7.E.6.1	Describe the layers of the solid Earth, including the lithosphere, the hot convecting mantle, and the dense metallic liquid and solid cores.	Moderate
SC.7.E.6.2	Identify the patterns within the rock cycle and relate them to surface events (weathering and erosion) and sub-surface events (plate tectonics and mountain building).	High
SC.7.E.6.3	Identify current methods for measuring the age of Earth and its parts, including the law of superposition and radioactive dating.	Moderate
SC.7.E.6.4	Explain and give examples of how physical evidence supports scientific theories that Earth has evolved over geologic time due to natural processes.	High
SC.7.E.6.5	Explore the scientific theory of plate tectonics by describing how the movement of Earth's crustal plates causes both slow and rapid changes in Earth's surface, including volcanic eruptions, earthquakes, and mountain building.	Moderate
SC.7.E.6.6	Identify the impact that humans have had on Earth, such as deforestation, urbanization, desertification, erosion, air and water quality, changing the flow of water.	Moderate
SC.7.E.6.7	Recognize that heat flow and movement of material within Earth causes earthquakes and volcanic eruptions, and creates mountains and ocean basins.	Moderate
SC.7.P.10.1	Illustrate that the sun's energy arrives as radiation with a wide range of wavelengths, including infrared, visible, and ultraviolet, and that white light is made up of a spectrum of many different colors.	Low
SC.7.P.10.2	Observe and explain that light can be reflected, refracted, and/or absorbed.	High
SC.7.P.10.3	Recognize that light waves, sound waves, and other waves move at different speeds in different materials.	Low
SC.7.P.11.1	Recognize that adding heat to or removing heat from a system may result in a temperature change and possibly a change of state.	Low
SC.7.P.11.2	Investigate and describe the transformation of energy from one form to another.	Moderate
SC.7.P.11.3	Cite evidence to explain that energy cannot be created nor destroyed, only changed from one form to another.	High
SC.7.P.11.4	Observe and describe that heat flows in predictable ways, moving from warmer objects to cooler ones until they reach the same temperature.	Moderate
SC.7.L.15.1	Recognize that fossil evidence is consistent with the scientific theory of evolution that living things evolved from earlier species.	Moderate
SC.7.L.15.2	Explore the scientific theory of evolution by recognizing and explaining ways in which genetic variation and environmental factors contribute to evolution by natural selection and diversity of organisms.	High
SC.7.L.15.3	Explore the scientific theory of evolution by relating how the inability of a species to adapt within a changing environment may contribute to the extinction of that species.	High

SC.7.L.16.1	Understand and explain that every organism requires a set of instructions that specifies its traits, that this hereditary information (DNA) contains genes located in the chromosomes of each cell, and that heredity is the passage of these instructions from	High
SC.7.L.16.2	Determine the probabilities for genotype and phenotype combinations using Punnett Squares and pedigrees.	Moderate
SC.7.L.16.3	Compare and contrast the general processes of sexual reproduction requiring meiosis and asexual reproduction requiring mitosis.	Moderate
SC.7.L.16.4	Recognize and explore the impact of biotechnology (cloning, genetic engineering, artificial selection) on the individual, society and the environment.	High
SC.7.L.17.1	Explain and illustrate the roles of and relationships among producers, consumers, and decomposers in the process of energy transfer in a food web.	High
SC.7.L.17.2	Compare and contrast the relationships among organisms such as mutualism, predation, parasitism, competition, and commensalism.	Moderate
SC.7.L.17.3	Describe and investigate various limiting factors in the local ecosystem and their impact on native populations, including food, shelter, water, space, disease, parasitism, predation, and nesting sites.	High
SC.912.E.6.1	Describe and differentiate the layers of Earth and the interactions among them.	Moderate
SC.912.E.6.2	Connect surface features to surface processes that are responsible for their formation.	Moderate
SC.912.E.6.3	Analyze the scientific theory of plate tectonics and identify related major processes and features as a result of moving plates.	High
SC.912.P.10.1	Differentiate among the various forms of energy and recognize that they can be transformed from one form to others.	Moderate
SC.912.P.10.5	Relate temperature to the average molecular kinetic energy.	Moderate
SC.912.L.15.6	Discuss distinguishing characteristics of the domains and kingdoms of living organisms.	Moderate
SC.912.L.15.13	Describe the conditions required for natural selection, including: overproduction of offspring, inherited variation, and the struggle to survive, which result in differential reproductive success.	Moderate
SC.912.L.16.2	Discuss observed inheritance patterns caused by various modes of inheritance, including dominant, recessive, codominant, sex-linked, polygenic, and multiple alleles.	High
SC.912.L.16.16	Describe the process of meiosis, including independent assortment and crossing over. Explain how reduction division results in the formation of haploid gametes or spores.	Moderate
SC.912.L.17.6	Compare and contrast the relationships among organisms, including predation, parasitism, competition, commensalism, and mutualism.	Moderate
SC.912.L.17.9	Use a food web to identify and distinguish producers, consumers, and decomposers. Explain the pathway of energy transfer through trophic levels and the reduction of available energy at successive trophic levels.	Moderate
MA.6.S.6.2	Select and analyze the measures of central tendency or variability to represent, describe, analyze, and/or summarize a data set for the purposes of answering questions appropriately.	High
MA.6.A.3.6	Construct and analyze tables, graphs, and equations to describe linear functions and other simple relations using both common language and algebraic notation.	High
LA.7.4.2.2	The student will record information (e.g., observations, notes, lists, charts, legends) related to a topic, including visual aids to organize and record information, as appropriate, and attribute sources of information;	

LA.7.2.2.3	The student will organize information to show understanding (e.g., representing main ideas within text through charting, mapping, paraphrasing, summarizing, or comparing/contrasting);
HE.7.C.1.4	Describe how heredity can affect personal health.

Access Points for Students with Significant Cognitive Disabilities

Access Point Code	Access Point Descriptor
SC.7.N.1.In.a	Identify a problem from the seventh grade curriculum, use reference materials to gather information, carry out an experiment, collect and record data, and report results.
SC.7.N.1.Su.b	Recognize what is tested in a simple experiment (dependent variable).
SC.7.N.1.Pa.c	Associate objects and activities with science.
SC.7.N.2.In.a	Identify an example of a change in scientific knowledge based on new evidence or new interpretations.
SC.7.N.3.In.a	Identify that scientific theories are explanations and laws describe relationships, and both are supported by evidence.
SC.7.N.3.Su.b	Recognize a benefit of using a model to explain how things work.
SC.7.E.6.In.a	Identify that Earth has three layers (crust, mantle, and core) and describe the inside (core) as the hottest layer.
SC.7.E.6.Su.b	Recognize that mountains change size and shape over a long period of time.
SC.7.E.6.Pa.c	Recognize that ground on the Earth's surface changes over time.
SC.7.P.10.In.a	Identify that white (visible) light has many colors, such as when viewed with a prism.
SC.7.P.10.Su.b	Recognize that light can be reflected.
SC.7.P.10.Pa.c	Match light and sound to their sources.
SC.7.P.11.In.a	Identify that when heat is added or taken away, a temperature change occurs.
SC.7.P.11.Su.b	Recognize that energy can change forms, such as electricity produces light and heat in a lamp.
SC.7.L.15.In.a	Recognize that fossils help people learn about living things that lived a very long time ago.
SC.7.L.15.Su.b	Recognize that common plants or animals have special features that enable them to live in their environment, such as a as a fish has gills so it can live underwater.
SC.7.L.16.In.a	Explain that some characteristics are passed from parent to child (inherited).
SC.7.L.16.Su.b	Recognize that animals, including humans, inherit some characteristics from one parent and some from the other.
SC.7.L.16.Pa.c	Recognize common products, such as medicine, developed through science.
SC.7.L.17.In.a	Identify that in a simple food chain, energy transfers from the Sun to plants (producers), to animals (consumers), and to organisms that cause decay (decomposers).
SC.7.L.17.Su.b	Recognize how living things affect each other in their habitat (ecosystem).
SC.7.L.17.Pa.c	Recognize what happens when animals don't get food and water.
SC.912.E.6.In.a	Describe the three layers of Earth (core, mantle, and crust).
SC.912.E.6.Su.b	Identify types of surface features, such as hills and valleys.
SC.912.P.10.In.a	Identify examples of energy being transformed from one form to another (conserved quantity).
SC.912.P.10.Su.b	Recognize the relationship between work and power, such as power is the amount of work a person or machine does.
SC.912.P.10.Pa.c	Recognize the source and recipient of heat transfer.

SC.912.L.15.In.a	Identify that prehistoric plants and animals changed over time (evolved) or became extinct.
SC.912.L.15.Su.b	Match organisms to the animal, plant, and fungus kingdoms.
SC.912.L.15.Pa.c	Recognize that animals produce offspring.
SC.912.L.16.In.a	Identify that genes are sets of instructions that determine which characteristics are passed from parent to offspring.
SC.912.L.16.Su.b	Recognize that all organisms have a substance called DNA with unique information.
SC.912.L.16.Pa.c	Recognize that illness can result when parts of our bodies are not working properly.
SC.912.L.17.In.a	Recognize that living things in oceans and fresh water are affected by the location, availability of light, depth of the water, and temperature.
SC.912.L.17.Su.b	Recognize how animals and plants in an ecosystem may be affected by changes to the food supply or climate.
SC.912.L.17.Pa.c	Recognize examples of mutual relationships between people and other living things.

2002110 M/J Comprehensive Science 3, Advanced

Section: Basic and Adult Education
Grade Group: Middle School Grades 6-8
Subject: Science
Domain: Earth/Space Sciences
Course Length: Year
Level: 3

This course description incorporates the following Next Generation Sunshine State Standards for standards-based teaching and learning.

Benchmarks

Benchmark Code	Benchmark Descriptor	Depth of Knowledge
SC.8.N.1.1	Define a problem from the eighth grade curriculum using appropriate reference materials to support scientific understanding, plan and carry out scientific investigations of various types, such as systematic observations or experiments, identify variables,	High
SC.8.N.1.2	Design and conduct a study using repeated trials and replication.	High
SC.8.N.1.3	Use phrases such as "results support" or "fail to support" in science, understanding that science does not offer conclusive 'proof' of a knowledge claim.	Moderate
SC.8.N.1.4	Explain how hypotheses are valuable if they lead to further investigations, even if they turn out not to be supported by the data.	High
SC.8.N.1.5	Analyze the methods used to develop a scientific explanation as seen in different fields of science.	High
SC.8.N.1.6	Understand that scientific investigations involve the collection of relevant empirical evidence, the use of logical reasoning, and the application of imagination in devising hypotheses, predictions, explanations and models to make sense of the collected e	Moderate
SC.8.N.2.1	Distinguish between scientific and pseudoscientific ideas.	Moderate
SC.8.N.2.2	Discuss what characterizes science and its methods.	Moderate
SC.8.N.3.1	Select models useful in relating the results of their own investigations.	High
SC.8.N.3.2	Explain why theories may be modified but are rarely discarded.	High
SC.8.N.4.1	Explain that science is one of the processes that can be used to inform decision making at the community, state, national, and international levels.	Moderate
SC.8.N.4.2	Explain how political, social, and economic concerns can affect science, and vice versa.	High

SC.8.E.5.1	Recognize that there are enormous distances between objects in space and apply our knowledge of light and space travel to understand this distance.	Moderate
SC.8.E.5.2	Recognize that the universe contains many billions of galaxies and that each galaxy contains many billions of stars.	Low
SC.8.E.5.3	Distinguish the hierarchical relationships between planets and other astronomical bodies relative to solar system, galaxy, and universe, including distance, size, and composition.	High
SC.8.E.5.4	Explore the Law of Universal Gravitation by explaining the role that gravity plays in the formation of planets, stars, and solar systems and in determining their motions.	High
SC.8.E.5.5	Describe and classify specific physical properties of stars: apparent magnitude (brightness), temperature (color), size, and luminosity (absolute brightness).	Moderate
SC.8.E.5.6	Create models of solar properties including: rotation, structure of the Sun, convection, sunspots, solar flares, and prominences.	Low
SC.8.E.5.7	Compare and contrast the properties of objects in the Solar System including the Sun, planets, and moons to those of Earth, such as gravitational force, distance from the Sun, speed, movement, temperature, and atmospheric conditions.	Moderate
SC.8.E.5.8	Compare various historical models of the Solar System, including geocentric and heliocentric.	Moderate
SC.8.E.5.9	Explain the impact of objects in space on each other including:	High
SC.8.E.5.10	Assess how technology is essential to science for such purposes as access to outer space and other remote locations, sample collection, measurement, data collection and storage, computation, and communication of information.	High
SC.8.E.5.11	Identify and compare characteristics of the electromagnetic spectrum such as wavelength, frequency, use, and hazards and recognize its application to an understanding of planetary images and satellite photographs.	High
SC.8.E.5.12	Summarize the effects of space exploration on the economy and culture of Florida.	Moderate
SC.8.P.8.1	Explore the scientific theory of atoms (also known as atomic theory) by using models to explain the motion of particles in solids, liquids, and gases.	Moderate
SC.8.P.8.2	Differentiate between weight and mass recognizing that weight is the amount of gravitational pull on an object and is distinct from, though proportional to, mass.	Moderate
SC.8.P.8.3	Explore and describe the densities of various materials through measurement of their masses and volumes.	Moderate
SC.8.P.8.4	Classify and compare substances on the basis of characteristic physical properties that can be demonstrated or measured; for example, density, thermal or electrical conductivity, solubility, magnetic properties, melting and boiling points, and know that t	Moderate
SC.8.P.8.5	Recognize that there are a finite number of elements and that their atoms combine in a multitude of ways to produce compounds that make up all of the living and nonliving things that we encounter.	Low
SC.8.P.8.6	Recognize that elements are grouped in the periodic table according to similarities of their properties.	Low
SC.8.P.8.7	Explore the scientific theory of atoms (also known as atomic theory) by recognizing that atoms are the smallest unit of an element and are composed of sub-atomic particles (electrons surrounding a nucleus containing protons and neutrons).	Low
SC.8.P.8.8	Identify basic examples of and compare and classify the properties of compounds, including acids, bases, and salts.	Moderate
SC.8.P.8.9	Distinguish among mixtures (including solutions) and pure substances.	Moderate

SC.8.P.9.1	Explore the Law of Conservation of Mass by demonstrating and concluding that mass is conserved when substances undergo physical and chemical changes.	High
SC.8.P.9.2	Differentiate between physical changes and chemical changes.	Moderate
SC.8.P.9.3	Investigate and describe how temperature influences chemical changes.	High
SC.8.L.18.1	Describe and investigate the process of photosynthesis, such as the roles of light, carbon dioxide, water and chlorophyll; production of food; release of oxygen.	High
SC.8.L.18.2	Describe and investigate how cellular respiration breaks down food to provide energy and releases carbon dioxide.	High
SC.8.L.18.3	Construct a scientific model of the carbon cycle to show how matter and energy are continuously transferred within and between organisms and their physical environment.	High
SC.8.L.18.4	Cite evidence that living systems follow the Laws of Conservation of Mass and Energy.	High
SC.912.E.5.4	Explain the physical properties of the Sun and its dynamic nature and connect them to conditions and events on Earth.	High
SC.912.P.8.1	Differentiate among the four states of matter.	Moderate
SC.912.P.8.2	Differentiate between physical and chemical properties and physical and chemical changes of matter.	Moderate
SC.912.P.8.4	Explore the scientific theory of atoms (also known as atomic theory) by describing the structure of atoms in terms of protons, neutrons and electrons, and differentiate among these particles in terms of their mass, electrical charges and locations within	High
SC.912.P.8.5	Relate properties of atoms and their position in the periodic table to the arrangement of their electrons.	Moderate
SC.912.P.8.7	Interpret formula representations of molecules and compounds in terms of composition and structure.	Moderate
SC.912.P.8.11	Relate acidity and basicity to hydronium and hydroxyl ion concentration and pH.	Moderate
SC.912.L.18.7	Identify the reactants, products, and basic functions of photosynthesis.	Moderate
SC.912.L.18.8	Identify the reactants, products, and basic functions of aerobic and anaerobic cellular respiration.	Moderate
SC.912.L.18.9	Explain the interrelated nature of photosynthesis and cellular respiration.	Moderate
MA.6.S.6.2	Select and analyze the measures of central tendency or variability to represent, describe, analyze, and/or summarize a data set for the purposes of answering questions appropriately.	High
MA.6.A.3.6	Construct and analyze tables, graphs, and equations to describe linear functions and other simple relations using both common language and algebraic notation.	High
LA.8.4.2.2	The student will record information (e.g., observations, notes, lists, charts, legends) related to a topic, including visual aids to organize and record information, as appropriate, and attribute sources of information;	
LA.8.2.2.3	The student will organize information to show understanding or relationships among facts, ideas, and events (e.g., representing key points within text through charting, mapping, paraphrasing, summarizing, or comparing/contrasting);	

Access Points for Students with Significant Cognitive Disabilities

Access Point Code	Access Point Descriptor
SC.8.N.1.In.a	Identify a problem from the eighth grade curriculum, use reference materials to gather information, carry out an experiment, collect and record data, and report results.
SC.8.N.1.Su.b	Recognize a possible explanation (hypothesis) for a science problem.
SC.8.N.2.In.a	Identify that scientific knowledge must be supported by evidence.

SC.8.N.3.In.a	Identify models used in the context of one's own study of science.
SC.8.N.3.Su.b	Recognize that scientific theories can change.
SC.8.N.4.In.a	Identify ways that science processes can be used to make informed decisions in the community, state, and nation.
SC.8.E.5.In.a	Compare the distances of the Moon, the Sun, and other stars from the Earth.
SC.8.E.5.In.b	Identify that the Earth and Sun are a part of the Milky Way galaxy.
SC.8.E.5.Su.b	Recognize that the Solar System is part of a galaxy.
SC.8.E.5.Pa.c	Recognize the four seasons.
SC.8.E.5.Su.c	Identify that there are planets and moons in the Solar System.
SC.8.E.5.Pa.d	Recognize a technology tool created for space exploration and adapted for personal use, such as computers, telescopes, or satellites.
SC.8.P.8.In.a	Compare properties of solids, liquids, and gases.
SC.8.P.8.Su.b	Compare the weight of different sized objects.
SC.8.P.8.Pa.c	Recognize substances by physical properties, such as weight (heavy and light), size (big and small), and temperature (hot and cold).
SC.8.P.9.In.a	Observe and classify changes in matter as physical (reversible) or chemical (irreversible).
SC.8.P.9.Su.b	Observe and recognize changes caused by heat on substances.
SC.8.L.18.In.a	Identify structures in plants that enable them to use the energy from the Sun to make their own food through a process called photosynthesis.
SC.8.L.18.Su.b	Recognize that plants and animals get energy from food.
SC.912.E.5.In.a	Recognize that the Milky Way is part of the expanding universe.
SC.912.E.5.Su.b	Recognize that stars are made of burning gases.
SC.912.E.5.Pa.c	Observe and recognize effects of the Sun on Earth, such as temperature changes.
SC.912.P.8.In.a	Classify states of matter as solid, liquid, and gaseous.
SC.912.P.8.Su.b	Identify examples of physical and chemical changes.
SC.912.P.8.Pa.c	Recognize that the parts of an object can be put together to make a whole.
SC.912.L.18.In.a	Identify that carbohydrates, fats, proteins, and nucleic acids (macromolecules) are important for human organisms.
SC.912.L.18.Su.b	Recognize that the function of photosynthesis is to produce food for plants.
SC.912.L.18.Pa.c	Identify that food is a source of energy.

2000310 Biology I

Section: Basic and Adult Education
Grade Group: Secondary Grades 9-12
Subject: Science
Domain: Biological Sciences
Course Length: Year
Level: 2

This course description incorporates the following Next Generation Sunshine State Standards for standards-based teaching and learning.

Benchmarks

Benchmark Code	Benchmark Descriptor	Depth of Knowledge
SC.912.N.1.1	Define a problem based on a specific body of knowledge, for example: biology, chemistry, physics, and earth/space science, and do the following:	High

SC.912.N.1.3	Recognize that the strength or usefulness of a scientific claim is evaluated through scientific argumentation, which depends on critical and logical thinking, and the active consideration of alternative scientific explanations to explain the data present	Low
SC.912.N.1.4	Identify sources of information and assess their reliability according to the strict standards of scientific investigation.	High
SC.912.N.1.6	Describe how scientific inferences are drawn from scientific observations and provide examples from the content being studied.	Moderate
SC.912.N.2.1	Identify what is science, what clearly is not science, and what superficially resembles science (but fails to meet the criteria for science).	High
SC.912.N.2.2	Identify which questions can be answered through science and which questions are outside the boundaries of scientific investigation, such as questions addressed by other ways of knowing, such as art, philosophy, and religion.	High
SC.912.N.3.1	Explain that a scientific theory is the culmination of many scientific investigations drawing together all the current evidence concerning a substantial range of phenomena; thus, a scientific theory represents the most powerful explanation scientists have	High
SC.912.N.3.4	Recognize that theories do not become laws, nor do laws become theories; theories are well supported explanations and laws are well supported descriptions.	Moderate
SC.912.E.7.1	Analyze the movement of matter and energy through the different biogeochemical cycles, including water and carbon.	High
SC.912.L.14.1	Describe the scientific theory of cells (cell theory) and relate the history of its discovery to the process of science.	Moderate
SC.912.L.14.2	Relate structure to function for the components of plant and animal cells. Explain the role of cell membranes as a highly selective barrier (passive and active transport).	Moderate
SC.912.L.14.3	Compare and contrast the general structures of plant and animal cells. Compare and contrast the general structures of prokaryotic and eukaryotic cells.	Moderate
SC.912.L.14.4	Compare and contrast structure and function of various types of microscopes.	Moderate
SC.912.L.14.6	Explain the significance of genetic factors, environmental factors, and pathogenic agents to health from the perspectives of both individual and public health.	High
SC.912.L.14.7	Relate the structure of each of the major plant organs and tissues to physiological processes.	Moderate
SC.912.L.14.26	Identify the major parts of the brain on diagrams or models.	Low
SC.912.L.14.36	Describe the factors affecting blood flow through the cardiovascular system.	Moderate
SC.912.L.14.52	Explain the basic functions of the human immune system, including specific and nonspecific immune response, vaccines, and antibiotics.	Moderate
SC.912.L.15.1	Explain how the scientific theory of evolution is supported by the fossil record, comparative anatomy, comparative embryology, biogeography, molecular biology, and observed evolutionary change.	High
SC.912.L.15.4	Describe how and why organisms are hierarchically classified and based on evolutionary relationships.	High
SC.912.L.15.5	Explain the reasons for changes in how organisms are classified.	High
SC.912.L.15.6	Discuss distinguishing characteristics of the domains and kingdoms of living organisms.	Moderate
SC.912.L.15.8	Describe the scientific explanations of the origin of life on Earth.	Moderate
SC.912.L.15.10	Identify basic trends in hominid evolution from early ancestors six million years ago to modern humans, including brain size, jaw size, language, and manufacture of tools.	Moderate

SC.912.L.15.13	Describe the conditions required for natural selection, including: overproduction of offspring, inherited variation, and the struggle to survive, which result in differential reproductive success.	Moderate
SC.912.L.15.14	Discuss mechanisms of evolutionary change other than natural selection such as genetic drift and gene flow.	Moderate
SC.912.L.15.15	Describe how mutation and genetic recombination increase genetic variation.	Moderate
SC.912.L.16.1	Use Mendel's laws of segregation and independent assortment to analyze patterns of inheritance.	High
SC.912.L.16.2	Discuss observed inheritance patterns caused by various modes of inheritance, including dominant, recessive, codominant, sex-linked, polygenic, and multiple alleles.	High
SC.912.L.16.3	Describe the basic process of DNA replication and how it relates to the transmission and conservation of the genetic information.	High
SC.912.L.16.4	Explain how mutations in the DNA sequence may or may not result in phenotypic change. Explain how mutations in gametes may result in phenotypic changes in offspring.	High
SC.912.L.16.5	Explain the basic processes of transcription and translation, and how they result in the expression of genes.	High
SC.912.L.16.8	Explain the relationship between mutation, cell cycle, and uncontrolled cell growth potentially resulting in cancer.	Moderate
SC.912.L.16.9	Explain how and why the genetic code is universal and is common to almost all organisms.	Moderate
SC.912.L.16.10	Evaluate the impact of biotechnology on the individual, society and the environment, including medical and ethical issues.	High
SC.912.L.16.13	Describe the basic anatomy and physiology of the human reproductive system. Describe the process of human development from fertilization to birth and major changes that occur in each trimester of pregnancy.	Moderate
SC.912.L.16.14	Describe the cell cycle, including the process of mitosis. Explain the role of mitosis in the formation of new cells and its importance in maintaining chromosome number during asexual reproduction.	Moderate
SC.912.L.16.16	Describe the process of meiosis, including independent assortment and crossing over. Explain how reduction division results in the formation of haploid gametes or spores.	Moderate
SC.912.L.16.17	Compare and contrast mitosis and meiosis and relate to the processes of sexual and asexual reproduction and their consequences for genetic variation.	High
SC.912.L.17.2	Explain the general distribution of life in aquatic systems as a function of chemistry, geography, light, depth, salinity, and temperature.	High
SC.912.L.17.4	Describe changes in ecosystems resulting from seasonal variations, climate change and succession.	Moderate
SC.912.L.17.5	Analyze how population size is determined by births, deaths, immigration, emigration, and limiting factors (biotic and abiotic) that determine carrying capacity.	High
SC.912.L.17.8	Recognize the consequences of the losses of biodiversity due to catastrophic events, climate changes, human activity, and the introduction of invasive, non-native species.	High
SC.912.L.17.9	Use a food web to identify and distinguish producers, consumers, and decomposers. Explain the pathway of energy transfer through trophic levels and the reduction of available energy at successive trophic levels.	Moderate
SC.912.L.17.11	Evaluate the costs and benefits of renewable and nonrenewable resources, such as water, energy, fossil fuels, wildlife, and forests.	High

SC.912.L.17.13	Discuss the need for adequate monitoring of environmental parameters when making policy decisions.	High
SC.912.L.17.20	Predict the impact of individuals on environmental systems and examine how human lifestyles affect sustainability.	High
SC.912.L.18.1	Describe the basic molecular structures and primary functions of the four major categories of biological macromolecules.	Moderate
SC.912.L.18.7	Identify the reactants, products, and basic functions of photosynthesis.	Moderate
SC.912.L.18.8	Identify the reactants, products, and basic functions of aerobic and anaerobic cellular respiration.	Moderate
SC.912.L.18.9	Explain the interrelated nature of photosynthesis and cellular respiration.	Moderate
SC.912.L.18.10	Connect the role of adenosine triphosphate (ATP) to energy transfers within a cell.	High
SC.912.L.18.11	Explain the role of enzymes as catalysts that lower the activation energy of biochemical reactions. Identify factors, such as pH and temperature, and their effect on enzyme activity.	Moderate
SC.912.L.18.12	Discuss the special properties of water that contribute to Earth's suitability as an environment for life: cohesive behavior, ability to moderate temperature, expansion upon freezing, and versatility as a solvent.	Moderate
MA.912.S.1.2	Determine appropriate and consistent standards of measurement for the data to be collected in a survey or experiment.	Moderate
MA.912.S.3.2	Collect, organize, and analyze data sets, determine the best format for the data and present visual summaries from the following:	High
LA.910.4.2.2	The student will record information and ideas from primary and/or secondary sources accurately and coherently, noting the validity and reliability of these sources and attributing sources of information;	
LA.910.2.2.3	The student will organize information to show understanding or relationships among facts, ideas, and events (e.g., representing key points within text through charting, mapping, paraphrasing, summarizing, comparing, contrasting, or outlining);	
HE.912.C.1.3	Evaluate how environment and personal health are interrelated.	
HE.912.C.1.4	Analyze how heredity and family history can impact personal health.	
HE.912.C.1.8	Analyze strategies for prevention, detection, and treatment of communicable and chronic diseases.	

Access Points for Students with Significant Cognitive Disabilities

Access Point Code	Access Point Descriptor
SC.912.N.1.In.a	Identify a problem based on a specific body of knowledge, including life science, earth and space science, or physical science, and do the following: 1. Identify a scientific question 2. Examine reliable sources of informtion to identify what is already k
SC.912.N.1.Su.b	Identify the basic process used in scientific investigations, including questioning, observing, recording, determining, and sharing results.
SC.912.N.1.Pa.c	Recognize that when a variety of common activities are repeated the same way, the outcomes are the same.
SC.912.N.2.In.a	Identify examples of investigations that involve science.
SC.912.N.2.Su.b	Recognize that what is known about science can change based on new information.
SC.912.N.3.In.a	Recognize that a scientific theory is developed by repeated investigations of many scientists and agreement on the likely explanation.
SC.912.N.3.In.b	Identify examples of scientific laws that describe relationships in the natural world, such as Newton’s laws.

SC.912.N.3.Su.b	Recognize examples of scientific laws that describe relationships in nature, such as Newton's laws.
SC.912.N.3.Su.c	Recognize ways models are used in the study of science.
SC.912.E.7.In.a	Identify cycles that occur on Earth, such as the water and carbon cycles, and the role energy plays in them.
SC.912.E.7.Su.b	Recognize that currents move the ocean water around Earth.
SC.912.E.7.Pa.c	Recognize that humans, plants, and animals live on the Earth (biosphere).
SC.912.L.14.In.a	Identify that all living things are made of cells and cells function in similar ways (cell theory).
SC.912.L.14.Su.b	Recognize that cells have different parts and each has a function.
SC.912.L.14.Pa.c	Identify ways to prevent infection from bacteria and viruses, such as hand washing and first aid.
SC.912.L.15.In.a	Identify that prehistoric plants and animals changed over time (evolved) or became extinct.
SC.912.L.15.Su.b	Match organisms to the animal, plant, and fungus kingdoms.
SC.912.L.15.Pa.c	Recognize that animals produce offspring.
SC.912.L.16.In.a	Identify that genes are sets of instructions that determine which characteristics are passed from parent to offspring.
SC.912.L.16.Su.b	Recognize that all organisms have a substance called DNA with unique information.
SC.912.L.16.Pa.c	Recognize that illness can result when parts of our bodies are not working properly.
SC.912.L.17.In.a	Recognize that living things in oceans and fresh water are affected by the location, availability of light, depth of the water, and temperature.
SC.912.L.17.Su.b	Recognize how animals and plants in an ecosystem may be affected by changes to the food supply or climate.
SC.912.L.17.Pa.c	Recognize examples of mutual relationships between people and other living things.
SC.912.L.18.In.a	Identify that carbohydrates, fats, proteins, and nucleic acids (macromolecules) are important for human organisms.
SC.912.L.18.Su.b	Recognize that the function of photosynthesis is to produce food for plants.
SC.912.L.18.Pa.c	Identify that food is a source of energy.

2000320 Biology I Honors

Section: Basic and Adult Education
Grade Group: Secondary Grades 9-12
Subject: Science
Domain: Biological Sciences
Course Length: Year
Level: 3

This course description incorporates the following Next Generation Sunshine State Standards for standards-based teaching and learning.

Benchmarks

Benchmark Code	Benchmark Descriptor	Depth of Knowledge
SC.912.N.1.1	Define a problem based on a specific body of knowledge, for example: biology, chemistry, physics, and earth/space science, and do the following:	High
SC.912.N.1.3	Recognize that the strength or usefulness of a scientific claim is evaluated through scientific argumentation, which depends on critical and logical thinking, and the active consideration of alternative scientific explanations to explain the data present	Low

SC.912.N.1.4	Identify sources of information and assess their reliability according to the strict standards of scientific investigation.	High
SC.912.N.1.6	Describe how scientific inferences are drawn from scientific observations and provide examples from the content being studied.	Moderate
SC.912.N.1.7	Recognize the role of creativity in constructing scientific questions, methods and explanations.	Low
SC.912.N.2.1	Identify what is science, what clearly is not science, and what superficially resembles science (but fails to meet the criteria for science).	High
SC.912.N.2.2	Identify which questions can be answered through science and which questions are outside the boundaries of scientific investigation, such as questions addressed by other ways of knowing, such as art, philosophy, and religion.	High
SC.912.N.3.1	Explain that a scientific theory is the culmination of many scientific investigations drawing together all the current evidence concerning a substantial range of phenomena; thus, a scientific theory represents the most powerful explanation scientists have	High
SC.912.N.3.4	Recognize that theories do not become laws, nor do laws become theories; theories are well supported explanations and laws are well supported descriptions.	Moderate
SC.912.P.8.7	Interpret formula representations of molecules and compounds in terms of composition and structure.	Moderate
SC.912.P.8.12	Describe the properties of the carbon atom that make the diversity of carbon compounds possible.	Moderate
SC.912.P.10.1	Differentiate among the various forms of energy and recognize that they can be transformed from one form to others.	Moderate
SC.912.L.14.1	Describe the scientific theory of cells (cell theory) and relate the history of its discovery to the process of science.	Moderate
SC.912.L.14.2	Relate structure to function for the components of plant and animal cells. Explain the role of cell membranes as a highly selective barrier (passive and active transport).	Moderate
SC.912.L.14.3	Compare and contrast the general structures of plant and animal cells. Compare and contrast the general structures of prokaryotic and eukaryotic cells.	Moderate
SC.912.L.14.5	Explain the evidence supporting the scientific theory of the origin of eukaryotic cells (endosymbiosis).	High
SC.912.L.14.6	Explain the significance of genetic factors, environmental factors, and pathogenic agents to health from the perspectives of both individual and public health.	High
SC.912.L.14.7	Relate the structure of each of the major plant organs and tissues to physiological processes.	Moderate
SC.912.L.14.53	Discuss basic classification and characteristics of plants. Identify bryophytes, pteridophytes, gymnosperms, and angiosperms.	Moderate
SC.912.L.15.1	Explain how the scientific theory of evolution is supported by the fossil record, comparative anatomy, comparative embryology, biogeography, molecular biology, and observed evolutionary change.	High
SC.912.L.15.2	Discuss the use of molecular clocks to estimate how long ago various groups of organisms diverged evolutionarily from one another.	Moderate
SC.912.L.15.3	Describe how biological diversity is increased by the origin of new species and how it is decreased by the natural process of extinction.	Moderate
SC.912.L.15.4	Describe how and why organisms are hierarchically classified and based on evolutionary relationships.	High
SC.912.L.15.5	Explain the reasons for changes in how organisms are classified.	High

SC.912.L.15.6	Discuss distinguishing characteristics of the domains and kingdoms of living organisms.	Moderate
SC.912.L.15.8	Describe the scientific explanations of the origin of life on Earth.	Moderate
SC.912.L.15.10	Identify basic trends in hominid evolution from early ancestors six million years ago to modern humans, including brain size, jaw size, language, and manufacture of tools.	Moderate
SC.912.L.15.12	List the conditions for Hardy-Weinberg equilibrium in a population and why these conditions are not likely to appear in nature. Use the Hardy-Weinberg equation to predict genotypes in a population from observed phenotypes.	High
SC.912.L.15.13	Describe the conditions required for natural selection, including: overproduction of offspring, inherited variation, and the struggle to survive, which result in differential reproductive success.	Moderate
SC.912.L.15.14	Discuss mechanisms of evolutionary change other than natural selection such as genetic drift and gene flow.	Moderate
SC.912.L.15.15	Describe how mutation and genetic recombination increase genetic variation.	Moderate
SC.912.L.16.1	Use Mendel's laws of segregation and independent assortment to analyze patterns of inheritance.	High
SC.912.L.16.2	Discuss observed inheritance patterns caused by various modes of inheritance, including dominant, recessive, codominant, sex-linked, polygenic, and multiple alleles.	High
SC.912.L.16.3	Describe the basic process of DNA replication and how it relates to the transmission and conservation of the genetic information.	High
SC.912.L.16.4	Explain how mutations in the DNA sequence may or may not result in phenotypic change. Explain how mutations in gametes may result in phenotypic changes in offspring.	High
SC.912.L.16.5	Explain the basic processes of transcription and translation, and how they result in the expression of genes.	High
SC.912.L.16.8	Explain the relationship between mutation, cell cycle, and uncontrolled cell growth potentially resulting in cancer.	Moderate
SC.912.L.16.9	Explain how and why the genetic code is universal and is common to almost all organisms.	Moderate
SC.912.L.16.10	Evaluate the impact of biotechnology on the individual, society and the environment, including medical and ethical issues.	High
SC.912.L.16.13	Describe the basic anatomy and physiology of the human reproductive system. Describe the process of human development from fertilization to birth and major changes that occur in each trimester of pregnancy.	Moderate
SC.912.L.16.14	Describe the cell cycle, including the process of mitosis. Explain the role of mitosis in the formation of new cells and its importance in maintaining chromosome number during asexual reproduction.	Moderate
SC.912.L.16.15	Compare and contrast binary fission and mitotic cell division.	Moderate
SC.912.L.16.16	Describe the process of meiosis, including independent assortment and crossing over. Explain how reduction division results in the formation of haploid gametes or spores.	Moderate
SC.912.L.16.17	Compare and contrast mitosis and meiosis and relate to the processes of sexual and asexual reproduction and their consequences for genetic variation.	High
SC.912.L.17.2	Explain the general distribution of life in aquatic systems as a function of chemistry, geography, light, depth, salinity, and temperature.	High
SC.912.L.17.4	Describe changes in ecosystems resulting from seasonal variations, climate change and succession.	Moderate

SC.912.L.17.5	Analyze how population size is determined by births, deaths, immigration, emigration, and limiting factors (biotic and abiotic) that determine carrying capacity.	High
SC.912.L.17.8	Recognize the consequences of the losses of biodiversity due to catastrophic events, climate changes, human activity, and the introduction of invasive, non-native species.	High
SC.912.L.17.9	Use a food web to identify and distinguish producers, consumers, and decomposers. Explain the pathway of energy transfer through trophic levels and the reduction of available energy at successive trophic levels.	Moderate
SC.912.L.17.10	Diagram and explain the biogeochemical cycles of an ecosystem, including water, carbon, and nitrogen cycle.	Moderate
SC.912.L.17.11	Evaluate the costs and benefits of renewable and nonrenewable resources, such as water, energy, fossil fuels, wildlife, and forests.	High
SC.912.L.17.20	Predict the impact of individuals on environmental systems and examine how human lifestyles affect sustainability.	High
SC.912.L.18.2	Describe the important structural characteristics of monosaccharides, disaccharides, and polysaccharides and explain the functions of carbohydrates in living things.	Moderate
SC.912.L.18.3	Describe the structures of fatty acids, triglycerides, phospholipids, and steroids. Explain the functions of lipids in living organisms. Identify some reactions that fatty acids undergo. Relate the structure and function of cell membranes.	Moderate
SC.912.L.18.4	Describe the structures of proteins and amino acids. Explain the functions of proteins in living organisms. Identify some reactions that amino acids undergo. Relate the structure and function of enzymes.	Moderate
SC.912.L.18.6	Discuss the role of anaerobic respiration in living things and in human society.	Moderate
SC.912.L.18.7	Identify the reactants, products, and basic functions of photosynthesis.	Moderate
SC.912.L.18.8	Identify the reactants, products, and basic functions of aerobic and anaerobic cellular respiration.	Moderate
SC.912.L.18.9	Explain the interrelated nature of photosynthesis and cellular respiration.	Moderate
SC.912.L.18.10	Connect the role of adenosine triphosphate (ATP) to energy transfers within a cell.	High
SC.912.L.18.11	Explain the role of enzymes as catalysts that lower the activation energy of biochemical reactions. Identify factors, such as pH and temperature, and their effect on enzyme activity.	Moderate
SC.912.L.18.12	Discuss the special properties of water that contribute to Earth's suitability as an environment for life: cohesive behavior, ability to moderate temperature, expansion upon freezing, and versatility as a solvent.	Moderate
MA.912.S.1.2	Determine appropriate and consistent standards of measurement for the data to be collected in a survey or experiment.	Moderate
MA.912.S.3.2	Collect, organize, and analyze data sets, determine the best format for the data and present visual summaries from the following:	High
LA.910.4.2.2	The student will record information and ideas from primary and/or secondary sources accurately and coherently, noting the validity and reliability of these sources and attributing sources of information;	
LA.910.2.2.3	The student will organize information to show understanding or relationships among facts, ideas, and events (e.g., representing key points within text through charting, mapping, paraphrasing, summarizing, comparing, contrasting, or outlining);	
HE.912.C.1.3	Evaluate how environment and personal health are interrelated.	
HE.912.C.1.4	Analyze how heredity and family history can impact personal health.	

Access Points for Students with Significant Cognitive Disabilities

Access Point Code	Access Point Descriptor
SC.912.N.1.In.a	Identify a problem based on a specific body of knowledge, including life science, earth and space science, or physical science, and do the following: 1. Identify a scientific question 2. Examine reliable sources of informtion to identify what is already k
SC.912.N.1.Su.b	Identify the basic process used in scientific investigations, including questioning, observing, recording, determining, and sharing results.
SC.912.N.1.Pa.c	Recognize that when a variety of common activities are repeated the same way, the outcomes are the same.
SC.912.N.2.In.a	Identify examples of investigations that involve science.
SC.912.N.2.Su.b	Recognize that what is known about science can change based on new information.
SC.912.N.3.In.a	Recognize that a scientific theory is developed by repeated investigations of many scientists and agreement on the likely explanation.
SC.912.N.3.In.b	Identify examples of scientific laws that describe relationships in the natural world, such as Newton's laws.
SC.912.N.3.Su.b	Recognize examples of scientific laws that describe relationships in nature, such as Newton's laws.
SC.912.N.3.Su.c	Recognize ways models are used in the study of science.
SC.912.P.8.In.a	Classify states of matter as solid, liquid, and gaseous.
SC.912.P.8.Su.b	Identify examples of physical and chemical changes.
SC.912.P.8.Pa.c	Recognize that the parts of an object can be put together to make a whole.
SC.912.P.10.In.a	Identify examples of energy being transformed from one form to another (conserved quantity).
SC.912.P.10.Su.b	Recognize the relationship between work and power, such as power is the amount of work a person or machine does.
SC.912.P.10.Pa.c	Recognize the source and recipient of heat transfer.
SC.912.L.14.In.a	Identify that all living things are made of cells and cells function in similar ways (cell theory).
SC.912.L.14.Su.b	Recognize that cells have different parts and each has a function.
SC.912.L.14.Pa.c	Identify ways to prevent infection from bacteria and viruses, such as hand washing and first aid.
SC.912.L.15.In.a	Identify that prehistoric plants and animals changed over time (evolved) or became extinct.
SC.912.L.15.Su.b	Match organisms to the animal, plant, and fungus kingdoms.
SC.912.L.15.Pa.c	Recognize that animals produce offspring.
SC.912.L.16.In.a	Identify that genes are sets of instructions that determine which characteristics are passed from parent to offspring.
SC.912.L.16.Su.b	Recognize that all organisms have a substance called DNA with unique information.
SC.912.L.16.Pa.c	Recognize that illness can result when parts of our bodies are not working properly.
SC.912.L.17.In.a	Recognize that living things in oceans and fresh water are affected by the location, availability of light, depth of the water, and temperature.
SC.912.L.17.Su.b	Recognize how animals and plants in an ecosystem may be affected by changes to the food supply or climate.
SC.912.L.17.Pa.c	Recognize examples of mutual relationships between people and other living things.

SC.912.L.18.In.a	Identify that carbohydrates, fats, proteins, and nucleic acids (macromolecules) are important for human organisms.
SC.912.L.18.Su.b	Recognize that the function of photosynthesis is to produce food for plants.
SC.912.L.18.Pa.c	Identify that food is a source of energy.

2000330 Biology II

Section: Basic and Adult Education
Grade Group: Secondary Grades 9-12
Subject: Science
Domain: Biological Sciences
Course Length: Year
Level: 3

This course description incorporates the following Next Generation Sunshine State Standards for standards-based teaching and learning.

Benchmarks

Benchmark Code	Benchmark Descriptor	Depth of Knowledge
SC.912.N.1.1	Define a problem based on a specific body of knowledge, for example: biology, chemistry, physics, and earth/space science, and do the following:	High
SC.912.N.1.4	Identify sources of information and assess their reliability according to the strict standards of scientific investigation.	High
SC.912.N.1.5	Describe and provide examples of how similar investigations conducted in many parts of the world result in the same outcome.	Moderate
SC.912.N.1.7	Recognize the role of creativity in constructing scientific questions, methods and explanations.	Low
SC.912.N.2.1	Identify what is science, what clearly is not science, and what superficially resembles science (but fails to meet the criteria for science).	High
SC.912.N.2.2	Identify which questions can be answered through science and which questions are outside the boundaries of scientific investigation, such as questions addressed by other ways of knowing, such as art, philosophy, and religion.	High
SC.912.N.2.4	Explain that scientific knowledge is both durable and robust and open to change. Scientific knowledge can change because it is often examined and re-examined by new investigations and scientific argumentation. Because of these frequent examinations, scien	High
SC.912.N.2.5	Describe instances in which scientists' varied backgrounds, talents, interests, and goals influence the inferences and thus the explanations that they make about observations of natural phenomena and describe that competing interpretations (explanations)	High
SC.912.N.3.1	Explain that a scientific theory is the culmination of many scientific investigations drawing together all the current evidence concerning a substantial range of phenomena; thus, a scientific theory represents the most powerful explanation scientists have	High
SC.912.N.3.2	Describe the role consensus plays in the historical development of a theory in any one of the disciplines of science.	Moderate
SC.912.N.4.2	Weigh the merits of alternative strategies for solving a specific societal problem by comparing a number of different costs and benefits, such as human, economic, and environmental.	High
SC.912.E.7.4	Summarize the conditions that contribute to the climate of a geographic area, including the relationships to lakes and oceans.	Moderate
SC.912.E.7.7	Identify, analyze, and relate the internal (Earth system) and external (astronomical) conditions that contribute to global climate change.	High

SC.912.E.7.9	Cite evidence that the ocean has had a significant influence on climate change by absorbing, storing, and moving heat, carbon, and water.	High
SC.912.P.8.10	Describe oxidation-reduction reactions in living and non-living systems.	Moderate
SC.912.P.10.1	Differentiate among the various forms of energy and recognize that they can be transformed from one form to others.	Moderate
SC.912.L.14.6	Explain the significance of genetic factors, environmental factors, and pathogenic agents to health from the perspectives of both individual and public health.	High
SC.912.L.14.8	Explain alternation of generations in plants.	Moderate
SC.912.L.14.9	Relate the major structure of fungi to their functions.	Moderate
SC.912.L.14.50	Describe the structure of vertebrate sensory organs. Relate structure to function in vertebrate sensory systems.	Moderate
SC.912.L.14.53	Discuss basic classification and characteristics of plants. Identify bryophytes, pteridophytes, gymnosperms, and angiosperms.	Moderate
SC.912.L.15.1	Explain how the scientific theory of evolution is supported by the fossil record, comparative anatomy, comparative embryology, biogeography, molecular biology, and observed evolutionary change.	High
SC.912.L.15.4	Describe how and why organisms are hierarchically classified and based on evolutionary relationships.	High
SC.912.L.15.5	Explain the reasons for changes in how organisms are classified.	High
SC.912.L.15.7	Discuss distinguishing characteristics of vertebrate and representative invertebrate phyla, and chordate classes using typical examples.	Moderate
SC.912.L.15.8	Describe the scientific explanations of the origin of life on Earth.	Moderate
SC.912.L.15.9	Explain the role of reproductive isolation in the process of speciation.	Moderate
SC.912.L.15.11	Discuss specific fossil hominids and what they show about human evolution.	Moderate
SC.912.L.16.6	Discuss the mechanisms for regulation of gene expression in prokaryotes and eukaryotes at transcription and translation level.	High
SC.912.L.16.7	Describe how viruses and bacteria transfer genetic material between cells and the role of this process in biotechnology.	High
SC.912.L.16.11	Discuss the technologies associated with forensic medicine and DNA identification, including restriction fragment length polymorphism (RFLP) analysis.	High
SC.912.L.16.12	Describe how basic DNA technology (restriction digestion by endonucleases, gel electrophoresis, polymerase chain reaction, ligation, and transformation) is used to construct recombinant DNA molecules (DNA cloning).	Moderate
SC.912.L.16.15	Compare and contrast binary fission and mitotic cell division.	Moderate
SC.912.L.17.1	Discuss the characteristics of populations, such as number of individuals, age structure, density, and pattern of distribution.	Moderate
SC.912.L.17.3	Discuss how various oceanic and freshwater processes, such as currents, tides, and waves, affect the abundance of aquatic organisms.	Moderate
SC.912.L.17.6	Compare and contrast the relationships among organisms, including predation, parasitism, competition, commensalism, and mutualism.	Moderate
SC.912.L.17.7	Characterize the biotic and abiotic components that define freshwater systems, marine systems and terrestrial systems.	Moderate
SC.912.L.17.8	Recognize the consequences of the losses of biodiversity due to catastrophic events, climate changes, human activity, and the introduction of invasive, non-native species.	High
SC.912.L.17.9	Use a food web to identify and distinguish producers, consumers, and decomposers. Explain the pathway of energy transfer through trophic levels and the reduction of available energy at successive trophic levels.	Moderate

SC.912.L.17.10	Diagram and explain the biogeochemical cycles of an ecosystem, including water, carbon, and nitrogen cycle.	Moderate
SC.912.L.17.11	Evaluate the costs and benefits of renewable and nonrenewable resources, such as water, energy, fossil fuels, wildlife, and forests.	High
SC.912.L.17.12	Discuss the political, social, and environmental consequences of sustainable use of land.	High
SC.912.L.17.13	Discuss the need for adequate monitoring of environmental parameters when making policy decisions.	High
SC.912.L.17.14	Assess the need for adequate waste management strategies.	High
SC.912.L.17.15	Discuss the effects of technology on environmental quality.	Moderate
SC.912.L.17.16	Discuss the large-scale environmental impacts resulting from human activity, including waste spills, oil spills, runoff, greenhouse gases, ozone depletion, and surface and groundwater pollution.	High
SC.912.L.17.17	Assess the effectiveness of innovative methods of protecting the environment.	High
SC.912.L.17.18	Describe how human population size and resource use relate to environmental quality.	Moderate
SC.912.L.17.19	Describe how different natural resources are produced and how their rates of use and renewal limit availability.	Moderate
SC.912.L.17.20	Predict the impact of individuals on environmental systems and examine how human lifestyles affect sustainability.	High
SC.912.L.18.1	Describe the basic molecular structures and primary functions of the four major categories of biological macromolecules.	Moderate
SC.912.L.18.5	Discuss the use of chemiosmotic gradients for ATP production in chloroplasts and mitochondria.	Moderate
SC.912.L.18.7	Identify the reactants, products, and basic functions of photosynthesis.	Moderate
SC.912.L.18.8	Identify the reactants, products, and basic functions of aerobic and anaerobic cellular respiration.	Moderate
SC.912.L.18.9	Explain the interrelated nature of photosynthesis and cellular respiration.	Moderate
SC.912.L.18.10	Connect the role of adenosine triphosphate (ATP) to energy transfers within a cell.	High
SC.912.L.18.11	Explain the role of enzymes as catalysts that lower the activation energy of biochemical reactions. Identify factors, such as pH and temperature, and their effect on enzyme activity.	Moderate
SC.912.L.18.12	Discuss the special properties of water that contribute to Earth's suitability as an environment for life: cohesive behavior, ability to moderate temperature, expansion upon freezing, and versatility as a solvent.	Moderate
MA.912.S.1.2	Determine appropriate and consistent standards of measurement for the data to be collected in a survey or experiment.	Moderate
MA.912.S.3.2	Collect, organize, and analyze data sets, determine the best format for the data and present visual summaries from the following:	High
LA.910.4.2.2	The student will record information and ideas from primary and/or secondary sources accurately and coherently, noting the validity and reliability of these sources and attributing sources of information;	
LA.910.2.2.3	The student will organize information to show understanding or relationships among facts, ideas, and events (e.g., representing key points within text through charting, mapping, paraphrasing, summarizing, comparing, contrasting, or outlining);	
HE.912.C.1.3	Evaluate how environment and personal health are interrelated.	
HE.912.C.1.4	Analyze how heredity and family history can impact personal health.	

Access Points for Students with Significant Cognitive Disabilities

Access Point Code	Access Point Descriptor
SC.912.N.1.In.a	Identify a problem based on a specific body of knowledge, including life science, earth and space science, or physical science, and do the following: 1. Identify a scientific question 2. Examine reliable sources of informtion to identify what is already k
SC.912.N.1.Su.b	Identify the basic process used in scientific investigations, including questioning, observing, recording, determining, and sharing results.
SC.912.N.1.Pa.c	Recognize that when a variety of common activities are repeated the same way, the outcomes are the same.
SC.912.N.2.In.a	Identify examples of investigations that involve science.
SC.912.N.2.Su.b	Recognize that what is known about science can change based on new information.
SC.912.N.3.In.a	Recognize that a scientific theory is developed by repeated investigations of many scientists and agreement on the likely explanation.
SC.912.N.3.Su.b	Recognize examples of scientific laws that describe relationships in nature, such as Newton's laws.
SC.912.N.4.In.a	Identify ways scientific knowledge and problem solving benefit people.
SC.912.N.4.Su.b	Recognize that some strategies may cost more to solve a problem.
SC.912.E.7.In.a	Identify cycles that occur on Earth, such as the water and carbon cycles, and the role energy plays in them.
SC.912.E.7.Su.b	Recognize that currents move the ocean water around Earth.
SC.912.E.7.Pa.c	Recognize that humans, plants, and animals live on the Earth (biosphere).
SC.912.P.8.In.a	Classify states of matter as solid, liquid, and gaseous.
SC.912.P.8.Su.b	Identify examples of physical and chemical changes.
SC.912.P.8.Pa.c	Recognize that the parts of an object can be put together to make a whole.
SC.912.P.10.In.a	Identify examples of energy being transformed from one form to another (conserved quantity).
SC.912.P.10.Su.b	Recognize the relationship between work and power, such as power is the amount of work a person or machine does.
SC.912.P.10.Pa.c	Recognize the source and recipient of heat transfer.
SC.912.L.14.In.a	Identify that all living things are made of cells and cells function in similar ways (cell theory).
SC.912.L.14.Su.b	Recognize that cells have different parts and each has a function.
SC.912.L.14.Pa.c	Identify ways to prevent infection from bacteria and viruses, such as hand washing and first aid.
SC.912.L.15.In.a	Identify that prehistoric plants and animals changed over time (evolved) or became extinct.
SC.912.L.15.Su.b	Match organisms to the animal, plant, and fungus kingdoms.
SC.912.L.15.Pa.c	Recognize that animals produce offspring.
SC.912.L.17.In.a	Recognize that living things in oceans and fresh water are affected by the location, availability of light, depth of the water, and temperature.
SC.912.L.17.Su.b	Recognize how animals and plants in an ecosystem may be affected by changes to the food supply or climate.
SC.912.L.17.Pa.c	Recognize examples of mutual relationships between people and other living things.
SC.912.L.18.In.a	Identify that carbohydrates, fats, proteins, and nucleic acids (macromolecules) are important for human organisms.

SC.912.L.18.Su.b	Recognize that the function of photosynthesis is to produce food for plants.
SC.912.L.18.Pa.c	Identify that food is a source of energy.

2000430 Biology Technology

Section: Basic and Adult Education
Grade Group: Secondary Grades 9-12
Subject: Science
Domain: Biological Sciences
Course Length: Year
Level: 2

This course description incorporates the following Next Generation Sunshine State Standards for standards-based teaching and learning.

Benchmarks

Benchmark Code	Benchmark Descriptor	Depth of Knowledge
SC.912.N.1.1	Define a problem based on a specific body of knowledge, for example: biology, chemistry, physics, and earth/space science, and do the following:	High
SC.912.N.1.3	Recognize that the strength or usefulness of a scientific claim is evaluated through scientific argumentation, which depends on critical and logical thinking, and the active consideration of alternative scientific explanations to explain the data present	Low
SC.912.N.1.4	Identify sources of information and assess their reliability according to the strict standards of scientific investigation.	High
SC.912.N.1.6	Describe how scientific inferences are drawn from scientific observations and provide examples from the content being studied.	Moderate
SC.912.N.2.1	Identify what is science, what clearly is not science, and what superficially resembles science (but fails to meet the criteria for science).	High
SC.912.N.2.2	Identify which questions can be answered through science and which questions are outside the boundaries of scientific investigation, such as questions addressed by other ways of knowing, such as art, philosophy, and religion.	High
SC.912.N.3.1	Explain that a scientific theory is the culmination of many scientific investigations drawing together all the current evidence concerning a substantial range of phenomena; thus, a scientific theory represents the most powerful explanation scientists have	High
SC.912.N.3.4	Recognize that theories do not become laws, nor do laws become theories; theories are well supported explanations and laws are well supported descriptions.	Moderate
SC.912.N.4.1	Explain how scientific knowledge and reasoning provide an empirically-based perspective to inform society's decision making.	Moderate
SC.912.N.4.2	Weigh the merits of alternative strategies for solving a specific societal problem by comparing a number of different costs and benefits, such as human, economic, and environmental.	High
SC.912.E.6.6	Analyze past, present, and potential future consequences to the environment resulting from various energy production technologies.	High
SC.912.E.7.1	Analyze the movement of matter and energy through the different biogeochemical cycles, including water and carbon.	High
SC.912.P.12.12	Explain how various factors, such as concentration, temperature, and presence of a catalyst affect the rate of a chemical reaction.	High
SC.912.L.14.1	Describe the scientific theory of cells (cell theory) and relate the history of its discovery to the process of science.	Moderate
SC.912.L.14.2	Relate structure to function for the components of plant and animal cells. Explain the role of cell membranes as a highly selective barrier (passive and active transport).	Moderate

SC.912.L.14.3	Compare and contrast the general structures of plant and animal cells. Compare and contrast the general structures of prokaryotic and eukaryotic cells.	Moderate
SC.912.L.14.4	Compare and contrast structure and function of various types of microscopes.	Moderate
SC.912.L.14.6	Explain the significance of genetic factors, environmental factors, and pathogenic agents to health from the perspectives of both individual and public health.	High
SC.912.L.14.7	Relate the structure of each of the major plant organs and tissues to physiological processes.	Moderate
SC.912.L.14.26	Identify the major parts of the brain on diagrams or models.	Low
SC.912.L.14.36	Describe the factors affecting blood flow through the cardiovascular system.	Moderate
SC.912.L.14.52	Explain the basic functions of the human immune system, including specific and nonspecific immune response, vaccines, and antibiotics.	Moderate
SC.912.L.15.1	Explain how the scientific theory of evolution is supported by the fossil record, comparative anatomy, comparative embryology, biogeography, molecular biology, and observed evolutionary change.	High
SC.912.L.15.4	Describe how and why organisms are hierarchically classified and based on evolutionary relationships.	High
SC.912.L.15.5	Explain the reasons for changes in how organisms are classified.	High
SC.912.L.15.6	Discuss distinguishing characteristics of the domains and kingdoms of living organisms.	Moderate
SC.912.L.15.8	Describe the scientific explanations of the origin of life on Earth.	Moderate
SC.912.L.15.10	Identify basic trends in hominid evolution from early ancestors six million years ago to modern humans, including brain size, jaw size, language, and manufacture of tools.	Moderate
SC.912.L.15.13	Describe the conditions required for natural selection, including: overproduction of offspring, inherited variation, and the struggle to survive, which result in differential reproductive success.	Moderate
SC.912.L.15.14	Discuss mechanisms of evolutionary change other than natural selection such as genetic drift and gene flow.	Moderate
SC.912.L.15.15	Describe how mutation and genetic recombination increase genetic variation.	Moderate
SC.912.L.16.1	Use Mendel's laws of segregation and independent assortment to analyze patterns of inheritance.	High
SC.912.L.16.2	Discuss observed inheritance patterns caused by various modes of inheritance, including dominant, recessive, codominant, sex-linked, polygenic, and multiple alleles.	High
SC.912.L.16.3	Describe the basic process of DNA replication and how it relates to the transmission and conservation of the genetic information.	High
SC.912.L.16.4	Explain how mutations in the DNA sequence may or may not result in phenotypic change. Explain how mutations in gametes may result in phenotypic changes in offspring.	High
SC.912.L.16.5	Explain the basic processes of transcription and translation, and how they result in the expression of genes.	High
SC.912.L.16.6	Discuss the mechanisms for regulation of gene expression in prokaryotes and eukaryotes at transcription and translation level.	High
SC.912.L.16.7	Describe how viruses and bacteria transfer genetic material between cells and the role of this process in biotechnology.	High
SC.912.L.16.8	Explain the relationship between mutation, cell cycle, and uncontrolled cell growth potentially resulting in cancer.	Moderate
SC.912.L.16.9	Explain how and why the genetic code is universal and is common to almost all organisms.	Moderate

SC.912.L.16.10	Evaluate the impact of biotechnology on the individual, society and the environment, including medical and ethical issues.	High
SC.912.L.16.11	Discuss the technologies associated with forensic medicine and DNA identification, including restriction fragment length polymorphism (RFLP) analysis.	High
SC.912.L.16.12	Describe how basic DNA technology (restriction digestion by endonucleases, gel electrophoresis, polymerase chain reaction, ligation, and transformation) is used to construct recombinant DNA molecules (DNA cloning).	Moderate
SC.912.L.16.13	Describe the basic anatomy and physiology of the human reproductive system. Describe the process of human development from fertilization to birth and major changes that occur in each trimester of pregnancy.	Moderate
SC.912.L.16.14	Describe the cell cycle, including the process of mitosis. Explain the role of mitosis in the formation of new cells and its importance in maintaining chromosome number during asexual reproduction.	Moderate
SC.912.L.16.16	Describe the process of meiosis, including independent assortment and crossing over. Explain how reduction division results in the formation of haploid gametes or spores.	Moderate
SC.912.L.16.17	Compare and contrast mitosis and meiosis and relate to the processes of sexual and asexual reproduction and their consequences for genetic variation.	High
SC.912.L.17.2	Explain the general distribution of life in aquatic systems as a function of chemistry, geography, light, depth, salinity, and temperature.	High
SC.912.L.17.4	Describe changes in ecosystems resulting from seasonal variations, climate change and succession.	Moderate
SC.912.L.17.5	Analyze how population size is determined by births, deaths, immigration, emigration, and limiting factors (biotic and abiotic) that determine carrying capacity.	High
SC.912.L.17.8	Recognize the consequences of the losses of biodiversity due to catastrophic events, climate changes, human activity, and the introduction of invasive, non-native species.	High
SC.912.L.17.9	Use a food web to identify and distinguish producers, consumers, and decomposers. Explain the pathway of energy transfer through trophic levels and the reduction of available energy at successive trophic levels.	Moderate
SC.912.L.17.11	Evaluate the costs and benefits of renewable and nonrenewable resources, such as water, energy, fossil fuels, wildlife, and forests.	High
SC.912.L.17.13	Discuss the need for adequate monitoring of environmental parameters when making policy decisions.	High
SC.912.L.17.20	Predict the impact of individuals on environmental systems and examine how human lifestyles affect sustainability.	High
SC.912.L.18.1	Describe the basic molecular structures and primary functions of the four major categories of biological macromolecules.	Moderate
SC.912.L.18.6	Discuss the role of anaerobic respiration in living things and in human society.	Moderate
SC.912.L.18.7	Identify the reactants, products, and basic functions of photosynthesis.	Moderate
SC.912.L.18.8	Identify the reactants, products, and basic functions of aerobic and anaerobic cellular respiration.	Moderate
SC.912.L.18.9	Explain the interrelated nature of photosynthesis and cellular respiration.	Moderate
SC.912.L.18.10	Connect the role of adenosine triphosphate (ATP) to energy transfers within a cell.	High
SC.912.L.18.11	Explain the role of enzymes as catalysts that lower the activation energy of biochemical reactions. Identify factors, such as pH and temperature, and their effect on enzyme activity.	Moderate

SC.912.L.18.12	Discuss the special properties of water that contribute to Earth's suitability as an environment for life: cohesive behavior, ability to moderate temperature, expansion upon freezing, and versatility as a solvent.	Moderate
MA.912.S.1.2	Determine appropriate and consistent standards of measurement for the data to be collected in a survey or experiment.	Moderate
MA.912.S.3.2	Collect, organize, and analyze data sets, determine the best format for the data and present visual summaries from the following:	High
LA.910.4.2.2	The student will record information and ideas from primary and/or secondary sources accurately and coherently, noting the validity and reliability of these sources and attributing sources of information;	
LA.910.2.2.3	The student will organize information to show understanding or relationships among facts, ideas, and events (e.g., representing key points within text through charting, mapping, paraphrasing, summarizing, comparing, contrasting, or outlining);	
HE.912.C.1.3	Evaluate how environment and personal health are interrelated.	
HE.912.C.1.4	Analyze how heredity and family history can impact personal health.	
HE.912.C.1.8	Analyze strategies for prevention, detection, and treatment of communicable and chronic diseases.	

Access Points for Students with Significant Cognitive Disabilities

Access Point Code	Access Point Descriptor
SC.912.N.1.In.a	Identify a problem based on a specific body of knowledge, including life science, earth and space science, or physical science, and do the following: 1. Identify a scientific question 2. Examine reliable sources of informtion to identify what is already k
SC.912.N.1.Su.b	Identify the basic process used in scientific investigations, including questioning, observing, recording, determining, and sharing results.
SC.912.N.1.Pa.c	Recognize that when a variety of common activities are repeated the same way, the outcomes are the same.
SC.912.N.2.In.a	Identify examples of investigations that involve science.
SC.912.N.2.Su.b	Recognize that what is known about science can change based on new information.
SC.912.N.3.In.a	Recognize that a scientific theory is developed by repeated investigations of many scientists and agreement on the likely explanation.
SC.912.N.3.In.b	Identify examples of scientific laws that describe relationships in the natural world, such as Newton’s laws.
SC.912.N.3.Su.b	Recognize examples of scientific laws that describe relationships in nature, such as Newton’s laws.
SC.912.N.3.Su.c	Recognize ways models are used in the study of science.
SC.912.N.4.In.a	Identify ways scientific knowledge and problem solving benefit people.
SC.912.N.4.Su.b	Recognize that some strategies may cost more to solve a problem.
SC.912.E.7.In.a	Identify cycles that occur on Earth, such as the water and carbon cycles, and the role energy plays in them.
SC.912.E.7.Su.b	Recognize that currents move the ocean water around Earth.
SC.912.E.7.Pa.c	Recognize that humans, plants, and animals live on the Earth (biosphere).
SC.912.L.14.In.a	Identify that all living things are made of cells and cells function in similar ways (cell theory).
SC.912.L.14.Su.b	Recognize that cells have different parts and each has a function.

SC.912.L.14.Pa.c	Identify ways to prevent infection from bacteria and viruses, such as hand washing and first aid.
SC.912.L.15.In.a	Identify that prehistoric plants and animals changed over time (evolved) or became extinct.
SC.912.L.15.Su.b	Match organisms to the animal, plant, and fungus kingdoms.
SC.912.L.15.Pa.c	Recognize that animals produce offspring.
SC.912.L.16.In.a	Identify that genes are sets of instructions that determine which characteristics are passed from parent to offspring.
SC.912.L.16.Su.b	Recognize that all organisms have a substance called DNA with unique information.
SC.912.L.16.Pa.c	Recognize that illness can result when parts of our bodies are not working properly.
SC.912.L.17.In.a	Recognize that living things in oceans and fresh water are affected by the location, availability of light, depth of the water, and temperature.
SC.912.L.17.Su.b	Recognize how animals and plants in an ecosystem may be affected by changes to the food supply or climate.
SC.912.L.17.Pa.c	Recognize examples of mutual relationships between people and other living things.
SC.912.L.18.In.a	Identify that carbohydrates, fats, proteins, and nucleic acids (macromolecules) are important for human organisms.
SC.912.L.18.Su.b	Recognize that the function of photosynthesis is to produce food for plants.
SC.912.L.18.Pa.c	Identify that food is a source of energy.

2000370 Botany

Section: Basic and Adult Education
Grade Group: Secondary Grades 9-12
Subject: Science
Domain: Biological Sciences
Course Length: Year
Level: 2

This course description incorporates the following Next Generation Sunshine State Standards for standards-based teaching and learning.

Benchmarks

Benchmark Code	Benchmark Descriptor	Depth of Knowledge
SC.912.N.1.1	Define a problem based on a specific body of knowledge, for example: biology, chemistry, physics, and earth/space science, and do the following:	High
SC.912.N.1.2	Describe and explain what characterizes science and its methods.	Moderate
SC.912.N.2.4	Explain that scientific knowledge is both durable and robust and open to change. Scientific knowledge can change because it is often examined and re-examined by new investigations and scientific argumentation. Because of these frequent examinations, scien	High
SC.912.E.7.1	Analyze the movement of matter and energy through the different biogeochemical cycles, including water and carbon.	High
SC.912.P.8.12	Describe the properties of the carbon atom that make the diversity of carbon compounds possible.	Moderate
SC.912.P.10.1	Differentiate among the various forms of energy and recognize that they can be transformed from one form to others.	Moderate
SC.912.P.10.18	Explore the theory of electromagnetism by comparing and contrasting the different parts of the electromagnetic spectrum in terms of wavelength, frequency, and energy, and relate them to phenomena and applications.	High
SC.912.P.12.12	Explain how various factors, such as concentration, temperature, and presence of a catalyst affect the rate of a chemical reaction.	High

SC.912.L.14.1	Describe the scientific theory of cells (cell theory) and relate the history of its discovery to the process of science.	Moderate
SC.912.L.14.2	Relate structure to function for the components of plant and animal cells. Explain the role of cell membranes as a highly selective barrier (passive and active transport).	Moderate
SC.912.L.14.3	Compare and contrast the general structures of plant and animal cells. Compare and contrast the general structures of prokaryotic and eukaryotic cells.	Moderate
SC.912.L.14.5	Explain the evidence supporting the scientific theory of the origin of eukaryotic cells (endosymbiosis).	High
SC.912.L.14.7	Relate the structure of each of the major plant organs and tissues to physiological processes.	Moderate
SC.912.L.14.8	Explain alternation of generations in plants.	Moderate
SC.912.L.14.9	Relate the major structure of fungi to their functions.	Moderate
SC.912.L.14.10	Discuss the relationship between the evolution of land plants and their anatomy.	High
SC.912.L.14.53	Discuss basic classification and characteristics of plants. Identify bryophytes, pteridophytes, gymnosperms, and angiosperms.	Moderate
SC.912.L.15.1	Explain how the scientific theory of evolution is supported by the fossil record, comparative anatomy, comparative embryology, biogeography, molecular biology, and observed evolutionary change.	High
SC.912.L.15.3	Describe how biological diversity is increased by the origin of new species and how it is decreased by the natural process of extinction.	Moderate
SC.912.L.15.4	Describe how and why organisms are hierarchically classified and based on evolutionary relationships.	High
SC.912.L.15.5	Explain the reasons for changes in how organisms are classified.	High
SC.912.L.15.6	Discuss distinguishing characteristics of the domains and kingdoms of living organisms.	Moderate
SC.912.L.16.1	Use Mendel's laws of segregation and independent assortment to analyze patterns of inheritance.	High
SC.912.L.16.2	Discuss observed inheritance patterns caused by various modes of inheritance, including dominant, recessive, codominant, sex-linked, polygenic, and multiple alleles.	High
SC.912.L.17.4	Describe changes in ecosystems resulting from seasonal variations, climate change and succession.	Moderate
SC.912.L.17.6	Compare and contrast the relationships among organisms, including predation, parasitism, competition, commensalism, and mutualism.	Moderate
SC.912.L.17.7	Characterize the biotic and abiotic components that define freshwater systems, marine systems and terrestrial systems.	Moderate
SC.912.L.17.8	Recognize the consequences of the losses of biodiversity due to catastrophic events, climate changes, human activity, and the introduction of invasive, non-native species.	High
SC.912.L.17.9	Use a food web to identify and distinguish producers, consumers, and decomposers. Explain the pathway of energy transfer through trophic levels and the reduction of available energy at successive trophic levels.	Moderate
SC.912.L.17.10	Diagram and explain the biogeochemical cycles of an ecosystem, including water, carbon, and nitrogen cycle.	Moderate
SC.912.L.18.1	Describe the basic molecular structures and primary functions of the four major categories of biological macromolecules.	Moderate
SC.912.L.18.5	Discuss the use of chemiosmotic gradients for ATP production in chloroplasts and mitochondria.	Moderate
SC.912.L.18.7	Identify the reactants, products, and basic functions of photosynthesis.	Moderate

SC.912.L.18.8	Identify the reactants, products, and basic functions of aerobic and anaerobic cellular respiration.	Moderate
SC.912.L.18.9	Explain the interrelated nature of photosynthesis and cellular respiration.	Moderate
SC.912.L.18.10	Connect the role of adenosine triphosphate (ATP) to energy transfers within a cell.	High
SC.912.L.18.11	Explain the role of enzymes as catalysts that lower the activation energy of biochemical reactions. Identify factors, such as pH and temperature, and their effect on enzyme activity.	Moderate
SC.912.L.18.12	Discuss the special properties of water that contribute to Earth's suitability as an environment for life: cohesive behavior, ability to moderate temperature, expansion upon freezing, and versatility as a solvent.	Moderate
MA.912.S.1.2	Determine appropriate and consistent standards of measurement for the data to be collected in a survey or experiment.	Moderate
MA.912.S.3.2	Collect, organize, and analyze data sets, determine the best format for the data and present visual summaries from the following:	High
LA.910.4.2.2	The student will record information and ideas from primary and/or secondary sources accurately and coherently, noting the validity and reliability of these sources and attributing sources of information;	
LA.910.2.2.3	The student will organize information to show understanding or relationships among facts, ideas, and events (e.g., representing key points within text through charting, mapping, paraphrasing, summarizing, comparing, contrasting, or outlining);	

Access Points for Students with Significant Cognitive Disabilities

Access Point Code	Access Point Descriptor
SC.912.N.1.In.a	Identify a problem based on a specific body of knowledge, including life science, earth and space science, or physical science, and do the following: 1. Identify a scientific question 2. Examine reliable sources of informtion to identify what is already k
SC.912.N.1.Su.b	Identify the basic process used in scientific investigations, including questioning, observing, recording, determining, and sharing results.
SC.912.N.1.Pa.c	Recognize that when a variety of common activities are repeated the same way, the outcomes are the same.
SC.912.N.2.In.a	Identify examples of investigations that involve science.
SC.912.N.2.Su.b	Recognize that what is known about science can change based on new information.
SC.912.E.7.In.a	Identify cycles that occur on Earth, such as the water and carbon cycles, and the role energy plays in them.
SC.912.E.7.Su.b	Recognize that currents move the ocean water around Earth.
SC.912.E.7.Pa.c	Recognize that humans, plants, and animals live on the Earth (biosphere).
SC.912.P.8.In.a	Classify states of matter as solid, liquid, and gaseous.
SC.912.P.8.Su.b	Identify examples of physical and chemical changes.
SC.912.P.8.Pa.c	Recognize that the parts of an object can be put together to make a whole.
SC.912.P.10.In.a	Identify examples of energy being transformed from one form to another (conserved quantity).
SC.912.P.10.Su.b	Recognize the relationship between work and power, such as power is the amount of work a person or machine does.
SC.912.P.10.Pa.c	Recognize the source and recipient of heat transfer.
SC.912.L.14.In.a	Identify that all living things are made of cells and cells function in similar ways (cell theory).

SC.912.L.14.Su.b	Recognize that cells have different parts and each has a function.
SC.912.L.14.Pa.c	Identify ways to prevent infection from bacteria and viruses, such as hand washing and first aid.
SC.912.L.15.In.a	Identify that prehistoric plants and animals changed over time (evolved) or became extinct.
SC.912.L.15.Su.b	Match organisms to the animal, plant, and fungus kingdoms.
SC.912.L.15.Pa.c	Recognize that animals produce offspring.
SC.912.L.16.In.a	Identify that genes are sets of instructions that determine which characteristics are passed from parent to offspring.
SC.912.L.16.Su.b	Recognize that all organisms have a substance called DNA with unique information.
SC.912.L.16.Pa.c	Recognize that illness can result when parts of our bodies are not working properly.
SC.912.L.17.In.a	Recognize that living things in oceans and fresh water are affected by the location, availability of light, depth of the water, and temperature.
SC.912.L.17.Su.b	Recognize how animals and plants in an ecosystem may be affected by changes to the food supply or climate.
SC.912.L.17.Pa.c	Recognize examples of mutual relationships between people and other living things.
SC.912.L.18.In.a	Identify that carbohydrates, fats, proteins, and nucleic acids (macromolecules) are important for human organisms.
SC.912.L.18.Su.b	Recognize that the function of photosynthesis is to produce food for plants.
SC.912.L.18.Pa.c	Identify that food is a source of energy.

2000380 Ecology

Section: Basic and Adult Education

Grade Group: Secondary Grades 9-12

Subject: Science

Domain: Biological Sciences

Course Length: Year

Level: 2

This course description incorporates the following Next Generation Sunshine State Standards for standards-based teaching and learning.

Benchmarks

Benchmark Code	Benchmark Descriptor	Depth of Knowledge
SC.912.N.1.1	Define a problem based on a specific body of knowledge, for example: biology, chemistry, physics, and earth/space science, and do the following:	High
SC.912.N.1.2	Describe and explain what characterizes science and its methods.	Moderate
SC.912.N.1.3	Recognize that the strength or usefulness of a scientific claim is evaluated through scientific argumentation, which depends on critical and logical thinking, and the active consideration of alternative scientific explanations to explain the data present	Low
SC.912.N.1.4	Identify sources of information and assess their reliability according to the strict standards of scientific investigation.	High
SC.912.N.1.5	Describe and provide examples of how similar investigations conducted in many parts of the world result in the same outcome.	Moderate
SC.912.N.1.6	Describe how scientific inferences are drawn from scientific observations and provide examples from the content being studied.	Moderate
SC.912.N.1.7	Recognize the role of creativity in constructing scientific questions, methods and explanations.	Low
SC.912.N.2.1	Identify what is science, what clearly is not science, and what superficially resembles science (but fails to meet the criteria for science).	High

SC.912.N.2.4	Explain that scientific knowledge is both durable and robust and open to change. Scientific knowledge can change because it is often examined and re-examined by new investigations and scientific argumentation. Because of these frequent examinations, scien	High
SC.912.N.2.5	Describe instances in which scientists' varied backgrounds, talents, interests, and goals influence the inferences and thus the explanations that they make about observations of natural phenomena and describe that competing interpretations (explanations)	High
SC.912.N.3.1	Explain that a scientific theory is the culmination of many scientific investigations drawing together all the current evidence concerning a substantial range of phenomena; thus, a scientific theory represents the most powerful explanation scientists have	High
SC.912.N.3.5	Describe the function of models in science, and identify the wide range of models used in science.	Moderate
SC.912.N.4.1	Explain how scientific knowledge and reasoning provide an empirically-based perspective to inform society's decision making.	Moderate
SC.912.N.4.2	Weigh the merits of alternative strategies for solving a specific societal problem by comparing a number of different costs and benefits, such as human, economic, and environmental.	High
SC.912.E.7.3	Differentiate and describe the various interactions among Earth systems, including: atmosphere, hydrosphere, cryosphere, geosphere, and biosphere.	High
SC.912.E.7.4	Summarize the conditions that contribute to the climate of a geographic area, including the relationships to lakes and oceans.	Moderate
SC.912.P.10.1	Differentiate among the various forms of energy and recognize that they can be transformed from one form to others.	Moderate
SC.912.P.10.2	Explore the Law of Conservation of Energy by differentiating among open, closed, and isolated systems and explain that the total energy in an isolated system is a conserved quantity.	High
SC.912.L.15.3	Describe how biological diversity is increased by the origin of new species and how it is decreased by the natural process of extinction.	Moderate
SC.912.L.15.12	List the conditions for Hardy-Weinberg equilibrium in a population and why these conditions are not likely to appear in nature. Use the Hardy-Weinberg equation to predict genotypes in a population from observed phenotypes.	High
SC.912.L.15.13	Describe the conditions required for natural selection, including: overproduction of offspring, inherited variation, and the struggle to survive, which result in differential reproductive success.	Moderate
SC.912.L.15.14	Discuss mechanisms of evolutionary change other than natural selection such as genetic drift and gene flow.	Moderate
SC.912.L.15.15	Describe how mutation and genetic recombination increase genetic variation.	Moderate
SC.912.L.17.1	Discuss the characteristics of populations, such as number of individuals, age structure, density, and pattern of distribution.	Moderate
SC.912.L.17.2	Explain the general distribution of life in aquatic systems as a function of chemistry, geography, light, depth, salinity, and temperature.	High
SC.912.L.17.3	Discuss how various oceanic and freshwater processes, such as currents, tides, and waves, affect the abundance of aquatic organisms.	Moderate
SC.912.L.17.4	Describe changes in ecosystems resulting from seasonal variations, climate change and succession.	Moderate
SC.912.L.17.5	Analyze how population size is determined by births, deaths, immigration, emigration, and limiting factors (biotic and abiotic) that determine carrying capacity.	High

SC.912.L.17.6	Compare and contrast the relationships among organisms, including predation, parasitism, competition, commensalism, and mutualism.	Moderate
SC.912.L.17.7	Characterize the biotic and abiotic components that define freshwater systems, marine systems and terrestrial systems.	Moderate
SC.912.L.17.8	Recognize the consequences of the losses of biodiversity due to catastrophic events, climate changes, human activity, and the introduction of invasive, non-native species.	High
SC.912.L.17.9	Use a food web to identify and distinguish producers, consumers, and decomposers. Explain the pathway of energy transfer through trophic levels and the reduction of available energy at successive trophic levels.	Moderate
SC.912.L.17.10	Diagram and explain the biogeochemical cycles of an ecosystem, including water, carbon, and nitrogen cycle.	Moderate
SC.912.L.17.11	Evaluate the costs and benefits of renewable and nonrenewable resources, such as water, energy, fossil fuels, wildlife, and forests.	High
SC.912.L.17.16	Discuss the large-scale environmental impacts resulting from human activity, including waste spills, oil spills, runoff, greenhouse gases, ozone depletion, and surface and groundwater pollution.	High
SC.912.L.17.17	Assess the effectiveness of innovative methods of protecting the environment.	High
SC.912.L.17.19	Describe how different natural resources are produced and how their rates of use and renewal limit availability.	Moderate
MA.912.S.1.2	Determine appropriate and consistent standards of measurement for the data to be collected in a survey or experiment.	Moderate
MA.912.S.3.2	Collect, organize, and analyze data sets, determine the best format for the data and present visual summaries from the following:	High
LA.910.4.2.2	The student will record information and ideas from primary and/or secondary sources accurately and coherently, noting the validity and reliability of these sources and attributing sources of information;	
LA.910.2.2.3	The student will organize information to show understanding or relationships among facts, ideas, and events (e.g., representing key points within text through charting, mapping, paraphrasing, summarizing, comparing, contrasting, or outlining);	

Access Points for Students with Significant Cognitive Disabilities

Access Point Code	Access Point Descriptor
SC.912.N.1.In.a	Identify a problem based on a specific body of knowledge, including life science, earth and space science, or physical science, and do the following: 1. Identify a scientific question 2. Examine reliable sources of informtion to identify what is already k
SC.912.N.1.Su.b	Identify the basic process used in scientific investigations, including questioning, observing, recording, determining, and sharing results.
SC.912.N.1.Pa.c	Recognize that when a variety of common activities are repeated the same way, the outcomes are the same.
SC.912.N.2.In.a	Identify examples of investigations that involve science.
SC.912.N.2.Su.b	Recognize that what is known about science can change based on new information.
SC.912.N.3.In.a	Recognize that a scientific theory is developed by repeated investigations of many scientists and agreement on the likely explanation.
SC.912.N.3.Su.b	Recognize examples of scientific laws that describe relationships in nature, such as Newton's laws.
SC.912.N.4.In.a	Identify ways scientific knowledge and problem solving benefit people.
SC.912.N.4.Su.b	Recognize that some strategies may cost more to solve a problem.

SC.912.E.7.In.a	Identify cycles that occur on Earth, such as the water and carbon cycles, and the role energy plays in them.
SC.912.E.7.Su.b	Recognize that currents move the ocean water around Earth.
SC.912.E.7.Pa.c	Recognize that humans, plants, and animals live on the Earth (biosphere).
SC.912.P.10.In.a	Identify examples of energy being transformed from one form to another (conserved quantity).
SC.912.P.10.Su.b	Recognize the relationship between work and power, such as power is the amount of work a person or machine does.
SC.912.P.10.Pa.c	Recognize the source and recipient of heat transfer.
SC.912.L.15.In.a	Identify that prehistoric plants and animals changed over time (evolved) or became extinct.
SC.912.L.15.Su.b	Match organisms to the animal, plant, and fungus kingdoms.
SC.912.L.15.Pa.c	Recognize that animals produce offspring.
SC.912.L.17.In.a	Recognize that living things in oceans and fresh water are affected by the location, availability of light, depth of the water, and temperature.
SC.912.L.17.Su.b	Recognize how animals and plants in an ecosystem may be affected by changes to the food supply or climate.
SC.912.L.17.Pa.c	Recognize examples of mutual relationships between people and other living things.

2000440 Genetics

Section: Basic and Adult Education
Grade Group: Secondary Grades 9-12
Subject: Science
Domain: Biological Sciences
Course Length: Year
Level: 3

This course description incorporates the following Next Generation Sunshine State Standards for standards-based teaching and learning.

Benchmarks

Benchmark Code	Benchmark Descriptor	Depth of Knowledge
SC.912.N.1.1	Define a problem based on a specific body of knowledge, for example: biology, chemistry, physics, and earth/space science, and do the following:	High
SC.912.N.1.2	Describe and explain what characterizes science and its methods.	Moderate
SC.912.N.2.1	Identify what is science, what clearly is not science, and what superficially resembles science (but fails to meet the criteria for science).	High
SC.912.N.2.2	Identify which questions can be answered through science and which questions are outside the boundaries of scientific investigation, such as questions addressed by other ways of knowing, such as art, philosophy, and religion.	High
SC.912.N.3.5	Describe the function of models in science, and identify the wide range of models used in science.	Moderate
SC.912.P.12.12	Explain how various factors, such as concentration, temperature, and presence of a catalyst affect the rate of a chemical reaction.	High
SC.912.L.14.1	Describe the scientific theory of cells (cell theory) and relate the history of its discovery to the process of science.	Moderate
SC.912.L.14.6	Explain the significance of genetic factors, environmental factors, and pathogenic agents to health from the perspectives of both individual and public health.	High
SC.912.L.15.8	Describe the scientific explanations of the origin of life on Earth.	Moderate
SC.912.L.15.9	Explain the role of reproductive isolation in the process of speciation.	Moderate

SC.912.L.15.12	List the conditions for Hardy-Weinberg equilibrium in a population and why these conditions are not likely to appear in nature. Use the Hardy-Weinberg equation to predict genotypes in a population from observed phenotypes.	High
SC.912.L.15.13	Describe the conditions required for natural selection, including: overproduction of offspring, inherited variation, and the struggle to survive, which result in differential reproductive success.	Moderate
SC.912.L.15.14	Discuss mechanisms of evolutionary change other than natural selection such as genetic drift and gene flow.	Moderate
SC.912.L.15.15	Describe how mutation and genetic recombination increase genetic variation.	Moderate
SC.912.L.16.1	Use Mendel's laws of segregation and independent assortment to analyze patterns of inheritance.	High
SC.912.L.16.2	Discuss observed inheritance patterns caused by various modes of inheritance, including dominant, recessive, codominant, sex-linked, polygenic, and multiple alleles.	High
SC.912.L.16.3	Describe the basic process of DNA replication and how it relates to the transmission and conservation of the genetic information.	High
SC.912.L.16.4	Explain how mutations in the DNA sequence may or may not result in phenotypic change. Explain how mutations in gametes may result in phenotypic changes in offspring.	High
SC.912.L.16.5	Explain the basic processes of transcription and translation, and how they result in the expression of genes.	High
SC.912.L.16.6	Discuss the mechanisms for regulation of gene expression in prokaryotes and eukaryotes at transcription and translation level.	High
SC.912.L.16.7	Describe how viruses and bacteria transfer genetic material between cells and the role of this process in biotechnology.	High
SC.912.L.16.8	Explain the relationship between mutation, cell cycle, and uncontrolled cell growth potentially resulting in cancer.	Moderate
SC.912.L.16.9	Explain how and why the genetic code is universal and is common to almost all organisms.	Moderate
SC.912.L.16.10	Evaluate the impact of biotechnology on the individual, society and the environment, including medical and ethical issues.	High
SC.912.L.16.11	Discuss the technologies associated with forensic medicine and DNA identification, including restriction fragment length polymorphism (RFLP) analysis.	High
SC.912.L.16.12	Describe how basic DNA technology (restriction digestion by endonucleases, gel electrophoresis, polymerase chain reaction, ligation, and transformation) is used to construct recombinant DNA molecules (DNA cloning).	Moderate
SC.912.L.16.14	Describe the cell cycle, including the process of mitosis. Explain the role of mitosis in the formation of new cells and its importance in maintaining chromosome number during asexual reproduction.	Moderate
SC.912.L.16.16	Describe the process of meiosis, including independent assortment and crossing over. Explain how reduction division results in the formation of haploid gametes or spores.	Moderate
SC.912.L.16.17	Compare and contrast mitosis and meiosis and relate to the processes of sexual and asexual reproduction and their consequences for genetic variation.	High
SC.912.L.17.1	Discuss the characteristics of populations, such as number of individuals, age structure, density, and pattern of distribution.	Moderate
SC.912.L.17.8	Recognize the consequences of the losses of biodiversity due to catastrophic events, climate changes, human activity, and the introduction of invasive, non-native species.	High

SC.912.L.18.1	Describe the basic molecular structures and primary functions of the four major categories of biological macromolecules.	Moderate
SC.912.L.18.11	Explain the role of enzymes as catalysts that lower the activation energy of biochemical reactions. Identify factors, such as pH and temperature, and their effect on enzyme activity.	Moderate
MA.912.S.1.2	Determine appropriate and consistent standards of measurement for the data to be collected in a survey or experiment.	Moderate
MA.912.S.3.2	Collect, organize, and analyze data sets, determine the best format for the data and present visual summaries from the following:	High
LA.910.4.2.2	The student will record information and ideas from primary and/or secondary sources accurately and coherently, noting the validity and reliability of these sources and attributing sources of information;	
LA.910.2.2.3	The student will organize information to show understanding or relationships among facts, ideas, and events (e.g., representing key points within text through charting, mapping, paraphrasing, summarizing, comparing, contrasting, or outlining);	
HE.912.C.1.3	Evaluate how environment and personal health are interrelated.	
HE.912.C.1.4	Analyze how heredity and family history can impact personal health.	

Access Points for Students with Significant Cognitive Disabilities

Access Point Code	Access Point Descriptor
SC.912.N.1.In.a	Identify a problem based on a specific body of knowledge, including life science, earth and space science, or physical science, and do the following: 1. Identify a scientific question 2. Examine reliable sources of informtion to identify what is already k
SC.912.N.1.Su.b	Identify the basic process used in scientific investigations, including questioning, observing, recording, determining, and sharing results.
SC.912.N.1.Pa.c	Recognize that when a variety of common activities are repeated the same way, the outcomes are the same.
SC.912.N.2.In.a	Identify examples of investigations that involve science.
SC.912.N.2.Su.b	Recognize that what is known about science can change based on new information.
SC.912.N.3.In.a	Recognize that a scientific theory is developed by repeated investigations of many scientists and agreement on the likely explanation.
SC.912.N.3.Su.b	Recognize examples of scientific laws that describe relationships in nature, such as Newton's laws.
SC.912.L.14.In.a	Identify that all living things are made of cells and cells function in similar ways (cell theory).
SC.912.L.14.Su.b	Recognize that cells have different parts and each has a function.
SC.912.L.14.Pa.c	Identify ways to prevent infection from bacteria and viruses, such as hand washing and first aid.
SC.912.L.15.In.a	Identify that prehistoric plants and animals changed over time (evolved) or became extinct.
SC.912.L.15.Su.b	Match organisms to the animal, plant, and fungus kingdoms.
SC.912.L.15.Pa.c	Recognize that animals produce offspring.
SC.912.L.16.In.a	Identify that genes are sets of instructions that determine which characteristics are passed from parent to offspring.
SC.912.L.16.Su.b	Recognize that all organisms have a substance called DNA with unique information.
SC.912.L.16.Pa.c	Recognize that illness can result when parts of our bodies are not working properly.

SC.912.L.17.In.a	Recognize that living things in oceans and fresh water are affected by the location, availability of light, depth of the water, and temperature.
SC.912.L.17.Su.b	Recognize how animals and plants in an ecosystem may be affected by changes to the food supply or climate.
SC.912.L.17.Pa.c	Recognize examples of mutual relationships between people and other living things.
SC.912.L.18.In.a	Identify that carbohydrates, fats, proteins, and nucleic acids (macromolecules) are important for human organisms.
SC.912.L.18.Su.b	Recognize that the function of photosynthesis is to produce food for plants.
SC.912.L.18.Pa.c	Identify that food is a source of energy.

2000410 Zoology

Section: Basic and Adult Education
Grade Group: Secondary Grades 9-12
Subject: Science
Domain: Biological Sciences
Course Length: Year
Level: 2

This course description incorporates the following Next Generation Sunshine State Standards for standards-based teaching and learning.

Benchmarks

Benchmark Code	Benchmark Descriptor	Depth of Knowledge
SC.912.N.1.1	Define a problem based on a specific body of knowledge, for example: biology, chemistry, physics, and earth/space science, and do the following:	High
SC.912.N.1.2	Describe and explain what characterizes science and its methods.	Moderate
SC.912.N.2.4	Explain that scientific knowledge is both durable and robust and open to change. Scientific knowledge can change because it is often examined and re-examined by new investigations and scientific argumentation. Because of these frequent examinations, scien	High
SC.912.L.14.1	Describe the scientific theory of cells (cell theory) and relate the history of its discovery to the process of science.	Moderate
SC.912.L.14.2	Relate structure to function for the components of plant and animal cells. Explain the role of cell membranes as a highly selective barrier (passive and active transport).	Moderate
SC.912.L.14.3	Compare and contrast the general structures of plant and animal cells. Compare and contrast the general structures of prokaryotic and eukaryotic cells.	Moderate
SC.912.L.14.5	Explain the evidence supporting the scientific theory of the origin of eukaryotic cells (endosymbiosis).	High
SC.912.L.14.12	Describe the anatomy and histology of bone tissue.	Low
SC.912.L.14.26	Identify the major parts of the brain on diagrams or models.	Low
SC.912.L.14.36	Describe the factors affecting blood flow through the cardiovascular system.	Moderate
SC.912.L.14.44	Describe the physiology of the respiratory system including the mechanisms of ventilation, gas exchange, gas transport and the mechanisms that control the rate of ventilation.	Moderate
SC.912.L.14.50	Describe the structure of vertebrate sensory organs. Relate structure to function in vertebrate sensory systems.	Moderate
SC.912.L.14.51	Describe the function of the vertebrate integumentary system.	Low
SC.912.L.15.1	Explain how the scientific theory of evolution is supported by the fossil record, comparative anatomy, comparative embryology, biogeography, molecular biology, and observed evolutionary change.	High

SC.912.L.15.3	Describe how biological diversity is increased by the origin of new species and how it is decreased by the natural process of extinction.	Moderate
SC.912.L.15.4	Describe how and why organisms are hierarchically classified and based on evolutionary relationships.	High
SC.912.L.15.5	Explain the reasons for changes in how organisms are classified.	High
SC.912.L.15.6	Discuss distinguishing characteristics of the domains and kingdoms of living organisms.	Moderate
SC.912.L.15.7	Discuss distinguishing characteristics of vertebrate and representative invertebrate phyla, and chordate classes using typical examples.	Moderate
SC.912.L.15.11	Discuss specific fossil hominids and what they show about human evolution.	Moderate
SC.912.L.15.13	Describe the conditions required for natural selection, including: overproduction of offspring, inherited variation, and the struggle to survive, which result in differential reproductive success.	Moderate
SC.912.L.15.14	Discuss mechanisms of evolutionary change other than natural selection such as genetic drift and gene flow.	Moderate
SC.912.L.15.15	Describe how mutation and genetic recombination increase genetic variation.	Moderate
SC.912.L.17.6	Compare and contrast the relationships among organisms, including predation, parasitism, competition, commensalism, and mutualism.	Moderate
SC.912.L.17.7	Characterize the biotic and abiotic components that define freshwater systems, marine systems and terrestrial systems.	Moderate
SC.912.L.17.8	Recognize the consequences of the losses of biodiversity due to catastrophic events, climate changes, human activity, and the introduction of invasive, non-native species.	High
SC.912.L.17.9	Use a food web to identify and distinguish producers, consumers, and decomposers. Explain the pathway of energy transfer through trophic levels and the reduction of available energy at successive trophic levels.	Moderate
SC.912.L.18.1	Describe the basic molecular structures and primary functions of the four major categories of biological macromolecules.	Moderate
SC.912.L.18.9	Explain the interrelated nature of photosynthesis and cellular respiration.	Moderate
MA.912.S.1.2	Determine appropriate and consistent standards of measurement for the data to be collected in a survey or experiment.	Moderate
MA.912.S.3.2	Collect, organize, and analyze data sets, determine the best format for the data and present visual summaries from the following:	High
LA.910.4.2.2	The student will record information and ideas from primary and/or secondary sources accurately and coherently, noting the validity and reliability of these sources and attributing sources of information;	
LA.910.2.2.3	The student will organize information to show understanding or relationships among facts, ideas, and events (e.g., representing key points within text through charting, mapping, paraphrasing, summarizing, comparing, contrasting, or outlining);	

Access Points for Students with Significant Cognitive Disabilities

Access Point Code	Access Point Descriptor
SC.912.N.1.In.a	Identify a problem based on a specific body of knowledge, including life science, earth and space science, or physical science, and do the following: 1. Identify a scientific question 2. Examine reliable sources of informtion to identify what is already k
SC.912.N.1.Su.b	Identify the basic process used in scientific investigations, including questioning, observing, recording, determining, and sharing results.

SC.912.N.1.Pa.c	Recognize that when a variety of common activities are repeated the same way, the outcomes are the same.
SC.912.N.2.In.a	Identify examples of investigations that involve science.
SC.912.N.2.Su.b	Recognize that what is known about science can change based on new information.
SC.912.L.14.In.a	Identify that all living things are made of cells and cells function in similar ways (cell theory).
SC.912.L.14.Su.b	Recognize that cells have different parts and each has a function.
SC.912.L.14.Pa.c	Identify ways to prevent infection from bacteria and viruses, such as hand washing and first aid.
SC.912.L.15.In.a	Identify that prehistoric plants and animals changed over time (evolved) or became extinct.
SC.912.L.15.Su.b	Match organisms to the animal, plant, and fungus kingdoms.
SC.912.L.15.Pa.c	Recognize that animals produce offspring.
SC.912.L.17.In.a	Recognize that living things in oceans and fresh water are affected by the location, availability of light, depth of the water, and temperature.
SC.912.L.17.Su.b	Recognize how animals and plants in an ecosystem may be affected by changes to the food supply or climate.
SC.912.L.17.Pa.c	Recognize examples of mutual relationships between people and other living things.
SC.912.L.18.In.a	Identify that carbohydrates, fats, proteins, and nucleic acids (macromolecules) are important for human organisms.
SC.912.L.18.Su.b	Recognize that the function of photosynthesis is to produce food for plants.
SC.912.L.18.Pa.c	Identify that food is a source of energy.

2000350 Anatomy and Physiology

Section: Basic and Adult Education
Grade Group: Secondary Grades 9-12
Subject: Science
Domain: Biological Sciences
Course Length: Year
Level: 2

This course description incorporates the following Next Generation Sunshine State Standards for standards-based teaching and learning.

Benchmarks

Benchmark Code	Benchmark Descriptor	Depth of Knowledge
SC.912.N.1.1	Define a problem based on a specific body of knowledge, for example: biology, chemistry, physics, and earth/space science, and do the following:	High
SC.912.N.1.2	Describe and explain what characterizes science and its methods.	Moderate
SC.912.L.14.2	Relate structure to function for the components of plant and animal cells. Explain the role of cell membranes as a highly selective barrier (passive and active transport).	Moderate
SC.912.L.14.6	Explain the significance of genetic factors, environmental factors, and pathogenic agents to health from the perspectives of both individual and public health.	High
SC.912.L.14.11	Classify and state the defining characteristics of epithelial tissue, connective tissue, muscle tissue, and nervous tissue.	Moderate
SC.912.L.14.12	Describe the anatomy and histology of bone tissue.	Low
SC.912.L.14.13	Distinguish between bones of the axial skeleton and the appendicular skeleton.	Low
SC.912.L.14.14	Identify the major bones of the axial and appendicular skeleton.	Low

SC.912.L.14.16	Describe the anatomy and histology, including ultrastructure, of muscle tissue.	Moderate
SC.912.L.14.17	List the steps involved in the sliding filament of muscle contraction.	Moderate
SC.912.L.14.18	Describe signal transmission across a myoneural junction.	Moderate
SC.912.L.14.20	Identify the major muscles of the human on a model or diagram.	Low
SC.912.L.14.21	Describe the anatomy, histology, and physiology of the central and peripheral nervous systems and name the major divisions of the nervous system.	Moderate
SC.912.L.14.23	Identify the parts of a reflex arc.	Low
SC.912.L.14.24	Identify the general parts of a synapse and describe the physiology of signal transmission across a synapse.	Moderate
SC.912.L.14.25	Identify the major parts of a cross section through the spinal cord.	Low
SC.912.L.14.26	Identify the major parts of the brain on diagrams or models.	Low
SC.912.L.14.28	Identify the major functions of the spinal cord.	Low
SC.912.L.14.29	Define the terms endocrine and exocrine.	Low
SC.912.L.14.30	Compare endocrine and neural controls of physiology.	Moderate
SC.912.L.14.32	Describe the anatomy and physiology of the endocrine system.	Moderate
SC.912.L.14.33	Describe the basic anatomy and physiology of the reproductive system.	Moderate
SC.912.L.14.34	Describe the composition and physiology of blood, including that of the plasma and the formed elements.	Moderate
SC.912.L.14.35	Describe the steps in hemostasis, including the mechanism of coagulation. Include the basis for blood typing and transfusion reactions.	Moderate
SC.912.L.14.36	Describe the factors affecting blood flow through the cardiovascular system.	Moderate
SC.912.L.14.38	Describe normal heart sounds and what they mean.	Moderate
SC.912.L.14.39	Describe hypertension and some of the factors that produce it.	Moderate
SC.912.L.14.41	Describe fetal circulation and changes that occur to the circulatory system at birth.	Moderate
SC.912.L.14.42	Describe the anatomy and the physiology of the lymph system.	Moderate
SC.912.L.14.44	Describe the physiology of the respiratory system including the mechanisms of ventilation, gas exchange, gas transport and the mechanisms that control the rate of ventilation.	Moderate
SC.912.L.14.46	Describe the physiology of the digestive system, including mechanical digestion, chemical digestion, absorption and the neural and hormonal mechanisms of control.	Moderate
SC.912.L.14.47	Describe the physiology of urine formation by the kidney.	Moderate
SC.912.L.14.49	Identify the major functions associated with the sympathetic and parasympathetic nervous systems.	Moderate
SC.912.L.14.50	Describe the structure of vertebrate sensory organs. Relate structure to function in vertebrate sensory systems.	Moderate
SC.912.L.14.51	Describe the function of the vertebrate integumentary system.	Low
SC.912.L.14.52	Explain the basic functions of the human immune system, including specific and nonspecific immune response, vaccines, and antibiotics.	Moderate
SC.912.L.16.8	Explain the relationship between mutation, cell cycle, and uncontrolled cell growth potentially resulting in cancer.	Moderate
SC.912.L.18.1	Describe the basic molecular structures and primary functions of the four major categories of biological macromolecules.	Moderate
SC.912.L.18.11	Explain the role of enzymes as catalysts that lower the activation energy of biochemical reactions. Identify factors, such as pH and temperature, and their effect on enzyme activity.	Moderate

MA.912.S.1.2	Determine appropriate and consistent standards of measurement for the data to be collected in a survey or experiment.	Moderate
MA.912.S.3.2	Collect, organize, and analyze data sets, determine the best format for the data and present visual summaries from the following:	High
LA.910.4.2.2	The student will record information and ideas from primary and/or secondary sources accurately and coherently, noting the validity and reliability of these sources and attributing sources of information;	
LA.910.2.2.3	The student will organize information to show understanding or relationships among facts, ideas, and events (e.g., representing key points within text through charting, mapping, paraphrasing, summarizing, comparing, contrasting, or outlining);	
HE.912.C.1.3	Evaluate how environment and personal health are interrelated.	
HE.912.C.1.4	Analyze how heredity and family history can impact personal health.	

Access Points for Students with Significant Cognitive Disabilities

Access Point Code	Access Point Descriptor
SC.912.N.1.In.a	Identify a problem based on a specific body of knowledge, including life science, earth and space science, or physical science, and do the following: 1. Identify a scientific question 2. Examine reliable sources of informtion to identify what is already k
SC.912.N.1.Su.b	Identify the basic process used in scientific investigations, including questioning, observing, recording, determining, and sharing results.
SC.912.N.1.Pa.c	Recognize that when a variety of common activities are repeated the same way, the outcomes are the same.
SC.912.L.14.In.a	Identify that all living things are made of cells and cells function in similar ways (cell theory).
SC.912.L.14.Su.b	Recognize that cells have different parts and each has a function.
SC.912.L.14.Pa.c	Identify ways to prevent infection from bacteria and viruses, such as hand washing and first aid.
SC.912.L.16.In.a	Identify that genes are sets of instructions that determine which characteristics are passed from parent to offspring.
SC.912.L.16.Su.b	Recognize that all organisms have a substance called DNA with unique information.
SC.912.L.16.Pa.c	Recognize that illness can result when parts of our bodies are not working properly.
SC.912.L.18.In.a	Identify that carbohydrates, fats, proteins, and nucleic acids (macromolecules) are important for human organisms.
SC.912.L.18.Su.b	Recognize that the function of photosynthesis is to produce food for plants.
SC.912.L.18.Pa.c	Identify that food is a source of energy.

2000360 Anatomy and Physiology Honors

Section: Basic and Adult Education
Grade Group: Secondary Grades 9-12
Subject: Science
Domain: Biological Sciences
Course Length: Year
Level: 3

This course description incorporates the following Next Generation Sunshine State Standards for standards-based teaching and learning.

Benchmarks

Benchmark Code	Benchmark Descriptor	Depth of Knowledge
SC.912.N.1.1	Define a problem based on a specific body of knowledge, for example: biology, chemistry, physics, and earth/space science, and do the following:	High
SC.912.N.1.2	Describe and explain what characterizes science and its methods.	Moderate
SC.912.L.14.2	Relate structure to function for the components of plant and animal cells. Explain the role of cell membranes as a highly selective barrier (passive and active transport).	Moderate
SC.912.L.14.6	Explain the significance of genetic factors, environmental factors, and pathogenic agents to health from the perspectives of both individual and public health.	High
SC.912.L.14.11	Classify and state the defining characteristics of epithelial tissue, connective tissue, muscle tissue, and nervous tissue.	Moderate
SC.912.L.14.12	Describe the anatomy and histology of bone tissue.	Low
SC.912.L.14.13	Distinguish between bones of the axial skeleton and the appendicular skeleton.	Low
SC.912.L.14.14	Identify the major bones of the axial and appendicular skeleton.	Low
SC.912.L.14.15	Identify major markings (such as foramina, fossae, tubercles, etc.) on a skeleton. Explain why these markings are important.	Moderate
SC.912.L.14.16	Describe the anatomy and histology, including ultrastructure, of muscle tissue.	Moderate
SC.912.L.14.17	List the steps involved in the sliding filament of muscle contraction.	Moderate
SC.912.L.14.18	Describe signal transmission across a myoneural junction.	Moderate
SC.912.L.14.19	Explain the physiology of skeletal muscle.	Moderate
SC.912.L.14.20	Identify the major muscles of the human on a model or diagram.	Low
SC.912.L.14.21	Describe the anatomy, histology, and physiology of the central and peripheral nervous systems and name the major divisions of the nervous system.	Moderate
SC.912.L.14.22	Describe the physiology of nerve conduction, including the generator potential, action potential, and the synapse.	Moderate
SC.912.L.14.23	Identify the parts of a reflex arc.	Low
SC.912.L.14.25	Identify the major parts of a cross section through the spinal cord.	Low
SC.912.L.14.27	Identify the functions of the major parts of the brain, including the meninges, medulla, pons, midbrain, hypothalamus, thalamus, cerebellum and cerebrum.	Low
SC.912.L.14.28	Identify the major functions of the spinal cord.	Low
SC.912.L.14.29	Define the terms endocrine and exocrine.	Low
SC.912.L.14.30	Compare endocrine and neural controls of physiology.	Moderate
SC.912.L.14.31	Describe the physiology of hormones including the different types and the mechanisms of their action.	Moderate
SC.912.L.14.34	Describe the composition and physiology of blood, including that of the plasma and the formed elements.	Moderate

SC.912.L.14.35	Describe the steps in hemostasis, including the mechanism of coagulation. Include the basis for blood typing and transfusion reactions.	Moderate
SC.912.L.14.36	Describe the factors affecting blood flow through the cardiovascular system.	Moderate
SC.912.L.14.37	Explain the components of an electrocardiogram.	Low
SC.912.L.14.38	Describe normal heart sounds and what they mean.	Moderate
SC.912.L.14.39	Describe hypertension and some of the factors that produce it.	Moderate
SC.912.L.14.40	Describe the histology of the major arteries and veins of systemic, pulmonary, hepatic portal, and coronary circulation.	Moderate
SC.912.L.14.41	Describe fetal circulation and changes that occur to the circulatory system at birth.	Moderate
SC.912.L.14.42	Describe the anatomy and the physiology of the lymph system.	Moderate
SC.912.L.14.43	Describe the histology of the respiratory system.	Moderate
SC.912.L.14.44	Describe the physiology of the respiratory system including the mechanisms of ventilation, gas exchange, gas transport and the mechanisms that control the rate of ventilation.	Moderate
SC.912.L.14.45	Describe the histology of the alimentary canal and its associated accessory organs.	Moderate
SC.912.L.14.46	Describe the physiology of the digestive system, including mechanical digestion, chemical digestion, absorption and the neural and hormonal mechanisms of control.	Moderate
SC.912.L.14.47	Describe the physiology of urine formation by the kidney.	Moderate
SC.912.L.14.48	Describe the anatomy, histology, and physiology of the ureters, the urinary bladder and the urethra.	Moderate
SC.912.L.14.49	Identify the major functions associated with the sympathetic and parasympathetic nervous systems.	Moderate
SC.912.L.14.50	Describe the structure of vertebrate sensory organs. Relate structure to function in vertebrate sensory systems.	Moderate
SC.912.L.14.51	Describe the function of the vertebrate integumentary system.	Low
SC.912.L.14.52	Explain the basic functions of the human immune system, including specific and nonspecific immune response, vaccines, and antibiotics.	Moderate
SC.912.L.16.8	Explain the relationship between mutation, cell cycle, and uncontrolled cell growth potentially resulting in cancer.	Moderate
SC.912.L.16.10	Evaluate the impact of biotechnology on the individual, society and the environment, including medical and ethical issues.	High
SC.912.L.16.13	Describe the basic anatomy and physiology of the human reproductive system. Describe the process of human development from fertilization to birth and major changes that occur in each trimester of pregnancy.	Moderate
SC.912.L.18.2	Describe the important structural characteristics of monosaccharides, disaccharides, and polysaccharides and explain the functions of carbohydrates in living things.	Moderate
SC.912.L.18.3	Describe the structures of fatty acids, triglycerides, phospholipids, and steroids. Explain the functions of lipids in living organisms. Identify some reactions that fatty acids undergo. Relate the structure and function of cell membranes.	Moderate
SC.912.L.18.4	Describe the structures of proteins and amino acids. Explain the functions of proteins in living organisms. Identify some reactions that amino acids undergo. Relate the structure and function of enzymes.	Moderate
SC.912.L.18.6	Discuss the role of anaerobic respiration in living things and in human society.	Moderate
SC.912.L.18.8	Identify the reactants, products, and basic functions of aerobic and anaerobic cellular respiration.	Moderate

SC.912.L.18.11	Explain the role of enzymes as catalysts that lower the activation energy of biochemical reactions. Identify factors, such as pH and temperature, and their effect on enzyme activity.	Moderate
MA.912.S.1.2	Determine appropriate and consistent standards of measurement for the data to be collected in a survey or experiment.	Moderate
MA.912.S.3.2	Collect, organize, and analyze data sets, determine the best format for the data and present visual summaries from the following:	High
LA.910.4.2.2	The student will record information and ideas from primary and/or secondary sources accurately and coherently, noting the validity and reliability of these sources and attributing sources of information;	
LA.910.2.2.3	The student will organize information to show understanding or relationships among facts, ideas, and events (e.g., representing key points within text through charting, mapping, paraphrasing, summarizing, comparing, contrasting, or outlining);	
HE.912.C.1.3	Evaluate how environment and personal health are interrelated.	
HE.912.C.1.4	Analyze how heredity and family history can impact personal health.	

Access Points for Students with Significant Cognitive Disabilities

Access Point Code	Access Point Descriptor
SC.912.N.1.In.a	Identify a problem based on a specific body of knowledge, including life science, earth and space science, or physical science, and do the following: 1. Identify a scientific question 2. Examine reliable sources of informtion to identify what is already k
SC.912.N.1.Su.b	Identify the basic process used in scientific investigations, including questioning, observing, recording, determining, and sharing results.
SC.912.N.1.Pa.c	Recognize that when a variety of common activities are repeated the same way, the outcomes are the same.
SC.912.L.14.In.a	Identify that all living things are made of cells and cells function in similar ways (cell theory).
SC.912.L.14.Su.b	Recognize that cells have different parts and each has a function.
SC.912.L.14.Pa.c	Identify ways to prevent infection from bacteria and viruses, such as hand washing and first aid.
SC.912.L.16.In.a	Identify that genes are sets of instructions that determine which characteristics are passed from parent to offspring.
SC.912.L.16.Su.b	Recognize that all organisms have a substance called DNA with unique information.
SC.912.L.16.Pa.c	Recognize that illness can result when parts of our bodies are not working properly.
SC.912.L.18.In.a	Identify that carbohydrates, fats, proteins, and nucleic acids (macromolecules) are important for human organisms.
SC.912.L.18.Su.b	Recognize that the function of photosynthesis is to produce food for plants.
SC.912.L.18.Pa.c	Identify that food is a source of energy.

2001310 Earth/Space Science

Section: Basic and Adult Education
Grade Group: Secondary Grades 9-12
Subject: Science
Domain: Earth/Space Sciences
Course Length: Year
Level: 2

This course description incorporates the following Next Generation Sunshine State Standards for standards-based teaching and learning.

Benchmarks

Benchmark Code	Benchmark Descriptor	Depth of Knowledge
SC.912.N.1.1	Define a problem based on a specific body of knowledge, for example: biology, chemistry, physics, and earth/space science, and do the following:	High
SC.912.N.1.2	Describe and explain what characterizes science and its methods.	Moderate
SC.912.N.1.3	Recognize that the strength or usefulness of a scientific claim is evaluated through scientific argumentation, which depends on critical and logical thinking, and the active consideration of alternative scientific explanations to explain the data present	Low
SC.912.N.1.4	Identify sources of information and assess their reliability according to the strict standards of scientific investigation.	High
SC.912.N.1.5	Describe and provide examples of how similar investigations conducted in many parts of the world result in the same outcome.	Moderate
SC.912.N.1.6	Describe how scientific inferences are drawn from scientific observations and provide examples from the content being studied.	Moderate
SC.912.N.1.7	Recognize the role of creativity in constructing scientific questions, methods and explanations.	Low
SC.912.N.2.1	Identify what is science, what clearly is not science, and what superficially resembles science (but fails to meet the criteria for science).	High
SC.912.N.2.2	Identify which questions can be answered through science and which questions are outside the boundaries of scientific investigation, such as questions addressed by other ways of knowing, such as art, philosophy, and religion.	High
SC.912.N.2.3	Identify examples of pseudoscience (such as astrology, phrenology) in society.	Low
SC.912.N.2.4	Explain that scientific knowledge is both durable and robust and open to change. Scientific knowledge can change because it is often examined and re-examined by new investigations and scientific argumentation. Because of these frequent examinations, scien	High
SC.912.N.2.5	Describe instances in which scientists' varied backgrounds, talents, interests, and goals influence the inferences and thus the explanations that they make about observations of natural phenomena and describe that competing interpretations (explanations)	High
SC.912.N.3.1	Explain that a scientific theory is the culmination of many scientific investigations drawing together all the current evidence concerning a substantial range of phenomena; thus, a scientific theory represents the most powerful explanation scientists have	High
SC.912.N.3.2	Describe the role consensus plays in the historical development of a theory in any one of the disciplines of science.	Moderate
SC.912.N.3.3	Explain that scientific laws are descriptions of specific relationships under given conditions in nature, but do not offer explanations for those relationships.	Moderate
SC.912.N.3.4	Recognize that theories do not become laws, nor do laws become theories; theories are well supported explanations and laws are well supported descriptions.	Moderate

SC.912.N.3.5	Describe the function of models in science, and identify the wide range of models used in science.	Moderate
SC.912.N.4.1	Explain how scientific knowledge and reasoning provide an empirically-based perspective to inform society's decision making.	Moderate
SC.912.E.5.1	Cite evidence used to develop and verify the scientific theory of the Big Bang (also known as the Big Bang Theory) of the origin of the universe.	High
SC.912.E.5.2	Identify patterns in the organization and distribution of matter in the universe and the forces that determine them.	Moderate
SC.912.E.5.3	Describe and predict how the initial mass of a star determines its evolution.	Moderate
SC.912.E.5.4	Explain the physical properties of the Sun and its dynamic nature and connect them to conditions and events on Earth.	High
SC.912.E.5.5	Explain the formation of planetary systems based on our knowledge of our Solar System and apply this knowledge to newly discovered planetary systems.	High
SC.912.E.5.6	Develop logical connections through physical principles, including Kepler's and Newton's Laws about the relationships and the effects of Earth, Moon, and Sun on each other.	High
SC.912.E.5.7	Relate the history of and explain the justification for future space exploration and continuing technology development.	High
SC.912.E.5.8	Connect the concepts of radiation and the electromagnetic spectrum to the use of historical and newly-developed observational tools.	High
SC.912.E.5.9	Analyze the broad effects of space exploration on the economy and culture of Florida.	High
SC.912.E.5.11	Distinguish the various methods of measuring astronomical distances and apply each in appropriate situations.	High
SC.912.E.6.1	Describe and differentiate the layers of Earth and the interactions among them.	Moderate
SC.912.E.6.2	Connect surface features to surface processes that are responsible for their formation.	Moderate
SC.912.E.6.3	Analyze the scientific theory of plate tectonics and identify related major processes and features as a result of moving plates.	High
SC.912.E.6.4	Analyze how specific geologic processes and features are expressed in Florida and elsewhere.	High
SC.912.E.6.5	Describe the geologic development of the present day oceans and identify commonly found features.	Moderate
SC.912.E.7.1	Analyze the movement of matter and energy through the different biogeochemical cycles, including water and carbon.	High
SC.912.E.7.2	Analyze the causes of the various kinds of surface and deep water motion within the oceans and their impacts on the transfer of energy between the poles and the equator.	High
SC.912.E.7.3	Differentiate and describe the various interactions among Earth systems, including: atmosphere, hydrosphere, cryosphere, geosphere, and biosphere.	High
SC.912.E.7.4	Summarize the conditions that contribute to the climate of a geographic area, including the relationships to lakes and oceans.	Moderate
SC.912.E.7.5	Predict future weather conditions based on present observations and conceptual models and recognize limitations and uncertainties of such predictions.	High
SC.912.E.7.6	Relate the formation of severe weather to the various physical factors.	Moderate
SC.912.E.7.7	Identify, analyze, and relate the internal (Earth system) and external (astronomical) conditions that contribute to global climate change.	High
SC.912.E.7.8	Explain how various atmospheric, oceanic, and hydrologic conditions in Florida have influenced and can influence human behavior, both individually and collectively.	High

SC.912.E.7.9	Cite evidence that the ocean has had a significant influence on climate change by absorbing, storing, and moving heat, carbon, and water.	High
SC.912.P.8.1	Differentiate among the four states of matter.	Moderate
SC.912.P.8.4	Explore the scientific theory of atoms (also known as atomic theory) by describing the structure of atoms in terms of protons, neutrons and electrons, and differentiate among these particles in terms of their mass, electrical charges and locations within	High
SC.912.P.10.4	Describe heat as the energy transferred by convection, conduction, and radiation, and explain the connection of heat to change in temperature or states of matter.	High
SC.912.P.10.10	Compare the magnitude and range of the four fundamental forces (gravitational, electromagnetic, weak nuclear, strong nuclear).	Moderate
SC.912.P.10.11	Explain and compare nuclear reactions (radioactive decay, fission and fusion), the energy changes associated with them and their associated safety issues.	High
SC.912.P.10.16	Explain the relationship between moving charges and magnetic fields, as well as changing magnetic fields and electric fields, and their application to modern technologies.	High
SC.912.P.10.18	Explore the theory of electromagnetism by comparing and contrasting the different parts of the electromagnetic spectrum in terms of wavelength, frequency, and energy, and relate them to phenomena and applications.	High
SC.912.P.10.19	Explain that all objects emit and absorb electromagnetic radiation and distinguish between objects that are blackbody radiators and those that are not.	High
SC.912.P.10.20	Describe the measurable properties of waves and explain the relationships among them and how these properties change when the wave moves from one medium to another.	High
SC.912.P.12.2	Analyze the motion of an object in terms of its position, velocity, and acceleration (with respect to a frame of reference) as functions of time.	High
SC.912.P.12.4	Describe how the gravitational force between two objects depends on their masses and the distance between them.	Moderate
SC.912.P.12.7	Recognize that nothing travels faster than the speed of light in vacuum which is the same for all observers no matter how they or the light source are moving.	Low
SC.912.L.15.1	Explain how the scientific theory of evolution is supported by the fossil record, comparative anatomy, comparative embryology, biogeography, molecular biology, and observed evolutionary change.	High
SC.912.L.15.8	Describe the scientific explanations of the origin of life on Earth.	Moderate
MA.912.S.1.2	Determine appropriate and consistent standards of measurement for the data to be collected in a survey or experiment.	Moderate
MA.912.S.3.2	Collect, organize, and analyze data sets, determine the best format for the data and present visual summaries from the following:	High
LA.910.4.2.2	The student will record information and ideas from primary and/or secondary sources accurately and coherently, noting the validity and reliability of these sources and attributing sources of information;	
LA.910.2.2.3	The student will organize information to show understanding or relationships among facts, ideas, and events (e.g., representing key points within text through charting, mapping, paraphrasing, summarizing, comparing, contrasting, or outlining);	

Access Points for Students with Significant Cognitive Disabilities

Access Point Code	Access Point Descriptor
SC.912.N.1.In.a	Identify a problem based on a specific body of knowledge, including life science, earth

	and space science, or physical science, and do the following: 1. Identify a scientific question 2. Examine reliable sources of informtion to identify what is already k
SC.912.N.1.Su.b	Identify the basic process used in scientific investigations, including questioning, observing, recording, determining, and sharing results.
SC.912.N.1.Pa.c	Recognize that when a variety of common activities are repeated the same way, the outcomes are the same.
SC.912.N.2.In.a	Identify examples of investigations that involve science.
SC.912.N.2.Su.b	Recognize that what is known about science can change based on new information.
SC.912.N.3.In.a	Recognize that a scientific theory is developed by repeated investigations of many scientists and agreement on the likely explanation.
SC.912.N.3.In.b	Identify examples of scientific laws that describe relationships in the natural world, such as Newton's laws.
SC.912.N.3.Su.b	Recognize examples of scientific laws that describe relationships in nature, such as Newton's laws.
SC.912.N.3.Su.c	Recognize ways models are used in the study of science.
SC.912.N.4.In.a	Identify ways scientific knowledge and problem solving benefit people.
SC.912.N.4.Su.b	Recognize that some strategies may cost more to solve a problem.
SC.912.E.5.In.a	Recognize that the Milky Way is part of the expanding universe.
SC.912.E.5.Su.b	Recognize that stars are made of burning gases.
SC.912.E.5.Pa.c	Observe and recognize effects of the Sun on Earth, such as temperature changes.
SC.912.E.6.In.a	Describe the three layers of Earth (core, mantle, and crust).
SC.912.E.6.Su.b	Identify types of surface features, such as hills and valleys.
SC.912.E.7.In.a	Identify cycles that occur on Earth, such as the water and carbon cycles, and the role energy plays in them.
SC.912.E.7.Su.b	Recognize that currents move the ocean water around Earth.
SC.912.E.7.Pa.c	Recognize that humans, plants, and animals live on the Earth (biosphere).
SC.912.P.8.In.a	Classify states of matter as solid, liquid, and gaseous.
SC.912.P.8.Su.b	Identify examples of physical and chemical changes.
SC.912.P.8.Pa.c	Recognize that the parts of an object can be put together to make a whole.
SC.912.P.10.In.a	Identify examples of energy being transformed from one form to another (conserved quantity).
SC.912.P.10.Su.b	Recognize the relationship between work and power, such as power is the amount of work a person or machine does.
SC.912.P.10.Pa.c	Recognize the source and recipient of heat transfer.
SC.912.P.12.In.a	Recognize that scalar quantities describe the magnitude of the measurement, such as size, weight, volume, area, temperature, or speed.
SC.912.P.12.Su.b	Recognize that acceleration generally involves a change in speed.
SC.912.P.12.Pa.c	Identify the source of the force moving an object.
SC.912.L.15.In.a	Identify that prehistoric plants and animals changed over time (evolved) or became extinct.
SC.912.L.15.Su.b	Match organisms to the animal, plant, and fungus kingdoms.
SC.912.L.15.Pa.c	Recognize that animals produce offspring.

2001320 Earth/Space Science Honors

Section: Basic and Adult Education
Grade Group: Secondary Grades 9-12
Subject: Science
Domain: Earth/Space Sciences
Course Length: Year
Level: 3

This course description incorporates the following Next Generation Sunshine State Standards for standards-based teaching and learning.

Benchmarks

Benchmark Code	Benchmark Descriptor	Depth of Knowledge
SC.912.N.1.1	Define a problem based on a specific body of knowledge, for example: biology, chemistry, physics, and earth/space science, and do the following:	High
SC.912.N.1.2	Describe and explain what characterizes science and its methods.	Moderate
SC.912.N.1.3	Recognize that the strength or usefulness of a scientific claim is evaluated through scientific argumentation, which depends on critical and logical thinking, and the active consideration of alternative scientific explanations to explain the data present	Low
SC.912.N.1.4	Identify sources of information and assess their reliability according to the strict standards of scientific investigation.	High
SC.912.N.1.5	Describe and provide examples of how similar investigations conducted in many parts of the world result in the same outcome.	Moderate
SC.912.N.1.6	Describe how scientific inferences are drawn from scientific observations and provide examples from the content being studied.	Moderate
SC.912.N.1.7	Recognize the role of creativity in constructing scientific questions, methods and explanations.	Low
SC.912.N.2.1	Identify what is science, what clearly is not science, and what superficially resembles science (but fails to meet the criteria for science).	High
SC.912.N.2.2	Identify which questions can be answered through science and which questions are outside the boundaries of scientific investigation, such as questions addressed by other ways of knowing, such as art, philosophy, and religion.	High
SC.912.N.2.3	Identify examples of pseudoscience (such as astrology, phrenology) in society.	Low
SC.912.N.2.4	Explain that scientific knowledge is both durable and robust and open to change. Scientific knowledge can change because it is often examined and re-examined by new investigations and scientific argumentation. Because of these frequent examinations, scien	High
SC.912.N.2.5	Describe instances in which scientists' varied backgrounds, talents, interests, and goals influence the inferences and thus the explanations that they make about observations of natural phenomena and describe that competing interpretations (explanations)	High
SC.912.N.3.1	Explain that a scientific theory is the culmination of many scientific investigations drawing together all the current evidence concerning a substantial range of phenomena; thus, a scientific theory represents the most powerful explanation scientists have	High
SC.912.N.3.2	Describe the role consensus plays in the historical development of a theory in any one of the disciplines of science.	Moderate
SC.912.N.3.3	Explain that scientific laws are descriptions of specific relationships under given conditions in nature, but do not offer explanations for those relationships.	Moderate
SC.912.N.3.4	Recognize that theories do not become laws, nor do laws become theories; theories are well supported explanations and laws are well supported descriptions.	Moderate

SC.912.N.3.5	Describe the function of models in science, and identify the wide range of models used in science.	Moderate
SC.912.N.4.1	Explain how scientific knowledge and reasoning provide an empirically-based perspective to inform society's decision making.	Moderate
SC.912.N.4.2	Weigh the merits of alternative strategies for solving a specific societal problem by comparing a number of different costs and benefits, such as human, economic, and environmental.	High
SC.912.E.5.1	Cite evidence used to develop and verify the scientific theory of the Big Bang (also known as the Big Bang Theory) of the origin of the universe.	High
SC.912.E.5.2	Identify patterns in the organization and distribution of matter in the universe and the forces that determine them.	Moderate
SC.912.E.5.3	Describe and predict how the initial mass of a star determines its evolution.	Moderate
SC.912.E.5.4	Explain the physical properties of the Sun and its dynamic nature and connect them to conditions and events on Earth.	High
SC.912.E.5.5	Explain the formation of planetary systems based on our knowledge of our Solar System and apply this knowledge to newly discovered planetary systems.	High
SC.912.E.5.6	Develop logical connections through physical principles, including Kepler's and Newton's Laws about the relationships and the effects of Earth, Moon, and Sun on each other.	High
SC.912.E.5.7	Relate the history of and explain the justification for future space exploration and continuing technology development.	High
SC.912.E.5.8	Connect the concepts of radiation and the electromagnetic spectrum to the use of historical and newly-developed observational tools.	High
SC.912.E.5.9	Analyze the broad effects of space exploration on the economy and culture of Florida.	High
SC.912.E.5.10	Describe and apply the coordinate system used to locate objects in the sky.	Moderate
SC.912.E.5.11	Distinguish the various methods of measuring astronomical distances and apply each in appropriate situations.	High
SC.912.E.6.1	Describe and differentiate the layers of Earth and the interactions among them.	Moderate
SC.912.E.6.2	Connect surface features to surface processes that are responsible for their formation.	Moderate
SC.912.E.6.3	Analyze the scientific theory of plate tectonics and identify related major processes and features as a result of moving plates.	High
SC.912.E.6.4	Analyze how specific geologic processes and features are expressed in Florida and elsewhere.	High
SC.912.E.6.5	Describe the geologic development of the present day oceans and identify commonly found features.	Moderate
SC.912.E.6.6	Analyze past, present, and potential future consequences to the environment resulting from various energy production technologies.	High
SC.912.E.7.1	Analyze the movement of matter and energy through the different biogeochemical cycles, including water and carbon.	High
SC.912.E.7.2	Analyze the causes of the various kinds of surface and deep water motion within the oceans and their impacts on the transfer of energy between the poles and the equator.	High
SC.912.E.7.3	Differentiate and describe the various interactions among Earth systems, including: atmosphere, hydrosphere, cryosphere, geosphere, and biosphere.	High
SC.912.E.7.4	Summarize the conditions that contribute to the climate of a geographic area, including the relationships to lakes and oceans.	Moderate
SC.912.E.7.5	Predict future weather conditions based on present observations and conceptual models and recognize limitations and uncertainties of such predictions.	High

SC.912.E.7.6	Relate the formation of severe weather to the various physical factors.	Moderate
SC.912.E.7.7	Identify, analyze, and relate the internal (Earth system) and external (astronomical) conditions that contribute to global climate change.	High
SC.912.E.7.8	Explain how various atmospheric, oceanic, and hydrologic conditions in Florida have influenced and can influence human behavior, both individually and collectively.	High
SC.912.E.7.9	Cite evidence that the ocean has had a significant influence on climate change by absorbing, storing, and moving heat, carbon, and water.	High
SC.912.P.8.1	Differentiate among the four states of matter.	Moderate
SC.912.P.8.4	Explore the scientific theory of atoms (also known as atomic theory) by describing the structure of atoms in terms of protons, neutrons and electrons, and differentiate among these particles in terms of their mass, electrical charges and locations within	High
SC.912.P.10.4	Describe heat as the energy transferred by convection, conduction, and radiation, and explain the connection of heat to change in temperature or states of matter.	High
SC.912.P.10.10	Compare the magnitude and range of the four fundamental forces (gravitational, electromagnetic, weak nuclear, strong nuclear).	Moderate
SC.912.P.10.11	Explain and compare nuclear reactions (radioactive decay, fission and fusion), the energy changes associated with them and their associated safety issues.	High
SC.912.P.10.16	Explain the relationship between moving charges and magnetic fields, as well as changing magnetic fields and electric fields, and their application to modern technologies.	High
SC.912.P.10.18	Explore the theory of electromagnetism by comparing and contrasting the different parts of the electromagnetic spectrum in terms of wavelength, frequency, and energy, and relate them to phenomena and applications.	High
SC.912.P.10.19	Explain that all objects emit and absorb electromagnetic radiation and distinguish between objects that are blackbody radiators and those that are not.	High
SC.912.P.10.20	Describe the measurable properties of waves and explain the relationships among them and how these properties change when the wave moves from one medium to another.	High
SC.912.P.12.2	Analyze the motion of an object in terms of its position, velocity, and acceleration (with respect to a frame of reference) as functions of time.	High
SC.912.P.12.4	Describe how the gravitational force between two objects depends on their masses and the distance between them.	Moderate
SC.912.P.12.7	Recognize that nothing travels faster than the speed of light in vacuum which is the same for all observers no matter how they or the light source are moving.	Low
SC.912.L.15.1	Explain how the scientific theory of evolution is supported by the fossil record, comparative anatomy, comparative embryology, biogeography, molecular biology, and observed evolutionary change.	High
SC.912.L.15.8	Describe the scientific explanations of the origin of life on Earth.	Moderate
MA.912.S.1.2	Determine appropriate and consistent standards of measurement for the data to be collected in a survey or experiment.	Moderate
MA.912.S.3.2	Collect, organize, and analyze data sets, determine the best format for the data and present visual summaries from the following:	High
LA.910.4.2.2	The student will record information and ideas from primary and/or secondary sources accurately and coherently, noting the validity and reliability of these sources and attributing sources of information;	

LA.910.2.2.3	The student will organize information to show understanding or relationships among facts, ideas, and events (e.g., representing key points within text through charting, mapping, paraphrasing, summarizing, comparing, contrasting, or outlining);

Access Points for Students with Significant Cognitive Disabilities

Access Point Code	Access Point Descriptor
SC.912.N.1.In.a	Identify a problem based on a specific body of knowledge, including life science, earth and space science, or physical science, and do the following: 1. Identify a scientific question 2. Examine reliable sources of informtion to identify what is already k
SC.912.N.1.Su.b	Identify the basic process used in scientific investigations, including questioning, observing, recording, determining, and sharing results.
SC.912.N.1.Pa.c	Recognize that when a variety of common activities are repeated the same way, the outcomes are the same.
SC.912.N.2.In.a	Identify examples of investigations that involve science.
SC.912.N.2.Su.b	Recognize that what is known about science can change based on new information.
SC.912.N.3.In.a	Recognize that a scientific theory is developed by repeated investigations of many scientists and agreement on the likely explanation.
SC.912.N.3.In.b	Identify examples of scientific laws that describe relationships in the natural world, such as Newton's laws.
SC.912.N.3.Su.b	Recognize examples of scientific laws that describe relationships in nature, such as Newton's laws.
SC.912.N.3.Su.c	Recognize ways models are used in the study of science.
SC.912.N.4.In.a	Identify ways scientific knowledge and problem solving benefit people.
SC.912.N.4.Su.b	Recognize that some strategies may cost more to solve a problem.
SC.912.E.5.In.a	Recognize that the Milky Way is part of the expanding universe.
SC.912.E.5.Su.b	Recognize that stars are made of burning gases.
SC.912.E.5.Pa.c	Observe and recognize effects of the Sun on Earth, such as temperature changes.
SC.912.E.6.In.a	Describe the three layers of Earth (core, mantle, and crust).
SC.912.E.6.Su.b	Identify types of surface features, such as hills and valleys.
SC.912.E.7.In.a	Identify cycles that occur on Earth, such as the water and carbon cycles, and the role energy plays in them.
SC.912.E.7.Su.b	Recognize that currents move the ocean water around Earth.
SC.912.E.7.Pa.c	Recognize that humans, plants, and animals live on the Earth (biosphere).
SC.912.P.8.In.a	Classify states of matter as solid, liquid, and gaseous.
SC.912.P.8.Su.b	Identify examples of physical and chemical changes.
SC.912.P.8.Pa.c	Recognize that the parts of an object can be put together to make a whole.
SC.912.P.10.In.a	Identify examples of energy being transformed from one form to another (conserved quantity).
SC.912.P.10.Su.b	Recognize the relationship between work and power, such as power is the amount of work a person or machine does.
SC.912.P.10.Pa.c	Recognize the source and recipient of heat transfer.
SC.912.P.12.In.a	Recognize that scalar quantities describe the magnitude of the measurement, such as size, weight, volume, area, temperature, or speed.
SC.912.P.12.Su.b	Recognize that acceleration generally involves a change in speed.

SC.912.P.12.Pa.c	Identify the source of the force moving an object.
SC.912.L.15.In.a	Identify that prehistoric plants and animals changed over time (evolved) or became extinct.
SC.912.L.15.Su.b	Match organisms to the animal, plant, and fungus kingdoms.
SC.912.L.15.Pa.c	Recognize that animals produce offspring.

2001350 Astronomy Solar/Galactic

Section: Basic and Adult Education
Grade Group: Secondary Grades 9-12
Subject: Science
Domain: Earth/Space Sciences
Course Length: Year
Level: 3

This course description incorporates the following Next Generation Sunshine State Standards for standards-based teaching and learning.

Benchmarks

Benchmark Code	Benchmark Descriptor	Depth of Knowledge
SC.912.N.1.1	Define a problem based on a specific body of knowledge, for example: biology, chemistry, physics, and earth/space science, and do the following:	High
SC.912.N.1.2	Describe and explain what characterizes science and its methods.	Moderate
SC.912.N.1.3	Recognize that the strength or usefulness of a scientific claim is evaluated through scientific argumentation, which depends on critical and logical thinking, and the active consideration of alternative scientific explanations to explain the data present	Low
SC.912.N.1.4	Identify sources of information and assess their reliability according to the strict standards of scientific investigation.	High
SC.912.N.1.5	Describe and provide examples of how similar investigations conducted in many parts of the world result in the same outcome.	Moderate
SC.912.N.1.6	Describe how scientific inferences are drawn from scientific observations and provide examples from the content being studied.	Moderate
SC.912.N.1.7	Recognize the role of creativity in constructing scientific questions, methods and explanations.	Low
SC.912.N.2.1	Identify what is science, what clearly is not science, and what superficially resembles science (but fails to meet the criteria for science).	High
SC.912.N.2.2	Identify which questions can be answered through science and which questions are outside the boundaries of scientific investigation, such as questions addressed by other ways of knowing, such as art, philosophy, and religion.	High
SC.912.N.2.3	Identify examples of pseudoscience (such as astrology, phrenology) in society.	Low
SC.912.N.2.4	Explain that scientific knowledge is both durable and robust and open to change. Scientific knowledge can change because it is often examined and re-examined by new investigations and scientific argumentation. Because of these frequent examinations, scien	High
SC.912.N.2.5	Describe instances in which scientists' varied backgrounds, talents, interests, and goals influence the inferences and thus the explanations that they make about observations of natural phenomena and describe that competing interpretations (explanations)	High
SC.912.N.3.1	Explain that a scientific theory is the culmination of many scientific investigations drawing together all the current evidence concerning a substantial range of phenomena; thus, a scientific theory represents the most powerful explanation scientists have	High

SC.912.N.3.2	Describe the role consensus plays in the historical development of a theory in any one of the disciplines of science.	Moderate
SC.912.N.3.3	Explain that scientific laws are descriptions of specific relationships under given conditions in nature, but do not offer explanations for those relationships.	Moderate
SC.912.N.3.4	Recognize that theories do not become laws, nor do laws become theories; theories are well supported explanations and laws are well supported descriptions.	Moderate
SC.912.N.3.5	Describe the function of models in science, and identify the wide range of models used in science.	Moderate
SC.912.N.4.1	Explain how scientific knowledge and reasoning provide an empirically-based perspective to inform society's decision making.	Moderate
SC.912.E.5.1	Cite evidence used to develop and verify the scientific theory of the Big Bang (also known as the Big Bang Theory) of the origin of the universe.	High
SC.912.E.5.2	Identify patterns in the organization and distribution of matter in the universe and the forces that determine them.	Moderate
SC.912.E.5.3	Describe and predict how the initial mass of a star determines its evolution.	Moderate
SC.912.E.5.4	Explain the physical properties of the Sun and its dynamic nature and connect them to conditions and events on Earth.	High
SC.912.E.5.5	Explain the formation of planetary systems based on our knowledge of our Solar System and apply this knowledge to newly discovered planetary systems.	High
SC.912.E.5.6	Develop logical connections through physical principles, including Kepler's and Newton's Laws about the relationships and the effects of Earth, Moon, and Sun on each other.	High
SC.912.E.5.7	Relate the history of and explain the justification for future space exploration and continuing technology development.	High
SC.912.E.5.8	Connect the concepts of radiation and the electromagnetic spectrum to the use of historical and newly-developed observational tools.	High
SC.912.E.5.9	Analyze the broad effects of space exploration on the economy and culture of Florida.	High
SC.912.E.5.11	Distinguish the various methods of measuring astronomical distances and apply each in appropriate situations.	High
SC.912.E.6.2	Connect surface features to surface processes that are responsible for their formation.	Moderate
SC.912.E.7.7	Identify, analyze, and relate the internal (Earth system) and external (astronomical) conditions that contribute to global climate change.	High
SC.912.P.8.1	Differentiate among the four states of matter.	Moderate
SC.912.P.8.4	Explore the scientific theory of atoms (also known as atomic theory) by describing the structure of atoms in terms of protons, neutrons and electrons, and differentiate among these particles in terms of their mass, electrical charges and locations within	High
SC.912.P.10.4	Describe heat as the energy transferred by convection, conduction, and radiation, and explain the connection of heat to change in temperature or states of matter.	High
SC.912.P.10.9	Describe the quantization of energy at the atomic level.	Moderate
SC.912.P.10.11	Explain and compare nuclear reactions (radioactive decay, fission and fusion), the energy changes associated with them and their associated safety issues.	High
SC.912.P.10.18	Explore the theory of electromagnetism by comparing and contrasting the different parts of the electromagnetic spectrum in terms of wavelength, frequency, and energy, and relate them to phenomena and applications.	High
SC.912.P.10.19	Explain that all objects emit and absorb electromagnetic radiation and distinguish between objects that are blackbody radiators and those that are not.	High

SC.912.P.10.20	Describe the measurable properties of waves and explain the relationships among them and how these properties change when the wave moves from one medium to another.	High
SC.912.P.10.21	Qualitatively describe the shift in frequency in sound or electromagnetic waves due to the relative motion of a source or a receiver.	Moderate
SC.912.P.10.22	Construct ray diagrams and use thin lens and mirror equations to locate the images formed by lenses and mirrors.	High
SC.912.P.12.2	Analyze the motion of an object in terms of its position, velocity, and acceleration (with respect to a frame of reference) as functions of time.	High
SC.912.P.12.4	Describe how the gravitational force between two objects depends on their masses and the distance between them.	Moderate
SC.912.P.12.6	Qualitatively apply the concept of angular momentum.	High
SC.912.P.12.7	Recognize that nothing travels faster than the speed of light in vacuum which is the same for all observers no matter how they or the light source are moving.	Low
MA.912.S.1.2	Determine appropriate and consistent standards of measurement for the data to be collected in a survey or experiment.	Moderate
MA.912.S.3.2	Collect, organize, and analyze data sets, determine the best format for the data and present visual summaries from the following:	High
LA.910.4.2.2	The student will record information and ideas from primary and/or secondary sources accurately and coherently, noting the validity and reliability of these sources and attributing sources of information;	
LA.910.2.2.3	The student will organize information to show understanding or relationships among facts, ideas, and events (e.g., representing key points within text through charting, mapping, paraphrasing, summarizing, comparing, contrasting, or outlining);	

Access Points for Students with Significant Cognitive Disabilities

Access Point Code	Access Point Descriptor
SC.912.N.1.In.a	Identify a problem based on a specific body of knowledge, including life science, earth and space science, or physical science, and do the following: 1. Identify a scientific question 2. Examine reliable sources of informtion to identify what is already k
SC.912.N.1.Su.b	Identify the basic process used in scientific investigations, including questioning, observing, recording, determining, and sharing results.
SC.912.N.1.Pa.c	Recognize that when a variety of common activities are repeated the same way, the outcomes are the same.
SC.912.N.2.In.a	Identify examples of investigations that involve science.
SC.912.N.2.Su.b	Recognize that what is known about science can change based on new information.
SC.912.N.3.In.a	Recognize that a scientific theory is developed by repeated investigations of many scientists and agreement on the likely explanation.
SC.912.N.3.In.b	Identify examples of scientific laws that describe relationships in the natural world, such as Newton’s laws.
SC.912.N.3.Su.b	Recognize examples of scientific laws that describe relationships in nature, such as Newton’s laws.
SC.912.N.3.Su.c	Recognize ways models are used in the study of science.
SC.912.N.4.In.a	Identify ways scientific knowledge and problem solving benefit people.
SC.912.N.4.Su.b	Recognize that some strategies may cost more to solve a problem.
SC.912.E.5.In.a	Recognize that the Milky Way is part of the expanding universe.
SC.912.E.5.Su.b	Recognize that stars are made of burning gases.

SC.912.E.5.Pa.c	Observe and recognize effects of the Sun on Earth, such as temperature changes.
SC.912.E.6.In.a	Describe the three layers of Earth (core, mantle, and crust).
SC.912.E.6.Su.b	Identify types of surface features, such as hills and valleys.
SC.912.E.7.In.a	Identify cycles that occur on Earth, such as the water and carbon cycles, and the role energy plays in them.
SC.912.E.7.Su.b	Recognize that currents move the ocean water around Earth.
SC.912.E.7.Pa.c	Recognize that humans, plants, and animals live on the Earth (biosphere).
SC.912.P.8.In.a	Classify states of matter as solid, liquid, and gaseous.
SC.912.P.8.Su.b	Identify examples of physical and chemical changes.
SC.912.P.8.Pa.c	Recognize that the parts of an object can be put together to make a whole.
SC.912.P.10.In.a	Identify examples of energy being transformed from one form to another (conserved quantity).
SC.912.P.10.Su.b	Recognize the relationship between work and power, such as power is the amount of work a person or machine does.
SC.912.P.10.Pa.c	Recognize the source and recipient of heat transfer.
SC.912.P.12.In.a	Recognize that scalar quantities describe the magnitude of the measurement, such as size, weight, volume, area, temperature, or speed.
SC.912.P.12.Su.b	Recognize that acceleration generally involves a change in speed.
SC.912.P.12.Pa.c	Identify the source of the force moving an object.

2020910 Astronomy Solar/Galactic Honors

Section: Basic and Adult Education
Grade Group: Secondary Grades 9-12
Subject: Science
Domain: Earth/Space Sciences
Course Length: Year
Level: 3

This course description incorporates the following Next Generation Sunshine State Standards for standards-based teaching and learning.

Benchmarks

Benchmark Code	Benchmark Descriptor	Depth of Knowledge
SC.912.N.1.1	Define a problem based on a specific body of knowledge, for example: biology, chemistry, physics, and earth/space science, and do the following:	High
SC.912.N.1.2	Describe and explain what characterizes science and its methods.	Moderate
SC.912.N.1.3	Recognize that the strength or usefulness of a scientific claim is evaluated through scientific argumentation, which depends on critical and logical thinking, and the active consideration of alternative scientific explanations to explain the data present	Low
SC.912.N.1.4	Identify sources of information and assess their reliability according to the strict standards of scientific investigation.	High
SC.912.N.1.5	Describe and provide examples of how similar investigations conducted in many parts of the world result in the same outcome.	Moderate
SC.912.N.1.6	Describe how scientific inferences are drawn from scientific observations and provide examples from the content being studied.	Moderate
SC.912.N.1.7	Recognize the role of creativity in constructing scientific questions, methods and explanations.	Low
SC.912.N.2.1	Identify what is science, what clearly is not science, and what superficially resembles science (but fails to meet the criteria for science).	High

SC.912.N.2.2	Identify which questions can be answered through science and which questions are outside the boundaries of scientific investigation, such as questions addressed by other ways of knowing, such as art, philosophy, and religion.	High
SC.912.N.2.3	Identify examples of pseudoscience (such as astrology, phrenology) in society.	Low
SC.912.N.2.4	Explain that scientific knowledge is both durable and robust and open to change. Scientific knowledge can change because it is often examined and re-examined by new investigations and scientific argumentation. Because of these frequent examinations, scien	High
SC.912.N.2.5	Describe instances in which scientists' varied backgrounds, talents, interests, and goals influence the inferences and thus the explanations that they make about observations of natural phenomena and describe that competing interpretations (explanations)	High
SC.912.N.3.1	Explain that a scientific theory is the culmination of many scientific investigations drawing together all the current evidence concerning a substantial range of phenomena; thus, a scientific theory represents the most powerful explanation scientists have	High
SC.912.N.3.2	Describe the role consensus plays in the historical development of a theory in any one of the disciplines of science.	Moderate
SC.912.N.3.3	Explain that scientific laws are descriptions of specific relationships under given conditions in nature, but do not offer explanations for those relationships.	Moderate
SC.912.N.3.4	Recognize that theories do not become laws, nor do laws become theories; theories are well supported explanations and laws are well supported descriptions.	Moderate
SC.912.N.3.5	Describe the function of models in science, and identify the wide range of models used in science.	Moderate
SC.912.N.4.1	Explain how scientific knowledge and reasoning provide an empirically-based perspective to inform society's decision making.	Moderate
SC.912.N.4.2	Weigh the merits of alternative strategies for solving a specific societal problem by comparing a number of different costs and benefits, such as human, economic, and environmental.	High
SC.912.E.5.1	Cite evidence used to develop and verify the scientific theory of the Big Bang (also known as the Big Bang Theory) of the origin of the universe.	High
SC.912.E.5.2	Identify patterns in the organization and distribution of matter in the universe and the forces that determine them.	Moderate
SC.912.E.5.3	Describe and predict how the initial mass of a star determines its evolution.	Moderate
SC.912.E.5.4	Explain the physical properties of the Sun and its dynamic nature and connect them to conditions and events on Earth.	High
SC.912.E.5.5	Explain the formation of planetary systems based on our knowledge of our Solar System and apply this knowledge to newly discovered planetary systems.	High
SC.912.E.5.6	Develop logical connections through physical principles, including Kepler's and Newton's Laws about the relationships and the effects of Earth, Moon, and Sun on each other.	High
SC.912.E.5.7	Relate the history of and explain the justification for future space exploration and continuing technology development.	High
SC.912.E.5.8	Connect the concepts of radiation and the electromagnetic spectrum to the use of historical and newly-developed observational tools.	High
SC.912.E.5.9	Analyze the broad effects of space exploration on the economy and culture of Florida.	High
SC.912.E.5.10	Describe and apply the coordinate system used to locate objects in the sky.	Moderate
SC.912.E.5.11	Distinguish the various methods of measuring astronomical distances and apply each in appropriate situations.	High

SC.912.E.6.2	Connect surface features to surface processes that are responsible for their formation.	Moderate
SC.912.E.7.7	Identify, analyze, and relate the internal (Earth system) and external (astronomical) conditions that contribute to global climate change.	High
SC.912.P.8.1	Differentiate among the four states of matter.	Moderate
SC.912.P.8.4	Explore the scientific theory of atoms (also known as atomic theory) by describing the structure of atoms in terms of protons, neutrons and electrons, and differentiate among these particles in terms of their mass, electrical charges and locations within	High
SC.912.P.10.4	Describe heat as the energy transferred by convection, conduction, and radiation, and explain the connection of heat to change in temperature or states of matter.	High
SC.912.P.10.9	Describe the quantization of energy at the atomic level.	Moderate
SC.912.P.10.10	Compare the magnitude and range of the four fundamental forces (gravitational, electromagnetic, weak nuclear, strong nuclear).	Moderate
SC.912.P.10.11	Explain and compare nuclear reactions (radioactive decay, fission and fusion), the energy changes associated with them and their associated safety issues.	High
SC.912.P.10.18	Explore the theory of electromagnetism by comparing and contrasting the different parts of the electromagnetic spectrum in terms of wavelength, frequency, and energy, and relate them to phenomena and applications.	High
SC.912.P.10.19	Explain that all objects emit and absorb electromagnetic radiation and distinguish between objects that are blackbody radiators and those that are not.	High
SC.912.P.10.20	Describe the measurable properties of waves and explain the relationships among them and how these properties change when the wave moves from one medium to another.	High
SC.912.P.10.21	Qualitatively describe the shift in frequency in sound or electromagnetic waves due to the relative motion of a source or a receiver.	Moderate
SC.912.P.10.22	Construct ray diagrams and use thin lens and mirror equations to locate the images formed by lenses and mirrors.	High
SC.912.P.12.2	Analyze the motion of an object in terms of its position, velocity, and acceleration (with respect to a frame of reference) as functions of time.	High
SC.912.P.12.3	Interpret and apply Newton's three laws of motion.	High
SC.912.P.12.4	Describe how the gravitational force between two objects depends on their masses and the distance between them.	Moderate
SC.912.P.12.6	Qualitatively apply the concept of angular momentum.	High
SC.912.P.12.7	Recognize that nothing travels faster than the speed of light in vacuum which is the same for all observers no matter how they or the light source are moving.	Low
SC.912.P.12.8	Recognize that Newton's Laws are a limiting case of Einstein's Special Theory of Relativity at speeds that are much smaller than the speed of light.	Low
SC.912.P.12.9	Recognize that time, length, and energy depend on the frame of reference.	Low
MA.912.S.1.2	Determine appropriate and consistent standards of measurement for the data to be collected in a survey or experiment.	Moderate
MA.912.S.3.2	Collect, organize, and analyze data sets, determine the best format for the data and present visual summaries from the following:	High
LA.910.4.2.2	The student will record information and ideas from primary and/or secondary sources accurately and coherently, noting the validity and reliability of these sources and attributing sources of information;	

LA.910.2.2.3	The student will organize information to show understanding or relationships among facts, ideas, and events (e.g., representing key points within text through charting, mapping, paraphrasing, summarizing, comparing, contrasting, or outlining);

Access Points for Students with Significant Cognitive Disabilities

Access Point Code	Access Point Descriptor
SC.912.N.1.In.a	Identify a problem based on a specific body of knowledge, including life science, earth and space science, or physical science, and do the following: 1. Identify a scientific question 2. Examine reliable sources of informtion to identify what is already k
SC.912.N.1.Su.b	Identify the basic process used in scientific investigations, including questioning, observing, recording, determining, and sharing results.
SC.912.N.1.Pa.c	Recognize that when a variety of common activities are repeated the same way, the outcomes are the same.
SC.912.N.2.In.a	Identify examples of investigations that involve science.
SC.912.N.2.Su.b	Recognize that what is known about science can change based on new information.
SC.912.N.3.In.a	Recognize that a scientific theory is developed by repeated investigations of many scientists and agreement on the likely explanation.
SC.912.N.3.In.b	Identify examples of scientific laws that describe relationships in the natural world, such as Newton's laws.
SC.912.N.3.Su.b	Recognize examples of scientific laws that describe relationships in nature, such as Newton's laws.
SC.912.N.3.Su.c	Recognize ways models are used in the study of science.
SC.912.N.4.In.a	Identify ways scientific knowledge and problem solving benefit people.
SC.912.N.4.Su.b	Recognize that some strategies may cost more to solve a problem.
SC.912.E.5.In.a	Recognize that the Milky Way is part of the expanding universe.
SC.912.E.5.Su.b	Recognize that stars are made of burning gases.
SC.912.E.5.Pa.c	Observe and recognize effects of the Sun on Earth, such as temperature changes.
SC.912.E.6.In.a	Describe the three layers of Earth (core, mantle, and crust).
SC.912.E.6.Su.b	Identify types of surface features, such as hills and valleys.
SC.912.E.7.In.a	Identify cycles that occur on Earth, such as the water and carbon cycles, and the role energy plays in them.
SC.912.E.7.Su.b	Recognize that currents move the ocean water around Earth.
SC.912.E.7.Pa.c	Recognize that humans, plants, and animals live on the Earth (biosphere).
SC.912.P.8.In.a	Classify states of matter as solid, liquid, and gaseous.
SC.912.P.8.Su.b	Identify examples of physical and chemical changes.
SC.912.P.8.Pa.c	Recognize that the parts of an object can be put together to make a whole.
SC.912.P.10.In.a	Identify examples of energy being transformed from one form to another (conserved quantity).
SC.912.P.10.Su.b	Recognize the relationship between work and power, such as power is the amount of work a person or machine does.
SC.912.P.10.Pa.c	Recognize the source and recipient of heat transfer.
SC.912.P.12.In.a	Recognize that scalar quantities describe the magnitude of the measurement, such as size, weight, volume, area, temperature, or speed.
SC.912.P.12.Su.b	Recognize that acceleration generally involves a change in speed.

SC.912.P.12.Pa.c Identify the source of the force moving an object.

2002330 Space Technology and Engineering

Section: Basic and Adult Education
Grade Group: Secondary Grades 9-12
Subject: Science
Domain: General Sciences
Course Length: Year
Level: 2

This course description incorporates the following Next Generation Sunshine State Standards for standards-based teaching and learning.

Benchmarks

Benchmark Code	Benchmark Descriptor	Depth of Knowledge
SC.912.N.1.1	Define a problem based on a specific body of knowledge, for example: biology, chemistry, physics, and earth/space science, and do the following:	High
SC.912.N.1.2	Describe and explain what characterizes science and its methods.	Moderate
SC.912.N.1.3	Recognize that the strength or usefulness of a scientific claim is evaluated through scientific argumentation, which depends on critical and logical thinking, and the active consideration of alternative scientific explanations to explain the data present	Low
SC.912.N.1.4	Identify sources of information and assess their reliability according to the strict standards of scientific investigation.	High
SC.912.N.1.5	Describe and provide examples of how similar investigations conducted in many parts of the world result in the same outcome.	Moderate
SC.912.N.1.6	Describe how scientific inferences are drawn from scientific observations and provide examples from the content being studied.	Moderate
SC.912.N.1.7	Recognize the role of creativity in constructing scientific questions, methods and explanations.	Low
SC.912.N.2.1	Identify what is science, what clearly is not science, and what superficially resembles science (but fails to meet the criteria for science).	High
SC.912.N.2.2	Identify which questions can be answered through science and which questions are outside the boundaries of scientific investigation, such as questions addressed by other ways of knowing, such as art, philosophy, and religion.	High
SC.912.N.2.3	Identify examples of pseudoscience (such as astrology, phrenology) in society.	Low
SC.912.N.2.4	Explain that scientific knowledge is both durable and robust and open to change. Scientific knowledge can change because it is often examined and re-examined by new investigations and scientific argumentation. Because of these frequent examinations, scien	High
SC.912.N.2.5	Describe instances in which scientists' varied backgrounds, talents, interests, and goals influence the inferences and thus the explanations that they make about observations of natural phenomena and describe that competing interpretations (explanations)	High
SC.912.N.3.1	Explain that a scientific theory is the culmination of many scientific investigations drawing together all the current evidence concerning a substantial range of phenomena; thus, a scientific theory represents the most powerful explanation scientists have	High
SC.912.N.3.2	Describe the role consensus plays in the historical development of a theory in any one of the disciplines of science.	Moderate
SC.912.N.3.3	Explain that scientific laws are descriptions of specific relationships under given conditions in nature, but do not offer explanations for those relationships.	Moderate

SC.912.N.3.4	Recognize that theories do not become laws, nor do laws become theories; theories are well supported explanations and laws are well supported descriptions.	Moderate
SC.912.N.3.5	Describe the function of models in science, and identify the wide range of models used in science.	Moderate
SC.912.N.4.1	Explain how scientific knowledge and reasoning provide an empirically-based perspective to inform society's decision making.	Moderate
SC.912.N.4.2	Weigh the merits of alternative strategies for solving a specific societal problem by comparing a number of different costs and benefits, such as human, economic, and environmental.	High
SC.912.E.5.6	Develop logical connections through physical principles, including Kepler's and Newton's Laws about the relationships and the effects of Earth, Moon, and Sun on each other.	High
SC.912.E.5.7	Relate the history of and explain the justification for future space exploration and continuing technology development.	High
SC.912.E.5.8	Connect the concepts of radiation and the electromagnetic spectrum to the use of historical and newly-developed observational tools.	High
SC.912.E.5.9	Analyze the broad effects of space exploration on the economy and culture of Florida.	High
SC.912.E.5.10	Describe and apply the coordinate system used to locate objects in the sky.	Moderate
SC.912.E.5.11	Distinguish the various methods of measuring astronomical distances and apply each in appropriate situations.	High
SC.912.E.7.6	Relate the formation of severe weather to the various physical factors.	Moderate
SC.912.P.10.1	Differentiate among the various forms of energy and recognize that they can be transformed from one form to others.	Moderate
SC.912.P.10.2	Explore the Law of Conservation of Energy by differentiating among open, closed, and isolated systems and explain that the total energy in an isolated system is a conserved quantity.	High
SC.912.P.10.4	Describe heat as the energy transferred by convection, conduction, and radiation, and explain the connection of heat to change in temperature or states of matter.	High
SC.912.P.10.11	Explain and compare nuclear reactions (radioactive decay, fission and fusion), the energy changes associated with them and their associated safety issues.	High
SC.912.P.10.14	Differentiate among conductors, semiconductors, and insulators.	Moderate
SC.912.P.10.15	Investigate and explain the relationships among current, voltage, resistance, and power.	High
SC.912.P.10.16	Explain the relationship between moving charges and magnetic fields, as well as changing magnetic fields and electric fields, and their application to modern technologies.	High
SC.912.P.10.19	Explain that all objects emit and absorb electromagnetic radiation and distinguish between objects that are blackbody radiators and those that are not.	High
SC.912.P.12.3	Interpret and apply Newton's three laws of motion.	High
SC.912.P.12.4	Describe how the gravitational force between two objects depends on their masses and the distance between them.	Moderate
SC.912.P.12.7	Recognize that nothing travels faster than the speed of light in vacuum which is the same for all observers no matter how they or the light source are moving.	Low
SC.912.P.12.8	Recognize that Newton's Laws are a limiting case of Einstein's Special Theory of Relativity at speeds that are much smaller than the speed of light.	Low
MA.912.S.1.2	Determine appropriate and consistent standards of measurement for the data to be collected in a survey or experiment.	Moderate

MA.912.S.3.2	Collect, organize, and analyze data sets, determine the best format for the data and present visual summaries from the following:	High
LA.910.4.2.2	The student will record information and ideas from primary and/or secondary sources accurately and coherently, noting the validity and reliability of these sources and attributing sources of information;	
LA.910.2.2.3	The student will organize information to show understanding or relationships among facts, ideas, and events (e.g., representing key points within text through charting, mapping, paraphrasing, summarizing, comparing, contrasting, or outlining);	

Access Points for Students with Significant Cognitive Disabilities

Access Point Code	Access Point Descriptor
SC.912.N.1.In.a	Identify a problem based on a specific body of knowledge, including life science, earth and space science, or physical science, and do the following: 1. Identify a scientific question 2. Examine reliable sources of informtion to identify what is already k
SC.912.N.1.Su.b	Identify the basic process used in scientific investigations, including questioning, observing, recording, determining, and sharing results.
SC.912.N.1.Pa.c	Recognize that when a variety of common activities are repeated the same way, the outcomes are the same.
SC.912.N.2.In.a	Identify examples of investigations that involve science.
SC.912.N.2.Su.b	Recognize that what is known about science can change based on new information.
SC.912.N.3.In.a	Recognize that a scientific theory is developed by repeated investigations of many scientists and agreement on the likely explanation.
SC.912.N.3.In.b	Identify examples of scientific laws that describe relationships in the natural world, such as Newton's laws.
SC.912.N.3.Su.b	Recognize examples of scientific laws that describe relationships in nature, such as Newton's laws.
SC.912.N.3.Su.c	Recognize ways models are used in the study of science.
SC.912.N.4.In.a	Identify ways scientific knowledge and problem solving benefit people.
SC.912.N.4.Su.b	Recognize that some strategies may cost more to solve a problem.
SC.912.E.5.In.a	Recognize that the Milky Way is part of the expanding universe.
SC.912.E.5.Su.b	Recognize that stars are made of burning gases.
SC.912.E.5.Pa.c	Observe and recognize effects of the Sun on Earth, such as temperature changes.
SC.912.E.7.In.a	Identify cycles that occur on Earth, such as the water and carbon cycles, and the role energy plays in them.
SC.912.E.7.Su.b	Recognize that currents move the ocean water around Earth.
SC.912.E.7.Pa.c	Recognize that humans, plants, and animals live on the Earth (biosphere).
SC.912.P.10.In.a	Identify examples of energy being transformed from one form to another (conserved quantity).
SC.912.P.10.Su.b	Recognize the relationship between work and power, such as power is the amount of work a person or machine does.
SC.912.P.10.Pa.c	Recognize the source and recipient of heat transfer.
SC.912.P.12.In.a	Recognize that scalar quantities describe the magnitude of the measurement, such as size, weight, volume, area, temperature, or speed.
SC.912.P.12.Su.b	Recognize that acceleration generally involves a change in speed.
SC.912.P.12.Pa.c	Identify the source of the force moving an object.

2003340 Chemistry I

Section: Basic and Adult Education
Grade Group: Secondary Grades 9-12
Subject: Science
Domain: Physical Sciences
Course Length: Year
Level: 2

This course description incorporates the following Next Generation Sunshine State Standards for standards-based teaching and learning.

Benchmarks

Benchmark Code	Benchmark Descriptor	Depth of Knowledge
SC.912.N.1.1	Define a problem based on a specific body of knowledge, for example: biology, chemistry, physics, and earth/space science, and do the following:	High
SC.912.N.1.2	Describe and explain what characterizes science and its methods.	Moderate
SC.912.N.1.3	Recognize that the strength or usefulness of a scientific claim is evaluated through scientific argumentation, which depends on critical and logical thinking, and the active consideration of alternative scientific explanations to explain the data present	Low
SC.912.N.1.4	Identify sources of information and assess their reliability according to the strict standards of scientific investigation.	High
SC.912.N.1.5	Describe and provide examples of how similar investigations conducted in many parts of the world result in the same outcome.	Moderate
SC.912.N.1.6	Describe how scientific inferences are drawn from scientific observations and provide examples from the content being studied.	Moderate
SC.912.N.1.7	Recognize the role of creativity in constructing scientific questions, methods and explanations.	Low
SC.912.N.2.1	Identify what is science, what clearly is not science, and what superficially resembles science (but fails to meet the criteria for science).	High
SC.912.N.2.2	Identify which questions can be answered through science and which questions are outside the boundaries of scientific investigation, such as questions addressed by other ways of knowing, such as art, philosophy, and religion.	High
SC.912.N.2.3	Identify examples of pseudoscience (such as astrology, phrenology) in society.	Low
SC.912.N.2.4	Explain that scientific knowledge is both durable and robust and open to change. Scientific knowledge can change because it is often examined and re-examined by new investigations and scientific argumentation. Because of these frequent examinations, scien	High
SC.912.N.2.5	Describe instances in which scientists' varied backgrounds, talents, interests, and goals influence the inferences and thus the explanations that they make about observations of natural phenomena and describe that competing interpretations (explanations)	High
SC.912.N.3.1	Explain that a scientific theory is the culmination of many scientific investigations drawing together all the current evidence concerning a substantial range of phenomena; thus, a scientific theory represents the most powerful explanation scientists have	High
SC.912.N.3.2	Describe the role consensus plays in the historical development of a theory in any one of the disciplines of science.	Moderate
SC.912.N.3.3	Explain that scientific laws are descriptions of specific relationships under given conditions in nature, but do not offer explanations for those relationships.	Moderate
SC.912.N.3.4	Recognize that theories do not become laws, nor do laws become theories; theories are well supported explanations and laws are well supported descriptions.	Moderate

SC.912.N.3.5	Describe the function of models in science, and identify the wide range of models used in science.	Moderate
SC.912.N.4.1	Explain how scientific knowledge and reasoning provide an empirically-based perspective to inform society's decision making.	Moderate
SC.912.N.4.2	Weigh the merits of alternative strategies for solving a specific societal problem by comparing a number of different costs and benefits, such as human, economic, and environmental.	High
SC.912.E.5.1	Cite evidence used to develop and verify the scientific theory of the Big Bang (also known as the Big Bang Theory) of the origin of the universe.	High
SC.912.P.8.1	Differentiate among the four states of matter.	Moderate
SC.912.P.8.2	Differentiate between physical and chemical properties and physical and chemical changes of matter.	Moderate
SC.912.P.8.3	Explore the scientific theory of atoms (also known as atomic theory) by describing changes in the atomic model over time and why those changes were necessitated by experimental evidence.	High
SC.912.P.8.4	Explore the scientific theory of atoms (also known as atomic theory) by describing the structure of atoms in terms of protons, neutrons and electrons, and differentiate among these particles in terms of their mass, electrical charges and locations within	High
SC.912.P.8.5	Relate properties of atoms and their position in the periodic table to the arrangement of their electrons.	Moderate
SC.912.P.8.6	Distinguish between bonding forces holding compounds together and other attractive forces, including hydrogen bonding and van der Waals forces.	Moderate
SC.912.P.8.7	Interpret formula representations of molecules and compounds in terms of composition and structure.	Moderate
SC.912.P.8.8	Characterize types of chemical reactions, for example: redox, acid-base, synthesis, and single and double replacement reactions.	Moderate
SC.912.P.8.9	Apply the mole concept and the law of conservation of mass to calculate quantities of chemicals participating in reactions.	High
SC.912.P.8.11	Relate acidity and basicity to hydronium and hydroxyl ion concentration and pH.	Moderate
SC.912.P.8.12	Describe the properties of the carbon atom that make the diversity of carbon compounds possible.	Moderate
SC.912.P.10.1	Differentiate among the various forms of energy and recognize that they can be transformed from one form to others.	Moderate
SC.912.P.10.2	Explore the Law of Conservation of Energy by differentiating among open, closed, and isolated systems and explain that the total energy in an isolated system is a conserved quantity.	High
SC.912.P.10.5	Relate temperature to the average molecular kinetic energy.	Moderate
SC.912.P.10.6	Create and interpret potential energy diagrams, for example: chemical reactions, orbits around a central body, motion of a pendulum.	High
SC.912.P.10.7	Distinguish between endothermic and exothermic chemical processes.	Moderate
SC.912.P.10.9	Describe the quantization of energy at the atomic level.	Moderate
SC.912.P.10.10	Compare the magnitude and range of the four fundamental forces (gravitational, electromagnetic, weak nuclear, strong nuclear).	Moderate
SC.912.P.10.11	Explain and compare nuclear reactions (radioactive decay, fission and fusion), the energy changes associated with them and their associated safety issues.	High
SC.912.P.10.12	Differentiate between chemical and nuclear reactions.	Moderate
SC.912.P.10.18	Explore the theory of electromagnetism by comparing and contrasting the different parts of the electromagnetic spectrum in terms of wavelength, frequency, and energy, and relate them to phenomena and applications.	High

SC.912.P.12.10	Interpret the behavior of ideal gases in terms of kinetic molecular theory.	High
SC.912.P.12.11	Describe phase transitions in terms of kinetic molecular theory.	Moderate
SC.912.P.12.12	Explain how various factors, such as concentration, temperature, and presence of a catalyst affect the rate of a chemical reaction.	High
SC.912.P.12.13	Explain the concept of dynamic equilibrium in terms of reversible processes occurring at the same rates.	High
SC.912.L.15.2	Discuss the use of molecular clocks to estimate how long ago various groups of organisms diverged evolutionarily from one another.	Moderate
SC.912.L.16.10	Evaluate the impact of biotechnology on the individual, society and the environment, including medical and ethical issues.	High
SC.912.L.17.11	Evaluate the costs and benefits of renewable and nonrenewable resources, such as water, energy, fossil fuels, wildlife, and forests.	High
SC.912.L.17.15	Discuss the effects of technology on environmental quality.	Moderate
SC.912.L.17.16	Discuss the large-scale environmental impacts resulting from human activity, including waste spills, oil spills, runoff, greenhouse gases, ozone depletion, and surface and groundwater pollution.	High
SC.912.L.17.19	Describe how different natural resources are produced and how their rates of use and renewal limit availability.	Moderate
SC.912.L.17.20	Predict the impact of individuals on environmental systems and examine how human lifestyles affect sustainability.	High
SC.912.L.18.12	Discuss the special properties of water that contribute to Earth's suitability as an environment for life: cohesive behavior, ability to moderate temperature, expansion upon freezing, and versatility as a solvent.	Moderate
MA.912.S.1.2	Determine appropriate and consistent standards of measurement for the data to be collected in a survey or experiment.	Moderate
MA.912.S.3.2	Collect, organize, and analyze data sets, determine the best format for the data and present visual summaries from the following:	High
LA.910.4.2.2	The student will record information and ideas from primary and/or secondary sources accurately and coherently, noting the validity and reliability of these sources and attributing sources of information;	
LA.910.2.2.3	The student will organize information to show understanding or relationships among facts, ideas, and events (e.g., representing key points within text through charting, mapping, paraphrasing, summarizing, comparing, contrasting, or outlining);	

Access Points for Students with Significant Cognitive Disabilities

Access Point Code	Access Point Descriptor
SC.912.N.1.In.a	Identify a problem based on a specific body of knowledge, including life science, earth and space science, or physical science, and do the following: 1. Identify a scientific question 2. Examine reliable sources of informtion to identify what is already k
SC.912.N.1.Su.b	Identify the basic process used in scientific investigations, including questioning, observing, recording, determining, and sharing results.
SC.912.N.1.Pa.c	Recognize that when a variety of common activities are repeated the same way, the outcomes are the same.
SC.912.N.2.In.a	Identify examples of investigations that involve science.
SC.912.N.2.Su.b	Recognize that what is known about science can change based on new information.
SC.912.N.3.In.a	Recognize that a scientific theory is developed by repeated investigations of many scientists and agreement on the likely explanation.

SC.912.N.3.In.b	Identify examples of scientific laws that describe relationships in the natural world, such as Newton's laws.
SC.912.N.3.Su.b	Recognize examples of scientific laws that describe relationships in nature, such as Newton's laws.
SC.912.N.3.Su.c	Recognize ways models are used in the study of science.
SC.912.N.4.In.a	Identify ways scientific knowledge and problem solving benefit people.
SC.912.N.4.Su.b	Recognize that some strategies may cost more to solve a problem.
SC.912.E.5.In.a	Recognize that the Milky Way is part of the expanding universe.
SC.912.E.5.Su.b	Recognize that stars are made of burning gases.
SC.912.E.5.Pa.c	Observe and recognize effects of the Sun on Earth, such as temperature changes.
SC.912.P.8.In.a	Classify states of matter as solid, liquid, and gaseous.
SC.912.P.8.Su.b	Identify examples of physical and chemical changes.
SC.912.P.8.Pa.c	Recognize that the parts of an object can be put together to make a whole.
SC.912.P.10.In.a	Identify examples of energy being transformed from one form to another (conserved quantity).
SC.912.P.10.Su.b	Recognize the relationship between work and power, such as power is the amount of work a person or machine does.
SC.912.P.10.Pa.c	Recognize the source and recipient of heat transfer.
SC.912.P.12.In.a	Recognize that scalar quantities describe the magnitude of the measurement, such as size, weight, volume, area, temperature, or speed.
SC.912.P.12.Su.b	Recognize that acceleration generally involves a change in speed.
SC.912.P.12.Pa.c	Identify the source of the force moving an object.
SC.912.L.16.In.a	Identify that genes are sets of instructions that determine which characteristics are passed from parent to offspring.
SC.912.L.16.Su.b	Recognize that all organisms have a substance called DNA with unique information.
SC.912.L.16.Pa.c	Recognize that illness can result when parts of our bodies are not working properly.
SC.912.L.17.In.a	Recognize that living things in oceans and fresh water are affected by the location, availability of light, depth of the water, and temperature.
SC.912.L.17.Su.b	Recognize how animals and plants in an ecosystem may be affected by changes to the food supply or climate.
SC.912.L.17.Pa.c	Recognize examples of mutual relationships between people and other living things.
SC.912.L.18.In.a	Identify that carbohydrates, fats, proteins, and nucleic acids (macromolecules) are important for human organisms.
SC.912.L.18.Su.b	Recognize that the function of photosynthesis is to produce food for plants.
SC.912.L.18.Pa.c	Identify that food is a source of energy.

2003350 Chemistry I Honors

Section: Basic and Adult Education
Grade Group: Secondary Grades 9-12
Subject: Science
Domain: Physical Sciences
Course Length: Year
Level: 3

This course description incorporates the following Next Generation Sunshine State Standards for standards-based teaching and learning.

Benchmarks

Benchmark Code	Benchmark Descriptor	Depth of Knowledge
SC.912.N.1.1	Define a problem based on a specific body of knowledge, for example: biology, chemistry, physics, and earth/space science, and do the following:	High
SC.912.N.1.2	Describe and explain what characterizes science and its methods.	Moderate
SC.912.N.1.3	Recognize that the strength or usefulness of a scientific claim is evaluated through scientific argumentation, which depends on critical and logical thinking, and the active consideration of alternative scientific explanations to explain the data present	Low
SC.912.N.1.4	Identify sources of information and assess their reliability according to the strict standards of scientific investigation.	High
SC.912.N.1.5	Describe and provide examples of how similar investigations conducted in many parts of the world result in the same outcome.	Moderate
SC.912.N.1.6	Describe how scientific inferences are drawn from scientific observations and provide examples from the content being studied.	Moderate
SC.912.N.1.7	Recognize the role of creativity in constructing scientific questions, methods and explanations.	Low
SC.912.N.2.1	Identify what is science, what clearly is not science, and what superficially resembles science (but fails to meet the criteria for science).	High
SC.912.N.2.2	Identify which questions can be answered through science and which questions are outside the boundaries of scientific investigation, such as questions addressed by other ways of knowing, such as art, philosophy, and religion.	High
SC.912.N.2.3	Identify examples of pseudoscience (such as astrology, phrenology) in society.	Low
SC.912.N.2.4	Explain that scientific knowledge is both durable and robust and open to change. Scientific knowledge can change because it is often examined and re-examined by new investigations and scientific argumentation. Because of these frequent examinations, scien	High
SC.912.N.2.5	Describe instances in which scientists' varied backgrounds, talents, interests, and goals influence the inferences and thus the explanations that they make about observations of natural phenomena and describe that competing interpretations (explanations)	High
SC.912.N.3.1	Explain that a scientific theory is the culmination of many scientific investigations drawing together all the current evidence concerning a substantial range of phenomena; thus, a scientific theory represents the most powerful explanation scientists have	High
SC.912.N.3.2	Describe the role consensus plays in the historical development of a theory in any one of the disciplines of science.	Moderate
SC.912.N.3.3	Explain that scientific laws are descriptions of specific relationships under given conditions in nature, but do not offer explanations for those relationships.	Moderate
SC.912.N.3.4	Recognize that theories do not become laws, nor do laws become theories; theories are well supported explanations and laws are well supported descriptions.	Moderate

SC.912.N.3.5	Describe the function of models in science, and identify the wide range of models used in science.	Moderate
SC.912.N.4.1	Explain how scientific knowledge and reasoning provide an empirically-based perspective to inform society's decision making.	Moderate
SC.912.N.4.2	Weigh the merits of alternative strategies for solving a specific societal problem by comparing a number of different costs and benefits, such as human, economic, and environmental.	High
SC.912.E.5.1	Cite evidence used to develop and verify the scientific theory of the Big Bang (also known as the Big Bang Theory) of the origin of the universe.	High
SC.912.P.8.1	Differentiate among the four states of matter.	Moderate
SC.912.P.8.2	Differentiate between physical and chemical properties and physical and chemical changes of matter.	Moderate
SC.912.P.8.3	Explore the scientific theory of atoms (also known as atomic theory) by describing changes in the atomic model over time and why those changes were necessitated by experimental evidence.	High
SC.912.P.8.4	Explore the scientific theory of atoms (also known as atomic theory) by describing the structure of atoms in terms of protons, neutrons and electrons, and differentiate among these particles in terms of their mass, electrical charges and locations within	High
SC.912.P.8.5	Relate properties of atoms and their position in the periodic table to the arrangement of their electrons.	Moderate
SC.912.P.8.6	Distinguish between bonding forces holding compounds together and other attractive forces, including hydrogen bonding and van der Waals forces.	Moderate
SC.912.P.8.7	Interpret formula representations of molecules and compounds in terms of composition and structure.	Moderate
SC.912.P.8.8	Characterize types of chemical reactions, for example: redox, acid-base, synthesis, and single and double replacement reactions.	Moderate
SC.912.P.8.9	Apply the mole concept and the law of conservation of mass to calculate quantities of chemicals participating in reactions.	High
SC.912.P.8.10	Describe oxidation-reduction reactions in living and non-living systems.	Moderate
SC.912.P.8.11	Relate acidity and basicity to hydronium and hydroxyl ion concentration and pH.	Moderate
SC.912.P.8.12	Describe the properties of the carbon atom that make the diversity of carbon compounds possible.	Moderate
SC.912.P.10.1	Differentiate among the various forms of energy and recognize that they can be transformed from one form to others.	Moderate
SC.912.P.10.2	Explore the Law of Conservation of Energy by differentiating among open, closed, and isolated systems and explain that the total energy in an isolated system is a conserved quantity.	High
SC.912.P.10.5	Relate temperature to the average molecular kinetic energy.	Moderate
SC.912.P.10.6	Create and interpret potential energy diagrams, for example: chemical reactions, orbits around a central body, motion of a pendulum.	High
SC.912.P.10.7	Distinguish between endothermic and exothermic chemical processes.	Moderate
SC.912.P.10.9	Describe the quantization of energy at the atomic level.	Moderate
SC.912.P.10.10	Compare the magnitude and range of the four fundamental forces (gravitational, electromagnetic, weak nuclear, strong nuclear).	Moderate
SC.912.P.10.11	Explain and compare nuclear reactions (radioactive decay, fission and fusion), the energy changes associated with them and their associated safety issues.	High
SC.912.P.10.12	Differentiate between chemical and nuclear reactions.	Moderate

SC.912.P.10.18	Explore the theory of electromagnetism by comparing and contrasting the different parts of the electromagnetic spectrum in terms of wavelength, frequency, and energy, and relate them to phenomena and applications.	High
SC.912.P.12.10	Interpret the behavior of ideal gases in terms of kinetic molecular theory.	High
SC.912.P.12.11	Describe phase transitions in terms of kinetic molecular theory.	Moderate
SC.912.P.12.12	Explain how various factors, such as concentration, temperature, and presence of a catalyst affect the rate of a chemical reaction.	High
SC.912.P.12.13	Explain the concept of dynamic equilibrium in terms of reversible processes occurring at the same rates.	High
SC.912.L.15.2	Discuss the use of molecular clocks to estimate how long ago various groups of organisms diverged evolutionarily from one another.	Moderate
SC.912.L.16.10	Evaluate the impact of biotechnology on the individual, society and the environment, including medical and ethical issues.	High
SC.912.L.17.11	Evaluate the costs and benefits of renewable and nonrenewable resources, such as water, energy, fossil fuels, wildlife, and forests.	High
SC.912.L.17.15	Discuss the effects of technology on environmental quality.	Moderate
SC.912.L.17.16	Discuss the large-scale environmental impacts resulting from human activity, including waste spills, oil spills, runoff, greenhouse gases, ozone depletion, and surface and groundwater pollution.	High
SC.912.L.17.19	Describe how different natural resources are produced and how their rates of use and renewal limit availability.	Moderate
SC.912.L.17.20	Predict the impact of individuals on environmental systems and examine how human lifestyles affect sustainability.	High
SC.912.L.18.12	Discuss the special properties of water that contribute to Earth's suitability as an environment for life: cohesive behavior, ability to moderate temperature, expansion upon freezing, and versatility as a solvent.	Moderate
MA.912.S.1.2	Determine appropriate and consistent standards of measurement for the data to be collected in a survey or experiment.	Moderate
MA.912.S.3.2	Collect, organize, and analyze data sets, determine the best format for the data and present visual summaries from the following:	High
LA.910.4.2.2	The student will record information and ideas from primary and/or secondary sources accurately and coherently, noting the validity and reliability of these sources and attributing sources of information;	
LA.910.2.2.3	The student will organize information to show understanding or relationships among facts, ideas, and events (e.g., representing key points within text through charting, mapping, paraphrasing, summarizing, comparing, contrasting, or outlining);	

Access Points for Students with Significant Cognitive Disabilities

Access Point Code	Access Point Descriptor
SC.912.N.1.In.a	Identify a problem based on a specific body of knowledge, including life science, earth and space science, or physical science, and do the following: 1. Identify a scientific question 2. Examine reliable sources of informtion to identify what is already k
SC.912.N.1.Su.b	Identify the basic process used in scientific investigations, including questioning, observing, recording, determining, and sharing results.
SC.912.N.1.Pa.c	Recognize that when a variety of common activities are repeated the same way, the outcomes are the same.
SC.912.N.2.In.a	Identify examples of investigations that involve science.
SC.912.N.2.Su.b	Recognize that what is known about science can change based on new information.

SC.912.N.3.In.a	Recognize that a scientific theory is developed by repeated investigations of many scientists and agreement on the likely explanation.
SC.912.N.3.In.b	Identify examples of scientific laws that describe relationships in the natural world, such as Newton's laws.
SC.912.N.3.Su.b	Recognize examples of scientific laws that describe relationships in nature, such as Newton's laws.
SC.912.N.3.Su.c	Recognize ways models are used in the study of science.
SC.912.N.4.In.a	Identify ways scientific knowledge and problem solving benefit people.
SC.912.N.4.Su.b	Recognize that some strategies may cost more to solve a problem.
SC.912.E.5.In.a	Recognize that the Milky Way is part of the expanding universe.
SC.912.E.5.Su.b	Recognize that stars are made of burning gases.
SC.912.E.5.Pa.c	Observe and recognize effects of the Sun on Earth, such as temperature changes.
SC.912.P.8.In.a	Classify states of matter as solid, liquid, and gaseous.
SC.912.P.8.Su.b	Identify examples of physical and chemical changes.
SC.912.P.8.Pa.c	Recognize that the parts of an object can be put together to make a whole.
SC.912.P.10.In.a	Identify examples of energy being transformed from one form to another (conserved quantity).
SC.912.P.10.Su.b	Recognize the relationship between work and power, such as power is the amount of work a person or machine does.
SC.912.P.10.Pa.c	Recognize the source and recipient of heat transfer.
SC.912.P.12.In.a	Recognize that scalar quantities describe the magnitude of the measurement, such as size, weight, volume, area, temperature, or speed.
SC.912.P.12.Su.b	Recognize that acceleration generally involves a change in speed.
SC.912.P.12.Pa.c	Identify the source of the force moving an object.
SC.912.L.16.In.a	Identify that genes are sets of instructions that determine which characteristics are passed from parent to offspring.
SC.912.L.16.Su.b	Recognize that all organisms have a substance called DNA with unique information.
SC.912.L.16.Pa.c	Recognize that illness can result when parts of our bodies are not working properly.
SC.912.L.17.In.a	Recognize that living things in oceans and fresh water are affected by the location, availability of light, depth of the water, and temperature.
SC.912.L.17.Su.b	Recognize how animals and plants in an ecosystem may be affected by changes to the food supply or climate.
SC.912.L.17.Pa.c	Recognize examples of mutual relationships between people and other living things.
SC.912.L.18.In.a	Identify that carbohydrates, fats, proteins, and nucleic acids (macromolecules) are important for human organisms.
SC.912.L.18.Su.b	Recognize that the function of photosynthesis is to produce food for plants.
SC.912.L.18.Pa.c	Identify that food is a source of energy.

2003360 Chemistry II

Section: Basic and Adult Education
Grade Group: Secondary Grades 9-12
Subject: Science
Domain: Physical Sciences
Course Length: Year
Level: 3

This course description incorporates the following Next Generation Sunshine State Standards for standards-based teaching and learning.

Benchmarks

Benchmark Code	Benchmark Descriptor	Depth of Knowledge
SC.912.N.1.1	Define a problem based on a specific body of knowledge, for example: biology, chemistry, physics, and earth/space science, and do the following:	High
SC.912.N.1.2	Describe and explain what characterizes science and its methods.	Moderate
SC.912.N.1.3	Recognize that the strength or usefulness of a scientific claim is evaluated through scientific argumentation, which depends on critical and logical thinking, and the active consideration of alternative scientific explanations to explain the data present	Low
SC.912.N.1.4	Identify sources of information and assess their reliability according to the strict standards of scientific investigation.	High
SC.912.N.1.5	Describe and provide examples of how similar investigations conducted in many parts of the world result in the same outcome.	Moderate
SC.912.N.1.6	Describe how scientific inferences are drawn from scientific observations and provide examples from the content being studied.	Moderate
SC.912.N.1.7	Recognize the role of creativity in constructing scientific questions, methods and explanations.	Low
SC.912.N.2.1	Identify what is science, what clearly is not science, and what superficially resembles science (but fails to meet the criteria for science).	High
SC.912.N.2.2	Identify which questions can be answered through science and which questions are outside the boundaries of scientific investigation, such as questions addressed by other ways of knowing, such as art, philosophy, and religion.	High
SC.912.N.2.3	Identify examples of pseudoscience (such as astrology, phrenology) in society.	Low
SC.912.N.2.4	Explain that scientific knowledge is both durable and robust and open to change. Scientific knowledge can change because it is often examined and re-examined by new investigations and scientific argumentation. Because of these frequent examinations, scien	High
SC.912.N.2.5	Describe instances in which scientists' varied backgrounds, talents, interests, and goals influence the inferences and thus the explanations that they make about observations of natural phenomena and describe that competing interpretations (explanations)	High
SC.912.N.3.1	Explain that a scientific theory is the culmination of many scientific investigations drawing together all the current evidence concerning a substantial range of phenomena; thus, a scientific theory represents the most powerful explanation scientists have	High
SC.912.N.3.2	Describe the role consensus plays in the historical development of a theory in any one of the disciplines of science.	Moderate
SC.912.N.3.3	Explain that scientific laws are descriptions of specific relationships under given conditions in nature, but do not offer explanations for those relationships.	Moderate
SC.912.N.3.4	Recognize that theories do not become laws, nor do laws become theories; theories are well supported explanations and laws are well supported descriptions.	Moderate

SC.912.N.3.5	Describe the function of models in science, and identify the wide range of models used in science.	Moderate
SC.912.N.4.1	Explain how scientific knowledge and reasoning provide an empirically-based perspective to inform society's decision making.	Moderate
SC.912.N.4.2	Weigh the merits of alternative strategies for solving a specific societal problem by comparing a number of different costs and benefits, such as human, economic, and environmental.	High
SC.912.P.8.10	Describe oxidation-reduction reactions in living and non-living systems.	Moderate
SC.912.P.8.12	Describe the properties of the carbon atom that make the diversity of carbon compounds possible.	Moderate
SC.912.P.8.13	Identify selected functional groups and relate how they contribute to properties of carbon compounds.	High
SC.912.P.10.6	Create and interpret potential energy diagrams, for example: chemical reactions, orbits around a central body, motion of a pendulum.	High
SC.912.P.10.8	Explain entropy's role in determining the efficiency of processes that convert energy to work.	High
SC.912.L.16.10	Evaluate the impact of biotechnology on the individual, society and the environment, including medical and ethical issues.	High
SC.912.L.17.10	Diagram and explain the biogeochemical cycles of an ecosystem, including water, carbon, and nitrogen cycle.	Moderate
SC.912.L.17.11	Evaluate the costs and benefits of renewable and nonrenewable resources, such as water, energy, fossil fuels, wildlife, and forests.	High
SC.912.L.17.13	Discuss the need for adequate monitoring of environmental parameters when making policy decisions.	High
SC.912.L.17.15	Discuss the effects of technology on environmental quality.	Moderate
SC.912.L.17.16	Discuss the large-scale environmental impacts resulting from human activity, including waste spills, oil spills, runoff, greenhouse gases, ozone depletion, and surface and groundwater pollution.	High
SC.912.L.17.17	Assess the effectiveness of innovative methods of protecting the environment.	High
SC.912.L.17.19	Describe how different natural resources are produced and how their rates of use and renewal limit availability.	Moderate
SC.912.L.17.20	Predict the impact of individuals on environmental systems and examine how human lifestyles affect sustainability.	High
SC.912.L.18.1	Describe the basic molecular structures and primary functions of the four major categories of biological macromolecules.	Moderate
SC.912.L.18.2	Describe the important structural characteristics of monosaccharides, disaccharides, and polysaccharides and explain the functions of carbohydrates in living things.	Moderate
SC.912.L.18.3	Describe the structures of fatty acids, triglycerides, phospholipids, and steroids. Explain the functions of lipids in living organisms. Identify some reactions that fatty acids undergo. Relate the structure and function of cell membranes.	Moderate
SC.912.L.18.4	Describe the structures of proteins and amino acids. Explain the functions of proteins in living organisms. Identify some reactions that amino acids undergo. Relate the structure and function of enzymes.	Moderate
SC.912.L.18.11	Explain the role of enzymes as catalysts that lower the activation energy of biochemical reactions. Identify factors, such as pH and temperature, and their effect on enzyme activity.	Moderate
SC.912.L.18.12	Discuss the special properties of water that contribute to Earth's suitability as an environment for life: cohesive behavior, ability to moderate temperature, expansion upon freezing, and versatility as a solvent.	Moderate

MA.912.S.1.2	Determine appropriate and consistent standards of measurement for the data to be collected in a survey or experiment.	Moderate
MA.912.S.3.2	Collect, organize, and analyze data sets, determine the best format for the data and present visual summaries from the following:	High
LA.910.4.2.2	The student will record information and ideas from primary and/or secondary sources accurately and coherently, noting the validity and reliability of these sources and attributing sources of information;	
LA.910.2.2.3	The student will organize information to show understanding or relationships among facts, ideas, and events (e.g., representing key points within text through charting, mapping, paraphrasing, summarizing, comparing, contrasting, or outlining);	

Access Points for Students with Significant Cognitive Disabilities

Access Point Code	Access Point Descriptor
SC.912.N.1.In.a	Identify a problem based on a specific body of knowledge, including life science, earth and space science, or physical science, and do the following: 1. Identify a scientific question 2. Examine reliable sources of informtion to identify what is already k
SC.912.N.1.Su.b	Identify the basic process used in scientific investigations, including questioning, observing, recording, determining, and sharing results.
SC.912.N.1.Pa.c	Recognize that when a variety of common activities are repeated the same way, the outcomes are the same.
SC.912.N.2.In.a	Identify examples of investigations that involve science.
SC.912.N.2.Su.b	Recognize that what is known about science can change based on new information.
SC.912.N.3.In.a	Recognize that a scientific theory is developed by repeated investigations of many scientists and agreement on the likely explanation.
SC.912.N.3.In.b	Identify examples of scientific laws that describe relationships in the natural world, such as Newton's laws.
SC.912.N.3.Su.b	Recognize examples of scientific laws that describe relationships in nature, such as Newton's laws.
SC.912.N.3.Su.c	Recognize ways models are used in the study of science.
SC.912.N.4.In.a	Identify ways scientific knowledge and problem solving benefit people.
SC.912.N.4.Su.b	Recognize that some strategies may cost more to solve a problem.
SC.912.P.8.In.a	Classify states of matter as solid, liquid, and gaseous.
SC.912.P.8.Su.b	Identify examples of physical and chemical changes.
SC.912.P.8.Pa.c	Recognize that the parts of an object can be put together to make a whole.
SC.912.P.10.In.a	Identify examples of energy being transformed from one form to another (conserved quantity).
SC.912.P.10.Su.b	Recognize the relationship between work and power, such as power is the amount of work a person or machine does.
SC.912.P.10.Pa.c	Recognize the source and recipient of heat transfer.
SC.912.L.16.In.a	Identify that genes are sets of instructions that determine which characteristics are passed from parent to offspring.
SC.912.L.16.Su.b	Recognize that all organisms have a substance called DNA with unique information.
SC.912.L.16.Pa.c	Recognize that illness can result when parts of our bodies are not working properly.
SC.912.L.17.In.a	Recognize that living things in oceans and fresh water are affected by the location, availability of light, depth of the water, and temperature.

SC.912.L.17.Su.b	Recognize how animals and plants in an ecosystem may be affected by changes to the food supply or climate.
SC.912.L.17.Pa.c	Recognize examples of mutual relationships between people and other living things.
SC.912.L.18.In.a	Identify that carbohydrates, fats, proteins, and nucleic acids (macromolecules) are important for human organisms.
SC.912.L.18.Su.b	Recognize that the function of photosynthesis is to produce food for plants.
SC.912.L.18.Pa.c	Identify that food is a source of energy.

2003400 Nuclear Radiation

Section: Basic and Adult Education
Grade Group: Secondary Grades 9-12
Subject: Science
Domain: Physical Sciences
Course Length: Year
Level: 2

This course description incorporates the following Next Generation Sunshine State Standards for standards-based teaching and learning.

Benchmarks

Benchmark Code	Benchmark Descriptor	Depth of Knowledge
SC.912.N.1.1	Define a problem based on a specific body of knowledge, for example: biology, chemistry, physics, and earth/space science, and do the following:	High
SC.912.N.1.2	Describe and explain what characterizes science and its methods.	Moderate
SC.912.N.1.3	Recognize that the strength or usefulness of a scientific claim is evaluated through scientific argumentation, which depends on critical and logical thinking, and the active consideration of alternative scientific explanations to explain the data present	Low
SC.912.N.1.4	Identify sources of information and assess their reliability according to the strict standards of scientific investigation.	High
SC.912.N.1.5	Describe and provide examples of how similar investigations conducted in many parts of the world result in the same outcome.	Moderate
SC.912.N.1.6	Describe how scientific inferences are drawn from scientific observations and provide examples from the content being studied.	Moderate
SC.912.N.1.7	Recognize the role of creativity in constructing scientific questions, methods and explanations.	Low
SC.912.N.2.1	Identify what is science, what clearly is not science, and what superficially resembles science (but fails to meet the criteria for science).	High
SC.912.N.2.2	Identify which questions can be answered through science and which questions are outside the boundaries of scientific investigation, such as questions addressed by other ways of knowing, such as art, philosophy, and religion.	High
SC.912.N.2.3	Identify examples of pseudoscience (such as astrology, phrenology) in society.	Low
SC.912.N.2.4	Explain that scientific knowledge is both durable and robust and open to change. Scientific knowledge can change because it is often examined and re-examined by new investigations and scientific argumentation. Because of these frequent examinations, scien	High
SC.912.N.2.5	Describe instances in which scientists' varied backgrounds, talents, interests, and goals influence the inferences and thus the explanations that they make about observations of natural phenomena and describe that competing interpretations (explanations)	High

SC.912.N.3.1	Explain that a scientific theory is the culmination of many scientific investigations drawing together all the current evidence concerning a substantial range of phenomena; thus, a scientific theory represents the most powerful explanation scientists have	High
SC.912.N.3.2	Describe the role consensus plays in the historical development of a theory in any one of the disciplines of science.	Moderate
SC.912.N.3.3	Explain that scientific laws are descriptions of specific relationships under given conditions in nature, but do not offer explanations for those relationships.	Moderate
SC.912.N.3.4	Recognize that theories do not become laws, nor do laws become theories; theories are well supported explanations and laws are well supported descriptions.	Moderate
SC.912.N.3.5	Describe the function of models in science, and identify the wide range of models used in science.	Moderate
SC.912.N.4.1	Explain how scientific knowledge and reasoning provide an empirically-based perspective to inform society's decision making.	Moderate
SC.912.N.4.2	Weigh the merits of alternative strategies for solving a specific societal problem by comparing a number of different costs and benefits, such as human, economic, and environmental.	High
SC.912.E.5.1	Cite evidence used to develop and verify the scientific theory of the Big Bang (also known as the Big Bang Theory) of the origin of the universe.	High
SC.912.E.5.2	Identify patterns in the organization and distribution of matter in the universe and the forces that determine them.	Moderate
SC.912.E.5.3	Describe and predict how the initial mass of a star determines its evolution.	Moderate
SC.912.E.5.4	Explain the physical properties of the Sun and its dynamic nature and connect them to conditions and events on Earth.	High
SC.912.E.5.7	Relate the history of and explain the justification for future space exploration and continuing technology development.	High
SC.912.E.5.8	Connect the concepts of radiation and the electromagnetic spectrum to the use of historical and newly-developed observational tools.	High
SC.912.E.6.6	Analyze past, present, and potential future consequences to the environment resulting from various energy production technologies.	High
SC.912.E.7.1	Analyze the movement of matter and energy through the different biogeochemical cycles, including water and carbon.	High
SC.912.P.8.3	Explore the scientific theory of atoms (also known as atomic theory) by describing changes in the atomic model over time and why those changes were necessitated by experimental evidence.	High
SC.912.P.8.4	Explore the scientific theory of atoms (also known as atomic theory) by describing the structure of atoms in terms of protons, neutrons and electrons, and differentiate among these particles in terms of their mass, electrical charges and locations within	High
SC.912.P.8.5	Relate properties of atoms and their position in the periodic table to the arrangement of their electrons.	Moderate
SC.912.P.10.2	Explore the Law of Conservation of Energy by differentiating among open, closed, and isolated systems and explain that the total energy in an isolated system is a conserved quantity.	High
SC.912.P.10.9	Describe the quantization of energy at the atomic level.	Moderate
SC.912.P.10.10	Compare the magnitude and range of the four fundamental forces (gravitational, electromagnetic, weak nuclear, strong nuclear).	Moderate
SC.912.P.10.11	Explain and compare nuclear reactions (radioactive decay, fission and fusion), the energy changes associated with them and their associated safety issues.	High
SC.912.P.10.12	Differentiate between chemical and nuclear reactions.	Moderate

SC.912.P.10.16	Explain the relationship between moving charges and magnetic fields, as well as changing magnetic fields and electric fields, and their application to modern technologies.	High
SC.912.P.10.18	Explore the theory of electromagnetism by comparing and contrasting the different parts of the electromagnetic spectrum in terms of wavelength, frequency, and energy, and relate them to phenomena and applications.	High
SC.912.P.12.5	Apply the law of conservation of linear momentum to interactions, such as collisions between objects.	High
SC.912.L.14.6	Explain the significance of genetic factors, environmental factors, and pathogenic agents to health from the perspectives of both individual and public health.	High
SC.912.L.15.2	Discuss the use of molecular clocks to estimate how long ago various groups of organisms diverged evolutionarily from one another.	Moderate
SC.912.L.16.10	Evaluate the impact of biotechnology on the individual, society and the environment, including medical and ethical issues.	High
SC.912.L.17.13	Discuss the need for adequate monitoring of environmental parameters when making policy decisions.	High
SC.912.L.17.14	Assess the need for adequate waste management strategies.	High
SC.912.L.17.15	Discuss the effects of technology on environmental quality.	Moderate
SC.912.L.17.16	Discuss the large-scale environmental impacts resulting from human activity, including waste spills, oil spills, runoff, greenhouse gases, ozone depletion, and surface and groundwater pollution.	High
SC.912.L.17.17	Assess the effectiveness of innovative methods of protecting the environment.	High
MA.912.S.1.2	Determine appropriate and consistent standards of measurement for the data to be collected in a survey or experiment.	Moderate
MA.912.S.3.2	Collect, organize, and analyze data sets, determine the best format for the data and present visual summaries from the following:	High
LA.910.4.2.2	The student will record information and ideas from primary and/or secondary sources accurately and coherently, noting the validity and reliability of these sources and attributing sources of information;	
LA.910.2.2.3	The student will organize information to show understanding or relationships among facts, ideas, and events (e.g., representing key points within text through charting, mapping, paraphrasing, summarizing, comparing, contrasting, or outlining);	

Access Points for Students with Significant Cognitive Disabilities

Access Point Code	Access Point Descriptor
SC.912.N.1.In.a	Identify a problem based on a specific body of knowledge, including life science, earth and space science, or physical science, and do the following: 1. Identify a scientific question 2. Examine reliable sources of informtion to identify what is already k
SC.912.N.1.Su.b	Identify the basic process used in scientific investigations, including questioning, observing, recording, determining, and sharing results.
SC.912.N.1.Pa.c	Recognize that when a variety of common activities are repeated the same way, the outcomes are the same.
SC.912.N.2.In.a	Identify examples of investigations that involve science.
SC.912.N.2.Su.b	Recognize that what is known about science can change based on new information.
SC.912.N.3.In.a	Recognize that a scientific theory is developed by repeated investigations of many scientists and agreement on the likely explanation.

SC.912.N.3.In.b	Identify examples of scientific laws that describe relationships in the natural world, such as Newton's laws.
SC.912.N.3.Su.b	Recognize examples of scientific laws that describe relationships in nature, such as Newton's laws.
SC.912.N.3.Su.c	Recognize ways models are used in the study of science.
SC.912.N.4.In.a	Identify ways scientific knowledge and problem solving benefit people.
SC.912.N.4.Su.b	Recognize that some strategies may cost more to solve a problem.
SC.912.E.5.In.a	Recognize that the Milky Way is part of the expanding universe.
SC.912.E.5.Su.b	Recognize that stars are made of burning gases.
SC.912.E.5.Pa.c	Observe and recognize effects of the Sun on Earth, such as temperature changes.
SC.912.E.7.In.a	Identify cycles that occur on Earth, such as the water and carbon cycles, and the role energy plays in them.
SC.912.E.7.Su.b	Recognize that currents move the ocean water around Earth.
SC.912.E.7.Pa.c	Recognize that humans, plants, and animals live on the Earth (biosphere).
SC.912.P.8.In.a	Classify states of matter as solid, liquid, and gaseous.
SC.912.P.8.Su.b	Identify examples of physical and chemical changes.
SC.912.P.8.Pa.c	Recognize that the parts of an object can be put together to make a whole.
SC.912.P.10.In.a	Identify examples of energy being transformed from one form to another (conserved quantity).
SC.912.P.10.Su.b	Recognize the relationship between work and power, such as power is the amount of work a person or machine does.
SC.912.P.10.Pa.c	Recognize the source and recipient of heat transfer.
SC.912.P.12.In.a	Recognize that scalar quantities describe the magnitude of the measurement, such as size, weight, volume, area, temperature, or speed.
SC.912.P.12.Su.b	Recognize that acceleration generally involves a change in speed.
SC.912.P.12.Pa.c	Identify the source of the force moving an object.
SC.912.L.14.In.a	Identify that all living things are made of cells and cells function in similar ways (cell theory).
SC.912.L.14.Su.b	Recognize that cells have different parts and each has a function.
SC.912.L.14.Pa.c	Identify ways to prevent infection from bacteria and viruses, such as hand washing and first aid.
SC.912.L.16.In.a	Identify that genes are sets of instructions that determine which characteristics are passed from parent to offspring.
SC.912.L.16.Su.b	Recognize that all organisms have a substance called DNA with unique information.
SC.912.L.16.Pa.c	Recognize that illness can result when parts of our bodies are not working properly.

2020710 Nuclear Radiation Honors (formerly 202071A)

Section: Basic and Adult Education
Grade Group: Secondary Grades 9-12
Subject: Science
Domain: Physical Sciences
Course Length: Year
Level: 3

This course description incorporates the following Next Generation Sunshine State Standards for standards-based teaching and learning.

Benchmarks

Benchmark Code	Benchmark Descriptor	Depth of Knowledge
SC.912.N.1.1	Define a problem based on a specific body of knowledge, for example: biology, chemistry, physics, and earth/space science, and do the following:	High
SC.912.N.1.2	Describe and explain what characterizes science and its methods.	Moderate
SC.912.N.1.3	Recognize that the strength or usefulness of a scientific claim is evaluated through scientific argumentation, which depends on critical and logical thinking, and the active consideration of alternative scientific explanations to explain the data present	Low
SC.912.N.1.4	Identify sources of information and assess their reliability according to the strict standards of scientific investigation.	High
SC.912.N.1.5	Describe and provide examples of how similar investigations conducted in many parts of the world result in the same outcome.	Moderate
SC.912.N.1.6	Describe how scientific inferences are drawn from scientific observations and provide examples from the content being studied.	Moderate
SC.912.N.1.7	Recognize the role of creativity in constructing scientific questions, methods and explanations.	Low
SC.912.N.2.1	Identify what is science, what clearly is not science, and what superficially resembles science (but fails to meet the criteria for science).	High
SC.912.N.2.2	Identify which questions can be answered through science and which questions are outside the boundaries of scientific investigation, such as questions addressed by other ways of knowing, such as art, philosophy, and religion.	High
SC.912.N.2.3	Identify examples of pseudoscience (such as astrology, phrenology) in society.	Low
SC.912.N.2.4	Explain that scientific knowledge is both durable and robust and open to change. Scientific knowledge can change because it is often examined and re-examined by new investigations and scientific argumentation. Because of these frequent examinations, scien	High
SC.912.N.2.5	Describe instances in which scientists' varied backgrounds, talents, interests, and goals influence the inferences and thus the explanations that they make about observations of natural phenomena and describe that competing interpretations (explanations)	High
SC.912.N.3.1	Explain that a scientific theory is the culmination of many scientific investigations drawing together all the current evidence concerning a substantial range of phenomena; thus, a scientific theory represents the most powerful explanation scientists have	High
SC.912.N.3.2	Describe the role consensus plays in the historical development of a theory in any one of the disciplines of science.	Moderate
SC.912.N.3.3	Explain that scientific laws are descriptions of specific relationships under given conditions in nature, but do not offer explanations for those relationships.	Moderate
SC.912.N.3.4	Recognize that theories do not become laws, nor do laws become theories; theories are well supported explanations and laws are well supported descriptions.	Moderate

SC.912.N.3.5	Describe the function of models in science, and identify the wide range of models used in science.	Moderate
SC.912.N.4.1	Explain how scientific knowledge and reasoning provide an empirically-based perspective to inform society's decision making.	Moderate
SC.912.N.4.2	Weigh the merits of alternative strategies for solving a specific societal problem by comparing a number of different costs and benefits, such as human, economic, and environmental.	High
SC.912.E.5.1	Cite evidence used to develop and verify the scientific theory of the Big Bang (also known as the Big Bang Theory) of the origin of the universe.	High
SC.912.E.5.2	Identify patterns in the organization and distribution of matter in the universe and the forces that determine them.	Moderate
SC.912.E.5.3	Describe and predict how the initial mass of a star determines its evolution.	Moderate
SC.912.E.5.4	Explain the physical properties of the Sun and its dynamic nature and connect them to conditions and events on Earth.	High
SC.912.E.5.7	Relate the history of and explain the justification for future space exploration and continuing technology development.	High
SC.912.E.5.8	Connect the concepts of radiation and the electromagnetic spectrum to the use of historical and newly-developed observational tools.	High
SC.912.E.6.6	Analyze past, present, and potential future consequences to the environment resulting from various energy production technologies.	High
SC.912.E.7.1	Analyze the movement of matter and energy through the different biogeochemical cycles, including water and carbon.	High
SC.912.P.8.3	Explore the scientific theory of atoms (also known as atomic theory) by describing changes in the atomic model over time and why those changes were necessitated by experimental evidence.	High
SC.912.P.8.4	Explore the scientific theory of atoms (also known as atomic theory) by describing the structure of atoms in terms of protons, neutrons and electrons, and differentiate among these particles in terms of their mass, electrical charges and locations within	High
SC.912.P.8.5	Relate properties of atoms and their position in the periodic table to the arrangement of their electrons.	Moderate
SC.912.P.10.2	Explore the Law of Conservation of Energy by differentiating among open, closed, and isolated systems and explain that the total energy in an isolated system is a conserved quantity.	High
SC.912.P.10.8	Explain entropy's role in determining the efficiency of processes that convert energy to work.	High
SC.912.P.10.9	Describe the quantization of energy at the atomic level.	Moderate
SC.912.P.10.10	Compare the magnitude and range of the four fundamental forces (gravitational, electromagnetic, weak nuclear, strong nuclear).	Moderate
SC.912.P.10.11	Explain and compare nuclear reactions (radioactive decay, fission and fusion), the energy changes associated with them and their associated safety issues.	High
SC.912.P.10.12	Differentiate between chemical and nuclear reactions.	Moderate
SC.912.P.10.16	Explain the relationship between moving charges and magnetic fields, as well as changing magnetic fields and electric fields, and their application to modern technologies.	High
SC.912.P.10.18	Explore the theory of electromagnetism by comparing and contrasting the different parts of the electromagnetic spectrum in terms of wavelength, frequency, and energy, and relate them to phenomena and applications.	High
SC.912.P.12.5	Apply the law of conservation of linear momentum to interactions, such as collisions between objects.	High

SC.912.P.12.7	Recognize that nothing travels faster than the speed of light in vacuum which is the same for all observers no matter how they or the light source are moving.	Low
SC.912.P.12.9	Recognize that time, length, and energy depend on the frame of reference.	Low
SC.912.L.14.6	Explain the significance of genetic factors, environmental factors, and pathogenic agents to health from the perspectives of both individual and public health.	High
SC.912.L.15.2	Discuss the use of molecular clocks to estimate how long ago various groups of organisms diverged evolutionarily from one another.	Moderate
SC.912.L.16.10	Evaluate the impact of biotechnology on the individual, society and the environment, including medical and ethical issues.	High
SC.912.L.17.13	Discuss the need for adequate monitoring of environmental parameters when making policy decisions.	High
SC.912.L.17.14	Assess the need for adequate waste management strategies.	High
SC.912.L.17.15	Discuss the effects of technology on environmental quality.	Moderate
SC.912.L.17.16	Discuss the large-scale environmental impacts resulting from human activity, including waste spills, oil spills, runoff, greenhouse gases, ozone depletion, and surface and groundwater pollution.	High
SC.912.L.17.17	Assess the effectiveness of innovative methods of protecting the environment.	High
MA.912.S.1.2	Determine appropriate and consistent standards of measurement for the data to be collected in a survey or experiment.	Moderate
MA.912.S.3.2	Collect, organize, and analyze data sets, determine the best format for the data and present visual summaries from the following:	High
LA.910.4.2.2	The student will record information and ideas from primary and/or secondary sources accurately and coherently, noting the validity and reliability of these sources and attributing sources of information;	
LA.910.2.2.3	The student will organize information to show understanding or relationships among facts, ideas, and events (e.g., representing key points within text through charting, mapping, paraphrasing, summarizing, comparing, contrasting, or outlining);	

Access Points for Students with Significant Cognitive Disabilities

Access Point Code	Access Point Descriptor
SC.912.N.1.In.a	Identify a problem based on a specific body of knowledge, including life science, earth and space science, or physical science, and do the following: 1. Identify a scientific question 2. Examine reliable sources of informtion to identify what is already k
SC.912.N.1.Su.b	Identify the basic process used in scientific investigations, including questioning, observing, recording, determining, and sharing results.
SC.912.N.1.Pa.c	Recognize that when a variety of common activities are repeated the same way, the outcomes are the same.
SC.912.N.2.In.a	Identify examples of investigations that involve science.
SC.912.N.2.Su.b	Recognize that what is known about science can change based on new information.
SC.912.N.3.In.a	Recognize that a scientific theory is developed by repeated investigations of many scientists and agreement on the likely explanation.
SC.912.N.3.In.b	Identify examples of scientific laws that describe relationships in the natural world, such as Newton’s laws.
SC.912.N.3.Su.b	Recognize examples of scientific laws that describe relationships in nature, such as Newton’s laws.
SC.912.N.3.Su.c	Recognize ways models are used in the study of science.

SC.912.N.4.In.a	Identify ways scientific knowledge and problem solving benefit people.
SC.912.N.4.Su.b	Recognize that some strategies may cost more to solve a problem.
SC.912.E.5.In.a	Recognize that the Milky Way is part of the expanding universe.
SC.912.E.5.Su.b	Recognize that stars are made of burning gases.
SC.912.E.5.Pa.c	Observe and recognize effects of the Sun on Earth, such as temperature changes.
SC.912.E.7.In.a	Identify cycles that occur on Earth, such as the water and carbon cycles, and the role energy plays in them.
SC.912.E.7.Su.b	Recognize that currents move the ocean water around Earth.
SC.912.E.7.Pa.c	Recognize that humans, plants, and animals live on the Earth (biosphere).
SC.912.P.8.In.a	Classify states of matter as solid, liquid, and gaseous.
SC.912.P.8.Su.b	Identify examples of physical and chemical changes.
SC.912.P.8.Pa.c	Recognize that the parts of an object can be put together to make a whole.
SC.912.P.10.In.a	Identify examples of energy being transformed from one form to another (conserved quantity).
SC.912.P.10.Su.b	Recognize the relationship between work and power, such as power is the amount of work a person or machine does.
SC.912.P.10.Pa.c	Recognize the source and recipient of heat transfer.
SC.912.P.12.In.a	Recognize that scalar quantities describe the magnitude of the measurement, such as size, weight, volume, area, temperature, or speed.
SC.912.P.12.Su.b	Recognize that acceleration generally involves a change in speed.
SC.912.P.12.Pa.c	Identify the source of the force moving an object.
SC.912.L.14.In.a	Identify that all living things are made of cells and cells function in similar ways (cell theory).
SC.912.L.14.Su.b	Recognize that cells have different parts and each has a function.
SC.912.L.14.Pa.c	Identify ways to prevent infection from bacteria and viruses, such as hand washing and first aid.
SC.912.L.16.In.a	Identify that genes are sets of instructions that determine which characteristics are passed from parent to offspring.
SC.912.L.16.Su.b	Recognize that all organisms have a substance called DNA with unique information.
SC.912.L.16.Pa.c	Recognize that illness can result when parts of our bodies are not working properly.

2003310 Physical Science

Section: Basic and Adult Education
Grade Group: Secondary Grades 9-12
Subject: Science
Domain: Physical Sciences
Course Length: Year
Level: 2

This course description incorporates the following Next Generation Sunshine State Standards for standards-based teaching and learning.

Benchmarks

Benchmark Code	Benchmark Descriptor	Depth of Knowledge
SC.912.N.1.1	Define a problem based on a specific body of knowledge, for example: biology, chemistry, physics, and earth/space science, and do the following:	High
SC.912.N.1.2	Describe and explain what characterizes science and its methods.	Moderate

SC.912.N.1.3	Recognize that the strength or usefulness of a scientific claim is evaluated through scientific argumentation, which depends on critical and logical thinking, and the active consideration of alternative scientific explanations to explain the data present	Low
SC.912.N.1.4	Identify sources of information and assess their reliability according to the strict standards of scientific investigation.	High
SC.912.N.1.5	Describe and provide examples of how similar investigations conducted in many parts of the world result in the same outcome.	Moderate
SC.912.N.1.6	Describe how scientific inferences are drawn from scientific observations and provide examples from the content being studied.	Moderate
SC.912.N.1.7	Recognize the role of creativity in constructing scientific questions, methods and explanations.	Low
SC.912.N.2.1	Identify what is science, what clearly is not science, and what superficially resembles science (but fails to meet the criteria for science).	High
SC.912.N.2.2	Identify which questions can be answered through science and which questions are outside the boundaries of scientific investigation, such as questions addressed by other ways of knowing, such as art, philosophy, and religion.	High
SC.912.N.2.3	Identify examples of pseudoscience (such as astrology, phrenology) in society.	Low
SC.912.N.2.4	Explain that scientific knowledge is both durable and robust and open to change. Scientific knowledge can change because it is often examined and re-examined by new investigations and scientific argumentation. Because of these frequent examinations, scien	High
SC.912.N.2.5	Describe instances in which scientists' varied backgrounds, talents, interests, and goals influence the inferences and thus the explanations that they make about observations of natural phenomena and describe that competing interpretations (explanations)	High
SC.912.N.3.1	Explain that a scientific theory is the culmination of many scientific investigations drawing together all the current evidence concerning a substantial range of phenomena; thus, a scientific theory represents the most powerful explanation scientists have	High
SC.912.N.3.2	Describe the role consensus plays in the historical development of a theory in any one of the disciplines of science.	Moderate
SC.912.N.3.3	Explain that scientific laws are descriptions of specific relationships under given conditions in nature, but do not offer explanations for those relationships.	Moderate
SC.912.N.3.4	Recognize that theories do not become laws, nor do laws become theories; theories are well supported explanations and laws are well supported descriptions.	Moderate
SC.912.N.3.5	Describe the function of models in science, and identify the wide range of models used in science.	Moderate
SC.912.N.4.1	Explain how scientific knowledge and reasoning provide an empirically-based perspective to inform society's decision making.	Moderate
SC.912.N.4.2	Weigh the merits of alternative strategies for solving a specific societal problem by comparing a number of different costs and benefits, such as human, economic, and environmental.	High
SC.912.P.8.1	Differentiate among the four states of matter.	Moderate
SC.912.P.8.2	Differentiate between physical and chemical properties and physical and chemical changes of matter.	Moderate
SC.912.P.8.4	Explore the scientific theory of atoms (also known as atomic theory) by describing the structure of atoms in terms of protons, neutrons and electrons, and differentiate among these particles in terms of their mass, electrical charges and locations within	High

SC.912.P.8.5	Relate properties of atoms and their position in the periodic table to the arrangement of their electrons.	Moderate
SC.912.P.8.7	Interpret formula representations of molecules and compounds in terms of composition and structure.	Moderate
SC.912.P.8.8	Characterize types of chemical reactions, for example: redox, acid-base, synthesis, and single and double replacement reactions.	Moderate
SC.912.P.8.11	Relate acidity and basicity to hydronium and hydroxyl ion concentration and pH.	Moderate
SC.912.P.10.1	Differentiate among the various forms of energy and recognize that they can be transformed from one form to others.	Moderate
SC.912.P.10.2	Explore the Law of Conservation of Energy by differentiating among open, closed, and isolated systems and explain that the total energy in an isolated system is a conserved quantity.	High
SC.912.P.10.3	Compare and contrast work and power qualitatively and quantitatively.	Moderate
SC.912.P.10.4	Describe heat as the energy transferred by convection, conduction, and radiation, and explain the connection of heat to change in temperature or states of matter.	High
SC.912.P.10.5	Relate temperature to the average molecular kinetic energy.	Moderate
SC.912.P.10.7	Distinguish between endothermic and exothermic chemical processes.	Moderate
SC.912.P.10.10	Compare the magnitude and range of the four fundamental forces (gravitational, electromagnetic, weak nuclear, strong nuclear).	Moderate
SC.912.P.10.11	Explain and compare nuclear reactions (radioactive decay, fission and fusion), the energy changes associated with them and their associated safety issues.	High
SC.912.P.10.12	Differentiate between chemical and nuclear reactions.	Moderate
SC.912.P.10.14	Differentiate among conductors, semiconductors, and insulators.	Moderate
SC.912.P.10.15	Investigate and explain the relationships among current, voltage, resistance, and power.	High
SC.912.P.10.18	Explore the theory of electromagnetism by comparing and contrasting the different parts of the electromagnetic spectrum in terms of wavelength, frequency, and energy, and relate them to phenomena and applications.	High
SC.912.P.10.21	Qualitatively describe the shift in frequency in sound or electromagnetic waves due to the relative motion of a source or a receiver.	Moderate
SC.912.P.12.2	Analyze the motion of an object in terms of its position, velocity, and acceleration (with respect to a frame of reference) as functions of time.	High
SC.912.P.12.3	Interpret and apply Newton's three laws of motion.	High
SC.912.P.12.4	Describe how the gravitational force between two objects depends on their masses and the distance between them.	Moderate
SC.912.P.12.7	Recognize that nothing travels faster than the speed of light in vacuum which is the same for all observers no matter how they or the light source are moving.	Low
SC.912.P.12.10	Interpret the behavior of ideal gases in terms of kinetic molecular theory.	High
SC.912.P.12.11	Describe phase transitions in terms of kinetic molecular theory.	Moderate
SC.912.P.12.12	Explain how various factors, such as concentration, temperature, and presence of a catalyst affect the rate of a chemical reaction.	High
SC.912.L.15.2	Discuss the use of molecular clocks to estimate how long ago various groups of organisms diverged evolutionarily from one another.	Moderate
SC.912.L.16.10	Evaluate the impact of biotechnology on the individual, society and the environment, including medical and ethical issues.	High
SC.912.L.17.11	Evaluate the costs and benefits of renewable and nonrenewable resources, such as water, energy, fossil fuels, wildlife, and forests.	High
SC.912.L.17.15	Discuss the effects of technology on environmental quality.	Moderate

SC.912.L.17.16	Discuss the large-scale environmental impacts resulting from human activity, including waste spills, oil spills, runoff, greenhouse gases, ozone depletion, and surface and groundwater pollution.	High
SC.912.L.17.19	Describe how different natural resources are produced and how their rates of use and renewal limit availability.	Moderate
SC.912.L.17.20	Predict the impact of individuals on environmental systems and examine how human lifestyles affect sustainability.	High
SC.912.L.18.12	Discuss the special properties of water that contribute to Earth's suitability as an environment for life: cohesive behavior, ability to moderate temperature, expansion upon freezing, and versatility as a solvent.	Moderate
MA.912.S.1.2	Determine appropriate and consistent standards of measurement for the data to be collected in a survey or experiment.	Moderate
MA.912.S.3.2	Collect, organize, and analyze data sets, determine the best format for the data and present visual summaries from the following:	High
LA.910.4.2.2	The student will record information and ideas from primary and/or secondary sources accurately and coherently, noting the validity and reliability of these sources and attributing sources of information;	
LA.910.2.2.3	The student will organize information to show understanding or relationships among facts, ideas, and events (e.g., representing key points within text through charting, mapping, paraphrasing, summarizing, comparing, contrasting, or outlining);	

Access Points for Students with Significant Cognitive Disabilities

Access Point Code	Access Point Descriptor
SC.912.N.1.In.a	Identify a problem based on a specific body of knowledge, including life science, earth and space science, or physical science, and do the following: 1. Identify a scientific question 2. Examine reliable sources of informtion to identify what is already k
SC.912.N.1.Su.b	Identify the basic process used in scientific investigations, including questioning, observing, recording, determining, and sharing results.
SC.912.N.1.Pa.c	Recognize that when a variety of common activities are repeated the same way, the outcomes are the same.
SC.912.N.2.In.a	Identify examples of investigations that involve science.
SC.912.N.2.Su.b	Recognize that what is known about science can change based on new information.
SC.912.N.3.In.a	Recognize that a scientific theory is developed by repeated investigations of many scientists and agreement on the likely explanation.
SC.912.N.3.In.b	Identify examples of scientific laws that describe relationships in the natural world, such as Newton’s laws.
SC.912.N.3.Su.b	Recognize examples of scientific laws that describe relationships in nature, such as Newton’s laws.
SC.912.N.3.Su.c	Recognize ways models are used in the study of science.
SC.912.N.4.In.a	Identify ways scientific knowledge and problem solving benefit people.
SC.912.N.4.Su.b	Recognize that some strategies may cost more to solve a problem.
SC.912.P.8.In.a	Classify states of matter as solid, liquid, and gaseous.
SC.912.P.8.Su.b	Identify examples of physical and chemical changes.
SC.912.P.8.Pa.c	Recognize that the parts of an object can be put together to make a whole.
SC.912.P.10.In.a	Identify examples of energy being transformed from one form to another (conserved quantity).

SC.912.P.10.Su.b	Recognize the relationship between work and power, such as power is the amount of work a person or machine does.
SC.912.P.10.Pa.c	Recognize the source and recipient of heat transfer.
SC.912.P.12.In.a	Recognize that scalar quantities describe the magnitude of the measurement, such as size, weight, volume, area, temperature, or speed.
SC.912.P.12.Su.b	Recognize that acceleration generally involves a change in speed.
SC.912.P.12.Pa.c	Identify the source of the force moving an object.
SC.912.L.16.In.a	Identify that genes are sets of instructions that determine which characteristics are passed from parent to offspring.
SC.912.L.16.Su.b	Recognize that all organisms have a substance called DNA with unique information.
SC.912.L.16.Pa.c	Recognize that illness can result when parts of our bodies are not working properly.
SC.912.L.17.In.a	Recognize that living things in oceans and fresh water are affected by the location, availability of light, depth of the water, and temperature.
SC.912.L.17.Su.b	Recognize how animals and plants in an ecosystem may be affected by changes to the food supply or climate.
SC.912.L.17.Pa.c	Recognize examples of mutual relationships between people and other living things.
SC.912.L.18.In.a	Identify that carbohydrates, fats, proteins, and nucleic acids (macromolecules) are important for human organisms.
SC.912.L.18.Su.b	Recognize that the function of photosynthesis is to produce food for plants.
SC.912.L.18.Pa.c	Identify that food is a source of energy.

2003320 Physical Science Honors

Section: Basic and Adult Education
Grade Group: Secondary Grades 9-12
Subject: Science
Domain: Physical Sciences
Course Length: Year
Level: 3

This course description incorporates the following Next Generation Sunshine State Standards for standards-based teaching and learning.

Benchmarks

Benchmark Code	Benchmark Descriptor	Depth of Knowledge
SC.912.N.1.1	Define a problem based on a specific body of knowledge, for example: biology, chemistry, physics, and earth/space science, and do the following:	High
SC.912.N.1.2	Describe and explain what characterizes science and its methods.	Moderate
SC.912.N.1.3	Recognize that the strength or usefulness of a scientific claim is evaluated through scientific argumentation, which depends on critical and logical thinking, and the active consideration of alternative scientific explanations to explain the data present	Low
SC.912.N.1.4	Identify sources of information and assess their reliability according to the strict standards of scientific investigation.	High
SC.912.N.1.5	Describe and provide examples of how similar investigations conducted in many parts of the world result in the same outcome.	Moderate
SC.912.N.1.6	Describe how scientific inferences are drawn from scientific observations and provide examples from the content being studied.	Moderate
SC.912.N.1.7	Recognize the role of creativity in constructing scientific questions, methods and explanations.	Low
SC.912.N.2.1	Identify what is science, what clearly is not science, and what superficially resembles science (but fails to meet the criteria for science).	High

SC.912.N.2.2	Identify which questions can be answered through science and which questions are outside the boundaries of scientific investigation, such as questions addressed by other ways of knowing, such as art, philosophy, and religion.	High
SC.912.N.2.3	Identify examples of pseudoscience (such as astrology, phrenology) in society.	Low
SC.912.N.2.4	Explain that scientific knowledge is both durable and robust and open to change. Scientific knowledge can change because it is often examined and re-examined by new investigations and scientific argumentation. Because of these frequent examinations, scien	High
SC.912.N.2.5	Describe instances in which scientists' varied backgrounds, talents, interests, and goals influence the inferences and thus the explanations that they make about observations of natural phenomena and describe that competing interpretations (explanations)	High
SC.912.N.3.1	Explain that a scientific theory is the culmination of many scientific investigations drawing together all the current evidence concerning a substantial range of phenomena; thus, a scientific theory represents the most powerful explanation scientists have	High
SC.912.N.3.2	Describe the role consensus plays in the historical development of a theory in any one of the disciplines of science.	Moderate
SC.912.N.3.3	Explain that scientific laws are descriptions of specific relationships under given conditions in nature, but do not offer explanations for those relationships.	Moderate
SC.912.N.3.4	Recognize that theories do not become laws, nor do laws become theories; theories are well supported explanations and laws are well supported descriptions.	Moderate
SC.912.N.3.5	Describe the function of models in science, and identify the wide range of models used in science.	Moderate
SC.912.N.4.1	Explain how scientific knowledge and reasoning provide an empirically-based perspective to inform society's decision making.	Moderate
SC.912.N.4.2	Weigh the merits of alternative strategies for solving a specific societal problem by comparing a number of different costs and benefits, such as human, economic, and environmental.	High
SC.912.P.8.1	Differentiate among the four states of matter.	Moderate
SC.912.P.8.2	Differentiate between physical and chemical properties and physical and chemical changes of matter.	Moderate
SC.912.P.8.3	Explore the scientific theory of atoms (also known as atomic theory) by describing changes in the atomic model over time and why those changes were necessitated by experimental evidence.	High
SC.912.P.8.4	Explore the scientific theory of atoms (also known as atomic theory) by describing the structure of atoms in terms of protons, neutrons and electrons, and differentiate among these particles in terms of their mass, electrical charges and locations within	High
SC.912.P.8.5	Relate properties of atoms and their position in the periodic table to the arrangement of their electrons.	Moderate
SC.912.P.8.7	Interpret formula representations of molecules and compounds in terms of composition and structure.	Moderate
SC.912.P.8.8	Characterize types of chemical reactions, for example: redox, acid-base, synthesis, and single and double replacement reactions.	Moderate
SC.912.P.8.11	Relate acidity and basicity to hydronium and hydroxyl ion concentration and pH.	Moderate
SC.912.P.10.1	Differentiate among the various forms of energy and recognize that they can be transformed from one form to others.	Moderate

SC.912.P.10.2	Explore the Law of Conservation of Energy by differentiating among open, closed, and isolated systems and explain that the total energy in an isolated system is a conserved quantity.	High
SC.912.P.10.3	Compare and contrast work and power qualitatively and quantitatively.	Moderate
SC.912.P.10.4	Describe heat as the energy transferred by convection, conduction, and radiation, and explain the connection of heat to change in temperature or states of matter.	High
SC.912.P.10.5	Relate temperature to the average molecular kinetic energy.	Moderate
SC.912.P.10.6	Create and interpret potential energy diagrams, for example: chemical reactions, orbits around a central body, motion of a pendulum.	High
SC.912.P.10.7	Distinguish between endothermic and exothermic chemical processes.	Moderate
SC.912.P.10.10	Compare the magnitude and range of the four fundamental forces (gravitational, electromagnetic, weak nuclear, strong nuclear).	Moderate
SC.912.P.10.11	Explain and compare nuclear reactions (radioactive decay, fission and fusion), the energy changes associated with them and their associated safety issues.	High
SC.912.P.10.12	Differentiate between chemical and nuclear reactions.	Moderate
SC.912.P.10.14	Differentiate among conductors, semiconductors, and insulators.	Moderate
SC.912.P.10.15	Investigate and explain the relationships among current, voltage, resistance, and power.	High
SC.912.P.10.18	Explore the theory of electromagnetism by comparing and contrasting the different parts of the electromagnetic spectrum in terms of wavelength, frequency, and energy, and relate them to phenomena and applications.	High
SC.912.P.10.21	Qualitatively describe the shift in frequency in sound or electromagnetic waves due to the relative motion of a source or a receiver.	Moderate
SC.912.P.12.1	Distinguish between scalar and vector quantities and assess which should be used to describe an event.	High
SC.912.P.12.2	Analyze the motion of an object in terms of its position, velocity, and acceleration (with respect to a frame of reference) as functions of time.	High
SC.912.P.12.3	Interpret and apply Newton's three laws of motion.	High
SC.912.P.12.4	Describe how the gravitational force between two objects depends on their masses and the distance between them.	Moderate
SC.912.P.12.5	Apply the law of conservation of linear momentum to interactions, such as collisions between objects.	High
SC.912.P.12.6	Qualitatively apply the concept of angular momentum.	High
SC.912.P.12.7	Recognize that nothing travels faster than the speed of light in vacuum which is the same for all observers no matter how they or the light source are moving.	Low
SC.912.P.12.10	Interpret the behavior of ideal gases in terms of kinetic molecular theory.	High
SC.912.P.12.11	Describe phase transitions in terms of kinetic molecular theory.	Moderate
SC.912.P.12.12	Explain how various factors, such as concentration, temperature, and presence of a catalyst affect the rate of a chemical reaction.	High
SC.912.L.15.2	Discuss the use of molecular clocks to estimate how long ago various groups of organisms diverged evolutionarily from one another.	Moderate
SC.912.L.16.10	Evaluate the impact of biotechnology on the individual, society and the environment, including medical and ethical issues.	High
SC.912.L.17.11	Evaluate the costs and benefits of renewable and nonrenewable resources, such as water, energy, fossil fuels, wildlife, and forests.	High
SC.912.L.17.13	Discuss the need for adequate monitoring of environmental parameters when making policy decisions.	High
SC.912.L.17.15	Discuss the effects of technology on environmental quality.	Moderate

SC.912.L.17.16	Discuss the large-scale environmental impacts resulting from human activity, including waste spills, oil spills, runoff, greenhouse gases, ozone depletion, and surface and groundwater pollution.	High
SC.912.L.17.19	Describe how different natural resources are produced and how their rates of use and renewal limit availability.	Moderate
SC.912.L.17.20	Predict the impact of individuals on environmental systems and examine how human lifestyles affect sustainability.	High
SC.912.L.18.12	Discuss the special properties of water that contribute to Earth's suitability as an environment for life: cohesive behavior, ability to moderate temperature, expansion upon freezing, and versatility as a solvent.	Moderate
MA.912.S.1.2	Determine appropriate and consistent standards of measurement for the data to be collected in a survey or experiment.	Moderate
MA.912.S.3.2	Collect, organize, and analyze data sets, determine the best format for the data and present visual summaries from the following:	High
LA.910.4.2.2	The student will record information and ideas from primary and/or secondary sources accurately and coherently, noting the validity and reliability of these sources and attributing sources of information;	
LA.910.2.2.3	The student will organize information to show understanding or relationships among facts, ideas, and events (e.g., representing key points within text through charting, mapping, paraphrasing, summarizing, comparing, contrasting, or outlining);	

Access Points for Students with Significant Cognitive Disabilities

Access Point Code	Access Point Descriptor
SC.912.N.1.In.a	Identify a problem based on a specific body of knowledge, including life science, earth and space science, or physical science, and do the following: 1. Identify a scientific question 2. Examine reliable sources of informtion to identify what is already k
SC.912.N.1.Su.b	Identify the basic process used in scientific investigations, including questioning, observing, recording, determining, and sharing results.
SC.912.N.1.Pa.c	Recognize that when a variety of common activities are repeated the same way, the outcomes are the same.
SC.912.N.2.In.a	Identify examples of investigations that involve science.
SC.912.N.2.Su.b	Recognize that what is known about science can change based on new information.
SC.912.N.3.In.a	Recognize that a scientific theory is developed by repeated investigations of many scientists and agreement on the likely explanation.
SC.912.N.3.In.b	Identify examples of scientific laws that describe relationships in the natural world, such as Newton’s laws.
SC.912.N.3.Su.b	Recognize examples of scientific laws that describe relationships in nature, such as Newton’s laws.
SC.912.N.3.Su.c	Recognize ways models are used in the study of science.
SC.912.N.4.In.a	Identify ways scientific knowledge and problem solving benefit people.
SC.912.N.4.Su.b	Recognize that some strategies may cost more to solve a problem.
SC.912.P.8.In.a	Classify states of matter as solid, liquid, and gaseous.
SC.912.P.8.Su.b	Identify examples of physical and chemical changes.
SC.912.P.8.Pa.c	Recognize that the parts of an object can be put together to make a whole.
SC.912.P.10.In.a	Identify examples of energy being transformed from one form to another (conserved quantity).

SC.912.P.10.Su.b	Recognize the relationship between work and power, such as power is the amount of work a person or machine does.
SC.912.P.10.Pa.c	Recognize the source and recipient of heat transfer.
SC.912.P.12.In.a	Recognize that scalar quantities describe the magnitude of the measurement, such as size, weight, volume, area, temperature, or speed.
SC.912.P.12.Su.b	Recognize that acceleration generally involves a change in speed.
SC.912.P.12.Pa.c	Identify the source of the force moving an object.
SC.912.L.16.In.a	Identify that genes are sets of instructions that determine which characteristics are passed from parent to offspring.
SC.912.L.16.Su.b	Recognize that all organisms have a substance called DNA with unique information.
SC.912.L.16.Pa.c	Recognize that illness can result when parts of our bodies are not working properly.
SC.912.L.17.In.a	Recognize that living things in oceans and fresh water are affected by the location, availability of light, depth of the water, and temperature.
SC.912.L.17.Su.b	Recognize how animals and plants in an ecosystem may be affected by changes to the food supply or climate.
SC.912.L.17.Pa.c	Recognize examples of mutual relationships between people and other living things.
SC.912.L.18.In.a	Identify that carbohydrates, fats, proteins, and nucleic acids (macromolecules) are important for human organisms.
SC.912.L.18.Su.b	Recognize that the function of photosynthesis is to produce food for plants.
SC.912.L.18.Pa.c	Identify that food is a source of energy.

2003380 Physics I

Section: Basic and Adult Education
Grade Group: Secondary Grades 9-12
Subject: Science
Domain: Physical Sciences
Course Length: Year
Level: 2

This course description incorporates the following Next Generation Sunshine State Standards for standards-based teaching and learning.

Benchmarks

Benchmark Code	Benchmark Descriptor	Depth of Knowledge
SC.912.N.1.1	Define a problem based on a specific body of knowledge, for example: biology, chemistry, physics, and earth/space science, and do the following:	High
SC.912.N.1.2	Describe and explain what characterizes science and its methods.	Moderate
SC.912.N.1.3	Recognize that the strength or usefulness of a scientific claim is evaluated through scientific argumentation, which depends on critical and logical thinking, and the active consideration of alternative scientific explanations to explain the data present	Low
SC.912.N.1.4	Identify sources of information and assess their reliability according to the strict standards of scientific investigation.	High
SC.912.N.1.5	Describe and provide examples of how similar investigations conducted in many parts of the world result in the same outcome.	Moderate
SC.912.N.1.6	Describe how scientific inferences are drawn from scientific observations and provide examples from the content being studied.	Moderate
SC.912.N.1.7	Recognize the role of creativity in constructing scientific questions, methods and explanations.	Low
SC.912.N.2.1	Identify what is science, what clearly is not science, and what superficially resembles science (but fails to meet the criteria for science).	High

SC.912.N.2.2	Identify which questions can be answered through science and which questions are outside the boundaries of scientific investigation, such as questions addressed by other ways of knowing, such as art, philosophy, and religion.	High
SC.912.N.2.3	Identify examples of pseudoscience (such as astrology, phrenology) in society.	Low
SC.912.N.2.4	Explain that scientific knowledge is both durable and robust and open to change. Scientific knowledge can change because it is often examined and re-examined by new investigations and scientific argumentation. Because of these frequent examinations, scien	High
SC.912.N.2.5	Describe instances in which scientists' varied backgrounds, talents, interests, and goals influence the inferences and thus the explanations that they make about observations of natural phenomena and describe that competing interpretations (explanations)	High
SC.912.N.3.1	Explain that a scientific theory is the culmination of many scientific investigations drawing together all the current evidence concerning a substantial range of phenomena; thus, a scientific theory represents the most powerful explanation scientists have	High
SC.912.N.3.2	Describe the role consensus plays in the historical development of a theory in any one of the disciplines of science.	Moderate
SC.912.N.3.3	Explain that scientific laws are descriptions of specific relationships under given conditions in nature, but do not offer explanations for those relationships.	Moderate
SC.912.N.3.4	Recognize that theories do not become laws, nor do laws become theories; theories are well supported explanations and laws are well supported descriptions.	Moderate
SC.912.N.3.5	Describe the function of models in science, and identify the wide range of models used in science.	Moderate
SC.912.N.4.1	Explain how scientific knowledge and reasoning provide an empirically-based perspective to inform society's decision making.	Moderate
SC.912.N.4.2	Weigh the merits of alternative strategies for solving a specific societal problem by comparing a number of different costs and benefits, such as human, economic, and environmental.	High
SC.912.E.5.1	Cite evidence used to develop and verify the scientific theory of the Big Bang (also known as the Big Bang Theory) of the origin of the universe.	High
SC.912.E.5.6	Develop logical connections through physical principles, including Kepler's and Newton's Laws about the relationships and the effects of Earth, Moon, and Sun on each other.	High
SC.912.P.8.1	Differentiate among the four states of matter.	Moderate
SC.912.P.8.3	Explore the scientific theory of atoms (also known as atomic theory) by describing changes in the atomic model over time and why those changes were necessitated by experimental evidence.	High
SC.912.P.8.4	Explore the scientific theory of atoms (also known as atomic theory) by describing the structure of atoms in terms of protons, neutrons and electrons, and differentiate among these particles in terms of their mass, electrical charges and locations within	High
SC.912.P.10.1	Differentiate among the various forms of energy and recognize that they can be transformed from one form to others.	Moderate
SC.912.P.10.2	Explore the Law of Conservation of Energy by differentiating among open, closed, and isolated systems and explain that the total energy in an isolated system is a conserved quantity.	High
SC.912.P.10.3	Compare and contrast work and power qualitatively and quantitatively.	Moderate

SC.912.P.10.4	Describe heat as the energy transferred by convection, conduction, and radiation, and explain the connection of heat to change in temperature or states of matter.	High
SC.912.P.10.5	Relate temperature to the average molecular kinetic energy.	Moderate
SC.912.P.10.9	Describe the quantization of energy at the atomic level.	Moderate
SC.912.P.10.10	Compare the magnitude and range of the four fundamental forces (gravitational, electromagnetic, weak nuclear, strong nuclear).	Moderate
SC.912.P.10.13	Relate the configuration of static charges to the electric field, electric force, electric potential, and electric potential energy.	High
SC.912.P.10.14	Differentiate among conductors, semiconductors, and insulators.	Moderate
SC.912.P.10.15	Investigate and explain the relationships among current, voltage, resistance, and power.	High
SC.912.P.10.18	Explore the theory of electromagnetism by comparing and contrasting the different parts of the electromagnetic spectrum in terms of wavelength, frequency, and energy, and relate them to phenomena and applications.	High
SC.912.P.10.20	Describe the measurable properties of waves and explain the relationships among them and how these properties change when the wave moves from one medium to another.	High
SC.912.P.10.21	Qualitatively describe the shift in frequency in sound or electromagnetic waves due to the relative motion of a source or a receiver.	Moderate
SC.912.P.10.22	Construct ray diagrams and use thin lens and mirror equations to locate the images formed by lenses and mirrors.	High
SC.912.P.12.1	Distinguish between scalar and vector quantities and assess which should be used to describe an event.	High
SC.912.P.12.2	Analyze the motion of an object in terms of its position, velocity, and acceleration (with respect to a frame of reference) as functions of time.	High
SC.912.P.12.3	Interpret and apply Newton's three laws of motion.	High
SC.912.P.12.4	Describe how the gravitational force between two objects depends on their masses and the distance between them.	Moderate
SC.912.P.12.5	Apply the law of conservation of linear momentum to interactions, such as collisions between objects.	High
SC.912.P.12.7	Recognize that nothing travels faster than the speed of light in vacuum which is the same for all observers no matter how they or the light source are moving.	Low
SC.912.P.12.8	Recognize that Newton's Laws are a limiting case of Einstein's Special Theory of Relativity at speeds that are much smaller than the speed of light.	Low
SC.912.P.12.9	Recognize that time, length, and energy depend on the frame of reference.	Low
SC.912.P.12.10	Interpret the behavior of ideal gases in terms of kinetic molecular theory.	High
SC.912.P.12.11	Describe phase transitions in terms of kinetic molecular theory.	Moderate
SC.912.L.17.11	Evaluate the costs and benefits of renewable and nonrenewable resources, such as water, energy, fossil fuels, wildlife, and forests.	High
SC.912.L.17.15	Discuss the effects of technology on environmental quality.	Moderate
SC.912.L.18.12	Discuss the special properties of water that contribute to Earth's suitability as an environment for life: cohesive behavior, ability to moderate temperature, expansion upon freezing, and versatility as a solvent.	Moderate
MA.912.S.1.2	Determine appropriate and consistent standards of measurement for the data to be collected in a survey or experiment.	Moderate
MA.912.S.3.2	Collect, organize, and analyze data sets, determine the best format for the data and present visual summaries from the following:	High

LA.910.4.2.2	The student will record information and ideas from primary and/or secondary sources accurately and coherently, noting the validity and reliability of these sources and attributing sources of information;
LA.910.2.2.3	The student will organize information to show understanding or relationships among facts, ideas, and events (e.g., representing key points within text through charting, mapping, paraphrasing, summarizing, comparing, contrasting, or outlining);

Access Points for Students with Significant Cognitive Disabilities

Access Point Code	Access Point Descriptor
SC.912.N.1.In.a	Identify a problem based on a specific body of knowledge, including life science, earth and space science, or physical science, and do the following: 1. Identify a scientific question 2. Examine reliable sources of informtion to identify what is already k
SC.912.N.1.Su.b	Identify the basic process used in scientific investigations, including questioning, observing, recording, determining, and sharing results.
SC.912.N.1.Pa.c	Recognize that when a variety of common activities are repeated the same way, the outcomes are the same.
SC.912.N.2.In.a	Identify examples of investigations that involve science.
SC.912.N.2.Su.b	Recognize that what is known about science can change based on new information.
SC.912.N.3.In.a	Recognize that a scientific theory is developed by repeated investigations of many scientists and agreement on the likely explanation.
SC.912.N.3.In.b	Identify examples of scientific laws that describe relationships in the natural world, such as Newton's laws.
SC.912.N.3.Su.b	Recognize examples of scientific laws that describe relationships in nature, such as Newton's laws.
SC.912.N.3.Su.c	Recognize ways models are used in the study of science.
SC.912.N.4.In.a	Identify ways scientific knowledge and problem solving benefit people.
SC.912.N.4.Su.b	Recognize that some strategies may cost more to solve a problem.
SC.912.E.5.In.a	Recognize that the Milky Way is part of the expanding universe.
SC.912.E.5.Su.b	Recognize that stars are made of burning gases.
SC.912.E.5.Pa.c	Observe and recognize effects of the Sun on Earth, such as temperature changes.
SC.912.P.8.In.a	Classify states of matter as solid, liquid, and gaseous.
SC.912.P.8.Su.b	Identify examples of physical and chemical changes.
SC.912.P.8.Pa.c	Recognize that the parts of an object can be put together to make a whole.
SC.912.P.10.In.a	Identify examples of energy being transformed from one form to another (conserved quantity).
SC.912.P.10.Su.b	Recognize the relationship between work and power, such as power is the amount of work a person or machine does.
SC.912.P.10.Pa.c	Recognize the source and recipient of heat transfer.
SC.912.P.12.In.a	Recognize that scalar quantities describe the magnitude of the measurement, such as size, weight, volume, area, temperature, or speed.
SC.912.P.12.Su.b	Recognize that acceleration generally involves a change in speed.
SC.912.P.12.Pa.c	Identify the source of the force moving an object.
SC.912.L.17.In.a	Recognize that living things in oceans and fresh water are affected by the location, availability of light, depth of the water, and temperature.

SC.912.L.17.Su.b	Recognize how animals and plants in an ecosystem may be affected by changes to the food supply or climate.
SC.912.L.17.Pa.c	Recognize examples of mutual relationships between people and other living things.
SC.912.L.18.In.a	Identify that carbohydrates, fats, proteins, and nucleic acids (macromolecules) are important for human organisms.
SC.912.L.18.Su.b	Recognize that the function of photosynthesis is to produce food for plants.
SC.912.L.18.Pa.c	Identify that food is a source of energy.

2003390 Physics I Honors

Section: Basic and Adult Education
Grade Group: Secondary Grades 9-12
Subject: Science
Domain: Physical Sciences
Course Length: Year
Level: 3

This course description incorporates the following Next Generation Sunshine State Standards for standards-based teaching and learning.

Benchmarks

Benchmark Code	Benchmark Descriptor	Depth of Knowledge
SC.912.N.1.1	Define a problem based on a specific body of knowledge, for example: biology, chemistry, physics, and earth/space science, and do the following:	High
SC.912.N.1.2	Describe and explain what characterizes science and its methods.	Moderate
SC.912.N.1.3	Recognize that the strength or usefulness of a scientific claim is evaluated through scientific argumentation, which depends on critical and logical thinking, and the active consideration of alternative scientific explanations to explain the data present	Low
SC.912.N.1.4	Identify sources of information and assess their reliability according to the strict standards of scientific investigation.	High
SC.912.N.1.5	Describe and provide examples of how similar investigations conducted in many parts of the world result in the same outcome.	Moderate
SC.912.N.1.6	Describe how scientific inferences are drawn from scientific observations and provide examples from the content being studied.	Moderate
SC.912.N.1.7	Recognize the role of creativity in constructing scientific questions, methods and explanations.	Low
SC.912.N.2.1	Identify what is science, what clearly is not science, and what superficially resembles science (but fails to meet the criteria for science).	High
SC.912.N.2.2	Identify which questions can be answered through science and which questions are outside the boundaries of scientific investigation, such as questions addressed by other ways of knowing, such as art, philosophy, and religion.	High
SC.912.N.2.3	Identify examples of pseudoscience (such as astrology, phrenology) in society.	Low
SC.912.N.2.4	Explain that scientific knowledge is both durable and robust and open to change. Scientific knowledge can change because it is often examined and re-examined by new investigations and scientific argumentation. Because of these frequent examinations, scien	High
SC.912.N.2.5	Describe instances in which scientists' varied backgrounds, talents, interests, and goals influence the inferences and thus the explanations that they make about observations of natural phenomena and describe that competing interpretations (explanations)	High

SC.912.N.3.1	Explain that a scientific theory is the culmination of many scientific investigations drawing together all the current evidence concerning a substantial range of phenomena; thus, a scientific theory represents the most powerful explanation scientists have	High
SC.912.N.3.2	Describe the role consensus plays in the historical development of a theory in any one of the disciplines of science.	Moderate
SC.912.N.3.3	Explain that scientific laws are descriptions of specific relationships under given conditions in nature, but do not offer explanations for those relationships.	Moderate
SC.912.N.3.4	Recognize that theories do not become laws, nor do laws become theories; theories are well supported explanations and laws are well supported descriptions.	Moderate
SC.912.N.3.5	Describe the function of models in science, and identify the wide range of models used in science.	Moderate
SC.912.N.4.1	Explain how scientific knowledge and reasoning provide an empirically-based perspective to inform society's decision making.	Moderate
SC.912.N.4.2	Weigh the merits of alternative strategies for solving a specific societal problem by comparing a number of different costs and benefits, such as human, economic, and environmental.	High
SC.912.E.5.1	Cite evidence used to develop and verify the scientific theory of the Big Bang (also known as the Big Bang Theory) of the origin of the universe.	High
SC.912.E.5.6	Develop logical connections through physical principles, including Kepler's and Newton's Laws about the relationships and the effects of Earth, Moon, and Sun on each other.	High
SC.912.E.5.8	Connect the concepts of radiation and the electromagnetic spectrum to the use of historical and newly-developed observational tools.	High
SC.912.P.8.1	Differentiate among the four states of matter.	Moderate
SC.912.P.8.3	Explore the scientific theory of atoms (also known as atomic theory) by describing changes in the atomic model over time and why those changes were necessitated by experimental evidence.	High
SC.912.P.8.4	Explore the scientific theory of atoms (also known as atomic theory) by describing the structure of atoms in terms of protons, neutrons and electrons, and differentiate among these particles in terms of their mass, electrical charges and locations within	High
SC.912.P.10.1	Differentiate among the various forms of energy and recognize that they can be transformed from one form to others.	Moderate
SC.912.P.10.2	Explore the Law of Conservation of Energy by differentiating among open, closed, and isolated systems and explain that the total energy in an isolated system is a conserved quantity.	High
SC.912.P.10.3	Compare and contrast work and power qualitatively and quantitatively.	Moderate
SC.912.P.10.4	Describe heat as the energy transferred by convection, conduction, and radiation, and explain the connection of heat to change in temperature or states of matter.	High
SC.912.P.10.5	Relate temperature to the average molecular kinetic energy.	Moderate
SC.912.P.10.6	Create and interpret potential energy diagrams, for example: chemical reactions, orbits around a central body, motion of a pendulum.	High
SC.912.P.10.8	Explain entropy's role in determining the efficiency of processes that convert energy to work.	High
SC.912.P.10.9	Describe the quantization of energy at the atomic level.	Moderate
SC.912.P.10.10	Compare the magnitude and range of the four fundamental forces (gravitational, electromagnetic, weak nuclear, strong nuclear).	Moderate

SC.912.P.10.13	Relate the configuration of static charges to the electric field, electric force, electric potential, and electric potential energy.	High
SC.912.P.10.14	Differentiate among conductors, semiconductors, and insulators.	Moderate
SC.912.P.10.15	Investigate and explain the relationships among current, voltage, resistance, and power.	High
SC.912.P.10.16	Explain the relationship between moving charges and magnetic fields, as well as changing magnetic fields and electric fields, and their application to modern technologies.	High
SC.912.P.10.18	Explore the theory of electromagnetism by comparing and contrasting the different parts of the electromagnetic spectrum in terms of wavelength, frequency, and energy, and relate them to phenomena and applications.	High
SC.912.P.10.20	Describe the measurable properties of waves and explain the relationships among them and how these properties change when the wave moves from one medium to another.	High
SC.912.P.10.21	Qualitatively describe the shift in frequency in sound or electromagnetic waves due to the relative motion of a source or a receiver.	Moderate
SC.912.P.10.22	Construct ray diagrams and use thin lens and mirror equations to locate the images formed by lenses and mirrors.	High
SC.912.P.12.1	Distinguish between scalar and vector quantities and assess which should be used to describe an event.	High
SC.912.P.12.2	Analyze the motion of an object in terms of its position, velocity, and acceleration (with respect to a frame of reference) as functions of time.	High
SC.912.P.12.3	Interpret and apply Newton's three laws of motion.	High
SC.912.P.12.4	Describe how the gravitational force between two objects depends on their masses and the distance between them.	Moderate
SC.912.P.12.5	Apply the law of conservation of linear momentum to interactions, such as collisions between objects.	High
SC.912.P.12.6	Qualitatively apply the concept of angular momentum.	High
SC.912.P.12.7	Recognize that nothing travels faster than the speed of light in vacuum which is the same for all observers no matter how they or the light source are moving.	Low
SC.912.P.12.8	Recognize that Newton's Laws are a limiting case of Einstein's Special Theory of Relativity at speeds that are much smaller than the speed of light.	Low
SC.912.P.12.9	Recognize that time, length, and energy depend on the frame of reference.	Low
SC.912.P.12.10	Interpret the behavior of ideal gases in terms of kinetic molecular theory.	High
SC.912.P.12.11	Describe phase transitions in terms of kinetic molecular theory.	Moderate
SC.912.L.17.11	Evaluate the costs and benefits of renewable and nonrenewable resources, such as water, energy, fossil fuels, wildlife, and forests.	High
SC.912.L.17.15	Discuss the effects of technology on environmental quality.	Moderate
SC.912.L.18.12	Discuss the special properties of water that contribute to Earth's suitability as an environment for life: cohesive behavior, ability to moderate temperature, expansion upon freezing, and versatility as a solvent.	Moderate
MA.912.S.1.2	Determine appropriate and consistent standards of measurement for the data to be collected in a survey or experiment.	Moderate
MA.912.S.3.2	Collect, organize, and analyze data sets, determine the best format for the data and present visual summaries from the following:	High
LA.910.4.2.2	The student will record information and ideas from primary and/or secondary sources accurately and coherently, noting the validity and reliability of these sources and attributing sources of information;	

LA.910.2.2.3	The student will organize information to show understanding or relationships among facts, ideas, and events (e.g., representing key points within text through charting, mapping, paraphrasing, summarizing, comparing, contrasting, or outlining);

Access Points for Students with Significant Cognitive Disabilities

Access Point Code	Access Point Descriptor
SC.912.N.1.In.a	Identify a problem based on a specific body of knowledge, including life science, earth and space science, or physical science, and do the following: 1. Identify a scientific question 2. Examine reliable sources of informtion to identify what is already k
SC.912.N.1.Su.b	Identify the basic process used in scientific investigations, including questioning, observing, recording, determining, and sharing results.
SC.912.N.1.Pa.c	Recognize that when a variety of common activities are repeated the same way, the outcomes are the same.
SC.912.N.2.In.a	Identify examples of investigations that involve science.
SC.912.N.2.Su.b	Recognize that what is known about science can change based on new information.
SC.912.N.3.In.a	Recognize that a scientific theory is developed by repeated investigations of many scientists and agreement on the likely explanation.
SC.912.N.3.In.b	Identify examples of scientific laws that describe relationships in the natural world, such as Newton's laws.
SC.912.N.3.Su.b	Recognize examples of scientific laws that describe relationships in nature, such as Newton's laws.
SC.912.N.3.Su.c	Recognize ways models are used in the study of science.
SC.912.N.4.In.a	Identify ways scientific knowledge and problem solving benefit people.
SC.912.N.4.Su.b	Recognize that some strategies may cost more to solve a problem.
SC.912.E.5.In.a	Recognize that the Milky Way is part of the expanding universe.
SC.912.E.5.Su.b	Recognize that stars are made of burning gases.
SC.912.E.5.Pa.c	Observe and recognize effects of the Sun on Earth, such as temperature changes.
SC.912.P.8.In.a	Classify states of matter as solid, liquid, and gaseous.
SC.912.P.8.Su.b	Identify examples of physical and chemical changes.
SC.912.P.8.Pa.c	Recognize that the parts of an object can be put together to make a whole.
SC.912.P.10.In.a	Identify examples of energy being transformed from one form to another (conserved quantity).
SC.912.P.10.Su.b	Recognize the relationship between work and power, such as power is the amount of work a person or machine does.
SC.912.P.10.Pa.c	Recognize the source and recipient of heat transfer.
SC.912.P.12.In.a	Recognize that scalar quantities describe the magnitude of the measurement, such as size, weight, volume, area, temperature, or speed.
SC.912.P.12.Su.b	Recognize that acceleration generally involves a change in speed.
SC.912.P.12.Pa.c	Identify the source of the force moving an object.
SC.912.L.17.In.a	Recognize that living things in oceans and fresh water are affected by the location, availability of light, depth of the water, and temperature.
SC.912.L.17.Su.b	Recognize how animals and plants in an ecosystem may be affected by changes to the food supply or climate.
SC.912.L.17.Pa.c	Recognize examples of mutual relationships between people and other living things.

SC.912.L.18.In.a	Identify that carbohydrates, fats, proteins, and nucleic acids (macromolecules) are important for human organisms.
SC.912.L.18.Su.b	Recognize that the function of photosynthesis is to produce food for plants.
SC.912.L.18.Pa.c	Identify that food is a source of energy.

2003410 Physics II

Section: Basic and Adult Education
Grade Group: Secondary Grades 9-12
Subject: Science
Domain: Physical Sciences
Course Length: Year
Level: 3

This course description incorporates the following Next Generation Sunshine State Standards for standards-based teaching and learning.

Benchmarks

Benchmark Code	Benchmark Descriptor	Depth of Knowledge
SC.912.N.1.1	Define a problem based on a specific body of knowledge, for example: biology, chemistry, physics, and earth/space science, and do the following:	High
SC.912.N.1.2	Describe and explain what characterizes science and its methods.	Moderate
SC.912.N.1.3	Recognize that the strength or usefulness of a scientific claim is evaluated through scientific argumentation, which depends on critical and logical thinking, and the active consideration of alternative scientific explanations to explain the data present	Low
SC.912.N.1.4	Identify sources of information and assess their reliability according to the strict standards of scientific investigation.	High
SC.912.N.1.5	Describe and provide examples of how similar investigations conducted in many parts of the world result in the same outcome.	Moderate
SC.912.N.1.6	Describe how scientific inferences are drawn from scientific observations and provide examples from the content being studied.	Moderate
SC.912.N.1.7	Recognize the role of creativity in constructing scientific questions, methods and explanations.	Low
SC.912.N.2.1	Identify what is science, what clearly is not science, and what superficially resembles science (but fails to meet the criteria for science).	High
SC.912.N.2.2	Identify which questions can be answered through science and which questions are outside the boundaries of scientific investigation, such as questions addressed by other ways of knowing, such as art, philosophy, and religion.	High
SC.912.N.2.3	Identify examples of pseudoscience (such as astrology, phrenology) in society.	Low
SC.912.N.2.4	Explain that scientific knowledge is both durable and robust and open to change. Scientific knowledge can change because it is often examined and re-examined by new investigations and scientific argumentation. Because of these frequent examinations, scien	High
SC.912.N.2.5	Describe instances in which scientists' varied backgrounds, talents, interests, and goals influence the inferences and thus the explanations that they make about observations of natural phenomena and describe that competing interpretations (explanations)	High
SC.912.N.3.1	Explain that a scientific theory is the culmination of many scientific investigations drawing together all the current evidence concerning a substantial range of phenomena; thus, a scientific theory represents the most powerful explanation scientists have	High
SC.912.N.3.2	Describe the role consensus plays in the historical development of a theory in any one of the disciplines of science.	Moderate

SC.912.N.3.3	Explain that scientific laws are descriptions of specific relationships under given conditions in nature, but do not offer explanations for those relationships.	Moderate
SC.912.N.3.4	Recognize that theories do not become laws, nor do laws become theories; theories are well supported explanations and laws are well supported descriptions.	Moderate
SC.912.N.3.5	Describe the function of models in science, and identify the wide range of models used in science.	Moderate
SC.912.N.4.1	Explain how scientific knowledge and reasoning provide an empirically-based perspective to inform society's decision making.	Moderate
SC.912.N.4.2	Weigh the merits of alternative strategies for solving a specific societal problem by comparing a number of different costs and benefits, such as human, economic, and environmental.	High
SC.912.E.5.1	Cite evidence used to develop and verify the scientific theory of the Big Bang (also known as the Big Bang Theory) of the origin of the universe.	High
SC.912.E.5.2	Identify patterns in the organization and distribution of matter in the universe and the forces that determine them.	Moderate
SC.912.E.5.3	Describe and predict how the initial mass of a star determines its evolution.	Moderate
SC.912.E.5.4	Explain the physical properties of the Sun and its dynamic nature and connect them to conditions and events on Earth.	High
SC.912.E.5.5	Explain the formation of planetary systems based on our knowledge of our Solar System and apply this knowledge to newly discovered planetary systems.	High
SC.912.E.5.7	Relate the history of and explain the justification for future space exploration and continuing technology development.	High
SC.912.E.5.8	Connect the concepts of radiation and the electromagnetic spectrum to the use of historical and newly-developed observational tools.	High
SC.912.E.5.9	Analyze the broad effects of space exploration on the economy and culture of Florida.	High
SC.912.E.5.10	Describe and apply the coordinate system used to locate objects in the sky.	Moderate
SC.912.E.5.11	Distinguish the various methods of measuring astronomical distances and apply each in appropriate situations.	High
SC.912.E.6.6	Analyze past, present, and potential future consequences to the environment resulting from various energy production technologies.	High
SC.912.E.7.7	Identify, analyze, and relate the internal (Earth system) and external (astronomical) conditions that contribute to global climate change.	High
SC.912.P.10.4	Describe heat as the energy transferred by convection, conduction, and radiation, and explain the connection of heat to change in temperature or states of matter.	High
SC.912.P.10.6	Create and interpret potential energy diagrams, for example: chemical reactions, orbits around a central body, motion of a pendulum.	High
SC.912.P.10.8	Explain entropy's role in determining the efficiency of processes that convert energy to work.	High
SC.912.P.10.9	Describe the quantization of energy at the atomic level.	Moderate
SC.912.P.10.10	Compare the magnitude and range of the four fundamental forces (gravitational, electromagnetic, weak nuclear, strong nuclear).	Moderate
SC.912.P.10.11	Explain and compare nuclear reactions (radioactive decay, fission and fusion), the energy changes associated with them and their associated safety issues.	High
SC.912.P.10.12	Differentiate between chemical and nuclear reactions.	Moderate
SC.912.P.10.16	Explain the relationship between moving charges and magnetic fields, as well as changing magnetic fields and electric fields, and their application to modern technologies.	High

SC.912.P.10.17	Explore the theory of electromagnetism by explaining electromagnetic waves in terms of oscillating electric and magnetic fields.	High
SC.912.P.10.18	Explore the theory of electromagnetism by comparing and contrasting the different parts of the electromagnetic spectrum in terms of wavelength, frequency, and energy, and relate them to phenomena and applications.	High
SC.912.P.10.19	Explain that all objects emit and absorb electromagnetic radiation and distinguish between objects that are blackbody radiators and those that are not.	High
SC.912.P.10.21	Qualitatively describe the shift in frequency in sound or electromagnetic waves due to the relative motion of a source or a receiver.	Moderate
SC.912.P.12.5	Apply the law of conservation of linear momentum to interactions, such as collisions between objects.	High
SC.912.P.12.6	Qualitatively apply the concept of angular momentum.	High
SC.912.P.12.8	Recognize that Newton's Laws are a limiting case of Einstein's Special Theory of Relativity at speeds that are much smaller than the speed of light.	Low
SC.912.P.12.9	Recognize that time, length, and energy depend on the frame of reference.	Low
SC.912.P.12.10	Interpret the behavior of ideal gases in terms of kinetic molecular theory.	High
SC.912.L.15.2	Discuss the use of molecular clocks to estimate how long ago various groups of organisms diverged evolutionarily from one another.	Moderate
SC.912.L.16.10	Evaluate the impact of biotechnology on the individual, society and the environment, including medical and ethical issues.	High
SC.912.L.17.11	Evaluate the costs and benefits of renewable and nonrenewable resources, such as water, energy, fossil fuels, wildlife, and forests.	High
SC.912.L.17.15	Discuss the effects of technology on environmental quality.	Moderate
SC.912.L.18.12	Discuss the special properties of water that contribute to Earth's suitability as an environment for life: cohesive behavior, ability to moderate temperature, expansion upon freezing, and versatility as a solvent.	Moderate
MA.912.S.1.2	Determine appropriate and consistent standards of measurement for the data to be collected in a survey or experiment.	Moderate
MA.912.S.3.2	Collect, organize, and analyze data sets, determine the best format for the data and present visual summaries from the following:	High
LA.910.4.2.2	The student will record information and ideas from primary and/or secondary sources accurately and coherently, noting the validity and reliability of these sources and attributing sources of information;	
LA.910.2.2.3	The student will organize information to show understanding or relationships among facts, ideas, and events (e.g., representing key points within text through charting, mapping, paraphrasing, summarizing, comparing, contrasting, or outlining);	

Access Points for Students with Significant Cognitive Disabilities

Access Point Code	Access Point Descriptor
SC.912.N.1.In.a	Identify a problem based on a specific body of knowledge, including life science, earth and space science, or physical science, and do the following: 1. Identify a scientific question 2. Examine reliable sources of informtion to identify what is already k
SC.912.N.1.Su.b	Identify the basic process used in scientific investigations, including questioning, observing, recording, determining, and sharing results.
SC.912.N.1.Pa.c	Recognize that when a variety of common activities are repeated the same way, the outcomes are the same.
SC.912.N.2.In.a	Identify examples of investigations that involve science.
SC.912.N.2.Su.b	Recognize that what is known about science can change based on new information.

SC.912.N.3.In.a	Recognize that a scientific theory is developed by repeated investigations of many scientists and agreement on the likely explanation.
SC.912.N.3.In.b	Identify examples of scientific laws that describe relationships in the natural world, such as Newton's laws.
SC.912.N.3.Su.b	Recognize examples of scientific laws that describe relationships in nature, such as Newton's laws.
SC.912.N.3.Su.c	Recognize ways models are used in the study of science.
SC.912.N.4.In.a	Identify ways scientific knowledge and problem solving benefit people.
SC.912.N.4.Su.b	Recognize that some strategies may cost more to solve a problem.
SC.912.E.5.In.a	Recognize that the Milky Way is part of the expanding universe.
SC.912.E.5.Su.b	Recognize that stars are made of burning gases.
SC.912.E.5.Pa.c	Observe and recognize effects of the Sun on Earth, such as temperature changes.
SC.912.E.7.In.a	Identify cycles that occur on Earth, such as the water and carbon cycles, and the role energy plays in them.
SC.912.E.7.Su.b	Recognize that currents move the ocean water around Earth.
SC.912.E.7.Pa.c	Recognize that humans, plants, and animals live on the Earth (biosphere).
SC.912.P.10.In.a	Identify examples of energy being transformed from one form to another (conserved quantity).
SC.912.P.10.Su.b	Recognize the relationship between work and power, such as power is the amount of work a person or machine does.
SC.912.P.10.Pa.c	Recognize the source and recipient of heat transfer.
SC.912.P.12.In.a	Recognize that scalar quantities describe the magnitude of the measurement, such as size, weight, volume, area, temperature, or speed.
SC.912.P.12.Su.b	Recognize that acceleration generally involves a change in speed.
SC.912.P.12.Pa.c	Identify the source of the force moving an object.
SC.912.L.16.In.a	Identify that genes are sets of instructions that determine which characteristics are passed from parent to offspring.
SC.912.L.16.Su.b	Recognize that all organisms have a substance called DNA with unique information.
SC.912.L.16.Pa.c	Recognize that illness can result when parts of our bodies are not working properly.
SC.912.L.17.In.a	Recognize that living things in oceans and fresh water are affected by the location, availability of light, depth of the water, and temperature.
SC.912.L.17.Su.b	Recognize how animals and plants in an ecosystem may be affected by changes to the food supply or climate.
SC.912.L.17.Pa.c	Recognize examples of mutual relationships between people and other living things.
SC.912.L.18.In.a	Identify that carbohydrates, fats, proteins, and nucleic acids (macromolecules) are important for human organisms.
SC.912.L.18.Su.b	Recognize that the function of photosynthesis is to produce food for plants.
SC.912.L.18.Pa.c	Identify that food is a source of energy.

2003600 Principles of Technology I

Section: Basic and Adult Education
Grade Group: Secondary Grades 9-12
Subject: Science
Domain: Physical Sciences
Course Length: Year
Level: 2

This course description incorporates the following Next Generation Sunshine State Standards for standards-based teaching and learning.

Benchmarks

Benchmark Code	Benchmark Descriptor	Depth of Knowledge
SC.912.N.1.1	Define a problem based on a specific body of knowledge, for example: biology, chemistry, physics, and earth/space science, and do the following:	High
SC.912.N.1.2	Describe and explain what characterizes science and its methods.	Moderate
SC.912.N.1.3	Recognize that the strength or usefulness of a scientific claim is evaluated through scientific argumentation, which depends on critical and logical thinking, and the active consideration of alternative scientific explanations to explain the data present	Low
SC.912.N.1.4	Identify sources of information and assess their reliability according to the strict standards of scientific investigation.	High
SC.912.N.1.5	Describe and provide examples of how similar investigations conducted in many parts of the world result in the same outcome.	Moderate
SC.912.N.1.6	Describe how scientific inferences are drawn from scientific observations and provide examples from the content being studied.	Moderate
SC.912.N.1.7	Recognize the role of creativity in constructing scientific questions, methods and explanations.	Low
SC.912.N.2.1	Identify what is science, what clearly is not science, and what superficially resembles science (but fails to meet the criteria for science).	High
SC.912.N.2.2	Identify which questions can be answered through science and which questions are outside the boundaries of scientific investigation, such as questions addressed by other ways of knowing, such as art, philosophy, and religion.	High
SC.912.N.2.3	Identify examples of pseudoscience (such as astrology, phrenology) in society.	Low
SC.912.N.2.4	Explain that scientific knowledge is both durable and robust and open to change. Scientific knowledge can change because it is often examined and re-examined by new investigations and scientific argumentation. Because of these frequent examinations, scien	High
SC.912.N.2.5	Describe instances in which scientists' varied backgrounds, talents, interests, and goals influence the inferences and thus the explanations that they make about observations of natural phenomena and describe that competing interpretations (explanations)	High
SC.912.N.3.1	Explain that a scientific theory is the culmination of many scientific investigations drawing together all the current evidence concerning a substantial range of phenomena; thus, a scientific theory represents the most powerful explanation scientists have	High
SC.912.N.3.2	Describe the role consensus plays in the historical development of a theory in any one of the disciplines of science.	Moderate
SC.912.N.3.3	Explain that scientific laws are descriptions of specific relationships under given conditions in nature, but do not offer explanations for those relationships.	Moderate
SC.912.N.3.4	Recognize that theories do not become laws, nor do laws become theories; theories are well supported explanations and laws are well supported descriptions.	Moderate

SC.912.N.3.5	Describe the function of models in science, and identify the wide range of models used in science.	Moderate
SC.912.N.4.1	Explain how scientific knowledge and reasoning provide an empirically-based perspective to inform society's decision making.	Moderate
SC.912.N.4.2	Weigh the merits of alternative strategies for solving a specific societal problem by comparing a number of different costs and benefits, such as human, economic, and environmental.	High
SC.912.E.5.7	Relate the history of and explain the justification for future space exploration and continuing technology development.	High
SC.912.E.5.9	Analyze the broad effects of space exploration on the economy and culture of Florida.	High
SC.912.E.6.6	Analyze past, present, and potential future consequences to the environment resulting from various energy production technologies.	High
SC.912.P.8.1	Differentiate among the four states of matter.	Moderate
SC.912.P.8.4	Explore the scientific theory of atoms (also known as atomic theory) by describing the structure of atoms in terms of protons, neutrons and electrons, and differentiate among these particles in terms of their mass, electrical charges and locations within	High
SC.912.P.10.1	Differentiate among the various forms of energy and recognize that they can be transformed from one form to others.	Moderate
SC.912.P.10.2	Explore the Law of Conservation of Energy by differentiating among open, closed, and isolated systems and explain that the total energy in an isolated system is a conserved quantity.	High
SC.912.P.10.3	Compare and contrast work and power qualitatively and quantitatively.	Moderate
SC.912.P.10.4	Describe heat as the energy transferred by convection, conduction, and radiation, and explain the connection of heat to change in temperature or states of matter.	High
SC.912.P.10.5	Relate temperature to the average molecular kinetic energy.	Moderate
SC.912.P.10.6	Create and interpret potential energy diagrams, for example: chemical reactions, orbits around a central body, motion of a pendulum.	High
SC.912.P.10.10	Compare the magnitude and range of the four fundamental forces (gravitational, electromagnetic, weak nuclear, strong nuclear).	Moderate
SC.912.P.10.13	Relate the configuration of static charges to the electric field, electric force, electric potential, and electric potential energy.	High
SC.912.P.10.14	Differentiate among conductors, semiconductors, and insulators.	Moderate
SC.912.P.10.15	Investigate and explain the relationships among current, voltage, resistance, and power.	High
SC.912.P.12.1	Distinguish between scalar and vector quantities and assess which should be used to describe an event.	High
SC.912.P.12.2	Analyze the motion of an object in terms of its position, velocity, and acceleration (with respect to a frame of reference) as functions of time.	High
SC.912.P.12.3	Interpret and apply Newton's three laws of motion.	High
SC.912.P.12.4	Describe how the gravitational force between two objects depends on their masses and the distance between them.	Moderate
SC.912.P.12.5	Apply the law of conservation of linear momentum to interactions, such as collisions between objects.	High
SC.912.L.17.11	Evaluate the costs and benefits of renewable and nonrenewable resources, such as water, energy, fossil fuels, wildlife, and forests.	High
SC.912.L.17.15	Discuss the effects of technology on environmental quality.	Moderate

MA.912.S.1.2	Determine appropriate and consistent standards of measurement for the data to be collected in a survey or experiment.	Moderate
MA.912.S.3.2	Collect, organize, and analyze data sets, determine the best format for the data and present visual summaries from the following:	High
LA.910.4.2.2	The student will record information and ideas from primary and/or secondary sources accurately and coherently, noting the validity and reliability of these sources and attributing sources of information;	
LA.910.2.2.3	The student will organize information to show understanding or relationships among facts, ideas, and events (e.g., representing key points within text through charting, mapping, paraphrasing, summarizing, comparing, contrasting, or outlining);	

Access Points for Students with Significant Cognitive Disabilities

Access Point Code	Access Point Descriptor
SC.912.N.1.In.a	Identify a problem based on a specific body of knowledge, including life science, earth and space science, or physical science, and do the following: 1. Identify a scientific question 2. Examine reliable sources of informtion to identify what is already k
SC.912.N.1.Su.b	Identify the basic process used in scientific investigations, including questioning, observing, recording, determining, and sharing results.
SC.912.N.1.Pa.c	Recognize that when a variety of common activities are repeated the same way, the outcomes are the same.
SC.912.N.2.In.a	Identify examples of investigations that involve science.
SC.912.N.2.Su.b	Recognize that what is known about science can change based on new information.
SC.912.N.3.In.a	Recognize that a scientific theory is developed by repeated investigations of many scientists and agreement on the likely explanation.
SC.912.N.3.In.b	Identify examples of scientific laws that describe relationships in the natural world, such as Newton's laws.
SC.912.N.3.Su.b	Recognize examples of scientific laws that describe relationships in nature, such as Newton's laws.
SC.912.N.3.Su.c	Recognize ways models are used in the study of science.
SC.912.N.4.In.a	Identify ways scientific knowledge and problem solving benefit people.
SC.912.N.4.Su.b	Recognize that some strategies may cost more to solve a problem.
SC.912.E.5.In.a	Recognize that the Milky Way is part of the expanding universe.
SC.912.E.5.Su.b	Recognize that stars are made of burning gases.
SC.912.E.5.Pa.c	Observe and recognize effects of the Sun on Earth, such as temperature changes.
SC.912.P.8.In.a	Classify states of matter as solid, liquid, and gaseous.
SC.912.P.8.Su.b	Identify examples of physical and chemical changes.
SC.912.P.8.Pa.c	Recognize that the parts of an object can be put together to make a whole.
SC.912.P.10.In.a	Identify examples of energy being transformed from one form to another (conserved quantity).
SC.912.P.10.Su.b	Recognize the relationship between work and power, such as power is the amount of work a person or machine does.
SC.912.P.10.Pa.c	Recognize the source and recipient of heat transfer.
SC.912.P.12.In.a	Recognize that scalar quantities describe the magnitude of the measurement, such as size, weight, volume, area, temperature, or speed.
SC.912.P.12.Su.b	Recognize that acceleration generally involves a change in speed.

SC.912.P.12.Pa.c	Identify the source of the force moving an object.
SC.912.L.17.In.a	Recognize that living things in oceans and fresh water are affected by the location, availability of light, depth of the water, and temperature.
SC.912.L.17.Su.b	Recognize how animals and plants in an ecosystem may be affected by changes to the food supply or climate.
SC.912.L.17.Pa.c	Recognize examples of mutual relationships between people and other living things.

2003610 Principles of Technology II

Section: Basic and Adult Education
Grade Group: Secondary Grades 9-12
Subject: Science
Domain: Physical Sciences
Course Length: Year
Level: 2

This course description incorporates the following Next Generation Sunshine State Standards for standards-based teaching and learning.

Benchmarks

Benchmark Code	Benchmark Descriptor	Depth of Knowledge
SC.912.N.1.1	Define a problem based on a specific body of knowledge, for example: biology, chemistry, physics, and earth/space science, and do the following:	High
SC.912.N.1.2	Describe and explain what characterizes science and its methods.	Moderate
SC.912.N.1.3	Recognize that the strength or usefulness of a scientific claim is evaluated through scientific argumentation, which depends on critical and logical thinking, and the active consideration of alternative scientific explanations to explain the data present	Low
SC.912.N.1.4	Identify sources of information and assess their reliability according to the strict standards of scientific investigation.	High
SC.912.N.1.5	Describe and provide examples of how similar investigations conducted in many parts of the world result in the same outcome.	Moderate
SC.912.N.1.6	Describe how scientific inferences are drawn from scientific observations and provide examples from the content being studied.	Moderate
SC.912.N.1.7	Recognize the role of creativity in constructing scientific questions, methods and explanations.	Low
SC.912.N.2.1	Identify what is science, what clearly is not science, and what superficially resembles science (but fails to meet the criteria for science).	High
SC.912.N.2.2	Identify which questions can be answered through science and which questions are outside the boundaries of scientific investigation, such as questions addressed by other ways of knowing, such as art, philosophy, and religion.	High
SC.912.N.2.3	Identify examples of pseudoscience (such as astrology, phrenology) in society.	Low
SC.912.N.2.4	Explain that scientific knowledge is both durable and robust and open to change. Scientific knowledge can change because it is often examined and re-examined by new investigations and scientific argumentation. Because of these frequent examinations, scien	High
SC.912.N.2.5	Describe instances in which scientists' varied backgrounds, talents, interests, and goals influence the inferences and thus the explanations that they make about observations of natural phenomena and describe that competing interpretations (explanations)	High
SC.912.N.3.1	Explain that a scientific theory is the culmination of many scientific investigations drawing together all the current evidence concerning a substantial range of phenomena; thus, a scientific theory represents the most powerful explanation scientists have	High

SC.912.N.3.2	Describe the role consensus plays in the historical development of a theory in any one of the disciplines of science.	Moderate
SC.912.N.3.3	Explain that scientific laws are descriptions of specific relationships under given conditions in nature, but do not offer explanations for those relationships.	Moderate
SC.912.N.3.4	Recognize that theories do not become laws, nor do laws become theories; theories are well supported explanations and laws are well supported descriptions.	Moderate
SC.912.N.3.5	Describe the function of models in science, and identify the wide range of models used in science.	Moderate
SC.912.N.4.1	Explain how scientific knowledge and reasoning provide an empirically-based perspective to inform society's decision making.	Moderate
SC.912.N.4.2	Weigh the merits of alternative strategies for solving a specific societal problem by comparing a number of different costs and benefits, such as human, economic, and environmental.	High
SC.912.E.5.7	Relate the history of and explain the justification for future space exploration and continuing technology development.	High
SC.912.E.5.8	Connect the concepts of radiation and the electromagnetic spectrum to the use of historical and newly-developed observational tools.	High
SC.912.E.5.9	Analyze the broad effects of space exploration on the economy and culture of Florida.	High
SC.912.E.6.6	Analyze past, present, and potential future consequences to the environment resulting from various energy production technologies.	High
SC.912.P.8.1	Differentiate among the four states of matter.	Moderate
SC.912.P.8.4	Explore the scientific theory of atoms (also known as atomic theory) by describing the structure of atoms in terms of protons, neutrons and electrons, and differentiate among these particles in terms of their mass, electrical charges and locations within	High
SC.912.P.10.1	Differentiate among the various forms of energy and recognize that they can be transformed from one form to others.	Moderate
SC.912.P.10.2	Explore the Law of Conservation of Energy by differentiating among open, closed, and isolated systems and explain that the total energy in an isolated system is a conserved quantity.	High
SC.912.P.10.4	Describe heat as the energy transferred by convection, conduction, and radiation, and explain the connection of heat to change in temperature or states of matter.	High
SC.912.P.10.5	Relate temperature to the average molecular kinetic energy.	Moderate
SC.912.P.10.6	Create and interpret potential energy diagrams, for example: chemical reactions, orbits around a central body, motion of a pendulum.	High
SC.912.P.10.10	Compare the magnitude and range of the four fundamental forces (gravitational, electromagnetic, weak nuclear, strong nuclear).	Moderate
SC.912.P.10.13	Relate the configuration of static charges to the electric field, electric force, electric potential, and electric potential energy.	High
SC.912.P.10.15	Investigate and explain the relationships among current, voltage, resistance, and power.	High
SC.912.P.10.16	Explain the relationship between moving charges and magnetic fields, as well as changing magnetic fields and electric fields, and their application to modern technologies.	High
SC.912.P.10.17	Explore the theory of electromagnetism by explaining electromagnetic waves in terms of oscillating electric and magnetic fields.	High

SC.912.P.10.18	Explore the theory of electromagnetism by comparing and contrasting the different parts of the electromagnetic spectrum in terms of wavelength, frequency, and energy, and relate them to phenomena and applications.	High
SC.912.P.10.20	Describe the measurable properties of waves and explain the relationships among them and how these properties change when the wave moves from one medium to another.	High
SC.912.P.10.21	Qualitatively describe the shift in frequency in sound or electromagnetic waves due to the relative motion of a source or a receiver.	Moderate
SC.912.P.10.22	Construct ray diagrams and use thin lens and mirror equations to locate the images formed by lenses and mirrors.	High
SC.912.P.12.7	Recognize that nothing travels faster than the speed of light in vacuum which is the same for all observers no matter how they or the light source are moving.	Low
SC.912.L.17.11	Evaluate the costs and benefits of renewable and nonrenewable resources, such as water, energy, fossil fuels, wildlife, and forests.	High
SC.912.L.17.15	Discuss the effects of technology on environmental quality.	Moderate
MA.912.S.1.2	Determine appropriate and consistent standards of measurement for the data to be collected in a survey or experiment.	Moderate
MA.912.S.3.2	Collect, organize, and analyze data sets, determine the best format for the data and present visual summaries from the following:	High
LA.910.4.2.2	The student will record information and ideas from primary and/or secondary sources accurately and coherently, noting the validity and reliability of these sources and attributing sources of information;	
LA.910.2.2.3	The student will organize information to show understanding or relationships among facts, ideas, and events (e.g., representing key points within text through charting, mapping, paraphrasing, summarizing, comparing, contrasting, or outlining);	

Access Points for Students with Significant Cognitive Disabilities

Access Point Code	Access Point Descriptor
SC.912.N.1.In.a	Identify a problem based on a specific body of knowledge, including life science, earth and space science, or physical science, and do the following: 1. Identify a scientific question 2. Examine reliable sources of informtion to identify what is already k
SC.912.N.1.Su.b	Identify the basic process used in scientific investigations, including questioning, observing, recording, determining, and sharing results.
SC.912.N.1.Pa.c	Recognize that when a variety of common activities are repeated the same way, the outcomes are the same.
SC.912.N.2.In.a	Identify examples of investigations that involve science.
SC.912.N.2.Su.b	Recognize that what is known about science can change based on new information.
SC.912.N.3.In.a	Recognize that a scientific theory is developed by repeated investigations of many scientists and agreement on the likely explanation.
SC.912.N.3.In.b	Identify examples of scientific laws that describe relationships in the natural world, such as Newton’s laws.
SC.912.N.3.Su.b	Recognize examples of scientific laws that describe relationships in nature, such as Newton’s laws.
SC.912.N.3.Su.c	Recognize ways models are used in the study of science.
SC.912.N.4.In.a	Identify ways scientific knowledge and problem solving benefit people.
SC.912.N.4.Su.b	Recognize that some strategies may cost more to solve a problem.
SC.912.E.5.In.a	Recognize that the Milky Way is part of the expanding universe.

SC.912.E.5.Su.b	Recognize that stars are made of burning gases.
SC.912.E.5.Pa.c	Observe and recognize effects of the Sun on Earth, such as temperature changes.
SC.912.P.8.In.a	Classify states of matter as solid, liquid, and gaseous.
SC.912.P.8.Su.b	Identify examples of physical and chemical changes.
SC.912.P.8.Pa.c	Recognize that the parts of an object can be put together to make a whole.
SC.912.P.10.In.a	Identify examples of energy being transformed from one form to another (conserved quantity).
SC.912.P.10.Su.b	Recognize the relationship between work and power, such as power is the amount of work a person or machine does.
SC.912.P.10.Pa.c	Recognize the source and recipient of heat transfer.
SC.912.P.12.In.a	Recognize that scalar quantities describe the magnitude of the measurement, such as size, weight, volume, area, temperature, or speed.
SC.912.P.12.Su.b	Recognize that acceleration generally involves a change in speed.
SC.912.P.12.Pa.c	Identify the source of the force moving an object.
SC.912.L.17.In.a	Recognize that living things in oceans and fresh water are affected by the location, availability of light, depth of the water, and temperature.
SC.912.L.17.Su.b	Recognize how animals and plants in an ecosystem may be affected by changes to the food supply or climate.
SC.912.L.17.Pa.c	Recognize examples of mutual relationships between people and other living things.

3027010 Biotechnology 1

Section: Basic and Adult Education
Grade Group: Secondary Grades 9-12
Subject: Science
Domain: Integrated Sciences
Course Length: Year
Level: 3

This course description incorporates the following Next Generation Sunshine State Standards for standards-based teaching and learning.

Benchmarks

Benchmark Code	Benchmark Descriptor	Depth of Knowledge
SC.912.N.1.1	Define a problem based on a specific body of knowledge, for example: biology, chemistry, physics, and earth/space science, and do the following:	High
SC.912.N.1.2	Describe and explain what characterizes science and its methods.	Moderate
SC.912.N.1.3	Recognize that the strength or usefulness of a scientific claim is evaluated through scientific argumentation, which depends on critical and logical thinking, and the active consideration of alternative scientific explanations to explain the data present	Low
SC.912.N.1.4	Identify sources of information and assess their reliability according to the strict standards of scientific investigation.	High
SC.912.N.1.6	Describe how scientific inferences are drawn from scientific observations and provide examples from the content being studied.	Moderate
SC.912.N.2.1	Identify what is science, what clearly is not science, and what superficially resembles science (but fails to meet the criteria for science).	High
SC.912.N.2.2	Identify which questions can be answered through science and which questions are outside the boundaries of scientific investigation, such as questions addressed by other ways of knowing, such as art, philosophy, and religion.	High

SC.912.N.3.1	Explain that a scientific theory is the culmination of many scientific investigations drawing together all the current evidence concerning a substantial range of phenomena; thus, a scientific theory represents the most powerful explanation scientists have	High
SC.912.N.3.4	Recognize that theories do not become laws, nor do laws become theories; theories are well supported explanations and laws are well supported descriptions.	Moderate
SC.912.N.4.1	Explain how scientific knowledge and reasoning provide an empirically-based perspective to inform society's decision making.	Moderate
SC.912.N.4.2	Weigh the merits of alternative strategies for solving a specific societal problem by comparing a number of different costs and benefits, such as human, economic, and environmental.	High
SC.912.E.6.6	Analyze past, present, and potential future consequences to the environment resulting from various energy production technologies.	High
SC.912.P.8.12	Describe the properties of the carbon atom that make the diversity of carbon compounds possible.	Moderate
SC.912.P.10.15	Investigate and explain the relationships among current, voltage, resistance, and power.	High
SC.912.P.12.12	Explain how various factors, such as concentration, temperature, and presence of a catalyst affect the rate of a chemical reaction.	High
SC.912.L.14.1	Describe the scientific theory of cells (cell theory) and relate the history of its discovery to the process of science.	Moderate
SC.912.L.14.2	Relate structure to function for the components of plant and animal cells. Explain the role of cell membranes as a highly selective barrier (passive and active transport).	Moderate
SC.912.L.14.3	Compare and contrast the general structures of plant and animal cells. Compare and contrast the general structures of prokaryotic and eukaryotic cells.	Moderate
SC.912.L.14.4	Compare and contrast structure and function of various types of microscopes.	Moderate
SC.912.L.14.6	Explain the significance of genetic factors, environmental factors, and pathogenic agents to health from the perspectives of both individual and public health.	High
SC.912.L.15.1	Explain how the scientific theory of evolution is supported by the fossil record, comparative anatomy, comparative embryology, biogeography, molecular biology, and observed evolutionary change.	High
SC.912.L.15.4	Describe how and why organisms are hierarchically classified and based on evolutionary relationships.	High
SC.912.L.15.5	Explain the reasons for changes in how organisms are classified.	High
SC.912.L.15.6	Discuss distinguishing characteristics of the domains and kingdoms of living organisms.	Moderate
SC.912.L.15.8	Describe the scientific explanations of the origin of life on Earth.	Moderate
SC.912.L.15.15	Describe how mutation and genetic recombination increase genetic variation.	Moderate
SC.912.L.16.1	Use Mendel's laws of segregation and independent assortment to analyze patterns of inheritance.	High
SC.912.L.16.2	Discuss observed inheritance patterns caused by various modes of inheritance, including dominant, recessive, codominant, sex-linked, polygenic, and multiple alleles.	High
SC.912.L.16.3	Describe the basic process of DNA replication and how it relates to the transmission and conservation of the genetic information.	High
SC.912.L.16.4	Explain how mutations in the DNA sequence may or may not result in phenotypic change. Explain how mutations in gametes may result in phenotypic changes in offspring.	High

SC.912.L.16.5	Explain the basic processes of transcription and translation, and how they result in the expression of genes.	High
SC.912.L.16.6	Discuss the mechanisms for regulation of gene expression in prokaryotes and eukaryotes at transcription and translation level.	High
SC.912.L.16.7	Describe how viruses and bacteria transfer genetic material between cells and the role of this process in biotechnology.	High
SC.912.L.16.8	Explain the relationship between mutation, cell cycle, and uncontrolled cell growth potentially resulting in cancer.	Moderate
SC.912.L.16.9	Explain how and why the genetic code is universal and is common to almost all organisms.	Moderate
SC.912.L.16.10	Evaluate the impact of biotechnology on the individual, society and the environment, including medical and ethical issues.	High
SC.912.L.16.11	Discuss the technologies associated with forensic medicine and DNA identification, including restriction fragment length polymorphism (RFLP) analysis.	High
SC.912.L.16.12	Describe how basic DNA technology (restriction digestion by endonucleases, gel electrophoresis, polymerase chain reaction, ligation, and transformation) is used to construct recombinant DNA molecules (DNA cloning).	Moderate
SC.912.L.16.14	Describe the cell cycle, including the process of mitosis. Explain the role of mitosis in the formation of new cells and its importance in maintaining chromosome number during asexual reproduction.	Moderate
SC.912.L.16.16	Describe the process of meiosis, including independent assortment and crossing over. Explain how reduction division results in the formation of haploid gametes or spores.	Moderate
SC.912.L.16.17	Compare and contrast mitosis and meiosis and relate to the processes of sexual and asexual reproduction and their consequences for genetic variation.	High
SC.912.L.17.17	Assess the effectiveness of innovative methods of protecting the environment.	High
SC.912.L.18.1	Describe the basic molecular structures and primary functions of the four major categories of biological macromolecules.	Moderate
SC.912.L.18.4	Describe the structures of proteins and amino acids. Explain the functions of proteins in living organisms. Identify some reactions that amino acids undergo. Relate the structure and function of enzymes.	Moderate
SC.912.L.18.6	Discuss the role of anaerobic respiration in living things and in human society.	Moderate
SC.912.L.18.7	Identify the reactants, products, and basic functions of photosynthesis.	Moderate
SC.912.L.18.8	Identify the reactants, products, and basic functions of aerobic and anaerobic cellular respiration.	Moderate
SC.912.L.18.10	Connect the role of adenosine triphosphate (ATP) to energy transfers within a cell.	High
SC.912.L.18.11	Explain the role of enzymes as catalysts that lower the activation energy of biochemical reactions. Identify factors, such as pH and temperature, and their effect on enzyme activity.	Moderate
SC.912.L.18.12	Discuss the special properties of water that contribute to Earth's suitability as an environment for life: cohesive behavior, ability to moderate temperature, expansion upon freezing, and versatility as a solvent.	Moderate
MA.912.S.1.2	Determine appropriate and consistent standards of measurement for the data to be collected in a survey or experiment.	Moderate
MA.912.S.3.2	Collect, organize, and analyze data sets, determine the best format for the data and present visual summaries from the following:	High
LA.910.4.2.2	The student will record information and ideas from primary and/or secondary sources accurately and coherently, noting the validity and reliability of these sources and attributing sources of information;	

LA.910.2.2.3	The student will organize information to show understanding or relationships among facts, ideas, and events (e.g., representing key points within text through charting, mapping, paraphrasing, summarizing, comparing, contrasting, or outlining);
HE.912.C.1.3	Evaluate how environment and personal health are interrelated.
HE.912.C.1.4	Analyze how heredity and family history can impact personal health.

Access Points for Students with Significant Cognitive Disabilities

Access Point Code	Access Point Descriptor
SC.912.N.1.In.a	Identify a problem based on a specific body of knowledge, including life science, earth and space science, or physical science, and do the following: 1. Identify a scientific question 2. Examine reliable sources of informtion to identify what is already k
SC.912.N.1.Su.b	Identify the basic process used in scientific investigations, including questioning, observing, recording, determining, and sharing results.
SC.912.N.1.Pa.c	Recognize that when a variety of common activities are repeated the same way, the outcomes are the same.
SC.912.N.2.In.a	Identify examples of investigations that involve science.
SC.912.N.2.Su.b	Recognize that what is known about science can change based on new information.
SC.912.N.3.In.a	Recognize that a scientific theory is developed by repeated investigations of many scientists and agreement on the likely explanation.
SC.912.N.3.In.b	Identify examples of scientific laws that describe relationships in the natural world, such as Newton's laws.
SC.912.N.3.Su.b	Recognize examples of scientific laws that describe relationships in nature, such as Newton's laws.
SC.912.N.3.Su.c	Recognize ways models are used in the study of science.
SC.912.N.4.In.a	Identify ways scientific knowledge and problem solving benefit people.
SC.912.N.4.Su.b	Recognize that some strategies may cost more to solve a problem.
SC.912.P.8.In.a	Classify states of matter as solid, liquid, and gaseous.
SC.912.P.8.Su.b	Identify examples of physical and chemical changes.
SC.912.P.8.Pa.c	Recognize that the parts of an object can be put together to make a whole.
SC.912.P.10.In.a	Identify examples of energy being transformed from one form to another (conserved quantity).
SC.912.P.10.Su.b	Recognize the relationship between work and power, such as power is the amount of work a person or machine does.
SC.912.P.10.Pa.c	Recognize the source and recipient of heat transfer.
SC.912.L.14.In.a	Identify that all living things are made of cells and cells function in similar ways (cell theory).
SC.912.L.14.Su.b	Recognize that cells have different parts and each has a function.
SC.912.L.14.Pa.c	Identify ways to prevent infection from bacteria and viruses, such as hand washing and first aid.
SC.912.L.15.In.a	Identify that prehistoric plants and animals changed over time (evolved) or became extinct.
SC.912.L.15.Su.b	Match organisms to the animal, plant, and fungus kingdoms.
SC.912.L.15.Pa.c	Recognize that animals produce offspring.
SC.912.L.16.In.a	Identify that genes are sets of instructions that determine which characteristics are passed from parent to offspring.

SC.912.L.16.Su.b	Recognize that all organisms have a substance called DNA with unique information.
SC.912.L.16.Pa.c	Recognize that illness can result when parts of our bodies are not working properly.
SC.912.L.18.In.a	Identify that carbohydrates, fats, proteins, and nucleic acids (macromolecules) are important for human organisms.
SC.912.L.18.Su.b	Recognize that the function of photosynthesis is to produce food for plants.
SC.912.L.18.Pa.c	Identify that food is a source of energy.

3027020 Biotechnology 2

Section: Basic and Adult Education
Grade Group: Secondary Grades 9-12
Subject: Science
Domain: Integrated Sciences
Course Length: Year
Level: 3

This course description incorporates the following Next Generation Sunshine State Standards for standards-based teaching and learning.

Benchmarks

Benchmark Code	Benchmark Descriptor	Depth of Knowledge
SC.912.N.1.1	Define a problem based on a specific body of knowledge, for example: biology, chemistry, physics, and earth/space science, and do the following:	High
SC.912.N.1.3	Recognize that the strength or usefulness of a scientific claim is evaluated through scientific argumentation, which depends on critical and logical thinking, and the active consideration of alternative scientific explanations to explain the data present	Low
SC.912.N.1.4	Identify sources of information and assess their reliability according to the strict standards of scientific investigation.	High
SC.912.N.1.5	Describe and provide examples of how similar investigations conducted in many parts of the world result in the same outcome.	Moderate
SC.912.N.1.6	Describe how scientific inferences are drawn from scientific observations and provide examples from the content being studied.	Moderate
SC.912.N.1.7	Recognize the role of creativity in constructing scientific questions, methods and explanations.	Low
SC.912.N.4.1	Explain how scientific knowledge and reasoning provide an empirically-based perspective to inform society's decision making.	Moderate
SC.912.N.4.2	Weigh the merits of alternative strategies for solving a specific societal problem by comparing a number of different costs and benefits, such as human, economic, and environmental.	High
SC.912.E.6.6	Analyze past, present, and potential future consequences to the environment resulting from various energy production technologies.	High
SC.912.E.7.1	Analyze the movement of matter and energy through the different biogeochemical cycles, including water and carbon.	High
SC.912.P.12.12	Explain how various factors, such as concentration, temperature, and presence of a catalyst affect the rate of a chemical reaction.	High
SC.912.L.14.1	Describe the scientific theory of cells (cell theory) and relate the history of its discovery to the process of science.	Moderate
SC.912.L.14.2	Relate structure to function for the components of plant and animal cells. Explain the role of cell membranes as a highly selective barrier (passive and active transport).	Moderate
SC.912.L.14.3	Compare and contrast the general structures of plant and animal cells. Compare and contrast the general structures of prokaryotic and eukaryotic cells.	Moderate
SC.912.L.14.4	Compare and contrast structure and function of various types of microscopes.	Moderate

SC.912.L.14.6	Explain the significance of genetic factors, environmental factors, and pathogenic agents to health from the perspectives of both individual and public health.	High
SC.912.L.14.7	Relate the structure of each of the major plant organs and tissues to physiological processes.	Moderate
SC.912.L.14.26	Identify the major parts of the brain on diagrams or models.	Low
SC.912.L.14.36	Describe the factors affecting blood flow through the cardiovascular system.	Moderate
SC.912.L.14.37	Explain the components of an electrocardiogram.	Low
SC.912.L.14.52	Explain the basic functions of the human immune system, including specific and nonspecific immune response, vaccines, and antibiotics.	Moderate
SC.912.L.15.1	Explain how the scientific theory of evolution is supported by the fossil record, comparative anatomy, comparative embryology, biogeography, molecular biology, and observed evolutionary change.	High
SC.912.L.15.10	Identify basic trends in hominid evolution from early ancestors six million years ago to modern humans, including brain size, jaw size, language, and manufacture of tools.	Moderate
SC.912.L.15.13	Describe the conditions required for natural selection, including: overproduction of offspring, inherited variation, and the struggle to survive, which result in differential reproductive success.	Moderate
SC.912.L.15.14	Discuss mechanisms of evolutionary change other than natural selection such as genetic drift and gene flow.	Moderate
SC.912.L.16.3	Describe the basic process of DNA replication and how it relates to the transmission and conservation of the genetic information.	High
SC.912.L.16.4	Explain how mutations in the DNA sequence may or may not result in phenotypic change. Explain how mutations in gametes may result in phenotypic changes in offspring.	High
SC.912.L.16.5	Explain the basic processes of transcription and translation, and how they result in the expression of genes.	High
SC.912.L.16.6	Discuss the mechanisms for regulation of gene expression in prokaryotes and eukaryotes at transcription and translation level.	High
SC.912.L.16.7	Describe how viruses and bacteria transfer genetic material between cells and the role of this process in biotechnology.	High
SC.912.L.16.10	Evaluate the impact of biotechnology on the individual, society and the environment, including medical and ethical issues.	High
SC.912.L.16.11	Discuss the technologies associated with forensic medicine and DNA identification, including restriction fragment length polymorphism (RFLP) analysis.	High
SC.912.L.16.12	Describe how basic DNA technology (restriction digestion by endonucleases, gel electrophoresis, polymerase chain reaction, ligation, and transformation) is used to construct recombinant DNA molecules (DNA cloning).	Moderate
SC.912.L.16.13	Describe the basic anatomy and physiology of the human reproductive system. Describe the process of human development from fertilization to birth and major changes that occur in each trimester of pregnancy.	Moderate
SC.912.L.17.2	Explain the general distribution of life in aquatic systems as a function of chemistry, geography, light, depth, salinity, and temperature.	High
SC.912.L.17.3	Discuss how various oceanic and freshwater processes, such as currents, tides, and waves, affect the abundance of aquatic organisms.	Moderate
SC.912.L.17.4	Describe changes in ecosystems resulting from seasonal variations, climate change and succession.	Moderate

SC.912.L.17.5	Analyze how population size is determined by births, deaths, immigration, emigration, and limiting factors (biotic and abiotic) that determine carrying capacity.	High
SC.912.L.17.8	Recognize the consequences of the losses of biodiversity due to catastrophic events, climate changes, human activity, and the introduction of invasive, non-native species.	High
SC.912.L.17.9	Use a food web to identify and distinguish producers, consumers, and decomposers. Explain the pathway of energy transfer through trophic levels and the reduction of available energy at successive trophic levels.	Moderate
SC.912.L.17.10	Diagram and explain the biogeochemical cycles of an ecosystem, including water, carbon, and nitrogen cycle.	Moderate
SC.912.L.17.11	Evaluate the costs and benefits of renewable and nonrenewable resources, such as water, energy, fossil fuels, wildlife, and forests.	High
SC.912.L.17.12	Discuss the political, social, and environmental consequences of sustainable use of land.	High
SC.912.L.17.13	Discuss the need for adequate monitoring of environmental parameters when making policy decisions.	High
SC.912.L.17.14	Assess the need for adequate waste management strategies.	High
SC.912.L.17.15	Discuss the effects of technology on environmental quality.	Moderate
SC.912.L.17.16	Discuss the large-scale environmental impacts resulting from human activity, including waste spills, oil spills, runoff, greenhouse gases, ozone depletion, and surface and groundwater pollution.	High
SC.912.L.17.20	Predict the impact of individuals on environmental systems and examine how human lifestyles affect sustainability.	High
SC.912.L.18.1	Describe the basic molecular structures and primary functions of the four major categories of biological macromolecules.	Moderate
SC.912.L.18.6	Discuss the role of anaerobic respiration in living things and in human society.	Moderate
SC.912.L.18.9	Explain the interrelated nature of photosynthesis and cellular respiration.	Moderate
SC.912.L.18.11	Explain the role of enzymes as catalysts that lower the activation energy of biochemical reactions. Identify factors, such as pH and temperature, and their effect on enzyme activity.	Moderate
MA.912.S.1.2	Determine appropriate and consistent standards of measurement for the data to be collected in a survey or experiment.	Moderate
MA.912.S.3.2	Collect, organize, and analyze data sets, determine the best format for the data and present visual summaries from the following:	High
LA.910.4.2.2	The student will record information and ideas from primary and/or secondary sources accurately and coherently, noting the validity and reliability of these sources and attributing sources of information;	
LA.910.2.2.3	The student will organize information to show understanding or relationships among facts, ideas, and events (e.g., representing key points within text through charting, mapping, paraphrasing, summarizing, comparing, contrasting, or outlining);	
HE.912.C.1.3	Evaluate how environment and personal health are interrelated.	
HE.912.C.1.4	Analyze how heredity and family history can impact personal health.	

Access Points for Students with Significant Cognitive Disabilities

Access Point Code	Access Point Descriptor
SC.912.N.1.In.a	Identify a problem based on a specific body of knowledge, including life science, earth and space science, or physical science, and do the following: 1. Identify a scientific

	question 2. Examine reliable sources of informtion to identify what is already k
SC.912.N.1.Su.b	Identify the basic process used in scientific investigations, including questioning, observing, recording, determining, and sharing results.
SC.912.N.1.Pa.c	Recognize that when a variety of common activities are repeated the same way, the outcomes are the same.
SC.912.N.4.In.a	Identify ways scientific knowledge and problem solving benefit people.
SC.912.N.4.Su.b	Recognize that some strategies may cost more to solve a problem.
SC.912.E.7.In.a	Identify cycles that occur on Earth, such as the water and carbon cycles, and the role energy plays in them.
SC.912.E.7.Su.b	Recognize that currents move the ocean water around Earth.
SC.912.E.7.Pa.c	Recognize that humans, plants, and animals live on the Earth (biosphere).
SC.912.L.14.In.a	Identify that all living things are made of cells and cells function in similar ways (cell theory).
SC.912.L.14.Su.b	Recognize that cells have different parts and each has a function.
SC.912.L.14.Pa.c	Identify ways to prevent infection from bacteria and viruses, such as hand washing and first aid.
SC.912.L.15.In.a	Identify that prehistoric plants and animals changed over time (evolved) or became extinct.
SC.912.L.15.Su.b	Match organisms to the animal, plant, and fungus kingdoms.
SC.912.L.15.Pa.c	Recognize that animals produce offspring.
SC.912.L.16.In.a	Identify that genes are sets of instructions that determine which characteristics are passed from parent to offspring.
SC.912.L.16.Su.b	Recognize that all organisms have a substance called DNA with unique information.
SC.912.L.16.Pa.c	Recognize that illness can result when parts of our bodies are not working properly.
SC.912.L.17.In.a	Recognize that living things in oceans and fresh water are affected by the location, availability of light, depth of the water, and temperature.
SC.912.L.17.Su.b	Recognize how animals and plants in an ecosystem may be affected by changes to the food supply or climate.
SC.912.L.17.Pa.c	Recognize examples of mutual relationships between people and other living things.
SC.912.L.18.In.a	Identify that carbohydrates, fats, proteins, and nucleic acids (macromolecules) are important for human organisms.
SC.912.L.18.Su.b	Recognize that the function of photosynthesis is to produce food for plants.
SC.912.L.18.Pa.c	Identify that food is a source of energy.

2001340 Environmental Science

Section: Basic and Adult Education
Grade Group: Secondary Grades 9-12
Subject: Science
Domain: Integrated Sciences
Course Length: Year
Level: 2

This course description incorporates the following Next Generation Sunshine State Standards for standards-based teaching and learning.

Benchmarks

Benchmark Code	Benchmark Descriptor	Depth of Knowledge
SC.912.N.1.1	Define a problem based on a specific body of knowledge, for example: biology, chemistry, physics, and earth/space science, and do the following:	High

SC.912.N.1.2	Describe and explain what characterizes science and its methods.	Moderate
SC.912.N.1.3	Recognize that the strength or usefulness of a scientific claim is evaluated through scientific argumentation, which depends on critical and logical thinking, and the active consideration of alternative scientific explanations to explain the data present	Low
SC.912.N.1.4	Identify sources of information and assess their reliability according to the strict standards of scientific investigation.	High
SC.912.N.1.5	Describe and provide examples of how similar investigations conducted in many parts of the world result in the same outcome.	Moderate
SC.912.N.1.6	Describe how scientific inferences are drawn from scientific observations and provide examples from the content being studied.	Moderate
SC.912.N.1.7	Recognize the role of creativity in constructing scientific questions, methods and explanations.	Low
SC.912.N.2.1	Identify what is science, what clearly is not science, and what superficially resembles science (but fails to meet the criteria for science).	High
SC.912.N.2.2	Identify which questions can be answered through science and which questions are outside the boundaries of scientific investigation, such as questions addressed by other ways of knowing, such as art, philosophy, and religion.	High
SC.912.N.2.4	Explain that scientific knowledge is both durable and robust and open to change. Scientific knowledge can change because it is often examined and re-examined by new investigations and scientific argumentation. Because of these frequent examinations, scien	High
SC.912.N.2.5	Describe instances in which scientists' varied backgrounds, talents, interests, and goals influence the inferences and thus the explanations that they make about observations of natural phenomena and describe that competing interpretations (explanations)	High
SC.912.N.3.1	Explain that a scientific theory is the culmination of many scientific investigations drawing together all the current evidence concerning a substantial range of phenomena; thus, a scientific theory represents the most powerful explanation scientists have	High
SC.912.N.3.5	Describe the function of models in science, and identify the wide range of models used in science.	Moderate
SC.912.N.4.1	Explain how scientific knowledge and reasoning provide an empirically-based perspective to inform society's decision making.	Moderate
SC.912.N.4.2	Weigh the merits of alternative strategies for solving a specific societal problem by comparing a number of different costs and benefits, such as human, economic, and environmental.	High
SC.912.E.6.6	Analyze past, present, and potential future consequences to the environment resulting from various energy production technologies.	High
SC.912.E.7.7	Identify, analyze, and relate the internal (Earth system) and external (astronomical) conditions that contribute to global climate change.	High
SC.912.E.7.8	Explain how various atmospheric, oceanic, and hydrologic conditions in Florida have influenced and can influence human behavior, both individually and collectively.	High
SC.912.E.7.9	Cite evidence that the ocean has had a significant influence on climate change by absorbing, storing, and moving heat, carbon, and water.	High
SC.912.P.10.1	Differentiate among the various forms of energy and recognize that they can be transformed from one form to others.	Moderate
SC.912.P.10.2	Explore the Law of Conservation of Energy by differentiating among open, closed, and isolated systems and explain that the total energy in an isolated system is a conserved quantity.	High

SC.912.L.14.6	Explain the significance of genetic factors, environmental factors, and pathogenic agents to health from the perspectives of both individual and public health.	High
SC.912.L.15.3	Describe how biological diversity is increased by the origin of new species and how it is decreased by the natural process of extinction.	Moderate
SC.912.L.15.13	Describe the conditions required for natural selection, including: overproduction of offspring, inherited variation, and the struggle to survive, which result in differential reproductive success.	Moderate
SC.912.L.16.10	Evaluate the impact of biotechnology on the individual, society and the environment, including medical and ethical issues.	High
SC.912.L.17.1	Discuss the characteristics of populations, such as number of individuals, age structure, density, and pattern of distribution.	Moderate
SC.912.L.17.4	Describe changes in ecosystems resulting from seasonal variations, climate change and succession.	Moderate
SC.912.L.17.5	Analyze how population size is determined by births, deaths, immigration, emigration, and limiting factors (biotic and abiotic) that determine carrying capacity.	High
SC.912.L.17.6	Compare and contrast the relationships among organisms, including predation, parasitism, competition, commensalism, and mutualism.	Moderate
SC.912.L.17.7	Characterize the biotic and abiotic components that define freshwater systems, marine systems and terrestrial systems.	Moderate
SC.912.L.17.8	Recognize the consequences of the losses of biodiversity due to catastrophic events, climate changes, human activity, and the introduction of invasive, non-native species.	High
SC.912.L.17.9	Use a food web to identify and distinguish producers, consumers, and decomposers. Explain the pathway of energy transfer through trophic levels and the reduction of available energy at successive trophic levels.	Moderate
SC.912.L.17.10	Diagram and explain the biogeochemical cycles of an ecosystem, including water, carbon, and nitrogen cycle.	Moderate
SC.912.L.17.11	Evaluate the costs and benefits of renewable and nonrenewable resources, such as water, energy, fossil fuels, wildlife, and forests.	High
SC.912.L.17.12	Discuss the political, social, and environmental consequences of sustainable use of land.	High
SC.912.L.17.13	Discuss the need for adequate monitoring of environmental parameters when making policy decisions.	High
SC.912.L.17.14	Assess the need for adequate waste management strategies.	High
SC.912.L.17.15	Discuss the effects of technology on environmental quality.	Moderate
SC.912.L.17.16	Discuss the large-scale environmental impacts resulting from human activity, including waste spills, oil spills, runoff, greenhouse gases, ozone depletion, and surface and groundwater pollution.	High
SC.912.L.17.18	Describe how human population size and resource use relate to environmental quality.	Moderate
SC.912.L.17.19	Describe how different natural resources are produced and how their rates of use and renewal limit availability.	Moderate
SC.912.L.17.20	Predict the impact of individuals on environmental systems and examine how human lifestyles affect sustainability.	High
MA.912.S.1.2	Determine appropriate and consistent standards of measurement for the data to be collected in a survey or experiment.	Moderate
MA.912.S.3.2	Collect, organize, and analyze data sets, determine the best format for the data and present visual summaries from the following:	High

LA.910.4.2.2	The student will record information and ideas from primary and/or secondary sources accurately and coherently, noting the validity and reliability of these sources and attributing sources of information;
LA.910.2.2.3	The student will organize information to show understanding or relationships among facts, ideas, and events (e.g., representing key points within text through charting, mapping, paraphrasing, summarizing, comparing, contrasting, or outlining);
HE.912.C.1.3	Evaluate how environment and personal health are interrelated.
HE.912.C.1.4	Analyze how heredity and family history can impact personal health.

Access Points for Students with Significant Cognitive Disabilities

Access Point Code	Access Point Descriptor
SC.912.N.1.In.a	Identify a problem based on a specific body of knowledge, including life science, earth and space science, or physical science, and do the following: 1. Identify a scientific question 2. Examine reliable sources of informtion to identify what is already k
SC.912.N.1.Su.b	Identify the basic process used in scientific investigations, including questioning, observing, recording, determining, and sharing results.
SC.912.N.1.Pa.c	Recognize that when a variety of common activities are repeated the same way, the outcomes are the same.
SC.912.N.2.In.a	Identify examples of investigations that involve science.
SC.912.N.2.Su.b	Recognize that what is known about science can change based on new information.
SC.912.N.3.In.a	Recognize that a scientific theory is developed by repeated investigations of many scientists and agreement on the likely explanation.
SC.912.N.3.Su.b	Recognize examples of scientific laws that describe relationships in nature, such as Newton's laws.
SC.912.N.4.In.a	Identify ways scientific knowledge and problem solving benefit people.
SC.912.N.4.Su.b	Recognize that some strategies may cost more to solve a problem.
SC.912.E.7.In.a	Identify cycles that occur on Earth, such as the water and carbon cycles, and the role energy plays in them.
SC.912.E.7.Su.b	Recognize that currents move the ocean water around Earth.
SC.912.E.7.Pa.c	Recognize that humans, plants, and animals live on the Earth (biosphere).
SC.912.P.10.In.a	Identify examples of energy being transformed from one form to another (conserved quantity).
SC.912.P.10.Su.b	Recognize the relationship between work and power, such as power is the amount of work a person or machine does.
SC.912.P.10.Pa.c	Recognize the source and recipient of heat transfer.
SC.912.L.14.In.a	Identify that all living things are made of cells and cells function in similar ways (cell theory).
SC.912.L.14.Su.b	Recognize that cells have different parts and each has a function.
SC.912.L.14.Pa.c	Identify ways to prevent infection from bacteria and viruses, such as hand washing and first aid.
SC.912.L.15.In.a	Identify that prehistoric plants and animals changed over time (evolved) or became extinct.
SC.912.L.15.Su.b	Match organisms to the animal, plant, and fungus kingdoms.
SC.912.L.15.Pa.c	Recognize that animals produce offspring.
SC.912.L.16.In.a	Identify that genes are sets of instructions that determine which characteristics are passed from parent to offspring.

SC.912.L.16.Su.b	Recognize that all organisms have a substance called DNA with unique information.
SC.912.L.16.Pa.c	Recognize that illness can result when parts of our bodies are not working properly.
SC.912.L.17.In.a	Recognize that living things in oceans and fresh water are affected by the location, availability of light, depth of the water, and temperature.
SC.912.L.17.Su.b	Recognize how animals and plants in an ecosystem may be affected by changes to the food supply or climate.
SC.912.L.17.Pa.c	Recognize examples of mutual relationships between people and other living things.

2002480 Forensic Sciences I

Section: Basic and Adult Education
Grade Group: Secondary Grades 9-12
Subject: Science
Domain: Integrated Sciences
Course Length: Year
Level: 2

This course description incorporates the following Next Generation Sunshine State Standards for standards-based teaching and learning.

Benchmarks

Benchmark Code	Benchmark Descriptor	Depth of Knowledge
SC.912.N.1.1	Define a problem based on a specific body of knowledge, for example: biology, chemistry, physics, and earth/space science, and do the following:	High
SC.912.N.1.2	Describe and explain what characterizes science and its methods.	Moderate
SC.912.N.1.3	Recognize that the strength or usefulness of a scientific claim is evaluated through scientific argumentation, which depends on critical and logical thinking, and the active consideration of alternative scientific explanations to explain the data present	Low
SC.912.N.1.4	Identify sources of information and assess their reliability according to the strict standards of scientific investigation.	High
SC.912.N.1.6	Describe how scientific inferences are drawn from scientific observations and provide examples from the content being studied.	Moderate
SC.912.N.2.1	Identify what is science, what clearly is not science, and what superficially resembles science (but fails to meet the criteria for science).	High
SC.912.N.2.4	Explain that scientific knowledge is both durable and robust and open to change. Scientific knowledge can change because it is often examined and re-examined by new investigations and scientific argumentation. Because of these frequent examinations, scien	High
SC.912.N.3.1	Explain that a scientific theory is the culmination of many scientific investigations drawing together all the current evidence concerning a substantial range of phenomena; thus, a scientific theory represents the most powerful explanation scientists have	High
SC.912.N.3.2	Describe the role consensus plays in the historical development of a theory in any one of the disciplines of science.	Moderate
SC.912.N.3.5	Describe the function of models in science, and identify the wide range of models used in science.	Moderate
SC.912.N.4.1	Explain how scientific knowledge and reasoning provide an empirically-based perspective to inform society's decision making.	Moderate
SC.912.N.4.2	Weigh the merits of alternative strategies for solving a specific societal problem by comparing a number of different costs and benefits, such as human, economic, and environmental.	High
SC.912.E.7.4	Summarize the conditions that contribute to the climate of a geographic area, including the relationships to lakes and oceans.	Moderate

SC.912.P.8.1	Differentiate among the four states of matter.	Moderate
SC.912.P.8.2	Differentiate between physical and chemical properties and physical and chemical changes of matter.	Moderate
SC.912.P.8.7	Interpret formula representations of molecules and compounds in terms of composition and structure.	Moderate
SC.912.P.8.11	Relate acidity and basicity to hydronium and hydroxyl ion concentration and pH.	Moderate
SC.912.P.8.12	Describe the properties of the carbon atom that make the diversity of carbon compounds possible.	Moderate
SC.912.P.10.1	Differentiate among the various forms of energy and recognize that they can be transformed from one form to others.	Moderate
SC.912.P.10.18	Explore the theory of electromagnetism by comparing and contrasting the different parts of the electromagnetic spectrum in terms of wavelength, frequency, and energy, and relate them to phenomena and applications.	High
SC.912.P.10.20	Describe the measurable properties of waves and explain the relationships among them and how these properties change when the wave moves from one medium to another.	High
SC.912.P.10.21	Qualitatively describe the shift in frequency in sound or electromagnetic waves due to the relative motion of a source or a receiver.	Moderate
SC.912.P.12.1	Distinguish between scalar and vector quantities and assess which should be used to describe an event.	High
SC.912.P.12.2	Analyze the motion of an object in terms of its position, velocity, and acceleration (with respect to a frame of reference) as functions of time.	High
SC.912.P.12.3	Interpret and apply Newton's three laws of motion.	High
SC.912.P.12.5	Apply the law of conservation of linear momentum to interactions, such as collisions between objects.	High
SC.912.P.12.7	Recognize that nothing travels faster than the speed of light in vacuum which is the same for all observers no matter how they or the light source are moving.	Low
SC.912.P.12.9	Recognize that time, length, and energy depend on the frame of reference.	Low
SC.912.P.12.12	Explain how various factors, such as concentration, temperature, and presence of a catalyst affect the rate of a chemical reaction.	High
SC.912.L.14.1	Describe the scientific theory of cells (cell theory) and relate the history of its discovery to the process of science.	Moderate
SC.912.L.14.2	Relate structure to function for the components of plant and animal cells. Explain the role of cell membranes as a highly selective barrier (passive and active transport).	Moderate
SC.912.L.14.4	Compare and contrast structure and function of various types of microscopes.	Moderate
SC.912.L.14.6	Explain the significance of genetic factors, environmental factors, and pathogenic agents to health from the perspectives of both individual and public health.	High
SC.912.L.14.11	Classify and state the defining characteristics of epithelial tissue, connective tissue, muscle tissue, and nervous tissue.	Moderate
SC.912.L.14.12	Describe the anatomy and histology of bone tissue.	Low
SC.912.L.14.34	Describe the composition and physiology of blood, including that of the plasma and the formed elements.	Moderate
SC.912.L.14.35	Describe the steps in hemostasis, including the mechanism of coagulation. Include the basis for blood typing and transfusion reactions.	Moderate
SC.912.L.14.51	Describe the function of the vertebrate integumentary system.	Low
SC.912.L.15.15	Describe how mutation and genetic recombination increase genetic variation.	Moderate

SC.912.L.16.2	Discuss observed inheritance patterns caused by various modes of inheritance, including dominant, recessive, codominant, sex-linked, polygenic, and multiple alleles.	High
SC.912.L.16.9	Explain how and why the genetic code is universal and is common to almost all organisms.	Moderate
SC.912.L.16.10	Evaluate the impact of biotechnology on the individual, society and the environment, including medical and ethical issues.	High
SC.912.L.16.11	Discuss the technologies associated with forensic medicine and DNA identification, including restriction fragment length polymorphism (RFLP) analysis.	High
SC.912.L.16.12	Describe how basic DNA technology (restriction digestion by endonucleases, gel electrophoresis, polymerase chain reaction, ligation, and transformation) is used to construct recombinant DNA molecules (DNA cloning).	Moderate
SC.912.L.17.1	Discuss the characteristics of populations, such as number of individuals, age structure, density, and pattern of distribution.	Moderate
SC.912.L.18.1	Describe the basic molecular structures and primary functions of the four major categories of biological macromolecules.	Moderate
MA.912.S.1.2	Determine appropriate and consistent standards of measurement for the data to be collected in a survey or experiment.	Moderate
MA.912.S.3.2	Collect, organize, and analyze data sets, determine the best format for the data and present visual summaries from the following:	High
LA.910.4.2.2	The student will record information and ideas from primary and/or secondary sources accurately and coherently, noting the validity and reliability of these sources and attributing sources of information;	
LA.910.2.2.3	The student will organize information to show understanding or relationships among facts, ideas, and events (e.g., representing key points within text through charting, mapping, paraphrasing, summarizing, comparing, contrasting, or outlining);	

Access Points for Students with Significant Cognitive Disabilities

Access Point Code	Access Point Descriptor
SC.912.N.1.In.a	Identify a problem based on a specific body of knowledge, including life science, earth and space science, or physical science, and do the following: 1. Identify a scientific question 2. Examine reliable sources of informtion to identify what is already k
SC.912.N.1.Su.b	Identify the basic process used in scientific investigations, including questioning, observing, recording, determining, and sharing results.
SC.912.N.1.Pa.c	Recognize that when a variety of common activities are repeated the same way, the outcomes are the same.
SC.912.N.2.In.a	Identify examples of investigations that involve science.
SC.912.N.2.Su.b	Recognize that what is known about science can change based on new information.
SC.912.N.3.In.a	Recognize that a scientific theory is developed by repeated investigations of many scientists and agreement on the likely explanation.
SC.912.N.3.Su.b	Recognize examples of scientific laws that describe relationships in nature, such as Newton's laws.
SC.912.N.4.In.a	Identify ways scientific knowledge and problem solving benefit people.
SC.912.N.4.Su.b	Recognize that some strategies may cost more to solve a problem.
SC.912.E.7.In.a	Identify cycles that occur on Earth, such as the water and carbon cycles, and the role energy plays in them.
SC.912.E.7.Su.b	Recognize that currents move the ocean water around Earth.

SC.912.E.7.Pa.c	Recognize that humans, plants, and animals live on the Earth (biosphere).
SC.912.P.8.In.a	Classify states of matter as solid, liquid, and gaseous.
SC.912.P.8.Su.b	Identify examples of physical and chemical changes.
SC.912.P.8.Pa.c	Recognize that the parts of an object can be put together to make a whole.
SC.912.P.10.In.a	Identify examples of energy being transformed from one form to another (conserved quantity).
SC.912.P.10.Su.b	Recognize the relationship between work and power, such as power is the amount of work a person or machine does.
SC.912.P.10.Pa.c	Recognize the source and recipient of heat transfer.
SC.912.P.12.In.a	Recognize that scalar quantities describe the magnitude of the measurement, such as size, weight, volume, area, temperature, or speed.
SC.912.P.12.Su.b	Recognize that acceleration generally involves a change in speed.
SC.912.P.12.Pa.c	Identify the source of the force moving an object.
SC.912.L.14.In.a	Identify that all living things are made of cells and cells function in similar ways (cell theory).
SC.912.L.14.Su.b	Recognize that cells have different parts and each has a function.
SC.912.L.14.Pa.c	Identify ways to prevent infection from bacteria and viruses, such as hand washing and first aid.
SC.912.L.15.In.a	Identify that prehistoric plants and animals changed over time (evolved) or became extinct.
SC.912.L.15.Su.b	Match organisms to the animal, plant, and fungus kingdoms.
SC.912.L.15.Pa.c	Recognize that animals produce offspring.
SC.912.L.16.In.a	Identify that genes are sets of instructions that determine which characteristics are passed from parent to offspring.
SC.912.L.16.Su.b	Recognize that all organisms have a substance called DNA with unique information.
SC.912.L.16.Pa.c	Recognize that illness can result when parts of our bodies are not working properly.
SC.912.L.18.In.a	Identify that carbohydrates, fats, proteins, and nucleic acids (macromolecules) are important for human organisms.
SC.912.L.18.Su.b	Recognize that the function of photosynthesis is to produce food for plants.
SC.912.L.18.Pa.c	Identify that food is a source of energy.

2002490 Forensic Sciences II

Section: Basic and Adult Education
Grade Group: Secondary Grades 9-12
Subject: Science
Domain: Integrated Sciences
Course Length: Year
Level: 2

This course description incorporates the following Next Generation Sunshine State Standards for standards-based teaching and learning.

Benchmarks

Benchmark Code	Benchmark Descriptor	Depth of Knowledge
SC.912.N.1.1	Define a problem based on a specific body of knowledge, for example: biology, chemistry, physics, and earth/space science, and do the following:	High
SC.912.N.1.2	Describe and explain what characterizes science and its methods.	Moderate

SC.912.N.1.3	Recognize that the strength or usefulness of a scientific claim is evaluated through scientific argumentation, which depends on critical and logical thinking, and the active consideration of alternative scientific explanations to explain the data present	Low
SC.912.N.1.4	Identify sources of information and assess their reliability according to the strict standards of scientific investigation.	High
SC.912.N.1.5	Describe and provide examples of how similar investigations conducted in many parts of the world result in the same outcome.	Moderate
SC.912.N.1.6	Describe how scientific inferences are drawn from scientific observations and provide examples from the content being studied.	Moderate
SC.912.N.2.4	Explain that scientific knowledge is both durable and robust and open to change. Scientific knowledge can change because it is often examined and re-examined by new investigations and scientific argumentation. Because of these frequent examinations, scien	High
SC.912.N.3.5	Describe the function of models in science, and identify the wide range of models used in science.	Moderate
SC.912.N.4.1	Explain how scientific knowledge and reasoning provide an empirically-based perspective to inform society's decision making.	Moderate
SC.912.N.4.2	Weigh the merits of alternative strategies for solving a specific societal problem by comparing a number of different costs and benefits, such as human, economic, and environmental.	High
SC.912.E.5.8	Connect the concepts of radiation and the electromagnetic spectrum to the use of historical and newly-developed observational tools.	High
SC.912.E.7.4	Summarize the conditions that contribute to the climate of a geographic area, including the relationships to lakes and oceans.	Moderate
SC.912.P.8.7	Interpret formula representations of molecules and compounds in terms of composition and structure.	Moderate
SC.912.P.8.8	Characterize types of chemical reactions, for example: redox, acid-base, synthesis, and single and double replacement reactions.	Moderate
SC.912.P.8.10	Describe oxidation-reduction reactions in living and non-living systems.	Moderate
SC.912.P.8.13	Identify selected functional groups and relate how they contribute to properties of carbon compounds.	High
SC.912.P.10.4	Describe heat as the energy transferred by convection, conduction, and radiation, and explain the connection of heat to change in temperature or states of matter.	High
SC.912.P.10.7	Distinguish between endothermic and exothermic chemical processes.	Moderate
SC.912.P.10.13	Relate the configuration of static charges to the electric field, electric force, electric potential, and electric potential energy.	High
SC.912.P.10.14	Differentiate among conductors, semiconductors, and insulators.	Moderate
SC.912.P.10.15	Investigate and explain the relationships among current, voltage, resistance, and power.	High
SC.912.P.10.18	Explore the theory of electromagnetism by comparing and contrasting the different parts of the electromagnetic spectrum in terms of wavelength, frequency, and energy, and relate them to phenomena and applications.	High
SC.912.P.12.1	Distinguish between scalar and vector quantities and assess which should be used to describe an event.	High
SC.912.P.12.2	Analyze the motion of an object in terms of its position, velocity, and acceleration (with respect to a frame of reference) as functions of time.	High
SC.912.P.12.3	Interpret and apply Newton's three laws of motion.	High
SC.912.P.12.5	Apply the law of conservation of linear momentum to interactions, such as collisions between objects.	High

SC.912.P.12.6	Qualitatively apply the concept of angular momentum.	High
SC.912.P.12.12	Explain how various factors, such as concentration, temperature, and presence of a catalyst affect the rate of a chemical reaction.	High
SC.912.L.14.4	Compare and contrast structure and function of various types of microscopes.	Moderate
SC.912.L.14.6	Explain the significance of genetic factors, environmental factors, and pathogenic agents to health from the perspectives of both individual and public health.	High
SC.912.L.14.11	Classify and state the defining characteristics of epithelial tissue, connective tissue, muscle tissue, and nervous tissue.	Moderate
SC.912.L.14.12	Describe the anatomy and histology of bone tissue.	Low
SC.912.L.14.13	Distinguish between bones of the axial skeleton and the appendicular skeleton.	Low
SC.912.L.14.14	Identify the major bones of the axial and appendicular skeleton.	Low
SC.912.L.14.15	Identify major markings (such as foramina, fossae, tubercles, etc.) on a skeleton. Explain why these markings are important.	Moderate
SC.912.L.14.16	Describe the anatomy and histology, including ultrastructure, of muscle tissue.	Moderate
SC.912.L.14.36	Describe the factors affecting blood flow through the cardiovascular system.	Moderate
SC.912.L.14.43	Describe the histology of the respiratory system.	Moderate
SC.912.L.14.44	Describe the physiology of the respiratory system including the mechanisms of ventilation, gas exchange, gas transport and the mechanisms that control the rate of ventilation.	Moderate
SC.912.L.14.46	Describe the physiology of the digestive system, including mechanical digestion, chemical digestion, absorption and the neural and hormonal mechanisms of control.	Moderate
SC.912.L.14.47	Describe the physiology of urine formation by the kidney.	Moderate
SC.912.L.16.3	Describe the basic process of DNA replication and how it relates to the transmission and conservation of the genetic information.	High
SC.912.L.16.4	Explain how mutations in the DNA sequence may or may not result in phenotypic change. Explain how mutations in gametes may result in phenotypic changes in offspring.	High
SC.912.L.16.5	Explain the basic processes of transcription and translation, and how they result in the expression of genes.	High
SC.912.L.16.9	Explain how and why the genetic code is universal and is common to almost all organisms.	Moderate
SC.912.L.16.10	Evaluate the impact of biotechnology on the individual, society and the environment, including medical and ethical issues.	High
SC.912.L.16.11	Discuss the technologies associated with forensic medicine and DNA identification, including restriction fragment length polymorphism (RFLP) analysis.	High
SC.912.L.16.12	Describe how basic DNA technology (restriction digestion by endonucleases, gel electrophoresis, polymerase chain reaction, ligation, and transformation) is used to construct recombinant DNA molecules (DNA cloning).	Moderate
SC.912.L.17.6	Compare and contrast the relationships among organisms, including predation, parasitism, competition, commensalism, and mutualism.	Moderate
SC.912.L.17.9	Use a food web to identify and distinguish producers, consumers, and decomposers. Explain the pathway of energy transfer through trophic levels and the reduction of available energy at successive trophic levels.	Moderate
SC.912.L.18.3	Describe the structures of fatty acids, triglycerides, phospholipids, and steroids. Explain the functions of lipids in living organisms. Identify some reactions that fatty acids undergo. Relate the structure and function of cell membranes.	Moderate

SC.912.L.18.4	Describe the structures of proteins and amino acids. Explain the functions of proteins in living organisms. Identify some reactions that amino acids undergo. Relate the structure and function of enzymes.	Moderate
SC.912.L.18.10	Connect the role of adenosine triphosphate (ATP) to energy transfers within a cell.	High
SC.912.L.18.11	Explain the role of enzymes as catalysts that lower the activation energy of biochemical reactions. Identify factors, such as pH and temperature, and their effect on enzyme activity.	Moderate
SC.912.L.18.12	Discuss the special properties of water that contribute to Earth's suitability as an environment for life: cohesive behavior, ability to moderate temperature, expansion upon freezing, and versatility as a solvent.	Moderate
MA.912.S.1.2	Determine appropriate and consistent standards of measurement for the data to be collected in a survey or experiment.	Moderate
MA.912.S.3.2	Collect, organize, and analyze data sets, determine the best format for the data and present visual summaries from the following:	High
LA.910.4.2.2	The student will record information and ideas from primary and/or secondary sources accurately and coherently, noting the validity and reliability of these sources and attributing sources of information;	
LA.910.2.2.3	The student will organize information to show understanding or relationships among facts, ideas, and events (e.g., representing key points within text through charting, mapping, paraphrasing, summarizing, comparing, contrasting, or outlining);	

Access Points for Students with Significant Cognitive Disabilities

Access Point Code	Access Point Descriptor
SC.912.N.1.In.a	Identify a problem based on a specific body of knowledge, including life science, earth and space science, or physical science, and do the following: 1. Identify a scientific question 2. Examine reliable sources of informtion to identify what is already k
SC.912.N.1.Su.b	Identify the basic process used in scientific investigations, including questioning, observing, recording, determining, and sharing results.
SC.912.N.1.Pa.c	Recognize that when a variety of common activities are repeated the same way, the outcomes are the same.
SC.912.N.2.In.a	Identify examples of investigations that involve science.
SC.912.N.2.Su.b	Recognize that what is known about science can change based on new information.
SC.912.N.3.In.a	Recognize that a scientific theory is developed by repeated investigations of many scientists and agreement on the likely explanation.
SC.912.N.3.Su.b	Recognize examples of scientific laws that describe relationships in nature, such as Newton’s laws.
SC.912.N.4.In.a	Identify ways scientific knowledge and problem solving benefit people.
SC.912.N.4.Su.b	Recognize that some strategies may cost more to solve a problem.
SC.912.E.5.In.a	Recognize that the Milky Way is part of the expanding universe.
SC.912.E.5.Su.b	Recognize that stars are made of burning gases.
SC.912.E.5.Pa.c	Observe and recognize effects of the Sun on Earth, such as temperature changes.
SC.912.E.7.In.a	Identify cycles that occur on Earth, such as the water and carbon cycles, and the role energy plays in them.
SC.912.E.7.Su.b	Recognize that currents move the ocean water around Earth.
SC.912.E.7.Pa.c	Recognize that humans, plants, and animals live on the Earth (biosphere).
SC.912.P.8.In.a	Classify states of matter as solid, liquid, and gaseous.

SC.912.P.8.Su.b	Identify examples of physical and chemical changes.
SC.912.P.8.Pa.c	Recognize that the parts of an object can be put together to make a whole.
SC.912.P.10.In.a	Identify examples of energy being transformed from one form to another (conserved quantity).
SC.912.P.10.Su.b	Recognize the relationship between work and power, such as power is the amount of work a person or machine does.
SC.912.P.10.Pa.c	Recognize the source and recipient of heat transfer.
SC.912.P.12.In.a	Recognize that scalar quantities describe the magnitude of the measurement, such as size, weight, volume, area, temperature, or speed.
SC.912.P.12.Su.b	Recognize that acceleration generally involves a change in speed.
SC.912.P.12.Pa.c	Identify the source of the force moving an object.
SC.912.L.14.In.a	Identify that all living things are made of cells and cells function in similar ways (cell theory).
SC.912.L.14.Su.b	Recognize that cells have different parts and each has a function.
SC.912.L.14.Pa.c	Identify ways to prevent infection from bacteria and viruses, such as hand washing and first aid.
SC.912.L.16.In.a	Identify that genes are sets of instructions that determine which characteristics are passed from parent to offspring.
SC.912.L.16.Su.b	Recognize that all organisms have a substance called DNA with unique information.
SC.912.L.16.Pa.c	Recognize that illness can result when parts of our bodies are not working properly.
SC.912.L.17.In.a	Recognize that living things in oceans and fresh water are affected by the location, availability of light, depth of the water, and temperature.
SC.912.L.17.Su.b	Recognize how animals and plants in an ecosystem may be affected by changes to the food supply or climate.
SC.912.L.17.Pa.c	Recognize examples of mutual relationships between people and other living things.
SC.912.L.18.In.a	Identify that carbohydrates, fats, proteins, and nucleic acids (macromolecules) are important for human organisms.
SC.912.L.18.Su.b	Recognize that the function of photosynthesis is to produce food for plants.
SC.912.L.18.Pa.c	Identify that food is a source of energy.

2002500 Marine Science I

Section: Basic and Adult Education
Grade Group: Secondary Grades 9-12
Subject: Science
Domain: Integrated Sciences
Course Length: Year
Level: 2

This course description incorporates the following Next Generation Sunshine State Standards for standards-based teaching and learning.

Benchmarks

Benchmark Code	Benchmark Descriptor	Depth of Knowledge
SC.912.N.1.1	Define a problem based on a specific body of knowledge, for example: biology, chemistry, physics, and earth/space science, and do the following:	High
SC.912.N.1.2	Describe and explain what characterizes science and its methods.	Moderate
SC.912.N.1.3	Recognize that the strength or usefulness of a scientific claim is evaluated through scientific argumentation, which depends on critical and logical thinking, and the active consideration of alternative scientific explanations to explain the data present	Low

SC.912.N.1.4	Identify sources of information and assess their reliability according to the strict standards of scientific investigation.	High
SC.912.N.1.5	Describe and provide examples of how similar investigations conducted in many parts of the world result in the same outcome.	Moderate
SC.912.N.1.6	Describe how scientific inferences are drawn from scientific observations and provide examples from the content being studied.	Moderate
SC.912.N.1.7	Recognize the role of creativity in constructing scientific questions, methods and explanations.	Low
SC.912.N.2.1	Identify what is science, what clearly is not science, and what superficially resembles science (but fails to meet the criteria for science).	High
SC.912.N.2.4	Explain that scientific knowledge is both durable and robust and open to change. Scientific knowledge can change because it is often examined and re-examined by new investigations and scientific argumentation. Because of these frequent examinations, scien	High
SC.912.N.2.5	Describe instances in which scientists' varied backgrounds, talents, interests, and goals influence the inferences and thus the explanations that they make about observations of natural phenomena and describe that competing interpretations (explanations)	High
SC.912.N.3.1	Explain that a scientific theory is the culmination of many scientific investigations drawing together all the current evidence concerning a substantial range of phenomena; thus, a scientific theory represents the most powerful explanation scientists have	High
SC.912.N.3.5	Describe the function of models in science, and identify the wide range of models used in science.	Moderate
SC.912.N.4.1	Explain how scientific knowledge and reasoning provide an empirically-based perspective to inform society's decision making.	Moderate
SC.912.N.4.2	Weigh the merits of alternative strategies for solving a specific societal problem by comparing a number of different costs and benefits, such as human, economic, and environmental.	High
SC.912.E.6.3	Analyze the scientific theory of plate tectonics and identify related major processes and features as a result of moving plates.	High
SC.912.E.6.5	Describe the geologic development of the present day oceans and identify commonly found features.	Moderate
SC.912.E.7.1	Analyze the movement of matter and energy through the different biogeochemical cycles, including water and carbon.	High
SC.912.E.7.4	Summarize the conditions that contribute to the climate of a geographic area, including the relationships to lakes and oceans.	Moderate
SC.912.E.7.6	Relate the formation of severe weather to the various physical factors.	Moderate
SC.912.E.7.9	Cite evidence that the ocean has had a significant influence on climate change by absorbing, storing, and moving heat, carbon, and water.	High
SC.912.P.10.2	Explore the Law of Conservation of Energy by differentiating among open, closed, and isolated systems and explain that the total energy in an isolated system is a conserved quantity.	High
SC.912.P.10.20	Describe the measurable properties of waves and explain the relationships among them and how these properties change when the wave moves from one medium to another.	High
SC.912.L.14.6	Explain the significance of genetic factors, environmental factors, and pathogenic agents to health from the perspectives of both individual and public health.	High

SC.912.L.15.13	Describe the conditions required for natural selection, including: overproduction of offspring, inherited variation, and the struggle to survive, which result in differential reproductive success.	Moderate
SC.912.L.17.1	Discuss the characteristics of populations, such as number of individuals, age structure, density, and pattern of distribution.	Moderate
SC.912.L.17.2	Explain the general distribution of life in aquatic systems as a function of chemistry, geography, light, depth, salinity, and temperature.	High
SC.912.L.17.3	Discuss how various oceanic and freshwater processes, such as currents, tides, and waves, affect the abundance of aquatic organisms.	Moderate
SC.912.L.17.4	Describe changes in ecosystems resulting from seasonal variations, climate change and succession.	Moderate
SC.912.L.17.6	Compare and contrast the relationships among organisms, including predation, parasitism, competition, commensalism, and mutualism.	Moderate
SC.912.L.17.7	Characterize the biotic and abiotic components that define freshwater systems, marine systems and terrestrial systems.	Moderate
SC.912.L.17.8	Recognize the consequences of the losses of biodiversity due to catastrophic events, climate changes, human activity, and the introduction of invasive, non-native species.	High
SC.912.L.17.9	Use a food web to identify and distinguish producers, consumers, and decomposers. Explain the pathway of energy transfer through trophic levels and the reduction of available energy at successive trophic levels.	Moderate
SC.912.L.17.10	Diagram and explain the biogeochemical cycles of an ecosystem, including water, carbon, and nitrogen cycle.	Moderate
SC.912.L.17.11	Evaluate the costs and benefits of renewable and nonrenewable resources, such as water, energy, fossil fuels, wildlife, and forests.	High
SC.912.L.17.16	Discuss the large-scale environmental impacts resulting from human activity, including waste spills, oil spills, runoff, greenhouse gases, ozone depletion, and surface and groundwater pollution.	High
SC.912.L.18.12	Discuss the special properties of water that contribute to Earth's suitability as an environment for life: cohesive behavior, ability to moderate temperature, expansion upon freezing, and versatility as a solvent.	Moderate
MA.912.S.1.2	Determine appropriate and consistent standards of measurement for the data to be collected in a survey or experiment.	Moderate
MA.912.S.3.2	Collect, organize, and analyze data sets, determine the best format for the data and present visual summaries from the following:	High
LA.910.4.2.2	The student will record information and ideas from primary and/or secondary sources accurately and coherently, noting the validity and reliability of these sources and attributing sources of information;	
LA.910.2.2.3	The student will organize information to show understanding or relationships among facts, ideas, and events (e.g., representing key points within text through charting, mapping, paraphrasing, summarizing, comparing, contrasting, or outlining);	

Access Points for Students with Significant Cognitive Disabilities

Access Point Code	Access Point Descriptor
SC.912.N.1.In.a	Identify a problem based on a specific body of knowledge, including life science, earth and space science, or physical science, and do the following: 1. Identify a scientific question 2. Examine reliable sources of informtion to identify what is already k
SC.912.N.1.Su.b	Identify the basic process used in scientific investigations, including questioning, observing, recording, determining, and sharing results.

SC.912.N.1.Pa.c	Recognize that when a variety of common activities are repeated the same way, the outcomes are the same.
SC.912.N.2.In.a	Identify examples of investigations that involve science.
SC.912.N.2.Su.b	Recognize that what is known about science can change based on new information.
SC.912.N.3.In.a	Recognize that a scientific theory is developed by repeated investigations of many scientists and agreement on the likely explanation.
SC.912.N.3.Su.b	Recognize examples of scientific laws that describe relationships in nature, such as Newton's laws.
SC.912.N.4.In.a	Identify ways scientific knowledge and problem solving benefit people.
SC.912.N.4.Su.b	Recognize that some strategies may cost more to solve a problem.
SC.912.E.6.In.a	Describe the three layers of Earth (core, mantle, and crust).
SC.912.E.6.Su.b	Identify types of surface features, such as hills and valleys.
SC.912.E.7.In.a	Identify cycles that occur on Earth, such as the water and carbon cycles, and the role energy plays in them.
SC.912.E.7.Su.b	Recognize that currents move the ocean water around Earth.
SC.912.E.7.Pa.c	Recognize that humans, plants, and animals live on the Earth (biosphere).
SC.912.P.10.In.a	Identify examples of energy being transformed from one form to another (conserved quantity).
SC.912.P.10.Su.b	Recognize the relationship between work and power, such as power is the amount of work a person or machine does.
SC.912.P.10.Pa.c	Recognize the source and recipient of heat transfer.
SC.912.L.14.In.a	Identify that all living things are made of cells and cells function in similar ways (cell theory).
SC.912.L.14.Su.b	Recognize that cells have different parts and each has a function.
SC.912.L.14.Pa.c	Identify ways to prevent infection from bacteria and viruses, such as hand washing and first aid.
SC.912.L.15.In.a	Identify that prehistoric plants and animals changed over time (evolved) or became extinct.
SC.912.L.15.Su.b	Match organisms to the animal, plant, and fungus kingdoms.
SC.912.L.15.Pa.c	Recognize that animals produce offspring.
SC.912.L.17.In.a	Recognize that living things in oceans and fresh water are affected by the location, availability of light, depth of the water, and temperature.
SC.912.L.17.Su.b	Recognize how animals and plants in an ecosystem may be affected by changes to the food supply or climate.
SC.912.L.17.Pa.c	Recognize examples of mutual relationships between people and other living things.
SC.912.L.18.In.a	Identify that carbohydrates, fats, proteins, and nucleic acids (macromolecules) are important for human organisms.
SC.912.L.18.Su.b	Recognize that the function of photosynthesis is to produce food for plants.
SC.912.L.18.Pa.c	Identify that food is a source of energy.

2002510 Marine Science I Honors

Section: Basic and Adult Education
Grade Group: Secondary Grades 9-12
Subject: Science
Domain: Integrated Sciences
Course Length: Year
Level: 3

This course description incorporates the following Next Generation Sunshine State Standards for standards-based teaching and learning.

Benchmarks

Benchmark Code	Benchmark Descriptor	Depth of Knowledge
SC.912.N.1.1	Define a problem based on a specific body of knowledge, for example: biology, chemistry, physics, and earth/space science, and do the following:	High
SC.912.N.1.2	Describe and explain what characterizes science and its methods.	Moderate
SC.912.N.1.3	Recognize that the strength or usefulness of a scientific claim is evaluated through scientific argumentation, which depends on critical and logical thinking, and the active consideration of alternative scientific explanations to explain the data present	Low
SC.912.N.1.4	Identify sources of information and assess their reliability according to the strict standards of scientific investigation.	High
SC.912.N.1.5	Describe and provide examples of how similar investigations conducted in many parts of the world result in the same outcome.	Moderate
SC.912.N.1.6	Describe how scientific inferences are drawn from scientific observations and provide examples from the content being studied.	Moderate
SC.912.N.1.7	Recognize the role of creativity in constructing scientific questions, methods and explanations.	Low
SC.912.N.2.1	Identify what is science, what clearly is not science, and what superficially resembles science (but fails to meet the criteria for science).	High
SC.912.N.2.4	Explain that scientific knowledge is both durable and robust and open to change. Scientific knowledge can change because it is often examined and re-examined by new investigations and scientific argumentation. Because of these frequent examinations, scien	High
SC.912.N.2.5	Describe instances in which scientists' varied backgrounds, talents, interests, and goals influence the inferences and thus the explanations that they make about observations of natural phenomena and describe that competing interpretations (explanations)	High
SC.912.N.3.1	Explain that a scientific theory is the culmination of many scientific investigations drawing together all the current evidence concerning a substantial range of phenomena; thus, a scientific theory represents the most powerful explanation scientists have	High
SC.912.N.3.5	Describe the function of models in science, and identify the wide range of models used in science.	Moderate
SC.912.N.4.1	Explain how scientific knowledge and reasoning provide an empirically-based perspective to inform society's decision making.	Moderate
SC.912.N.4.2	Weigh the merits of alternative strategies for solving a specific societal problem by comparing a number of different costs and benefits, such as human, economic, and environmental.	High
SC.912.E.6.3	Analyze the scientific theory of plate tectonics and identify related major processes and features as a result of moving plates.	High
SC.912.E.6.5	Describe the geologic development of the present day oceans and identify commonly found features.	Moderate

SC.912.E.6.6	Analyze past, present, and potential future consequences to the environment resulting from various energy production technologies.	High
SC.912.E.7.1	Analyze the movement of matter and energy through the different biogeochemical cycles, including water and carbon.	High
SC.912.E.7.4	Summarize the conditions that contribute to the climate of a geographic area, including the relationships to lakes and oceans.	Moderate
SC.912.E.7.6	Relate the formation of severe weather to the various physical factors.	Moderate
SC.912.E.7.9	Cite evidence that the ocean has had a significant influence on climate change by absorbing, storing, and moving heat, carbon, and water.	High
SC.912.P.10.2	Explore the Law of Conservation of Energy by differentiating among open, closed, and isolated systems and explain that the total energy in an isolated system is a conserved quantity.	High
SC.912.P.10.20	Describe the measurable properties of waves and explain the relationships among them and how these properties change when the wave moves from one medium to another.	High
SC.912.L.14.6	Explain the significance of genetic factors, environmental factors, and pathogenic agents to health from the perspectives of both individual and public health.	High
SC.912.L.15.13	Describe the conditions required for natural selection, including: overproduction of offspring, inherited variation, and the struggle to survive, which result in differential reproductive success.	Moderate
SC.912.L.16.10	Evaluate the impact of biotechnology on the individual, society and the environment, including medical and ethical issues.	High
SC.912.L.17.1	Discuss the characteristics of populations, such as number of individuals, age structure, density, and pattern of distribution.	Moderate
SC.912.L.17.2	Explain the general distribution of life in aquatic systems as a function of chemistry, geography, light, depth, salinity, and temperature.	High
SC.912.L.17.3	Discuss how various oceanic and freshwater processes, such as currents, tides, and waves, affect the abundance of aquatic organisms.	Moderate
SC.912.L.17.4	Describe changes in ecosystems resulting from seasonal variations, climate change and succession.	Moderate
SC.912.L.17.6	Compare and contrast the relationships among organisms, including predation, parasitism, competition, commensalism, and mutualism.	Moderate
SC.912.L.17.7	Characterize the biotic and abiotic components that define freshwater systems, marine systems and terrestrial systems.	Moderate
SC.912.L.17.8	Recognize the consequences of the losses of biodiversity due to catastrophic events, climate changes, human activity, and the introduction of invasive, non-native species.	High
SC.912.L.17.9	Use a food web to identify and distinguish producers, consumers, and decomposers. Explain the pathway of energy transfer through trophic levels and the reduction of available energy at successive trophic levels.	Moderate
SC.912.L.17.10	Diagram and explain the biogeochemical cycles of an ecosystem, including water, carbon, and nitrogen cycle.	Moderate
SC.912.L.17.11	Evaluate the costs and benefits of renewable and nonrenewable resources, such as water, energy, fossil fuels, wildlife, and forests.	High
SC.912.L.17.16	Discuss the large-scale environmental impacts resulting from human activity, including waste spills, oil spills, runoff, greenhouse gases, ozone depletion, and surface and groundwater pollution.	High
SC.912.L.17.17	Assess the effectiveness of innovative methods of protecting the environment.	High
SC.912.L.17.18	Describe how human population size and resource use relate to environmental quality.	Moderate

SC.912.L.18.12	Discuss the special properties of water that contribute to Earth's suitability as an environment for life: cohesive behavior, ability to moderate temperature, expansion upon freezing, and versatility as a solvent.	Moderate
MA.912.S.1.2	Determine appropriate and consistent standards of measurement for the data to be collected in a survey or experiment.	Moderate
MA.912.S.3.2	Collect, organize, and analyze data sets, determine the best format for the data and present visual summaries from the following:	High
LA.910.4.2.2	The student will record information and ideas from primary and/or secondary sources accurately and coherently, noting the validity and reliability of these sources and attributing sources of information;	
LA.910.2.2.3	The student will organize information to show understanding or relationships among facts, ideas, and events (e.g., representing key points within text through charting, mapping, paraphrasing, summarizing, comparing, contrasting, or outlining);	

Access Points for Students with Significant Cognitive Disabilities

Access Point Code	Access Point Descriptor
SC.912.N.1.In.a	Identify a problem based on a specific body of knowledge, including life science, earth and space science, or physical science, and do the following: 1. Identify a scientific question 2. Examine reliable sources of informtion to identify what is already k
SC.912.N.1.Su.b	Identify the basic process used in scientific investigations, including questioning, observing, recording, determining, and sharing results.
SC.912.N.1.Pa.c	Recognize that when a variety of common activities are repeated the same way, the outcomes are the same.
SC.912.N.2.In.a	Identify examples of investigations that involve science.
SC.912.N.2.Su.b	Recognize that what is known about science can change based on new information.
SC.912.N.3.In.a	Recognize that a scientific theory is developed by repeated investigations of many scientists and agreement on the likely explanation.
SC.912.N.3.Su.b	Recognize examples of scientific laws that describe relationships in nature, such as Newton’s laws.
SC.912.N.4.In.a	Identify ways scientific knowledge and problem solving benefit people.
SC.912.N.4.Su.b	Recognize that some strategies may cost more to solve a problem.
SC.912.E.6.In.a	Describe the three layers of Earth (core, mantle, and crust).
SC.912.E.6.Su.b	Identify types of surface features, such as hills and valleys.
SC.912.E.7.In.a	Identify cycles that occur on Earth, such as the water and carbon cycles, and the role energy plays in them.
SC.912.E.7.Su.b	Recognize that currents move the ocean water around Earth.
SC.912.E.7.Pa.c	Recognize that humans, plants, and animals live on the Earth (biosphere).
SC.912.P.10.In.a	Identify examples of energy being transformed from one form to another (conserved quantity).
SC.912.P.10.Su.b	Recognize the relationship between work and power, such as power is the amount of work a person or machine does.
SC.912.P.10.Pa.c	Recognize the source and recipient of heat transfer.
SC.912.L.14.In.a	Identify that all living things are made of cells and cells function in similar ways (cell theory).
SC.912.L.14.Su.b	Recognize that cells have different parts and each has a function.

SC.912.L.14.Pa.c	Identify ways to prevent infection from bacteria and viruses, such as hand washing and first aid.
SC.912.L.15.In.a	Identify that prehistoric plants and animals changed over time (evolved) or became extinct.
SC.912.L.15.Su.b	Match organisms to the animal, plant, and fungus kingdoms.
SC.912.L.15.Pa.c	Recognize that animals produce offspring.
SC.912.L.16.In.a	Identify that genes are sets of instructions that determine which characteristics are passed from parent to offspring.
SC.912.L.16.Su.b	Recognize that all organisms have a substance called DNA with unique information.
SC.912.L.16.Pa.c	Recognize that illness can result when parts of our bodies are not working properly.
SC.912.L.17.In.a	Recognize that living things in oceans and fresh water are affected by the location, availability of light, depth of the water, and temperature.
SC.912.L.17.Su.b	Recognize how animals and plants in an ecosystem may be affected by changes to the food supply or climate.
SC.912.L.17.Pa.c	Recognize examples of mutual relationships between people and other living things.
SC.912.L.18.In.a	Identify that carbohydrates, fats, proteins, and nucleic acids (macromolecules) are important for human organisms.
SC.912.L.18.Su.b	Recognize that the function of photosynthesis is to produce food for plants.
SC.912.L.18.Pa.c	Identify that food is a source of energy.

2002520 Marine Science II

Section: Basic and Adult Education
Grade Group: Secondary Grades 9-12
Subject: Science
Domain: Integrated Sciences
Course Length: Year
Level: 2

This course description incorporates the following Next Generation Sunshine State Standards for standards-based teaching and learning.

Benchmarks

Benchmark Code	Benchmark Descriptor	Depth of Knowledge
SC.912.N.1.1	Define a problem based on a specific body of knowledge, for example: biology, chemistry, physics, and earth/space science, and do the following:	High
SC.912.N.1.2	Describe and explain what characterizes science and its methods.	Moderate
SC.912.N.1.3	Recognize that the strength or usefulness of a scientific claim is evaluated through scientific argumentation, which depends on critical and logical thinking, and the active consideration of alternative scientific explanations to explain the data present	Low
SC.912.N.1.4	Identify sources of information and assess their reliability according to the strict standards of scientific investigation.	High
SC.912.N.1.5	Describe and provide examples of how similar investigations conducted in many parts of the world result in the same outcome.	Moderate
SC.912.N.1.6	Describe how scientific inferences are drawn from scientific observations and provide examples from the content being studied.	Moderate
SC.912.N.1.7	Recognize the role of creativity in constructing scientific questions, methods and explanations.	Low
SC.912.N.2.1	Identify what is science, what clearly is not science, and what superficially resembles science (but fails to meet the criteria for science).	High

SC.912.N.2.4	Explain that scientific knowledge is both durable and robust and open to change. Scientific knowledge can change because it is often examined and re-examined by new investigations and scientific argumentation. Because of these frequent examinations, scien	High
SC.912.N.2.5	Describe instances in which scientists' varied backgrounds, talents, interests, and goals influence the inferences and thus the explanations that they make about observations of natural phenomena and describe that competing interpretations (explanations)	High
SC.912.N.3.1	Explain that a scientific theory is the culmination of many scientific investigations drawing together all the current evidence concerning a substantial range of phenomena; thus, a scientific theory represents the most powerful explanation scientists have	High
SC.912.N.3.5	Describe the function of models in science, and identify the wide range of models used in science.	Moderate
SC.912.N.4.1	Explain how scientific knowledge and reasoning provide an empirically-based perspective to inform society's decision making.	Moderate
SC.912.N.4.2	Weigh the merits of alternative strategies for solving a specific societal problem by comparing a number of different costs and benefits, such as human, economic, and environmental.	High
SC.912.E.6.4	Analyze how specific geologic processes and features are expressed in Florida and elsewhere.	High
SC.912.E.6.5	Describe the geologic development of the present day oceans and identify commonly found features.	Moderate
SC.912.E.6.6	Analyze past, present, and potential future consequences to the environment resulting from various energy production technologies.	High
SC.912.E.7.2	Analyze the causes of the various kinds of surface and deep water motion within the oceans and their impacts on the transfer of energy between the poles and the equator.	High
SC.912.E.7.3	Differentiate and describe the various interactions among Earth systems, including: atmosphere, hydrosphere, cryosphere, geosphere, and biosphere.	High
SC.912.E.7.4	Summarize the conditions that contribute to the climate of a geographic area, including the relationships to lakes and oceans.	Moderate
SC.912.E.7.8	Explain how various atmospheric, oceanic, and hydrologic conditions in Florida have influenced and can influence human behavior, both individually and collectively.	High
SC.912.E.7.9	Cite evidence that the ocean has had a significant influence on climate change by absorbing, storing, and moving heat, carbon, and water.	High
SC.912.P.10.2	Explore the Law of Conservation of Energy by differentiating among open, closed, and isolated systems and explain that the total energy in an isolated system is a conserved quantity.	High
SC.912.P.10.20	Describe the measurable properties of waves and explain the relationships among them and how these properties change when the wave moves from one medium to another.	High
SC.912.L.17.4	Describe changes in ecosystems resulting from seasonal variations, climate change and succession.	Moderate
SC.912.L.17.5	Analyze how population size is determined by births, deaths, immigration, emigration, and limiting factors (biotic and abiotic) that determine carrying capacity.	High
SC.912.L.17.7	Characterize the biotic and abiotic components that define freshwater systems, marine systems and terrestrial systems.	Moderate
SC.912.L.17.10	Diagram and explain the biogeochemical cycles of an ecosystem, including water, carbon, and nitrogen cycle.	Moderate

SC.912.L.17.11	Evaluate the costs and benefits of renewable and nonrenewable resources, such as water, energy, fossil fuels, wildlife, and forests.	High
SC.912.L.17.13	Discuss the need for adequate monitoring of environmental parameters when making policy decisions.	High
SC.912.L.17.16	Discuss the large-scale environmental impacts resulting from human activity, including waste spills, oil spills, runoff, greenhouse gases, ozone depletion, and surface and groundwater pollution.	High
SC.912.L.18.12	Discuss the special properties of water that contribute to Earth's suitability as an environment for life: cohesive behavior, ability to moderate temperature, expansion upon freezing, and versatility as a solvent.	Moderate
MA.912.S.1.2	Determine appropriate and consistent standards of measurement for the data to be collected in a survey or experiment.	Moderate
MA.912.S.3.2	Collect, organize, and analyze data sets, determine the best format for the data and present visual summaries from the following:	High
LA.910.4.2.2	The student will record information and ideas from primary and/or secondary sources accurately and coherently, noting the validity and reliability of these sources and attributing sources of information;	
LA.910.2.2.3	The student will organize information to show understanding or relationships among facts, ideas, and events (e.g., representing key points within text through charting, mapping, paraphrasing, summarizing, comparing, contrasting, or outlining);	

Access Points for Students with Significant Cognitive Disabilities

Access Point Code	Access Point Descriptor
SC.912.N.1.In.a	Identify a problem based on a specific body of knowledge, including life science, earth and space science, or physical science, and do the following: 1. Identify a scientific question 2. Examine reliable sources of informtion to identify what is already k
SC.912.N.1.Su.b	Identify the basic process used in scientific investigations, including questioning, observing, recording, determining, and sharing results.
SC.912.N.1.Pa.c	Recognize that when a variety of common activities are repeated the same way, the outcomes are the same.
SC.912.N.2.In.a	Identify examples of investigations that involve science.
SC.912.N.2.Su.b	Recognize that what is known about science can change based on new information.
SC.912.N.3.In.a	Recognize that a scientific theory is developed by repeated investigations of many scientists and agreement on the likely explanation.
SC.912.N.3.Su.b	Recognize examples of scientific laws that describe relationships in nature, such as Newton’s laws.
SC.912.N.4.In.a	Identify ways scientific knowledge and problem solving benefit people.
SC.912.N.4.Su.b	Recognize that some strategies may cost more to solve a problem.
SC.912.E.6.In.a	Describe the three layers of Earth (core, mantle, and crust).
SC.912.E.6.Su.b	Identify types of surface features, such as hills and valleys.
SC.912.E.7.In.a	Identify cycles that occur on Earth, such as the water and carbon cycles, and the role energy plays in them.
SC.912.E.7.Su.b	Recognize that currents move the ocean water around Earth.
SC.912.E.7.Pa.c	Recognize that humans, plants, and animals live on the Earth (biosphere).
SC.912.P.10.In.a	Identify examples of energy being transformed from one form to another (conserved quantity).

SC.912.P.10.Su.b	Recognize the relationship between work and power, such as power is the amount of work a person or machine does.
SC.912.P.10.Pa.c	Recognize the source and recipient of heat transfer.
SC.912.L.17.In.a	Recognize that living things in oceans and fresh water are affected by the location, availability of light, depth of the water, and temperature.
SC.912.L.17.Su.b	Recognize how animals and plants in an ecosystem may be affected by changes to the food supply or climate.
SC.912.L.17.Pa.c	Recognize examples of mutual relationships between people and other living things.
SC.912.L.18.In.a	Identify that carbohydrates, fats, proteins, and nucleic acids (macromolecules) are important for human organisms.
SC.912.L.18.Su.b	Recognize that the function of photosynthesis is to produce food for plants.
SC.912.L.18.Pa.c	Identify that food is a source of energy.

2002530 Marine Science II Honors

Section: Basic and Adult Education
Grade Group: Secondary Grades 9-12
Subject: Science
Domain: Integrated Sciences
Course Length: Year
Level: 3

This course description incorporates the following Next Generation Sunshine State Standards for standards-based teaching and learning.

Benchmarks

Benchmark Code	Benchmark Descriptor	Depth of Knowledge
SC.912.N.1.1	Define a problem based on a specific body of knowledge, for example: biology, chemistry, physics, and earth/space science, and do the following:	High
SC.912.N.1.2	Describe and explain what characterizes science and its methods.	Moderate
SC.912.N.1.3	Recognize that the strength or usefulness of a scientific claim is evaluated through scientific argumentation, which depends on critical and logical thinking, and the active consideration of alternative scientific explanations to explain the data present	Low
SC.912.N.1.4	Identify sources of information and assess their reliability according to the strict standards of scientific investigation.	High
SC.912.N.1.5	Describe and provide examples of how similar investigations conducted in many parts of the world result in the same outcome.	Moderate
SC.912.N.1.6	Describe how scientific inferences are drawn from scientific observations and provide examples from the content being studied.	Moderate
SC.912.N.1.7	Recognize the role of creativity in constructing scientific questions, methods and explanations.	Low
SC.912.N.2.1	Identify what is science, what clearly is not science, and what superficially resembles science (but fails to meet the criteria for science).	High
SC.912.N.2.4	Explain that scientific knowledge is both durable and robust and open to change. Scientific knowledge can change because it is often examined and re-examined by new investigations and scientific argumentation. Because of these frequent examinations, scien	High
SC.912.N.2.5	Describe instances in which scientists' varied backgrounds, talents, interests, and goals influence the inferences and thus the explanations that they make about observations of natural phenomena and describe that competing interpretations (explanations)	High

SC.912.N.3.1	Explain that a scientific theory is the culmination of many scientific investigations drawing together all the current evidence concerning a substantial range of phenomena; thus, a scientific theory represents the most powerful explanation scientists have	High
SC.912.N.3.5	Describe the function of models in science, and identify the wide range of models used in science.	Moderate
SC.912.N.4.1	Explain how scientific knowledge and reasoning provide an empirically-based perspective to inform society's decision making.	Moderate
SC.912.N.4.2	Weigh the merits of alternative strategies for solving a specific societal problem by comparing a number of different costs and benefits, such as human, economic, and environmental.	High
SC.912.E.6.3	Analyze the scientific theory of plate tectonics and identify related major processes and features as a result of moving plates.	High
SC.912.E.6.4	Analyze how specific geologic processes and features are expressed in Florida and elsewhere.	High
SC.912.E.6.5	Describe the geologic development of the present day oceans and identify commonly found features.	Moderate
SC.912.E.6.6	Analyze past, present, and potential future consequences to the environment resulting from various energy production technologies.	High
SC.912.E.7.1	Analyze the movement of matter and energy through the different biogeochemical cycles, including water and carbon.	High
SC.912.E.7.2	Analyze the causes of the various kinds of surface and deep water motion within the oceans and their impacts on the transfer of energy between the poles and the equator.	High
SC.912.E.7.3	Differentiate and describe the various interactions among Earth systems, including: atmosphere, hydrosphere, cryosphere, geosphere, and biosphere.	High
SC.912.E.7.4	Summarize the conditions that contribute to the climate of a geographic area, including the relationships to lakes and oceans.	Moderate
SC.912.E.7.5	Predict future weather conditions based on present observations and conceptual models and recognize limitations and uncertainties of such predictions.	High
SC.912.E.7.8	Explain how various atmospheric, oceanic, and hydrologic conditions in Florida have influenced and can influence human behavior, both individually and collectively.	High
SC.912.E.7.9	Cite evidence that the ocean has had a significant influence on climate change by absorbing, storing, and moving heat, carbon, and water.	High
SC.912.P.10.2	Explore the Law of Conservation of Energy by differentiating among open, closed, and isolated systems and explain that the total energy in an isolated system is a conserved quantity.	High
SC.912.P.10.20	Describe the measurable properties of waves and explain the relationships among them and how these properties change when the wave moves from one medium to another.	High
SC.912.L.17.4	Describe changes in ecosystems resulting from seasonal variations, climate change and succession.	Moderate
SC.912.L.17.5	Analyze how population size is determined by births, deaths, immigration, emigration, and limiting factors (biotic and abiotic) that determine carrying capacity.	High
SC.912.L.17.7	Characterize the biotic and abiotic components that define freshwater systems, marine systems and terrestrial systems.	Moderate
SC.912.L.17.10	Diagram and explain the biogeochemical cycles of an ecosystem, including water, carbon, and nitrogen cycle.	Moderate

SC.912.L.17.11	Evaluate the costs and benefits of renewable and nonrenewable resources, such as water, energy, fossil fuels, wildlife, and forests.	High
SC.912.L.17.13	Discuss the need for adequate monitoring of environmental parameters when making policy decisions.	High
SC.912.L.17.15	Discuss the effects of technology on environmental quality.	Moderate
SC.912.L.17.16	Discuss the large-scale environmental impacts resulting from human activity, including waste spills, oil spills, runoff, greenhouse gases, ozone depletion, and surface and groundwater pollution.	High
SC.912.L.18.12	Discuss the special properties of water that contribute to Earth's suitability as an environment for life: cohesive behavior, ability to moderate temperature, expansion upon freezing, and versatility as a solvent.	Moderate
MA.912.S.1.2	Determine appropriate and consistent standards of measurement for the data to be collected in a survey or experiment.	Moderate
MA.912.S.3.2	Collect, organize, and analyze data sets, determine the best format for the data and present visual summaries from the following:	High
LA.910.4.2.2	The student will record information and ideas from primary and/or secondary sources accurately and coherently, noting the validity and reliability of these sources and attributing sources of information;	
LA.910.2.2.3	The student will organize information to show understanding or relationships among facts, ideas, and events (e.g., representing key points within text through charting, mapping, paraphrasing, summarizing, comparing, contrasting, or outlining);	

Access Points for Students with Significant Cognitive Disabilities

Access Point Code	Access Point Descriptor
SC.912.N.1.In.a	Identify a problem based on a specific body of knowledge, including life science, earth and space science, or physical science, and do the following: 1. Identify a scientific question 2. Examine reliable sources of informtion to identify what is already k
SC.912.N.1.Su.b	Identify the basic process used in scientific investigations, including questioning, observing, recording, determining, and sharing results.
SC.912.N.1.Pa.c	Recognize that when a variety of common activities are repeated the same way, the outcomes are the same.
SC.912.N.2.In.a	Identify examples of investigations that involve science.
SC.912.N.2.Su.b	Recognize that what is known about science can change based on new information.
SC.912.N.3.In.a	Recognize that a scientific theory is developed by repeated investigations of many scientists and agreement on the likely explanation.
SC.912.N.3.Su.b	Recognize examples of scientific laws that describe relationships in nature, such as Newton’s laws.
SC.912.N.4.In.a	Identify ways scientific knowledge and problem solving benefit people.
SC.912.N.4.Su.b	Recognize that some strategies may cost more to solve a problem.
SC.912.E.6.In.a	Describe the three layers of Earth (core, mantle, and crust).
SC.912.E.6.Su.b	Identify types of surface features, such as hills and valleys.
SC.912.E.7.In.a	Identify cycles that occur on Earth, such as the water and carbon cycles, and the role energy plays in them.
SC.912.E.7.Su.b	Recognize that currents move the ocean water around Earth.
SC.912.E.7.Pa.c	Recognize that humans, plants, and animals live on the Earth (biosphere).
SC.912.P.10.In.a	Identify examples of energy being transformed from one form to another (conserved quantity).

SC.912.P.10.Su.b	Recognize the relationship between work and power, such as power is the amount of work a person or machine does.
SC.912.P.10.Pa.c	Recognize the source and recipient of heat transfer.
SC.912.L.17.In.a	Recognize that living things in oceans and fresh water are affected by the location, availability of light, depth of the water, and temperature.
SC.912.L.17.Su.b	Recognize how animals and plants in an ecosystem may be affected by changes to the food supply or climate.
SC.912.L.17.Pa.c	Recognize examples of mutual relationships between people and other living things.
SC.912.L.18.In.a	Identify that carbohydrates, fats, proteins, and nucleic acids (macromolecules) are important for human organisms.
SC.912.L.18.Su.b	Recognize that the function of photosynthesis is to produce food for plants.
SC.912.L.18.Pa.c	Identify that food is a source of energy.

2002540 Solar Energy I

Section: Basic and Adult Education
Grade Group: Secondary Grades 9-12
Subject: Science
Domain: Integrated Sciences
Course Length: Year
Level: 3

This course description incorporates the following Next Generation Sunshine State Standards for standards-based teaching and learning.

Benchmarks

Benchmark Code	Benchmark Descriptor	Depth of Knowledge
SC.912.N.1.1	Define a problem based on a specific body of knowledge, for example: biology, chemistry, physics, and earth/space science, and do the following:	High
SC.912.N.1.2	Describe and explain what characterizes science and its methods.	Moderate
SC.912.N.1.3	Recognize that the strength or usefulness of a scientific claim is evaluated through scientific argumentation, which depends on critical and logical thinking, and the active consideration of alternative scientific explanations to explain the data present	Low
SC.912.N.1.4	Identify sources of information and assess their reliability according to the strict standards of scientific investigation.	High
SC.912.N.1.5	Describe and provide examples of how similar investigations conducted in many parts of the world result in the same outcome.	Moderate
SC.912.N.1.6	Describe how scientific inferences are drawn from scientific observations and provide examples from the content being studied.	Moderate
SC.912.N.1.7	Recognize the role of creativity in constructing scientific questions, methods and explanations.	Low
SC.912.N.2.1	Identify what is science, what clearly is not science, and what superficially resembles science (but fails to meet the criteria for science).	High
SC.912.N.2.2	Identify which questions can be answered through science and which questions are outside the boundaries of scientific investigation, such as questions addressed by other ways of knowing, such as art, philosophy, and religion.	High
SC.912.N.2.3	Identify examples of pseudoscience (such as astrology, phrenology) in society.	Low
SC.912.N.2.4	Explain that scientific knowledge is both durable and robust and open to change. Scientific knowledge can change because it is often examined and re-examined by new investigations and scientific argumentation. Because of these frequent examinations, scien	High

SC.912.N.2.5	Describe instances in which scientists' varied backgrounds, talents, interests, and goals influence the inferences and thus the explanations that they make about observations of natural phenomena and describe that competing interpretations (explanations)	High
SC.912.N.3.1	Explain that a scientific theory is the culmination of many scientific investigations drawing together all the current evidence concerning a substantial range of phenomena; thus, a scientific theory represents the most powerful explanation scientists have	High
SC.912.N.3.5	Describe the function of models in science, and identify the wide range of models used in science.	Moderate
SC.912.N.4.1	Explain how scientific knowledge and reasoning provide an empirically-based perspective to inform society's decision making.	Moderate
SC.912.N.4.2	Weigh the merits of alternative strategies for solving a specific societal problem by comparing a number of different costs and benefits, such as human, economic, and environmental.	High
SC.912.E.5.4	Explain the physical properties of the Sun and its dynamic nature and connect them to conditions and events on Earth.	High
SC.912.E.6.6	Analyze past, present, and potential future consequences to the environment resulting from various energy production technologies.	High
SC.912.E.7.1	Analyze the movement of matter and energy through the different biogeochemical cycles, including water and carbon.	High
SC.912.E.7.2	Analyze the causes of the various kinds of surface and deep water motion within the oceans and their impacts on the transfer of energy between the poles and the equator.	High
SC.912.E.7.9	Cite evidence that the ocean has had a significant influence on climate change by absorbing, storing, and moving heat, carbon, and water.	High
SC.912.P.8.12	Describe the properties of the carbon atom that make the diversity of carbon compounds possible.	Moderate
SC.912.P.8.13	Identify selected functional groups and relate how they contribute to properties of carbon compounds.	High
SC.912.P.10.1	Differentiate among the various forms of energy and recognize that they can be transformed from one form to others.	Moderate
SC.912.P.10.2	Explore the Law of Conservation of Energy by differentiating among open, closed, and isolated systems and explain that the total energy in an isolated system is a conserved quantity.	High
SC.912.P.10.3	Compare and contrast work and power qualitatively and quantitatively.	Moderate
SC.912.P.10.9	Describe the quantization of energy at the atomic level.	Moderate
SC.912.L.17.11	Evaluate the costs and benefits of renewable and nonrenewable resources, such as water, energy, fossil fuels, wildlife, and forests.	High
SC.912.L.17.12	Discuss the political, social, and environmental consequences of sustainable use of land.	High
SC.912.L.17.13	Discuss the need for adequate monitoring of environmental parameters when making policy decisions.	High
SC.912.L.17.15	Discuss the effects of technology on environmental quality.	Moderate
SC.912.L.17.17	Assess the effectiveness of innovative methods of protecting the environment.	High
SC.912.L.17.18	Describe how human population size and resource use relate to environmental quality.	Moderate
SC.912.L.17.19	Describe how different natural resources are produced and how their rates of use and renewal limit availability.	Moderate
SC.912.L.17.20	Predict the impact of individuals on environmental systems and examine how human lifestyles affect sustainability.	High

MA.912.S.1.2	Determine appropriate and consistent standards of measurement for the data to be collected in a survey or experiment.	Moderate
MA.912.S.3.2	Collect, organize, and analyze data sets, determine the best format for the data and present visual summaries from the following:	High
LA.910.4.2.2	The student will record information and ideas from primary and/or secondary sources accurately and coherently, noting the validity and reliability of these sources and attributing sources of information;	
LA.910.2.2.3	The student will organize information to show understanding or relationships among facts, ideas, and events (e.g., representing key points within text through charting, mapping, paraphrasing, summarizing, comparing, contrasting, or outlining);	

Access Points for Students with Significant Cognitive Disabilities

Access Point Code	Access Point Descriptor
SC.912.N.1.In.a	Identify a problem based on a specific body of knowledge, including life science, earth and space science, or physical science, and do the following: 1. Identify a scientific question 2. Examine reliable sources of informtion to identify what is already k
SC.912.N.1.Su.b	Identify the basic process used in scientific investigations, including questioning, observing, recording, determining, and sharing results.
SC.912.N.1.Pa.c	Recognize that when a variety of common activities are repeated the same way, the outcomes are the same.
SC.912.N.2.In.a	Identify examples of investigations that involve science.
SC.912.N.2.Su.b	Recognize that what is known about science can change based on new information.
SC.912.N.3.In.a	Recognize that a scientific theory is developed by repeated investigations of many scientists and agreement on the likely explanation.
SC.912.N.3.Su.b	Recognize examples of scientific laws that describe relationships in nature, such as Newton's laws.
SC.912.N.4.In.a	Identify ways scientific knowledge and problem solving benefit people.
SC.912.N.4.Su.b	Recognize that some strategies may cost more to solve a problem.
SC.912.E.5.In.a	Recognize that the Milky Way is part of the expanding universe.
SC.912.E.5.Su.b	Recognize that stars are made of burning gases.
SC.912.E.5.Pa.c	Observe and recognize effects of the Sun on Earth, such as temperature changes.
SC.912.E.7.In.a	Identify cycles that occur on Earth, such as the water and carbon cycles, and the role energy plays in them.
SC.912.E.7.Su.b	Recognize that currents move the ocean water around Earth.
SC.912.E.7.Pa.c	Recognize that humans, plants, and animals live on the Earth (biosphere).
SC.912.P.8.In.a	Classify states of matter as solid, liquid, and gaseous.
SC.912.P.8.Su.b	Identify examples of physical and chemical changes.
SC.912.P.8.Pa.c	Recognize that the parts of an object can be put together to make a whole.
SC.912.P.10.In.a	Identify examples of energy being transformed from one form to another (conserved quantity).
SC.912.P.10.Su.b	Recognize the relationship between work and power, such as power is the amount of work a person or machine does.
SC.912.P.10.Pa.c	Recognize the source and recipient of heat transfer.
SC.912.L.17.In.a	Recognize that living things in oceans and fresh water are affected by the location, availability of light, depth of the water, and temperature.

SC.912.L.17.Su.b	Recognize how animals and plants in an ecosystem may be affected by changes to the food supply or climate.
SC.912.L.17.Pa.c	Recognize examples of mutual relationships between people and other living things.

2002550 Solar Energy II

Section: Basic and Adult Education
Grade Group: Secondary Grades 9-12
Subject: Science
Domain: Integrated Sciences
Course Length: Year
Level: 3

This course description incorporates the following Next Generation Sunshine State Standards for standards-based teaching and learning.

Benchmarks

Benchmark Code	Benchmark Descriptor	Depth of Knowledge
SC.912.N.1.1	Define a problem based on a specific body of knowledge, for example: biology, chemistry, physics, and earth/space science, and do the following:	High
SC.912.N.1.2	Describe and explain what characterizes science and its methods.	Moderate
SC.912.N.1.3	Recognize that the strength or usefulness of a scientific claim is evaluated through scientific argumentation, which depends on critical and logical thinking, and the active consideration of alternative scientific explanations to explain the data present	Low
SC.912.N.1.4	Identify sources of information and assess their reliability according to the strict standards of scientific investigation.	High
SC.912.N.1.5	Describe and provide examples of how similar investigations conducted in many parts of the world result in the same outcome.	Moderate
SC.912.N.1.6	Describe how scientific inferences are drawn from scientific observations and provide examples from the content being studied.	Moderate
SC.912.N.1.7	Recognize the role of creativity in constructing scientific questions, methods and explanations.	Low
SC.912.N.2.1	Identify what is science, what clearly is not science, and what superficially resembles science (but fails to meet the criteria for science).	High
SC.912.N.2.4	Explain that scientific knowledge is both durable and robust and open to change. Scientific knowledge can change because it is often examined and re-examined by new investigations and scientific argumentation. Because of these frequent examinations, scien	High
SC.912.N.2.5	Describe instances in which scientists' varied backgrounds, talents, interests, and goals influence the inferences and thus the explanations that they make about observations of natural phenomena and describe that competing interpretations (explanations)	High
SC.912.N.3.1	Explain that a scientific theory is the culmination of many scientific investigations drawing together all the current evidence concerning a substantial range of phenomena; thus, a scientific theory represents the most powerful explanation scientists have	High
SC.912.N.3.5	Describe the function of models in science, and identify the wide range of models used in science.	Moderate
SC.912.N.4.1	Explain how scientific knowledge and reasoning provide an empirically-based perspective to inform society's decision making.	Moderate
SC.912.N.4.2	Weigh the merits of alternative strategies for solving a specific societal problem by comparing a number of different costs and benefits, such as human, economic, and environmental.	High

SC.912.E.6.6	Analyze past, present, and potential future consequences to the environment resulting from various energy production technologies.	High
SC.912.E.7.1	Analyze the movement of matter and energy through the different biogeochemical cycles, including water and carbon.	High
SC.912.P.8.12	Describe the properties of the carbon atom that make the diversity of carbon compounds possible.	Moderate
SC.912.P.8.13	Identify selected functional groups and relate how they contribute to properties of carbon compounds.	High
SC.912.P.10.1	Differentiate among the various forms of energy and recognize that they can be transformed from one form to others.	Moderate
SC.912.P.10.2	Explore the Law of Conservation of Energy by differentiating among open, closed, and isolated systems and explain that the total energy in an isolated system is a conserved quantity.	High
SC.912.P.10.3	Compare and contrast work and power qualitatively and quantitatively.	Moderate
SC.912.P.10.8	Explain entropy's role in determining the efficiency of processes that convert energy to work.	High
SC.912.L.17.11	Evaluate the costs and benefits of renewable and nonrenewable resources, such as water, energy, fossil fuels, wildlife, and forests.	High
SC.912.L.17.17	Assess the effectiveness of innovative methods of protecting the environment.	High
SC.912.L.17.20	Predict the impact of individuals on environmental systems and examine how human lifestyles affect sustainability.	High
MA.912.S.1.2	Determine appropriate and consistent standards of measurement for the data to be collected in a survey or experiment.	Moderate
MA.912.S.3.2	Collect, organize, and analyze data sets, determine the best format for the data and present visual summaries from the following:	High
LA.910.4.2.2	The student will record information and ideas from primary and/or secondary sources accurately and coherently, noting the validity and reliability of these sources and attributing sources of information;	
LA.910.2.2.3	The student will organize information to show understanding or relationships among facts, ideas, and events (e.g., representing key points within text through charting, mapping, paraphrasing, summarizing, comparing, contrasting, or outlining);	

Access Points for Students with Significant Cognitive Disabilities

Access Point Code	Access Point Descriptor
SC.912.N.1.In.a	Identify a problem based on a specific body of knowledge, including life science, earth and space science, or physical science, and do the following: 1. Identify a scientific question 2. Examine reliable sources of informtion to identify what is already k
SC.912.N.1.Su.b	Identify the basic process used in scientific investigations, including questioning, observing, recording, determining, and sharing results.
SC.912.N.1.Pa.c	Recognize that when a variety of common activities are repeated the same way, the outcomes are the same.
SC.912.N.2.In.a	Identify examples of investigations that involve science.
SC.912.N.2.Su.b	Recognize that what is known about science can change based on new information.
SC.912.N.3.In.a	Recognize that a scientific theory is developed by repeated investigations of many scientists and agreement on the likely explanation.
SC.912.N.3.Su.b	Recognize examples of scientific laws that describe relationships in nature, such as Newton’s laws.
SC.912.N.4.In.a	Identify ways scientific knowledge and problem solving benefit people.

SC.912.N.4.Su.b	Recognize that some strategies may cost more to solve a problem.
SC.912.E.7.In.a	Identify cycles that occur on Earth, such as the water and carbon cycles, and the role energy plays in them.
SC.912.E.7.Su.b	Recognize that currents move the ocean water around Earth.
SC.912.E.7.Pa.c	Recognize that humans, plants, and animals live on the Earth (biosphere).
SC.912.P.8.In.a	Classify states of matter as solid, liquid, and gaseous.
SC.912.P.8.Su.b	Identify examples of physical and chemical changes.
SC.912.P.8.Pa.c	Recognize that the parts of an object can be put together to make a whole.
SC.912.P.10.In.a	Identify examples of energy being transformed from one form to another (conserved quantity).
SC.912.P.10.Su.b	Recognize the relationship between work and power, such as power is the amount of work a person or machine does.
SC.912.P.10.Pa.c	Recognize the source and recipient of heat transfer.
SC.912.L.17.In.a	Recognize that living things in oceans and fresh water are affected by the location, availability of light, depth of the water, and temperature.
SC.912.L.17.Su.b	Recognize how animals and plants in an ecosystem may be affected by changes to the food supply or climate.
SC.912.L.17.Pa.c	Recognize examples of mutual relationships between people and other living things.

2002400 Integrated Science I

Section: Basic and Adult Education
Grade Group: Secondary Grades 9-12
Subject: Science
Domain: Integrated Sciences
Course Length: Year
Level: 2

This course description incorporates the following Next Generation Sunshine State Standards for standards-based teaching and learning.

Benchmarks

Benchmark Code	Benchmark Descriptor	Depth of Knowledge
SC.912.N.1.1	Define a problem based on a specific body of knowledge, for example: biology, chemistry, physics, and earth/space science, and do the following:	High
SC.912.N.1.2	Describe and explain what characterizes science and its methods.	Moderate
SC.912.N.1.4	Identify sources of information and assess their reliability according to the strict standards of scientific investigation.	High
SC.912.N.1.7	Recognize the role of creativity in constructing scientific questions, methods and explanations.	Low
SC.912.N.3.2	Describe the role consensus plays in the historical development of a theory in any one of the disciplines of science.	Moderate
SC.912.N.3.3	Explain that scientific laws are descriptions of specific relationships under given conditions in nature, but do not offer explanations for those relationships.	Moderate
SC.912.N.3.4	Recognize that theories do not become laws, nor do laws become theories; theories are well supported explanations and laws are well supported descriptions.	Moderate
SC.912.N.3.5	Describe the function of models in science, and identify the wide range of models used in science.	Moderate
SC.912.E.5.1	Cite evidence used to develop and verify the scientific theory of the Big Bang (also known as the Big Bang Theory) of the origin of the universe.	High

SC.912.E.5.2	Identify patterns in the organization and distribution of matter in the universe and the forces that determine them.	Moderate
SC.912.E.5.4	Explain the physical properties of the Sun and its dynamic nature and connect them to conditions and events on Earth.	High
SC.912.E.5.7	Relate the history of and explain the justification for future space exploration and continuing technology development.	High
SC.912.E.5.8	Connect the concepts of radiation and the electromagnetic spectrum to the use of historical and newly-developed observational tools.	High
SC.912.E.6.1	Describe and differentiate the layers of Earth and the interactions among them.	Moderate
SC.912.E.6.2	Connect surface features to surface processes that are responsible for their formation.	Moderate
SC.912.E.6.3	Analyze the scientific theory of plate tectonics and identify related major processes and features as a result of moving plates.	High
SC.912.E.7.1	Analyze the movement of matter and energy through the different biogeochemical cycles, including water and carbon.	High
SC.912.E.7.3	Differentiate and describe the various interactions among Earth systems, including: atmosphere, hydrosphere, cryosphere, geosphere, and biosphere.	High
SC.912.P.8.1	Differentiate among the four states of matter.	Moderate
SC.912.P.8.2	Differentiate between physical and chemical properties and physical and chemical changes of matter.	Moderate
SC.912.P.8.3	Explore the scientific theory of atoms (also known as atomic theory) by describing changes in the atomic model over time and why those changes were necessitated by experimental evidence.	High
SC.912.P.8.4	Explore the scientific theory of atoms (also known as atomic theory) by describing the structure of atoms in terms of protons, neutrons and electrons, and differentiate among these particles in terms of their mass, electrical charges and locations within	High
SC.912.P.8.5	Relate properties of atoms and their position in the periodic table to the arrangement of their electrons.	Moderate
SC.912.P.8.7	Interpret formula representations of molecules and compounds in terms of composition and structure.	Moderate
SC.912.P.10.1	Differentiate among the various forms of energy and recognize that they can be transformed from one form to others.	Moderate
SC.912.P.10.4	Describe heat as the energy transferred by convection, conduction, and radiation, and explain the connection of heat to change in temperature or states of matter.	High
SC.912.P.10.7	Distinguish between endothermic and exothermic chemical processes.	Moderate
SC.912.P.10.20	Describe the measurable properties of waves and explain the relationships among them and how these properties change when the wave moves from one medium to another.	High
SC.912.P.12.3	Interpret and apply Newton's three laws of motion.	High
SC.912.L.14.1	Describe the scientific theory of cells (cell theory) and relate the history of its discovery to the process of science.	Moderate
SC.912.L.14.2	Relate structure to function for the components of plant and animal cells. Explain the role of cell membranes as a highly selective barrier (passive and active transport).	Moderate
SC.912.L.14.3	Compare and contrast the general structures of plant and animal cells. Compare and contrast the general structures of prokaryotic and eukaryotic cells.	Moderate
SC.912.L.14.7	Relate the structure of each of the major plant organs and tissues to physiological processes.	Moderate

SC.912.L.15.1	Explain how the scientific theory of evolution is supported by the fossil record, comparative anatomy, comparative embryology, biogeography, molecular biology, and observed evolutionary change.	High
SC.912.L.15.4	Describe how and why organisms are hierarchically classified and based on evolutionary relationships.	High
SC.912.L.15.6	Discuss distinguishing characteristics of the domains and kingdoms of living organisms.	Moderate
SC.912.L.15.8	Describe the scientific explanations of the origin of life on Earth.	Moderate
SC.912.L.16.1	Use Mendel's laws of segregation and independent assortment to analyze patterns of inheritance.	High
SC.912.L.17.2	Explain the general distribution of life in aquatic systems as a function of chemistry, geography, light, depth, salinity, and temperature.	High
SC.912.L.17.3	Discuss how various oceanic and freshwater processes, such as currents, tides, and waves, affect the abundance of aquatic organisms.	Moderate
SC.912.L.17.4	Describe changes in ecosystems resulting from seasonal variations, climate change and succession.	Moderate
SC.912.L.17.11	Evaluate the costs and benefits of renewable and nonrenewable resources, such as water, energy, fossil fuels, wildlife, and forests.	High
SC.912.L.18.7	Identify the reactants, products, and basic functions of photosynthesis.	Moderate
MA.912.S.1.2	Determine appropriate and consistent standards of measurement for the data to be collected in a survey or experiment.	Moderate
MA.912.S.3.2	Collect, organize, and analyze data sets, determine the best format for the data and present visual summaries from the following:	High
LA.910.4.2.2	The student will record information and ideas from primary and/or secondary sources accurately and coherently, noting the validity and reliability of these sources and attributing sources of information;	
LA.910.2.2.3	The student will organize information to show understanding or relationships among facts, ideas, and events (e.g., representing key points within text through charting, mapping, paraphrasing, summarizing, comparing, contrasting, or outlining);	

Access Points for Students with Significant Cognitive Disabilities

Access Point Code	Access Point Descriptor
SC.912.N.1.In.a	Identify a problem based on a specific body of knowledge, including life science, earth and space science, or physical science, and do the following: 1. Identify a scientific question 2. Examine reliable sources of informtion to identify what is already k
SC.912.N.1.Su.b	Identify the basic process used in scientific investigations, including questioning, observing, recording, determining, and sharing results.
SC.912.N.1.Pa.c	Recognize that when a variety of common activities are repeated the same way, the outcomes are the same.
SC.912.N.3.In.a	Recognize that a scientific theory is developed by repeated investigations of many scientists and agreement on the likely explanation.
SC.912.N.3.In.b	Identify examples of scientific laws that describe relationships in the natural world, such as Newton’s laws.
SC.912.N.3.Su.b	Recognize examples of scientific laws that describe relationships in nature, such as Newton’s laws.
SC.912.N.3.Su.c	Recognize ways models are used in the study of science.
SC.912.E.5.In.a	Recognize that the Milky Way is part of the expanding universe.
SC.912.E.5.Su.b	Recognize that stars are made of burning gases.

SC.912.E.5.Pa.c	Observe and recognize effects of the Sun on Earth, such as temperature changes.
SC.912.E.6.In.a	Describe the three layers of Earth (core, mantle, and crust).
SC.912.E.6.Su.b	Identify types of surface features, such as hills and valleys.
SC.912.E.7.In.a	Identify cycles that occur on Earth, such as the water and carbon cycles, and the role energy plays in them.
SC.912.E.7.Su.b	Recognize that currents move the ocean water around Earth.
SC.912.E.7.Pa.c	Recognize that humans, plants, and animals live on the Earth (biosphere).
SC.912.P.8.In.a	Classify states of matter as solid, liquid, and gaseous.
SC.912.P.8.Su.b	Identify examples of physical and chemical changes.
SC.912.P.8.Pa.c	Recognize that the parts of an object can be put together to make a whole.
SC.912.P.10.In.a	Identify examples of energy being transformed from one form to another (conserved quantity).
SC.912.P.10.Su.b	Recognize the relationship between work and power, such as power is the amount of work a person or machine does.
SC.912.P.10.Pa.c	Recognize the source and recipient of heat transfer.
SC.912.P.12.In.a	Recognize that scalar quantities describe the magnitude of the measurement, such as size, weight, volume, area, temperature, or speed.
SC.912.P.12.Su.b	Recognize that acceleration generally involves a change in speed.
SC.912.P.12.Pa.c	Identify the source of the force moving an object.
SC.912.L.14.In.a	Identify that all living things are made of cells and cells function in similar ways (cell theory).
SC.912.L.14.Su.b	Recognize that cells have different parts and each has a function.
SC.912.L.14.Pa.c	Identify ways to prevent infection from bacteria and viruses, such as hand washing and first aid.
SC.912.L.15.In.a	Identify that prehistoric plants and animals changed over time (evolved) or became extinct.
SC.912.L.15.Su.b	Match organisms to the animal, plant, and fungus kingdoms.
SC.912.L.15.Pa.c	Recognize that animals produce offspring.
SC.912.L.16.In.a	Identify that genes are sets of instructions that determine which characteristics are passed from parent to offspring.
SC.912.L.16.Su.b	Recognize that all organisms have a substance called DNA with unique information.
SC.912.L.16.Pa.c	Recognize that illness can result when parts of our bodies are not working properly.
SC.912.L.17.In.a	Recognize that living things in oceans and fresh water are affected by the location, availability of light, depth of the water, and temperature.
SC.912.L.17.Su.b	Recognize how animals and plants in an ecosystem may be affected by changes to the food supply or climate.
SC.912.L.17.Pa.c	Recognize examples of mutual relationships between people and other living things.
SC.912.L.18.In.a	Identify that carbohydrates, fats, proteins, and nucleic acids (macromolecules) are important for human organisms.
SC.912.L.18.Su.b	Recognize that the function of photosynthesis is to produce food for plants.
SC.912.L.18.Pa.c	Identify that food is a source of energy.

2002420 Integrated Science II

Section: Basic and Adult Education
Grade Group: Secondary Grades 9-12
Subject: Science
Domain: Integrated Sciences
Course Length: Year
Level: 2

This course description incorporates the following Next Generation Sunshine State Standards for standards-based teaching and learning.

Benchmarks

Benchmark Code	Benchmark Descriptor	Depth of Knowledge
SC.912.N.1.1	Define a problem based on a specific body of knowledge, for example: biology, chemistry, physics, and earth/space science, and do the following:	High
SC.912.N.1.2	Describe and explain what characterizes science and its methods.	Moderate
SC.912.N.1.5	Describe and provide examples of how similar investigations conducted in many parts of the world result in the same outcome.	Moderate
SC.912.N.1.7	Recognize the role of creativity in constructing scientific questions, methods and explanations.	Low
SC.912.N.2.1	Identify what is science, what clearly is not science, and what superficially resembles science (but fails to meet the criteria for science).	High
SC.912.N.2.3	Identify examples of pseudoscience (such as astrology, phrenology) in society.	Low
SC.912.N.3.1	Explain that a scientific theory is the culmination of many scientific investigations drawing together all the current evidence concerning a substantial range of phenomena; thus, a scientific theory represents the most powerful explanation scientists have	High
SC.912.E.5.3	Describe and predict how the initial mass of a star determines its evolution.	Moderate
SC.912.E.5.5	Explain the formation of planetary systems based on our knowledge of our Solar System and apply this knowledge to newly discovered planetary systems.	High
SC.912.E.5.6	Develop logical connections through physical principles, including Kepler's and Newton's Laws about the relationships and the effects of Earth, Moon, and Sun on each other.	High
SC.912.E.7.4	Summarize the conditions that contribute to the climate of a geographic area, including the relationships to lakes and oceans.	Moderate
SC.912.E.7.7	Identify, analyze, and relate the internal (Earth system) and external (astronomical) conditions that contribute to global climate change.	High
SC.912.P.8.6	Distinguish between bonding forces holding compounds together and other attractive forces, including hydrogen bonding and van der Waals forces.	Moderate
SC.912.P.8.8	Characterize types of chemical reactions, for example: redox, acid-base, synthesis, and single and double replacement reactions.	Moderate
SC.912.P.8.9	Apply the mole concept and the law of conservation of mass to calculate quantities of chemicals participating in reactions.	High
SC.912.P.8.11	Relate acidity and basicity to hydronium and hydroxyl ion concentration and pH.	Moderate
SC.912.P.8.12	Describe the properties of the carbon atom that make the diversity of carbon compounds possible.	Moderate
SC.912.P.8.13	Identify selected functional groups and relate how they contribute to properties of carbon compounds.	High
SC.912.P.10.5	Relate temperature to the average molecular kinetic energy.	Moderate
SC.912.P.10.10	Compare the magnitude and range of the four fundamental forces (gravitational, electromagnetic, weak nuclear, strong nuclear).	Moderate
SC.912.P.10.12	Differentiate between chemical and nuclear reactions.	Moderate

SC.912.P.10.14	Differentiate among conductors, semiconductors, and insulators.	Moderate
SC.912.P.10.15	Investigate and explain the relationships among current, voltage, resistance, and power.	High
SC.912.P.12.1	Distinguish between scalar and vector quantities and assess which should be used to describe an event.	High
SC.912.P.12.2	Analyze the motion of an object in terms of its position, velocity, and acceleration (with respect to a frame of reference) as functions of time.	High
SC.912.P.12.4	Describe how the gravitational force between two objects depends on their masses and the distance between them.	Moderate
SC.912.L.14.5	Explain the evidence supporting the scientific theory of the origin of eukaryotic cells (endosymbiosis).	High
SC.912.L.14.6	Explain the significance of genetic factors, environmental factors, and pathogenic agents to health from the perspectives of both individual and public health.	High
SC.912.L.15.8	Describe the scientific explanations of the origin of life on Earth.	Moderate
SC.912.L.16.2	Discuss observed inheritance patterns caused by various modes of inheritance, including dominant, recessive, codominant, sex-linked, polygenic, and multiple alleles.	High
SC.912.L.16.3	Describe the basic process of DNA replication and how it relates to the transmission and conservation of the genetic information.	High
SC.912.L.16.5	Explain the basic processes of transcription and translation, and how they result in the expression of genes.	High
SC.912.L.16.9	Explain how and why the genetic code is universal and is common to almost all organisms.	Moderate
SC.912.L.16.14	Describe the cell cycle, including the process of mitosis. Explain the role of mitosis in the formation of new cells and its importance in maintaining chromosome number during asexual reproduction.	Moderate
SC.912.L.16.16	Describe the process of meiosis, including independent assortment and crossing over. Explain how reduction division results in the formation of haploid gametes or spores.	Moderate
SC.912.L.16.17	Compare and contrast mitosis and meiosis and relate to the processes of sexual and asexual reproduction and their consequences for genetic variation.	High
SC.912.L.17.9	Use a food web to identify and distinguish producers, consumers, and decomposers. Explain the pathway of energy transfer through trophic levels and the reduction of available energy at successive trophic levels.	Moderate
SC.912.L.17.10	Diagram and explain the biogeochemical cycles of an ecosystem, including water, carbon, and nitrogen cycle.	Moderate
SC.912.L.18.1	Describe the basic molecular structures and primary functions of the four major categories of biological macromolecules.	Moderate
SC.912.L.18.8	Identify the reactants, products, and basic functions of aerobic and anaerobic cellular respiration.	Moderate
SC.912.L.18.9	Explain the interrelated nature of photosynthesis and cellular respiration.	Moderate
MA.912.S.1.2	Determine appropriate and consistent standards of measurement for the data to be collected in a survey or experiment.	Moderate
MA.912.S.3.2	Collect, organize, and analyze data sets, determine the best format for the data and present visual summaries from the following:	High
LA.910.4.2.2	The student will record information and ideas from primary and/or secondary sources accurately and coherently, noting the validity and reliability of these sources and attributing sources of information;	

LA.910.2.2.3	The student will organize information to show understanding or relationships among facts, ideas, and events (e.g., representing key points within text through charting, mapping, paraphrasing, summarizing, comparing, contrasting, or outlining);
HE.912.B.3.6	Employ the healthiest choice when considering all factors in making a decision.
HE.912.C.1.3	Evaluate how environment and personal health are interrelated.
HE.912.C.1.4	Analyze how heredity and family history can impact personal health.

Access Points for Students with Significant Cognitive Disabilities

Access Point Code	Access Point Descriptor
SC.912.N.1.In.a	Identify a problem based on a specific body of knowledge, including life science, earth and space science, or physical science, and do the following: 1. Identify a scientific question 2. Examine reliable sources of informtion to identify what is already k
SC.912.N.1.Su.b	Identify the basic process used in scientific investigations, including questioning, observing, recording, determining, and sharing results.
SC.912.N.1.Pa.c	Recognize that when a variety of common activities are repeated the same way, the outcomes are the same.
SC.912.N.2.In.a	Identify examples of investigations that involve science.
SC.912.N.2.Su.b	Recognize that what is known about science can change based on new information.
SC.912.N.3.In.a	Recognize that a scientific theory is developed by repeated investigations of many scientists and agreement on the likely explanation.
SC.912.N.3.Su.b	Recognize examples of scientific laws that describe relationships in nature, such as Newton's laws.
SC.912.E.5.In.a	Recognize that the Milky Way is part of the expanding universe.
SC.912.E.5.Su.b	Recognize that stars are made of burning gases.
SC.912.E.5.Pa.c	Observe and recognize effects of the Sun on Earth, such as temperature changes.
SC.912.E.7.In.a	Identify cycles that occur on Earth, such as the water and carbon cycles, and the role energy plays in them.
SC.912.E.7.Su.b	Recognize that currents move the ocean water around Earth.
SC.912.E.7.Pa.c	Recognize that humans, plants, and animals live on the Earth (biosphere).
SC.912.P.8.In.a	Classify states of matter as solid, liquid, and gaseous.
SC.912.P.8.Su.b	Identify examples of physical and chemical changes.
SC.912.P.8.Pa.c	Recognize that the parts of an object can be put together to make a whole.
SC.912.P.10.In.a	Identify examples of energy being transformed from one form to another (conserved quantity).
SC.912.P.10.Su.b	Recognize the relationship between work and power, such as power is the amount of work a person or machine does.
SC.912.P.10.Pa.c	Recognize the source and recipient of heat transfer.
SC.912.P.12.In.a	Recognize that scalar quantities describe the magnitude of the measurement, such as size, weight, volume, area, temperature, or speed.
SC.912.P.12.Su.b	Recognize that acceleration generally involves a change in speed.
SC.912.P.12.Pa.c	Identify the source of the force moving an object.
SC.912.L.14.In.a	Identify that all living things are made of cells and cells function in similar ways (cell theory).
SC.912.L.14.Su.b	Recognize that cells have different parts and each has a function.

SC.912.L.14.Pa.c	Identify ways to prevent infection from bacteria and viruses, such as hand washing and first aid.
SC.912.L.15.In.a	Identify that prehistoric plants and animals changed over time (evolved) or became extinct.
SC.912.L.15.Su.b	Match organisms to the animal, plant, and fungus kingdoms.
SC.912.L.15.Pa.c	Recognize that animals produce offspring.
SC.912.L.16.In.a	Identify that genes are sets of instructions that determine which characteristics are passed from parent to offspring.
SC.912.L.16.Su.b	Recognize that all organisms have a substance called DNA with unique information.
SC.912.L.16.Pa.c	Recognize that illness can result when parts of our bodies are not working properly.
SC.912.L.17.In.a	Recognize that living things in oceans and fresh water are affected by the location, availability of light, depth of the water, and temperature.
SC.912.L.17.Su.b	Recognize how animals and plants in an ecosystem may be affected by changes to the food supply or climate.
SC.912.L.17.Pa.c	Recognize examples of mutual relationships between people and other living things.
SC.912.L.18.In.a	Identify that carbohydrates, fats, proteins, and nucleic acids (macromolecules) are important for human organisms.
SC.912.L.18.Su.b	Recognize that the function of photosynthesis is to produce food for plants.
SC.912.L.18.Pa.c	Identify that food is a source of energy.

2002440 Integrated Science III

Section: Basic and Adult Education
Grade Group: Secondary Grades 9-12
Subject: Science
Domain: Integrated Sciences
Course Length: Year
Level: 2

This course description incorporates the following Next Generation Sunshine State Standards for standards-based teaching and learning.

Benchmarks

Benchmark Code	Benchmark Descriptor	Depth of Knowledge
SC.912.N.1.1	Define a problem based on a specific body of knowledge, for example: biology, chemistry, physics, and earth/space science, and do the following:	High
SC.912.N.1.2	Describe and explain what characterizes science and its methods.	Moderate
SC.912.N.1.3	Recognize that the strength or usefulness of a scientific claim is evaluated through scientific argumentation, which depends on critical and logical thinking, and the active consideration of alternative scientific explanations to explain the data present	Low
SC.912.N.1.6	Describe how scientific inferences are drawn from scientific observations and provide examples from the content being studied.	Moderate
SC.912.N.1.7	Recognize the role of creativity in constructing scientific questions, methods and explanations.	Low
SC.912.N.2.2	Identify which questions can be answered through science and which questions are outside the boundaries of scientific investigation, such as questions addressed by other ways of knowing, such as art, philosophy, and religion.	High
SC.912.N.2.5	Describe instances in which scientists' varied backgrounds, talents, interests, and goals influence the inferences and thus the explanations that they make about observations of natural phenomena and describe that competing interpretations (explanations)	High

SC.912.N.4.1	Explain how scientific knowledge and reasoning provide an empirically-based perspective to inform society's decision making.	Moderate
SC.912.N.4.2	Weigh the merits of alternative strategies for solving a specific societal problem by comparing a number of different costs and benefits, such as human, economic, and environmental.	High
SC.912.E.5.9	Analyze the broad effects of space exploration on the economy and culture of Florida.	High
SC.912.E.6.4	Analyze how specific geologic processes and features are expressed in Florida and elsewhere.	High
SC.912.E.7.5	Predict future weather conditions based on present observations and conceptual models and recognize limitations and uncertainties of such predictions.	High
SC.912.E.7.6	Relate the formation of severe weather to the various physical factors.	Moderate
SC.912.E.7.8	Explain how various atmospheric, oceanic, and hydrologic conditions in Florida have influenced and can influence human behavior, both individually and collectively.	High
SC.912.E.7.9	Cite evidence that the ocean has had a significant influence on climate change by absorbing, storing, and moving heat, carbon, and water.	High
SC.912.P.8.10	Describe oxidation-reduction reactions in living and non-living systems.	Moderate
SC.912.P.10.2	Explore the Law of Conservation of Energy by differentiating among open, closed, and isolated systems and explain that the total energy in an isolated system is a conserved quantity.	High
SC.912.P.10.3	Compare and contrast work and power qualitatively and quantitatively.	Moderate
SC.912.P.10.6	Create and interpret potential energy diagrams, for example: chemical reactions, orbits around a central body, motion of a pendulum.	High
SC.912.P.10.9	Describe the quantization of energy at the atomic level.	Moderate
SC.912.P.10.11	Explain and compare nuclear reactions (radioactive decay, fission and fusion), the energy changes associated with them and their associated safety issues.	High
SC.912.P.10.16	Explain the relationship between moving charges and magnetic fields, as well as changing magnetic fields and electric fields, and their application to modern technologies.	High
SC.912.P.10.18	Explore the theory of electromagnetism by comparing and contrasting the different parts of the electromagnetic spectrum in terms of wavelength, frequency, and energy, and relate them to phenomena and applications.	High
SC.912.P.10.21	Qualitatively describe the shift in frequency in sound or electromagnetic waves due to the relative motion of a source or a receiver.	Moderate
SC.912.P.12.5	Apply the law of conservation of linear momentum to interactions, such as collisions between objects.	High
SC.912.P.12.6	Qualitatively apply the concept of angular momentum.	High
SC.912.P.12.7	Recognize that nothing travels faster than the speed of light in vacuum which is the same for all observers no matter how they or the light source are moving.	Low
SC.912.P.12.10	Interpret the behavior of ideal gases in terms of kinetic molecular theory.	High
SC.912.L.15.10	Identify basic trends in hominid evolution from early ancestors six million years ago to modern humans, including brain size, jaw size, language, and manufacture of tools.	Moderate
SC.912.L.15.13	Describe the conditions required for natural selection, including: overproduction of offspring, inherited variation, and the struggle to survive, which result in differential reproductive success.	Moderate
SC.912.L.15.14	Discuss mechanisms of evolutionary change other than natural selection such as genetic drift and gene flow.	Moderate
SC.912.L.15.15	Describe how mutation and genetic recombination increase genetic variation.	Moderate

SC.912.L.16.4	Explain how mutations in the DNA sequence may or may not result in phenotypic change. Explain how mutations in gametes may result in phenotypic changes in offspring.	High
SC.912.L.16.8	Explain the relationship between mutation, cell cycle, and uncontrolled cell growth potentially resulting in cancer.	Moderate
SC.912.L.16.10	Evaluate the impact of biotechnology on the individual, society and the environment, including medical and ethical issues.	High
SC.912.L.16.13	Describe the basic anatomy and physiology of the human reproductive system. Describe the process of human development from fertilization to birth and major changes that occur in each trimester of pregnancy.	Moderate
SC.912.L.17.5	Analyze how population size is determined by births, deaths, immigration, emigration, and limiting factors (biotic and abiotic) that determine carrying capacity.	High
SC.912.L.17.6	Compare and contrast the relationships among organisms, including predation, parasitism, competition, commensalism, and mutualism.	Moderate
SC.912.L.17.8	Recognize the consequences of the losses of biodiversity due to catastrophic events, climate changes, human activity, and the introduction of invasive, non-native species.	High
SC.912.L.17.20	Predict the impact of individuals on environmental systems and examine how human lifestyles affect sustainability.	High
SC.912.L.18.10	Connect the role of adenosine triphosphate (ATP) to energy transfers within a cell.	High
SC.912.L.18.11	Explain the role of enzymes as catalysts that lower the activation energy of biochemical reactions. Identify factors, such as pH and temperature, and their effect on enzyme activity.	Moderate
SC.912.L.18.12	Discuss the special properties of water that contribute to Earth's suitability as an environment for life: cohesive behavior, ability to moderate temperature, expansion upon freezing, and versatility as a solvent.	Moderate
MA.912.S.1.2	Determine appropriate and consistent standards of measurement for the data to be collected in a survey or experiment.	Moderate
MA.912.S.3.2	Collect, organize, and analyze data sets, determine the best format for the data and present visual summaries from the following:	High
LA.1112.4.2.2	The student will record information and ideas from primary and/or secondary sources accurately and coherently, noting the validity and reliability of these sources and attributing sources of information;	
LA.1112.2.2.3	The student will organize information to show understanding or relationships among facts, ideas, and events (e.g., representing key points within text through charting, mapping, paraphrasing, summarizing, comparing, contrasting, outlining);	

Access Points for Students with Significant Cognitive Disabilities

Access Point Code	Access Point Descriptor
SC.912.N.1.In.a	Identify a problem based on a specific body of knowledge, including life science, earth and space science, or physical science, and do the following: 1. Identify a scientific question 2. Examine reliable sources of informtion to identify what is already k
SC.912.N.1.Su.b	Identify the basic process used in scientific investigations, including questioning, observing, recording, determining, and sharing results.
SC.912.N.1.Pa.c	Recognize that when a variety of common activities are repeated the same way, the outcomes are the same.
SC.912.N.2.In.a	Identify examples of investigations that involve science.

SC.912.N.2.Su.b	Recognize that what is known about science can change based on new information.
SC.912.N.4.In.a	Identify ways scientific knowledge and problem solving benefit people.
SC.912.N.4.Su.b	Recognize that some strategies may cost more to solve a problem.
SC.912.E.5.In.a	Recognize that the Milky Way is part of the expanding universe.
SC.912.E.5.Su.b	Recognize that stars are made of burning gases.
SC.912.E.5.Pa.c	Observe and recognize effects of the Sun on Earth, such as temperature changes.
SC.912.E.6.In.a	Describe the three layers of Earth (core, mantle, and crust).
SC.912.E.6.Su.b	Identify types of surface features, such as hills and valleys.
SC.912.E.7.In.a	Identify cycles that occur on Earth, such as the water and carbon cycles, and the role energy plays in them.
SC.912.E.7.Su.b	Recognize that currents move the ocean water around Earth.
SC.912.E.7.Pa.c	Recognize that humans, plants, and animals live on the Earth (biosphere).
SC.912.P.8.In.a	Classify states of matter as solid, liquid, and gaseous.
SC.912.P.8.Su.b	Identify examples of physical and chemical changes.
SC.912.P.8.Pa.c	Recognize that the parts of an object can be put together to make a whole.
SC.912.P.10.In.a	Identify examples of energy being transformed from one form to another (conserved quantity).
SC.912.P.10.Su.b	Recognize the relationship between work and power, such as power is the amount of work a person or machine does.
SC.912.P.10.Pa.c	Recognize the source and recipient of heat transfer.
SC.912.P.12.In.a	Recognize that scalar quantities describe the magnitude of the measurement, such as size, weight, volume, area, temperature, or speed.
SC.912.P.12.Su.b	Recognize that acceleration generally involves a change in speed.
SC.912.P.12.Pa.c	Identify the source of the force moving an object.
SC.912.L.15.In.a	Identify that prehistoric plants and animals changed over time (evolved) or became extinct.
SC.912.L.15.Su.b	Match organisms to the animal, plant, and fungus kingdoms.
SC.912.L.15.Pa.c	Recognize that animals produce offspring.
SC.912.L.16.In.a	Identify that genes are sets of instructions that determine which characteristics are passed from parent to offspring.
SC.912.L.16.Su.b	Recognize that all organisms have a substance called DNA with unique information.
SC.912.L.16.Pa.c	Recognize that illness can result when parts of our bodies are not working properly.
SC.912.L.17.In.a	Recognize that living things in oceans and fresh water are affected by the location, availability of light, depth of the water, and temperature.
SC.912.L.17.Su.b	Recognize how animals and plants in an ecosystem may be affected by changes to the food supply or climate.
SC.912.L.17.Pa.c	Recognize examples of mutual relationships between people and other living things.
SC.912.L.18.In.a	Identify that carbohydrates, fats, proteins, and nucleic acids (macromolecules) are important for human organisms.
SC.912.L.18.Su.b	Recognize that the function of photosynthesis is to produce food for plants.
SC.912.L.18.Pa.c	Identify that food is a source of energy.

2002460 Integrated Science IV

Section: Basic and Adult Education
Grade Group: Secondary Grades 9-12
Subject: Science
Domain: Integrated Sciences
Course Length: Year
Level: 3

This course description incorporates the following Next Generation Sunshine State Standards for standards-based teaching and learning.

Benchmarks

Benchmark Code	Benchmark Descriptor	Depth of Knowledge
SC.912.N.1.1	Define a problem based on a specific body of knowledge, for example: biology, chemistry, physics, and earth/space science, and do the following:	High
SC.912.N.1.2	Describe and explain what characterizes science and its methods.	Moderate
SC.912.N.1.3	Recognize that the strength or usefulness of a scientific claim is evaluated through scientific argumentation, which depends on critical and logical thinking, and the active consideration of alternative scientific explanations to explain the data present	Low
SC.912.N.1.4	Identify sources of information and assess their reliability according to the strict standards of scientific investigation.	High
SC.912.N.1.5	Describe and provide examples of how similar investigations conducted in many parts of the world result in the same outcome.	Moderate
SC.912.N.1.6	Describe how scientific inferences are drawn from scientific observations and provide examples from the content being studied.	Moderate
SC.912.N.1.7	Recognize the role of creativity in constructing scientific questions, methods and explanations.	Low
SC.912.N.2.1	Identify what is science, what clearly is not science, and what superficially resembles science (but fails to meet the criteria for science).	High
SC.912.N.2.2	Identify which questions can be answered through science and which questions are outside the boundaries of scientific investigation, such as questions addressed by other ways of knowing, such as art, philosophy, and religion.	High
SC.912.N.2.3	Identify examples of pseudoscience (such as astrology, phrenology) in society.	Low
SC.912.N.2.4	Explain that scientific knowledge is both durable and robust and open to change. Scientific knowledge can change because it is often examined and re-examined by new investigations and scientific argumentation. Because of these frequent examinations, scien	High
SC.912.N.2.5	Describe instances in which scientists' varied backgrounds, talents, interests, and goals influence the inferences and thus the explanations that they make about observations of natural phenomena and describe that competing interpretations (explanations)	High
SC.912.N.3.1	Explain that a scientific theory is the culmination of many scientific investigations drawing together all the current evidence concerning a substantial range of phenomena; thus, a scientific theory represents the most powerful explanation scientists have	High
SC.912.N.3.2	Describe the role consensus plays in the historical development of a theory in any one of the disciplines of science.	Moderate
SC.912.N.3.3	Explain that scientific laws are descriptions of specific relationships under given conditions in nature, but do not offer explanations for those relationships.	Moderate
SC.912.N.3.4	Recognize that theories do not become laws, nor do laws become theories; theories are well supported explanations and laws are well supported descriptions.	Moderate

SC.912.N.3.5	Describe the function of models in science, and identify the wide range of models used in science.	Moderate
SC.912.N.4.1	Explain how scientific knowledge and reasoning provide an empirically-based perspective to inform society's decision making.	Moderate
SC.912.N.4.2	Weigh the merits of alternative strategies for solving a specific societal problem by comparing a number of different costs and benefits, such as human, economic, and environmental.	High
SC.912.E.5.10	Describe and apply the coordinate system used to locate objects in the sky.	Moderate
SC.912.E.5.11	Distinguish the various methods of measuring astronomical distances and apply each in appropriate situations.	High
SC.912.E.6.5	Describe the geologic development of the present day oceans and identify commonly found features.	Moderate
SC.912.E.7.8	Explain how various atmospheric, oceanic, and hydrologic conditions in Florida have influenced and can influence human behavior, both individually and collectively.	High
SC.912.P.8.8	Characterize types of chemical reactions, for example: redox, acid-base, synthesis, and single and double replacement reactions.	Moderate
SC.912.P.8.9	Apply the mole concept and the law of conservation of mass to calculate quantities of chemicals participating in reactions.	High
SC.912.P.8.12	Describe the properties of the carbon atom that make the diversity of carbon compounds possible.	Moderate
SC.912.P.10.8	Explain entropy's role in determining the efficiency of processes that convert energy to work.	High
SC.912.P.10.17	Explore the theory of electromagnetism by explaining electromagnetic waves in terms of oscillating electric and magnetic fields.	High
SC.912.P.12.9	Recognize that time, length, and energy depend on the frame of reference.	Low
SC.912.L.14.1	Describe the scientific theory of cells (cell theory) and relate the history of its discovery to the process of science.	Moderate
SC.912.L.14.2	Relate structure to function for the components of plant and animal cells. Explain the role of cell membranes as a highly selective barrier (passive and active transport).	Moderate
SC.912.L.14.3	Compare and contrast the general structures of plant and animal cells. Compare and contrast the general structures of prokaryotic and eukaryotic cells.	Moderate
SC.912.L.14.5	Explain the evidence supporting the scientific theory of the origin of eukaryotic cells (endosymbiosis).	High
SC.912.L.15.3	Describe how biological diversity is increased by the origin of new species and how it is decreased by the natural process of extinction.	Moderate
SC.912.L.15.4	Describe how and why organisms are hierarchically classified and based on evolutionary relationships.	High
SC.912.L.15.5	Explain the reasons for changes in how organisms are classified.	High
SC.912.L.15.6	Discuss distinguishing characteristics of the domains and kingdoms of living organisms.	Moderate
SC.912.L.15.7	Discuss distinguishing characteristics of vertebrate and representative invertebrate phyla, and chordate classes using typical examples.	Moderate
SC.912.L.15.8	Describe the scientific explanations of the origin of life on Earth.	Moderate
SC.912.L.15.9	Explain the role of reproductive isolation in the process of speciation.	Moderate
SC.912.L.15.13	Describe the conditions required for natural selection, including: overproduction of offspring, inherited variation, and the struggle to survive, which result in differential reproductive success.	Moderate

SC.912.L.15.14	Discuss mechanisms of evolutionary change other than natural selection such as genetic drift and gene flow.	Moderate
SC.912.L.15.15	Describe how mutation and genetic recombination increase genetic variation.	Moderate
SC.912.L.16.6	Discuss the mechanisms for regulation of gene expression in prokaryotes and eukaryotes at transcription and translation level.	High
SC.912.L.16.7	Describe how viruses and bacteria transfer genetic material between cells and the role of this process in biotechnology.	High
SC.912.L.16.10	Evaluate the impact of biotechnology on the individual, society and the environment, including medical and ethical issues.	High
SC.912.L.17.1	Discuss the characteristics of populations, such as number of individuals, age structure, density, and pattern of distribution.	Moderate
SC.912.L.17.7	Characterize the biotic and abiotic components that define freshwater systems, marine systems and terrestrial systems.	Moderate
SC.912.L.17.12	Discuss the political, social, and environmental consequences of sustainable use of land.	High
SC.912.L.17.13	Discuss the need for adequate monitoring of environmental parameters when making policy decisions.	High
SC.912.L.17.14	Assess the need for adequate waste management strategies.	High
SC.912.L.17.15	Discuss the effects of technology on environmental quality.	Moderate
SC.912.L.17.16	Discuss the large-scale environmental impacts resulting from human activity, including waste spills, oil spills, runoff, greenhouse gases, ozone depletion, and surface and groundwater pollution.	High
SC.912.L.17.17	Assess the effectiveness of innovative methods of protecting the environment.	High
SC.912.L.17.18	Describe how human population size and resource use relate to environmental quality.	Moderate
SC.912.L.17.19	Describe how different natural resources are produced and how their rates of use and renewal limit availability.	Moderate
SC.912.L.17.20	Predict the impact of individuals on environmental systems and examine how human lifestyles affect sustainability.	High
SC.912.L.18.4	Describe the structures of proteins and amino acids. Explain the functions of proteins in living organisms. Identify some reactions that amino acids undergo. Relate the structure and function of enzymes.	Moderate
MA.912.S.1.2	Determine appropriate and consistent standards of measurement for the data to be collected in a survey or experiment.	Moderate
MA.912.S.3.2	Collect, organize, and analyze data sets, determine the best format for the data and present visual summaries from the following:	High
LA.910.4.2.2	The student will record information and ideas from primary and/or secondary sources accurately and coherently, noting the validity and reliability of these sources and attributing sources of information;	
LA.910.2.2.3	The student will organize information to show understanding or relationships among facts, ideas, and events (e.g., representing key points within text through charting, mapping, paraphrasing, summarizing, comparing, contrasting, or outlining);	

Access Points for Students with Significant Cognitive Disabilities

Access Point Code	Access Point Descriptor
SC.912.N.1.In.a	Identify a problem based on a specific body of knowledge, including life science, earth and space science, or physical science, and do the following: 1. Identify a scientific question 2. Examine reliable sources of informtion to identify what is already k

SC.912.N.1.Su.b	Identify the basic process used in scientific investigations, including questioning, observing, recording, determining, and sharing results.
SC.912.N.1.Pa.c	Recognize that when a variety of common activities are repeated the same way, the outcomes are the same.
SC.912.N.2.In.a	Identify examples of investigations that involve science.
SC.912.N.2.Su.b	Recognize that what is known about science can change based on new information.
SC.912.N.3.In.a	Recognize that a scientific theory is developed by repeated investigations of many scientists and agreement on the likely explanation.
SC.912.N.3.In.b	Identify examples of scientific laws that describe relationships in the natural world, such as Newton's laws.
SC.912.N.3.Su.b	Recognize examples of scientific laws that describe relationships in nature, such as Newton's laws.
SC.912.N.3.Su.c	Recognize ways models are used in the study of science.
SC.912.N.4.In.a	Identify ways scientific knowledge and problem solving benefit people.
SC.912.N.4.Su.b	Recognize that some strategies may cost more to solve a problem.
SC.912.E.7.In.a	Identify cycles that occur on Earth, such as the water and carbon cycles, and the role energy plays in them.
SC.912.E.7.Su.b	Recognize that currents move the ocean water around Earth.
SC.912.E.7.Pa.c	Recognize that humans, plants, and animals live on the Earth (biosphere).
SC.912.P.8.In.a	Classify states of matter as solid, liquid, and gaseous.
SC.912.P.8.Su.b	Identify examples of physical and chemical changes.
SC.912.P.8.Pa.c	Recognize that the parts of an object can be put together to make a whole.
SC.912.L.14.In.a	Identify that all living things are made of cells and cells function in similar ways (cell theory).
SC.912.L.14.Su.b	Recognize that cells have different parts and each has a function.
SC.912.L.14.Pa.c	Identify ways to prevent infection from bacteria and viruses, such as hand washing and first aid.
SC.912.L.15.In.a	Identify that prehistoric plants and animals changed over time (evolved) or became extinct.
SC.912.L.15.Su.b	Match organisms to the animal, plant, and fungus kingdoms.
SC.912.L.15.Pa.c	Recognize that animals produce offspring.
SC.912.L.16.In.a	Identify that genes are sets of instructions that determine which characteristics are passed from parent to offspring.
SC.912.L.16.Su.b	Recognize that all organisms have a substance called DNA with unique information.
SC.912.L.16.Pa.c	Recognize that illness can result when parts of our bodies are not working properly.
SC.912.L.17.In.a	Recognize that living things in oceans and fresh water are affected by the location, availability of light, depth of the water, and temperature.
SC.912.L.17.Su.b	Recognize how animals and plants in an ecosystem may be affected by changes to the food supply or climate.
SC.912.L.17.Pa.c	Recognize examples of mutual relationships between people and other living things.

2002470 Integrated Science V

Section: Basic and Adult Education
Grade Group: Secondary Grades 9-12
Subject: Science
Domain: Integrated Sciences
Course Length: Year
Level: 3

This course description incorporates the following Next Generation Sunshine State Standards for standards-based teaching and learning.

Benchmarks

Benchmark Code	Benchmark Descriptor	Depth of Knowledge
SC.912.N.1.1	Define a problem based on a specific body of knowledge, for example: biology, chemistry, physics, and earth/space science, and do the following:	High
SC.912.N.1.2	Describe and explain what characterizes science and its methods.	Moderate
SC.912.N.1.3	Recognize that the strength or usefulness of a scientific claim is evaluated through scientific argumentation, which depends on critical and logical thinking, and the active consideration of alternative scientific explanations to explain the data present	Low
SC.912.N.1.4	Identify sources of information and assess their reliability according to the strict standards of scientific investigation.	High
SC.912.N.1.5	Describe and provide examples of how similar investigations conducted in many parts of the world result in the same outcome.	Moderate
SC.912.N.1.6	Describe how scientific inferences are drawn from scientific observations and provide examples from the content being studied.	Moderate
SC.912.N.1.7	Recognize the role of creativity in constructing scientific questions, methods and explanations.	Low
SC.912.N.2.1	Identify what is science, what clearly is not science, and what superficially resembles science (but fails to meet the criteria for science).	High
SC.912.N.2.2	Identify which questions can be answered through science and which questions are outside the boundaries of scientific investigation, such as questions addressed by other ways of knowing, such as art, philosophy, and religion.	High
SC.912.N.2.3	Identify examples of pseudoscience (such as astrology, phrenology) in society.	Low
SC.912.N.2.4	Explain that scientific knowledge is both durable and robust and open to change. Scientific knowledge can change because it is often examined and re-examined by new investigations and scientific argumentation. Because of these frequent examinations, scien	High
SC.912.N.2.5	Describe instances in which scientists' varied backgrounds, talents, interests, and goals influence the inferences and thus the explanations that they make about observations of natural phenomena and describe that competing interpretations (explanations)	High
SC.912.N.3.1	Explain that a scientific theory is the culmination of many scientific investigations drawing together all the current evidence concerning a substantial range of phenomena; thus, a scientific theory represents the most powerful explanation scientists have	High
SC.912.N.3.2	Describe the role consensus plays in the historical development of a theory in any one of the disciplines of science.	Moderate
SC.912.N.3.3	Explain that scientific laws are descriptions of specific relationships under given conditions in nature, but do not offer explanations for those relationships.	Moderate
SC.912.N.3.4	Recognize that theories do not become laws, nor do laws become theories; theories are well supported explanations and laws are well supported descriptions.	Moderate

SC.912.N.3.5	Describe the function of models in science, and identify the wide range of models used in science.	Moderate
SC.912.N.4.1	Explain how scientific knowledge and reasoning provide an empirically-based perspective to inform society's decision making.	Moderate
SC.912.N.4.2	Weigh the merits of alternative strategies for solving a specific societal problem by comparing a number of different costs and benefits, such as human, economic, and environmental.	High
SC.912.E.5.1	Cite evidence used to develop and verify the scientific theory of the Big Bang (also known as the Big Bang Theory) of the origin of the universe.	High
SC.912.E.5.2	Identify patterns in the organization and distribution of matter in the universe and the forces that determine them.	Moderate
SC.912.E.5.6	Develop logical connections through physical principles, including Kepler's and Newton's Laws about the relationships and the effects of Earth, Moon, and Sun on each other.	High
SC.912.E.5.7	Relate the history of and explain the justification for future space exploration and continuing technology development.	High
SC.912.E.5.9	Analyze the broad effects of space exploration on the economy and culture of Florida.	High
SC.912.E.6.6	Analyze past, present, and potential future consequences to the environment resulting from various energy production technologies.	High
SC.912.E.7.1	Analyze the movement of matter and energy through the different biogeochemical cycles, including water and carbon.	High
SC.912.E.7.2	Analyze the causes of the various kinds of surface and deep water motion within the oceans and their impacts on the transfer of energy between the poles and the equator.	High
SC.912.E.7.4	Summarize the conditions that contribute to the climate of a geographic area, including the relationships to lakes and oceans.	Moderate
SC.912.P.8.7	Interpret formula representations of molecules and compounds in terms of composition and structure.	Moderate
SC.912.P.8.8	Characterize types of chemical reactions, for example: redox, acid-base, synthesis, and single and double replacement reactions.	Moderate
SC.912.P.8.9	Apply the mole concept and the law of conservation of mass to calculate quantities of chemicals participating in reactions.	High
SC.912.P.8.12	Describe the properties of the carbon atom that make the diversity of carbon compounds possible.	Moderate
SC.912.P.8.13	Identify selected functional groups and relate how they contribute to properties of carbon compounds.	High
SC.912.P.10.13	Relate the configuration of static charges to the electric field, electric force, electric potential, and electric potential energy.	High
SC.912.P.10.19	Explain that all objects emit and absorb electromagnetic radiation and distinguish between objects that are blackbody radiators and those that are not.	High
SC.912.P.10.22	Construct ray diagrams and use thin lens and mirror equations to locate the images formed by lenses and mirrors.	High
SC.912.P.12.11	Describe phase transitions in terms of kinetic molecular theory.	Moderate
SC.912.P.12.12	Explain how various factors, such as concentration, temperature, and presence of a catalyst affect the rate of a chemical reaction.	High
SC.912.P.12.13	Explain the concept of dynamic equilibrium in terms of reversible processes occurring at the same rates.	High
SC.912.L.14.6	Explain the significance of genetic factors, environmental factors, and pathogenic agents to health from the perspectives of both individual and public health.	High

SC.912.L.15.1	Explain how the scientific theory of evolution is supported by the fossil record, comparative anatomy, comparative embryology, biogeography, molecular biology, and observed evolutionary change.	High
SC.912.L.15.2	Discuss the use of molecular clocks to estimate how long ago various groups of organisms diverged evolutionarily from one another.	Moderate
SC.912.L.15.8	Describe the scientific explanations of the origin of life on Earth.	Moderate
SC.912.L.15.10	Identify basic trends in hominid evolution from early ancestors six million years ago to modern humans, including brain size, jaw size, language, and manufacture of tools.	Moderate
SC.912.L.15.11	Discuss specific fossil hominids and what they show about human evolution.	Moderate
SC.912.L.15.12	List the conditions for Hardy-Weinberg equilibrium in a population and why these conditions are not likely to appear in nature. Use the Hardy-Weinberg equation to predict genotypes in a population from observed phenotypes.	High
SC.912.L.15.13	Describe the conditions required for natural selection, including: overproduction of offspring, inherited variation, and the struggle to survive, which result in differential reproductive success.	Moderate
SC.912.L.15.14	Discuss mechanisms of evolutionary change other than natural selection such as genetic drift and gene flow.	Moderate
SC.912.L.15.15	Describe how mutation and genetic recombination increase genetic variation.	Moderate
SC.912.L.16.6	Discuss the mechanisms for regulation of gene expression in prokaryotes and eukaryotes at transcription and translation level.	High
SC.912.L.16.7	Describe how viruses and bacteria transfer genetic material between cells and the role of this process in biotechnology.	High
SC.912.L.16.11	Discuss the technologies associated with forensic medicine and DNA identification, including restriction fragment length polymorphism (RFLP) analysis.	High
SC.912.L.16.12	Describe how basic DNA technology (restriction digestion by endonucleases, gel electrophoresis, polymerase chain reaction, ligation, and transformation) is used to construct recombinant DNA molecules (DNA cloning).	Moderate
SC.912.L.17.20	Predict the impact of individuals on environmental systems and examine how human lifestyles affect sustainability.	High
SC.912.L.18.2	Describe the important structural characteristics of monosaccharides, disaccharides, and polysaccharides and explain the functions of carbohydrates in living things.	Moderate
SC.912.L.18.3	Describe the structures of fatty acids, triglycerides, phospholipids, and steroids. Explain the functions of lipids in living organisms. Identify some reactions that fatty acids undergo. Relate the structure and function of cell membranes.	Moderate
SC.912.L.18.6	Discuss the role of anaerobic respiration in living things and in human society.	Moderate
MA.912.S.1.2	Determine appropriate and consistent standards of measurement for the data to be collected in a survey or experiment.	Moderate
MA.912.S.3.2	Collect, organize, and analyze data sets, determine the best format for the data and present visual summaries from the following:	High
LA.1112.4.2.2	The student will record information and ideas from primary and/or secondary sources accurately and coherently, noting the validity and reliability of these sources and attributing sources of information;	
LA.1112.2.2.3	The student will organize information to show understanding or relationships among facts, ideas, and events (e.g., representing key points within text through charting, mapping, paraphrasing, summarizing, comparing, contrasting, outlining);	

Access Points for Students with Significant Cognitive Disabilities

Access Point Code	Access Point Descriptor
SC.912.N.1.In.a	Identify a problem based on a specific body of knowledge, including life science, earth and space science, or physical science, and do the following: 1. Identify a scientific question 2. Examine reliable sources of informtion to identify what is already k
SC.912.N.1.Su.b	Identify the basic process used in scientific investigations, including questioning, observing, recording, determining, and sharing results.
SC.912.N.1.Pa.c	Recognize that when a variety of common activities are repeated the same way, the outcomes are the same.
SC.912.N.2.In.a	Identify examples of investigations that involve science.
SC.912.N.2.Su.b	Recognize that what is known about science can change based on new information.
SC.912.N.3.In.a	Recognize that a scientific theory is developed by repeated investigations of many scientists and agreement on the likely explanation.
SC.912.N.3.In.b	Identify examples of scientific laws that describe relationships in the natural world, such as Newton's laws.
SC.912.N.3.Su.b	Recognize examples of scientific laws that describe relationships in nature, such as Newton's laws.
SC.912.N.3.Su.c	Recognize ways models are used in the study of science.
SC.912.N.4.In.a	Identify ways scientific knowledge and problem solving benefit people.
SC.912.N.4.Su.b	Recognize that some strategies may cost more to solve a problem.
SC.912.E.5.In.a	Recognize that the Milky Way is part of the expanding universe.
SC.912.E.5.Su.b	Recognize that stars are made of burning gases.
SC.912.E.5.Pa.c	Observe and recognize effects of the Sun on Earth, such as temperature changes.
SC.912.E.7.In.a	Identify cycles that occur on Earth, such as the water and carbon cycles, and the role energy plays in them.
SC.912.E.7.Su.b	Recognize that currents move the ocean water around Earth.
SC.912.E.7.Pa.c	Recognize that humans, plants, and animals live on the Earth (biosphere).
SC.912.P.8.In.a	Classify states of matter as solid, liquid, and gaseous.
SC.912.P.8.Su.b	Identify examples of physical and chemical changes.
SC.912.P.8.Pa.c	Recognize that the parts of an object can be put together to make a whole.
SC.912.L.14.In.a	Identify that all living things are made of cells and cells function in similar ways (cell theory).
SC.912.L.14.Su.b	Recognize that cells have different parts and each has a function.
SC.912.L.14.Pa.c	Identify ways to prevent infection from bacteria and viruses, such as hand washing and first aid.
SC.912.L.15.In.a	Identify that prehistoric plants and animals changed over time (evolved) or became extinct.
SC.912.L.15.Su.b	Match organisms to the animal, plant, and fungus kingdoms.
SC.912.L.15.Pa.c	Recognize that animals produce offspring.
SC.912.L.17.In.a	Recognize that living things in oceans and fresh water are affected by the location, availability of light, depth of the water, and temperature.
SC.912.L.17.Su.b	Recognize how animals and plants in an ecosystem may be affected by changes to the food supply or climate.
SC.912.L.17.Pa.c	Recognize examples of mutual relationships between people and other living things.

2002410 Integrated Science I Honors

Section: Basic and Adult Education
Grade Group: Secondary Grades 9-12
Subject: Science
Domain: Integrated Sciences
Course Length: Year
Level: 3

This course description incorporates the following Next Generation Sunshine State Standards for standards-based teaching and learning.

Benchmarks

Benchmark Code	Benchmark Descriptor	Depth of Knowledge
SC.912.N.1.1	Define a problem based on a specific body of knowledge, for example: biology, chemistry, physics, and earth/space science, and do the following:	High
SC.912.N.1.2	Describe and explain what characterizes science and its methods.	Moderate
SC.912.N.1.4	Identify sources of information and assess their reliability according to the strict standards of scientific investigation.	High
SC.912.N.1.7	Recognize the role of creativity in constructing scientific questions, methods and explanations.	Low
SC.912.N.2.1	Identify what is science, what clearly is not science, and what superficially resembles science (but fails to meet the criteria for science).	High
SC.912.N.3.2	Describe the role consensus plays in the historical development of a theory in any one of the disciplines of science.	Moderate
SC.912.N.3.3	Explain that scientific laws are descriptions of specific relationships under given conditions in nature, but do not offer explanations for those relationships.	Moderate
SC.912.N.3.4	Recognize that theories do not become laws, nor do laws become theories; theories are well supported explanations and laws are well supported descriptions.	Moderate
SC.912.N.3.5	Describe the function of models in science, and identify the wide range of models used in science.	Moderate
SC.912.E.5.1	Cite evidence used to develop and verify the scientific theory of the Big Bang (also known as the Big Bang Theory) of the origin of the universe.	High
SC.912.E.5.2	Identify patterns in the organization and distribution of matter in the universe and the forces that determine them.	Moderate
SC.912.E.5.4	Explain the physical properties of the Sun and its dynamic nature and connect them to conditions and events on Earth.	High
SC.912.E.5.7	Relate the history of and explain the justification for future space exploration and continuing technology development.	High
SC.912.E.5.8	Connect the concepts of radiation and the electromagnetic spectrum to the use of historical and newly-developed observational tools.	High
SC.912.E.6.1	Describe and differentiate the layers of Earth and the interactions among them.	Moderate
SC.912.E.6.2	Connect surface features to surface processes that are responsible for their formation.	Moderate
SC.912.E.6.3	Analyze the scientific theory of plate tectonics and identify related major processes and features as a result of moving plates.	High
SC.912.E.6.6	Analyze past, present, and potential future consequences to the environment resulting from various energy production technologies.	High
SC.912.E.7.1	Analyze the movement of matter and energy through the different biogeochemical cycles, including water and carbon.	High
SC.912.E.7.3	Differentiate and describe the various interactions among Earth systems, including: atmosphere, hydrosphere, cryosphere, geosphere, and biosphere.	High

SC.912.P.8.1	Differentiate among the four states of matter.	Moderate
SC.912.P.8.2	Differentiate between physical and chemical properties and physical and chemical changes of matter.	Moderate
SC.912.P.8.3	Explore the scientific theory of atoms (also known as atomic theory) by describing changes in the atomic model over time and why those changes were necessitated by experimental evidence.	High
SC.912.P.8.4	Explore the scientific theory of atoms (also known as atomic theory) by describing the structure of atoms in terms of protons, neutrons and electrons, and differentiate among these particles in terms of their mass, electrical charges and locations within	High
SC.912.P.8.5	Relate properties of atoms and their position in the periodic table to the arrangement of their electrons.	Moderate
SC.912.P.8.7	Interpret formula representations of molecules and compounds in terms of composition and structure.	Moderate
SC.912.P.10.1	Differentiate among the various forms of energy and recognize that they can be transformed from one form to others.	Moderate
SC.912.P.10.4	Describe heat as the energy transferred by convection, conduction, and radiation, and explain the connection of heat to change in temperature or states of matter.	High
SC.912.P.10.7	Distinguish between endothermic and exothermic chemical processes.	Moderate
SC.912.P.10.19	Explain that all objects emit and absorb electromagnetic radiation and distinguish between objects that are blackbody radiators and those that are not.	High
SC.912.P.10.20	Describe the measurable properties of waves and explain the relationships among them and how these properties change when the wave moves from one medium to another.	High
SC.912.P.12.3	Interpret and apply Newton's three laws of motion.	High
SC.912.L.14.1	Describe the scientific theory of cells (cell theory) and relate the history of its discovery to the process of science.	Moderate
SC.912.L.14.2	Relate structure to function for the components of plant and animal cells. Explain the role of cell membranes as a highly selective barrier (passive and active transport).	Moderate
SC.912.L.14.7	Relate the structure of each of the major plant organs and tissues to physiological processes.	Moderate
SC.912.L.15.1	Explain how the scientific theory of evolution is supported by the fossil record, comparative anatomy, comparative embryology, biogeography, molecular biology, and observed evolutionary change.	High
SC.912.L.15.4	Describe how and why organisms are hierarchically classified and based on evolutionary relationships.	High
SC.912.L.15.6	Discuss distinguishing characteristics of the domains and kingdoms of living organisms.	Moderate
SC.912.L.15.8	Describe the scientific explanations of the origin of life on Earth.	Moderate
SC.912.L.16.1	Use Mendel's laws of segregation and independent assortment to analyze patterns of inheritance.	High
SC.912.L.17.2	Explain the general distribution of life in aquatic systems as a function of chemistry, geography, light, depth, salinity, and temperature.	High
SC.912.L.17.3	Discuss how various oceanic and freshwater processes, such as currents, tides, and waves, affect the abundance of aquatic organisms.	Moderate
SC.912.L.17.4	Describe changes in ecosystems resulting from seasonal variations, climate change and succession.	Moderate
SC.912.L.17.11	Evaluate the costs and benefits of renewable and nonrenewable resources, such as water, energy, fossil fuels, wildlife, and forests.	High

SC.912.L.18.6	Discuss the role of anaerobic respiration in living things and in human society.	Moderate
SC.912.L.18.7	Identify the reactants, products, and basic functions of photosynthesis.	Moderate
MA.912.S.1.2	Determine appropriate and consistent standards of measurement for the data to be collected in a survey or experiment.	Moderate
MA.912.S.3.2	Collect, organize, and analyze data sets, determine the best format for the data and present visual summaries from the following:	High
LA.1112.4.2.2	The student will record information and ideas from primary and/or secondary sources accurately and coherently, noting the validity and reliability of these sources and attributing sources of information;	
LA.1112.2.2.3	The student will organize information to show understanding or relationships among facts, ideas, and events (e.g., representing key points within text through charting, mapping, paraphrasing, summarizing, comparing, contrasting, outlining);	

Access Points for Students with Significant Cognitive Disabilities

Access Point Code	Access Point Descriptor
SC.912.N.1.In.a	Identify a problem based on a specific body of knowledge, including life science, earth and space science, or physical science, and do the following: 1. Identify a scientific question 2. Examine reliable sources of informtion to identify what is already k
SC.912.N.1.Su.b	Identify the basic process used in scientific investigations, including questioning, observing, recording, determining, and sharing results.
SC.912.N.1.Pa.c	Recognize that when a variety of common activities are repeated the same way, the outcomes are the same.
SC.912.N.2.In.a	Identify examples of investigations that involve science.
SC.912.N.2.Su.b	Recognize that what is known about science can change based on new information.
SC.912.N.3.In.a	Recognize that a scientific theory is developed by repeated investigations of many scientists and agreement on the likely explanation.
SC.912.N.3.In.b	Identify examples of scientific laws that describe relationships in the natural world, such as Newton's laws.
SC.912.N.3.Su.b	Recognize examples of scientific laws that describe relationships in nature, such as Newton's laws.
SC.912.N.3.Su.c	Recognize ways models are used in the study of science.
SC.912.E.5.In.a	Recognize that the Milky Way is part of the expanding universe.
SC.912.E.5.Su.b	Recognize that stars are made of burning gases.
SC.912.E.5.Pa.c	Observe and recognize effects of the Sun on Earth, such as temperature changes.
SC.912.E.6.In.a	Describe the three layers of Earth (core, mantle, and crust).
SC.912.E.6.Su.b	Identify types of surface features, such as hills and valleys.
SC.912.E.7.In.a	Identify cycles that occur on Earth, such as the water and carbon cycles, and the role energy plays in them.
SC.912.E.7.Su.b	Recognize that currents move the ocean water around Earth.
SC.912.E.7.Pa.c	Recognize that humans, plants, and animals live on the Earth (biosphere).
SC.912.P.8.In.a	Classify states of matter as solid, liquid, and gaseous.
SC.912.P.8.Su.b	Identify examples of physical and chemical changes.
SC.912.P.8.Pa.c	Recognize that the parts of an object can be put together to make a whole.
SC.912.P.10.In.a	Identify examples of energy being transformed from one form to another (conserved quantity).

SC.912.P.10.Su.b	Recognize the relationship between work and power, such as power is the amount of work a person or machine does.
SC.912.P.10.Pa.c	Recognize the source and recipient of heat transfer.
SC.912.P.12.In.a	Recognize that scalar quantities describe the magnitude of the measurement, such as size, weight, volume, area, temperature, or speed.
SC.912.P.12.Su.b	Recognize that acceleration generally involves a change in speed.
SC.912.P.12.Pa.c	Identify the source of the force moving an object.
SC.912.L.14.In.a	Identify that all living things are made of cells and cells function in similar ways (cell theory).
SC.912.L.14.Su.b	Recognize that cells have different parts and each has a function.
SC.912.L.14.Pa.c	Identify ways to prevent infection from bacteria and viruses, such as hand washing and first aid.
SC.912.L.15.In.a	Identify that prehistoric plants and animals changed over time (evolved) or became extinct.
SC.912.L.15.Su.b	Match organisms to the animal, plant, and fungus kingdoms.
SC.912.L.15.Pa.c	Recognize that animals produce offspring.
SC.912.L.16.In.a	Identify that genes are sets of instructions that determine which characteristics are passed from parent to offspring.
SC.912.L.16.Su.b	Recognize that all organisms have a substance called DNA with unique information.
SC.912.L.16.Pa.c	Recognize that illness can result when parts of our bodies are not working properly.
SC.912.L.17.In.a	Recognize that living things in oceans and fresh water are affected by the location, availability of light, depth of the water, and temperature.
SC.912.L.17.Su.b	Recognize how animals and plants in an ecosystem may be affected by changes to the food supply or climate.
SC.912.L.17.Pa.c	Recognize examples of mutual relationships between people and other living things.
SC.912.L.18.In.a	Identify that carbohydrates, fats, proteins, and nucleic acids (macromolecules) are important for human organisms.
SC.912.L.18.Su.b	Recognize that the function of photosynthesis is to produce food for plants.
SC.912.L.18.Pa.c	Identify that food is a source of energy.

2002430 Integrated Science II Honors

Section: Basic and Adult Education

Grade Group: Secondary Grades 9-12

Subject: Science

Domain: Integrated Sciences

Course Length: Year

Level: 3

This course description incorporates the following Next Generation Sunshine State Standards for standards-based teaching and learning.

Benchmarks

Benchmark Code	Benchmark Descriptor	Depth of Knowledge
SC.912.N.1.1	Define a problem based on a specific body of knowledge, for example: biology, chemistry, physics, and earth/space science, and do the following:	High
SC.912.N.1.5	Describe and provide examples of how similar investigations conducted in many parts of the world result in the same outcome.	Moderate
SC.912.N.1.7	Recognize the role of creativity in constructing scientific questions, methods and explanations.	Low

SC.912.N.2.1	Identify what is science, what clearly is not science, and what superficially resembles science (but fails to meet the criteria for science).	High
SC.912.N.2.3	Identify examples of pseudoscience (such as astrology, phrenology) in society.	Low
SC.912.N.2.4	Explain that scientific knowledge is both durable and robust and open to change. Scientific knowledge can change because it is often examined and re-examined by new investigations and scientific argumentation. Because of these frequent examinations, scien	High
SC.912.N.3.1	Explain that a scientific theory is the culmination of many scientific investigations drawing together all the current evidence concerning a substantial range of phenomena; thus, a scientific theory represents the most powerful explanation scientists have	High
SC.912.E.5.3	Describe and predict how the initial mass of a star determines its evolution.	Moderate
SC.912.E.5.5	Explain the formation of planetary systems based on our knowledge of our Solar System and apply this knowledge to newly discovered planetary systems.	High
SC.912.E.5.6	Develop logical connections through physical principles, including Kepler's and Newton's Laws about the relationships and the effects of Earth, Moon, and Sun on each other.	High
SC.912.E.7.2	Analyze the causes of the various kinds of surface and deep water motion within the oceans and their impacts on the transfer of energy between the poles and the equator.	High
SC.912.E.7.4	Summarize the conditions that contribute to the climate of a geographic area, including the relationships to lakes and oceans.	Moderate
SC.912.E.7.7	Identify, analyze, and relate the internal (Earth system) and external (astronomical) conditions that contribute to global climate change.	High
SC.912.P.8.6	Distinguish between bonding forces holding compounds together and other attractive forces, including hydrogen bonding and van der Waals forces.	Moderate
SC.912.P.8.8	Characterize types of chemical reactions, for example: redox, acid-base, synthesis, and single and double replacement reactions.	Moderate
SC.912.P.8.9	Apply the mole concept and the law of conservation of mass to calculate quantities of chemicals participating in reactions.	High
SC.912.P.8.11	Relate acidity and basicity to hydronium and hydroxyl ion concentration and pH.	Moderate
SC.912.P.8.12	Describe the properties of the carbon atom that make the diversity of carbon compounds possible.	Moderate
SC.912.P.8.13	Identify selected functional groups and relate how they contribute to properties of carbon compounds.	High
SC.912.P.10.5	Relate temperature to the average molecular kinetic energy.	Moderate
SC.912.P.10.10	Compare the magnitude and range of the four fundamental forces (gravitational, electromagnetic, weak nuclear, strong nuclear).	Moderate
SC.912.P.10.12	Differentiate between chemical and nuclear reactions.	Moderate
SC.912.P.10.14	Differentiate among conductors, semiconductors, and insulators.	Moderate
SC.912.P.10.15	Investigate and explain the relationships among current, voltage, resistance, and power.	High
SC.912.P.12.1	Distinguish between scalar and vector quantities and assess which should be used to describe an event.	High
SC.912.P.12.2	Analyze the motion of an object in terms of its position, velocity, and acceleration (with respect to a frame of reference) as functions of time.	High
SC.912.P.12.4	Describe how the gravitational force between two objects depends on their masses and the distance between them.	Moderate
SC.912.P.12.11	Describe phase transitions in terms of kinetic molecular theory.	Moderate

SC.912.P.12.12	Explain how various factors, such as concentration, temperature, and presence of a catalyst affect the rate of a chemical reaction.	High
SC.912.L.14.5	Explain the evidence supporting the scientific theory of the origin of eukaryotic cells (endosymbiosis).	High
SC.912.L.14.6	Explain the significance of genetic factors, environmental factors, and pathogenic agents to health from the perspectives of both individual and public health.	High
SC.912.L.16.2	Discuss observed inheritance patterns caused by various modes of inheritance, including dominant, recessive, codominant, sex-linked, polygenic, and multiple alleles.	High
SC.912.L.16.3	Describe the basic process of DNA replication and how it relates to the transmission and conservation of the genetic information.	High
SC.912.L.16.5	Explain the basic processes of transcription and translation, and how they result in the expression of genes.	High
SC.912.L.16.7	Describe how viruses and bacteria transfer genetic material between cells and the role of this process in biotechnology.	High
SC.912.L.16.9	Explain how and why the genetic code is universal and is common to almost all organisms.	Moderate
SC.912.L.16.14	Describe the cell cycle, including the process of mitosis. Explain the role of mitosis in the formation of new cells and its importance in maintaining chromosome number during asexual reproduction.	Moderate
SC.912.L.16.16	Describe the process of meiosis, including independent assortment and crossing over. Explain how reduction division results in the formation of haploid gametes or spores.	Moderate
SC.912.L.16.17	Compare and contrast mitosis and meiosis and relate to the processes of sexual and asexual reproduction and their consequences for genetic variation.	High
SC.912.L.17.9	Use a food web to identify and distinguish producers, consumers, and decomposers. Explain the pathway of energy transfer through trophic levels and the reduction of available energy at successive trophic levels.	Moderate
SC.912.L.17.10	Diagram and explain the biogeochemical cycles of an ecosystem, including water, carbon, and nitrogen cycle.	Moderate
SC.912.L.18.1	Describe the basic molecular structures and primary functions of the four major categories of biological macromolecules.	Moderate
SC.912.L.18.8	Identify the reactants, products, and basic functions of aerobic and anaerobic cellular respiration.	Moderate
SC.912.L.18.9	Explain the interrelated nature of photosynthesis and cellular respiration.	Moderate
MA.912.S.1.2	Determine appropriate and consistent standards of measurement for the data to be collected in a survey or experiment.	Moderate
MA.912.S.3.2	Collect, organize, and analyze data sets, determine the best format for the data and present visual summaries from the following:	High
LA.910.4.2.2	The student will record information and ideas from primary and/or secondary sources accurately and coherently, noting the validity and reliability of these sources and attributing sources of information;	
LA.910.2.2.3	The student will organize information to show understanding or relationships among facts, ideas, and events (e.g., representing key points within text through charting, mapping, paraphrasing, summarizing, comparing, contrasting, or outlining);	
HE.912.C.1.3	Evaluate how environment and personal health are interrelated.	
HE.912.C.1.4	Analyze how heredity and family history can impact personal health.	

Access Points for Students with Significant Cognitive Disabilities

Access Point Code	Access Point Descriptor
SC.912.N.1.In.a	Identify a problem based on a specific body of knowledge, including life science, earth and space science, or physical science, and do the following: 1. Identify a scientific question 2. Examine reliable sources of informtion to identify what is already k
SC.912.N.1.Su.b	Identify the basic process used in scientific investigations, including questioning, observing, recording, determining, and sharing results.
SC.912.N.1.Pa.c	Recognize that when a variety of common activities are repeated the same way, the outcomes are the same.
SC.912.N.2.In.a	Identify examples of investigations that involve science.
SC.912.N.2.Su.b	Recognize that what is known about science can change based on new information.
SC.912.N.3.In.a	Recognize that a scientific theory is developed by repeated investigations of many scientists and agreement on the likely explanation.
SC.912.N.3.Su.b	Recognize examples of scientific laws that describe relationships in nature, such as Newton's laws.
SC.912.E.5.In.a	Recognize that the Milky Way is part of the expanding universe.
SC.912.E.5.Su.b	Recognize that stars are made of burning gases.
SC.912.E.5.Pa.c	Observe and recognize effects of the Sun on Earth, such as temperature changes.
SC.912.E.7.In.a	Identify cycles that occur on Earth, such as the water and carbon cycles, and the role energy plays in them.
SC.912.E.7.Su.b	Recognize that currents move the ocean water around Earth.
SC.912.E.7.Pa.c	Recognize that humans, plants, and animals live on the Earth (biosphere).
SC.912.P.8.In.a	Classify states of matter as solid, liquid, and gaseous.
SC.912.P.8.Su.b	Identify examples of physical and chemical changes.
SC.912.P.8.Pa.c	Recognize that the parts of an object can be put together to make a whole.
SC.912.P.10.In.a	Identify examples of energy being transformed from one form to another (conserved quantity).
SC.912.P.10.Su.b	Recognize the relationship between work and power, such as power is the amount of work a person or machine does.
SC.912.P.10.Pa.c	Recognize the source and recipient of heat transfer.
SC.912.P.12.In.a	Recognize that scalar quantities describe the magnitude of the measurement, such as size, weight, volume, area, temperature, or speed.
SC.912.P.12.Su.b	Recognize that acceleration generally involves a change in speed.
SC.912.P.12.Pa.c	Identify the source of the force moving an object.
SC.912.L.14.In.a	Identify that all living things are made of cells and cells function in similar ways (cell theory).
SC.912.L.14.Su.b	Recognize that cells have different parts and each has a function.
SC.912.L.14.Pa.c	Identify ways to prevent infection from bacteria and viruses, such as hand washing and first aid.
SC.912.L.16.In.a	Identify that genes are sets of instructions that determine which characteristics are passed from parent to offspring.
SC.912.L.16.Su.b	Recognize that all organisms have a substance called DNA with unique information.
SC.912.L.16.Pa.c	Recognize that illness can result when parts of our bodies are not working properly.
SC.912.L.17.In.a	Recognize that living things in oceans and fresh water are affected by the location, availability of light, depth of the water, and temperature.

SC.912.L.17.Su.b	Recognize how animals and plants in an ecosystem may be affected by changes to the food supply or climate.
SC.912.L.17.Pa.c	Recognize examples of mutual relationships between people and other living things.
SC.912.L.18.In.a	Identify that carbohydrates, fats, proteins, and nucleic acids (macromolecules) are important for human organisms.
SC.912.L.18.Su.b	Recognize that the function of photosynthesis is to produce food for plants.
SC.912.L.18.Pa.c	Identify that food is a source of energy.

2002450 Integrated Science III Honors

Section: Basic and Adult Education
Grade Group: Secondary Grades 9-12
Subject: Science
Domain: Integrated Sciences
Course Length: Year
Level: 3

This course description incorporates the following Next Generation Sunshine State Standards for standards-based teaching and learning.

Benchmarks

Benchmark Code	Benchmark Descriptor	Depth of Knowledge
SC.912.N.1.1	Define a problem based on a specific body of knowledge, for example: biology, chemistry, physics, and earth/space science, and do the following:	High
SC.912.N.1.2	Describe and explain what characterizes science and its methods.	Moderate
SC.912.N.1.3	Recognize that the strength or usefulness of a scientific claim is evaluated through scientific argumentation, which depends on critical and logical thinking, and the active consideration of alternative scientific explanations to explain the data present	Low
SC.912.N.1.6	Describe how scientific inferences are drawn from scientific observations and provide examples from the content being studied.	Moderate
SC.912.N.1.7	Recognize the role of creativity in constructing scientific questions, methods and explanations.	Low
SC.912.N.2.5	Describe instances in which scientists' varied backgrounds, talents, interests, and goals influence the inferences and thus the explanations that they make about observations of natural phenomena and describe that competing interpretations (explanations)	High
SC.912.N.4.1	Explain how scientific knowledge and reasoning provide an empirically-based perspective to inform society's decision making.	Moderate
SC.912.N.4.2	Weigh the merits of alternative strategies for solving a specific societal problem by comparing a number of different costs and benefits, such as human, economic, and environmental.	High
SC.912.E.5.9	Analyze the broad effects of space exploration on the economy and culture of Florida.	High
SC.912.E.6.4	Analyze how specific geologic processes and features are expressed in Florida and elsewhere.	High
SC.912.E.7.5	Predict future weather conditions based on present observations and conceptual models and recognize limitations and uncertainties of such predictions.	High
SC.912.E.7.6	Relate the formation of severe weather to the various physical factors.	Moderate
SC.912.E.7.8	Explain how various atmospheric, oceanic, and hydrologic conditions in Florida have influenced and can influence human behavior, both individually and collectively.	High
SC.912.E.7.9	Cite evidence that the ocean has had a significant influence on climate change by absorbing, storing, and moving heat, carbon, and water.	High

SC.912.P.8.10	Describe oxidation-reduction reactions in living and non-living systems.	Moderate
SC.912.P.10.2	Explore the Law of Conservation of Energy by differentiating among open, closed, and isolated systems and explain that the total energy in an isolated system is a conserved quantity.	High
SC.912.P.10.3	Compare and contrast work and power qualitatively and quantitatively.	Moderate
SC.912.P.10.6	Create and interpret potential energy diagrams, for example: chemical reactions, orbits around a central body, motion of a pendulum.	High
SC.912.P.10.9	Describe the quantization of energy at the atomic level.	Moderate
SC.912.P.10.11	Explain and compare nuclear reactions (radioactive decay, fission and fusion), the energy changes associated with them and their associated safety issues.	High
SC.912.P.10.13	Relate the configuration of static charges to the electric field, electric force, electric potential, and electric potential energy.	High
SC.912.P.10.16	Explain the relationship between moving charges and magnetic fields, as well as changing magnetic fields and electric fields, and their application to modern technologies.	High
SC.912.P.10.18	Explore the theory of electromagnetism by comparing and contrasting the different parts of the electromagnetic spectrum in terms of wavelength, frequency, and energy, and relate them to phenomena and applications.	High
SC.912.P.10.21	Qualitatively describe the shift in frequency in sound or electromagnetic waves due to the relative motion of a source or a receiver.	Moderate
SC.912.P.10.22	Construct ray diagrams and use thin lens and mirror equations to locate the images formed by lenses and mirrors.	High
SC.912.P.12.5	Apply the law of conservation of linear momentum to interactions, such as collisions between objects.	High
SC.912.P.12.6	Qualitatively apply the concept of angular momentum.	High
SC.912.P.12.7	Recognize that nothing travels faster than the speed of light in vacuum which is the same for all observers no matter how they or the light source are moving.	Low
SC.912.P.12.10	Interpret the behavior of ideal gases in terms of kinetic molecular theory.	High
SC.912.L.15.10	Identify basic trends in hominid evolution from early ancestors six million years ago to modern humans, including brain size, jaw size, language, and manufacture of tools.	Moderate
SC.912.L.15.13	Describe the conditions required for natural selection, including: overproduction of offspring, inherited variation, and the struggle to survive, which result in differential reproductive success.	Moderate
SC.912.L.15.14	Discuss mechanisms of evolutionary change other than natural selection such as genetic drift and gene flow.	Moderate
SC.912.L.15.15	Describe how mutation and genetic recombination increase genetic variation.	Moderate
SC.912.L.16.4	Explain how mutations in the DNA sequence may or may not result in phenotypic change. Explain how mutations in gametes may result in phenotypic changes in offspring.	High
SC.912.L.16.8	Explain the relationship between mutation, cell cycle, and uncontrolled cell growth potentially resulting in cancer.	Moderate
SC.912.L.16.10	Evaluate the impact of biotechnology on the individual, society and the environment, including medical and ethical issues.	High
SC.912.L.16.13	Describe the basic anatomy and physiology of the human reproductive system. Describe the process of human development from fertilization to birth and major changes that occur in each trimester of pregnancy.	Moderate
SC.912.L.17.5	Analyze how population size is determined by births, deaths, immigration, emigration, and limiting factors (biotic and abiotic) that determine carrying capacity.	High

SC.912.L.17.6	Compare and contrast the relationships among organisms, including predation, parasitism, competition, commensalism, and mutualism.	Moderate
SC.912.L.17.8	Recognize the consequences of the losses of biodiversity due to catastrophic events, climate changes, human activity, and the introduction of invasive, non-native species.	High
SC.912.L.17.16	Discuss the large-scale environmental impacts resulting from human activity, including waste spills, oil spills, runoff, greenhouse gases, ozone depletion, and surface and groundwater pollution.	High
SC.912.L.17.20	Predict the impact of individuals on environmental systems and examine how human lifestyles affect sustainability.	High
SC.912.L.18.10	Connect the role of adenosine triphosphate (ATP) to energy transfers within a cell.	High
SC.912.L.18.11	Explain the role of enzymes as catalysts that lower the activation energy of biochemical reactions. Identify factors, such as pH and temperature, and their effect on enzyme activity.	Moderate
SC.912.L.18.12	Discuss the special properties of water that contribute to Earth's suitability as an environment for life: cohesive behavior, ability to moderate temperature, expansion upon freezing, and versatility as a solvent.	Moderate
MA.912.S.1.2	Determine appropriate and consistent standards of measurement for the data to be collected in a survey or experiment.	Moderate
MA.912.S.3.2	Collect, organize, and analyze data sets, determine the best format for the data and present visual summaries from the following:	High
LA.1112.4.2.2	The student will record information and ideas from primary and/or secondary sources accurately and coherently, noting the validity and reliability of these sources and attributing sources of information;	
LA.1112.2.2.3	The student will organize information to show understanding or relationships among facts, ideas, and events (e.g., representing key points within text through charting, mapping, paraphrasing, summarizing, comparing, contrasting, outlining);	

Access Points for Students with Significant Cognitive Disabilities

Access Point Code	Access Point Descriptor
SC.912.N.1.In.a	Identify a problem based on a specific body of knowledge, including life science, earth and space science, or physical science, and do the following: 1. Identify a scientific question 2. Examine reliable sources of informtion to identify what is already k
SC.912.N.1.Su.b	Identify the basic process used in scientific investigations, including questioning, observing, recording, determining, and sharing results.
SC.912.N.1.Pa.c	Recognize that when a variety of common activities are repeated the same way, the outcomes are the same.
SC.912.N.2.In.a	Identify examples of investigations that involve science.
SC.912.N.2.Su.b	Recognize that what is known about science can change based on new information.
SC.912.N.4.In.a	Identify ways scientific knowledge and problem solving benefit people.
SC.912.N.4.Su.b	Recognize that some strategies may cost more to solve a problem.
SC.912.E.5.In.a	Recognize that the Milky Way is part of the expanding universe.
SC.912.E.5.Su.b	Recognize that stars are made of burning gases.
SC.912.E.5.Pa.c	Observe and recognize effects of the Sun on Earth, such as temperature changes.
SC.912.E.6.In.a	Describe the three layers of Earth (core, mantle, and crust).
SC.912.E.6.Su.b	Identify types of surface features, such as hills and valleys.

SC.912.E.7.In.a	Identify cycles that occur on Earth, such as the water and carbon cycles, and the role energy plays in them.
SC.912.E.7.Su.b	Recognize that currents move the ocean water around Earth.
SC.912.E.7.Pa.c	Recognize that humans, plants, and animals live on the Earth (biosphere).
SC.912.P.8.In.a	Classify states of matter as solid, liquid, and gaseous.
SC.912.P.8.Su.b	Identify examples of physical and chemical changes.
SC.912.P.8.Pa.c	Recognize that the parts of an object can be put together to make a whole.
SC.912.P.10.In.a	Identify examples of energy being transformed from one form to another (conserved quantity).
SC.912.P.10.Su.b	Recognize the relationship between work and power, such as power is the amount of work a person or machine does.
SC.912.P.10.Pa.c	Recognize the source and recipient of heat transfer.
SC.912.P.12.In.a	Recognize that scalar quantities describe the magnitude of the measurement, such as size, weight, volume, area, temperature, or speed.
SC.912.P.12.Su.b	Recognize that acceleration generally involves a change in speed.
SC.912.P.12.Pa.c	Identify the source of the force moving an object.
SC.912.L.15.In.a	Identify that prehistoric plants and animals changed over time (evolved) or became extinct.
SC.912.L.15.Su.b	Match organisms to the animal, plant, and fungus kingdoms.
SC.912.L.15.Pa.c	Recognize that animals produce offspring.
SC.912.L.16.In.a	Identify that genes are sets of instructions that determine which characteristics are passed from parent to offspring.
SC.912.L.16.Su.b	Recognize that all organisms have a substance called DNA with unique information.
SC.912.L.16.Pa.c	Recognize that illness can result when parts of our bodies are not working properly.
SC.912.L.17.In.a	Recognize that living things in oceans and fresh water are affected by the location, availability of light, depth of the water, and temperature.
SC.912.L.17.Su.b	Recognize how animals and plants in an ecosystem may be affected by changes to the food supply or climate.
SC.912.L.17.Pa.c	Recognize examples of mutual relationships between people and other living things.
SC.912.L.18.In.a	Identify that carbohydrates, fats, proteins, and nucleic acids (macromolecules) are important for human organisms.
SC.912.L.18.Su.b	Recognize that the function of photosynthesis is to produce food for plants.
SC.912.L.18.Pa.c	Identify that food is a source of energy.

Advanced Placement (AP) Courses

Course descriptions for AP Biology, AP Chemistry, and AP Physics (B and C) are provided by the College Board and are available online at this Web site:

http://www.collegeboard.com/student/testing/ap/subjects.html

Major Priorities for Instructional Materials Content, Presentation, Learning

The priorities as described in this specification document were developed from research findings about what makes instructional materials effective. These priorities have undergone review by individuals who have served on state and district committees, by curriculum specialists, by instructional designers, by evaluation specialists, and by administrators of the statewide adoption system.

Instructional materials must be effective in three major priority areas: content, presentation, and learning. The following sections describe essential features for each of these priority areas. These features generally apply to all formats of instructional materials, whether print or other media/multiple media formats.

Content

Some features of content coverage have received progressively more attention over the past decade. These features include:

A. ALIGNMENT WITH CURRICULUM REQUIREMENTS
B. LEVEL OF TREATMENT OF CONTENT
C. EXPERTISE FOR CONTENT DEVELOPMENT
D. ACCURACY OF CONTENT
E. CURRENTNESS OF CONTENT
F. AUTHENTICITY OF CONTENT
G. MULTICULTURAL REPRESENTATION
H. HUMANITY AND COMPASSION

The following sections describe the content features expected for each of these priority areas.

A. ALIGNMENT WITH CURRICULUM REQUIREMENTS

Content must align with the Next Generation Sunshine State Standards and benchmarks for Science.

See Florida Statutes 1006.34(2)(a)(b); 1006.38(3)(b); 1006.31(4)

Florida has developed science course descriptions for K-12. These course descriptions can be found online at http://www.floridastandards.org/Courses/CourseDescriptionSearch.aspx.

Please note that the science course descriptions are subject to State Board of Education approval. The draft course descriptions are scheduled for submission to the State Board of Education in July 2009.

Correlations. Publishers are expected to provide correlation charts in the provided form to show exactly where and to what extent (mentioned or in-depth) the instructional materials cover the Sunshine State Standards and benchmarks outlined in the course descriptions.

Scope. The content should address Florida's required curriculum standards and benchmarks for the subject, grade level, and learning outcomes, including thinking and learning skills.

Completeness. The content of the major tool should be complete enough to stand on its own. To be useful for classroom instruction, instructional materials must be adaptable to the instructional goals and course outlines for individual school districts, as well as the state standards and benchmarks. Content should have no major omissions in the required content coverage. They may include concepts and topics that enrich and extend learning, but should be free of unrelated facts and information that would detract from achievement of Florida's specified Course Descriptions and Sunshine State Standards and benchmarks.

B. LEVEL OF TREATMENT OF CONTENT

The level of complexity or difficulty of content must be appropriate for the standards, student abilities and grade level, and time periods allowed for teaching.

See Florida Statutes 1006.31(4)(e); 1006.34(2)(a); 1006.34(2)(b)

Objectives. Content should be simple, complex, technical, or nontechnical enough for the intended objectives.

Students. Content should be developmentally appropriate for the age and maturity level of the intended students. It should contain sufficient details for students to understand the significance of the information and to engage in reflection and discussion.

Time. The level of complexity or difficulty of content also should allow for its coverage during the time periods available for teaching the subject.

C. EXPERTISE FOR CONTENT DEVELOPMENT

Expertise in the content area and in education of the intended students must be reflected in the authors, reviewers, and sources that contributed to the development of the materials.

See Florida Statutes 1006.38(15)

Authorship. The authors, consultants, and reviewers must have actually contributed to the development of the instructional materials and should have credentials that reflect expertise in

the subject area, course, course category, grade level, pedagogy, education, teaching, or classroom instruction. Qualifications may include expertise in educational psychology or instructional design.

Sources. Primary and secondary sources should reflect expert information for the subject, such as relevant data from research journals and other recognized scientific sources. The types of sources considered appropriate will vary with the particular subject area.

D. ACCURACY OF CONTENT

Content must be accurate in historical context and contemporary facts and concepts.

See Florida Statutes 1006.38(8); 1006.31(4)(e); 1006.35.

Objectivity. Content that is included in the materials should accurately represent the domain of knowledge and events. It should be factual and objective. It should be free of mistakes, errors, inconsistencies, contradictions within itself, and biases of interpretation. It should be free of the biased selection of information. Materials should distinguish between facts and possible interpretations or opinions expressed about factual information. Visuals or other elements of instruction should contribute to the accuracy of text or narrative.

Representativeness. The selection of content should not misrepresent the domain of knowledge and events. It should include the generally accepted and prevalent theories, major concepts, laws, standards, and models used within the discipline of the subject area.

Correctness. Presentation of content should be free of typographical and visual errors. It should include correct grammar, spelling, linguistics, terminology, definitions, descriptions, visuals, graphs, sounds, videos, and all other components of the instructional materials.

E. CURRENTNESS OF CONTENT

Content must be up to date for the academic discipline and the context in which the content is presented.

See Florida Statutes 1006.38(8); 1006.(4)(e).

Dates or editions. Copyright dates for photographs and other materials and editions should suggest sufficient currentness of content. Copyright dates and editions serve as indicators about currentness. However, neither the copyright date nor the edition guarantees currentness. Subsequent editions should reflect more up-to-date information than earlier editions. Informed examination of the text, narrative, and visuals contained in the materials provides the most direct information about currentness of the materials.

Context. Text or narrative, visuals, photographs, and other features should reflect the time periods appropriate for the objectives and the intended learners.

- Sometimes context should be current. For example, a photograph used to show stages of human growth and development will be more relevant when the clothing, hairstyles, and activities reflect present-day styles.
- Sometimes context should be historical. For example, illustrations and photographs of historical events should reflect the historical time period.
- Sometimes context should be both current and historical. For example, historic images alongside modern ones would convey changes in styles over time.
- At all times the context should be relevant to the learners, to the Curriculum Frameworks, to the standards and benchmarks, and to the concept presented.

F. AUTHENTICITY OF CONTENT

Content should include problem-centered connections to life in a context that is meaningful to students.

See Florida Statutes 1006.31(e); 1006.31(4)(b); 1003.42

Life connections. Instructional materials should include connections to the student's life situations to make the content meaningful. Students might be expected to deal with time constraints, consider risks and trade-offs in decision-making, and work with teams. Connections may be made to situations of daily home life, careers, vocation, community events and services, and leisure or recreation.

Interdisciplinary treatment. Instructional materials also should include interdisciplinary connections to make content meaningful. Examples of situations that connect a variety of subject areas include building projects, playing sports, retrieving information or objects, balancing budgets, creating products, and researching information. In addition to subject area connections, instructional materials should connect the course or course category to other disciplines and student experiences.

Examples of approaches to interdisciplinary connections include:

- explanations and activities for using skills and knowledge from other academic disciplines
- assignments that require students to relate learning from other disciplines rather than to isolated knowledge or skills
- the focus on common themes across several subject areas (infusion, parallel, transdisciplinary, or multidisciplinary instruction)

G. MULTICULTURAL REPRESENTATION

Portrayal of gender, ethnicity, age, work situations, and various social groups must include multicultural fairness and advocacy.

See Florida Statutes 1003.42; 1006.31(4)(a); 1006.34(2)(b).

Multicultural fairness. Through balanced representation of cultures and groups in multiple settings, occupations, careers, and lifestyles, the materials should support equal opportunity without regard to age, color, gender, disability, national origin, race, or religion. What matters most is not the number of pages devoted to diversity, equity, or work roles, but the substance of what is stated and portrayed. For this reason, it can be misleading to count the number of pages or illustrations devoted to a social issue or group. It is more important to focus on the integration of social diversity throughout a set of instructional materials.

In addition to balanced representations, the portrayal of individuals and situations must exclude biases and stereotypes. These portrayals must promote an understanding and appreciation of the importance and contributions of diverse cultures and heritage.

Multicultural advocacy. The understanding and appreciation of multiple cultures extends beyond fair representation. It involves embracing a multicultural context, not just through pictures, but through information about ways to honor differences and deal with conflicts, promote a positive self-image for members of all groups, and provide for the development of healthy attitudes and values.

Effective treatment of multicultural issues requires consideration of the age and ability levels of students and whether or not it is appropriate to include multicultural issues in the study of a particular topic, such as the memorization of a formula or equation. Overall, however, materials should reflect both multicultural fairness and advocacy.

H. HUMANITY AND COMPASSION

Portrayal of the appropriate care and treatment of people and animals must include compassion, sympathy, and consideration of their needs and values and exclude hard-core pornography and inhumane treatment.

See Florida Statutes 1003.42; 1006.31(4)(c); 1006.34(2)(b).

Inclusion of compassion. When providing examples in narrative or visuals, materials sometimes depict the care and treatment of people and animals. Generally, this means showing in some way a measure of compassion, sympathy, or consideration of their needs and feelings.

Exclusion of inhumanity. In the context of personal and family values, Florida expressly prohibits material containing *hard-core pornography*. In addition, although the definition of *inhumane treatment* can sometimes appear to be controversial, as in science research, there is general agreement that instructional materials should not advocate any form of inhumane treatment.

As with the evaluation of multicultural representation, it is important to consider the context of the subject and the age and abilities of the students.

Presentation

Features of presentation affect the practical usefulness of materials and the ease of finding and understanding content. These features include:

A. COMPREHENSIVENESS OF STUDENT AND TEACHER RESOURCES
B. ALIGNMENT OF INSTRUCTIONAL COMPONENTS
C. ORGANIZATION OF INSTRUCTIONAL MATERIALS
D, READABILITY OF INSTRUCTIONAL MATERIALS
E. PACING OF CONTENT
F. EASE OF USE OF MATERIALS

The following sections describe the presentation features expected for each of these areas.

A. COMPREHENSIVENESS OF STUDENT AND TEACHER RESOURCES

Resources must be complete enough to address the targeted learning outcomes without requiring the teacher to prepare additional teaching materials for the course.

See Florida Statutes 1006.34(2)(a); 1006.34(2)(b)

Materials should contain support for students in completing instructional activities and assessments and for teachers in implementing all of the instructional elements. A variety of components can accomplish this purpose. Typically, materials will include test items, study guides, outlines and strategies for teaching, media supplements, learning activities, and projects.

The major components generally expected for student and teacher resources are listed below.

Student resources

Student materials typically include the major text or program with text or narration, visuals, assignments, and assessments. Formats may include print, audio, visual, computer, or other media like CDs, DVDs, PPTs, or software adaptable for Smart Boards.

Effective instructional materials generally integrate the use of reference aids (e.g., index, glossary, maps, bibliography, graphic organizers, charts, and pictures) with the topic being studied. Items that guide students through materials might include clearly labeled materials, directions and explanations, and assignments with menus of choices.

Review and practice activities may include participation activities such as simulations, role-playing situations, investigations, and hands-on practice assignments. Review activities may include self-checks or quizzes. Formats may include worksheets, workbooks, journals, lab books, lab logs, charts, or maps. Feedback may be in the form of answer keys in student materials or in teacher materials. Communication is an essential component in the processes of science. Students must have multiple opportunities to develop skills in technical writing.

Review works best as a logical extension of content, goals, objectives, and lessons, with increased similarity to real-life situations. Review activities should require students to apply previously learned knowledge and skills. Frequent short reviews over time improve learning more than a concentrated review. Assignments and stages of small practice improve speed and accuracy.

Other components may include enrichment and remediation activities, additional resources, and tests and assessment tools either in the student materials or in the teacher's guide or edition.

In addition:

- Student materials, other than the major tool, must be copy- or print-ready. Publishers are required to provide CDs or web-accessible materials that can be downloaded and modified to meet the needs of individual teachers or students.
- Student resources must include materials that are designed for student discovery, including materials appropriate for laboratory experiments and individual or cooperative group work. These materials should be appropriate for a variety of learning styles and should include appropriate and specific safety protocols.
- The major tool and other materials must include engaging activities requiring the use of technology, including calculators, electronic data-collecting laboratory probe-ware, interactive software, and websites.
- Student resources must include challenging and engaging problems, such as inquiry-based investigations that will require persistence over a period of time. These investigations should include ample time for student reflection.
- Materials should be standards-based, not assessment-based. Materials should not be labeled as FCAT preparation materials. The focus of teaching and learning in Florida's science courses comes from the Sunshine State Standards, not from the assessment. Instructional materials which provide strong support for mastery of the standards will be more likely to lead to students' success on the state science assessments. Student assessment materials should represent a variety of assessment types, including multiple opportunities for students to explain their understanding of science concepts.

Teacher resources. Teacher materials typically include a teacher's edition with the annotated student text and copies of ancillary written materials with answer keys, worksheets, tests, diagrams, non-consumables, as well as consumables, etc., so that the teacher has to use only one guide. In-service training, workshops, and consulting services should be made available by

publishers to support teachers in implementing instructional materials. Professional development is essential to the success of any program, especially when a program contains non-traditional elements. Publishers should clearly indicate the recommended amount and types of professional development that they will provide, and they should work with districts and schools to ensure that teachers receive the support that they need. The materials for the teacher should support continued teacher learning.

Support, guidelines, resources, or features such as the ones described below should be available to help teachers effectively implement materials in classroom and school settings.

- **Components and materials are easy to use.** Examples include clearance, license, or agreement for copying and use of materials; clear description and accurate directions for use of required equipment, facilities, resources, and environment; clearly labeled grade, lesson, content, and other information to identify components; correct specifications for making instructional media and electronic programs work effectively.

- **Materials support lesson planning, teaching, and learning.** Examples include overview of components and objectives; background for lectures and discussions; technical terminology, and reinforcement and review strategies; scope and sequence chart for activities and planning; sample lesson plans; suggestions for individualized study, small-group and large-group presentations and discussions, school-to-work activities, field or laboratory experiences, safety procedures, and other extension activities; suggestions for integrating themes across the subject area or course curriculum and forming connections to other disciplines; and suggestions for parental and community involvement.

- **Suggestions are provided for adapting instruction for varying needs.** Examples include alternative approaches to teaching, pacing, and options for varied delivery of instruction such as media, tools, equipment, and emerging technology; strategies for engaging all students, such as open-ended questions to stimulate thinking, journals, hands-on investigations, explorations, and multi-sensory approaches; suggestions for addressing common student difficulties or adapting to multiple learning styles; and alternative reteaching, enrichment, and remediation strategies.

- **Guidelines and resources are provided on how to implement and evaluate instruction.** Examples include answers to work assignments, practice activities, and tests; sample projects or research results; suggestions for using learning tasks for classroom assessment; guidelines for alternative assessments, such as sample checklists, rubrics, peer or performance assessments, and portfolios.

- **Resources are provided to use in classroom activities.** Examples include technology resources; lists of resources, Web links, and references; reading strategies; materials for displays or photocopies; classroom management strategies and documentation on how to manage the entire instructional program; and in-service workshops or consultation support from the publisher.

B. ALIGNMENT OF INSTRUCTIONAL COMPONENTS

All components of an instructional package must align with each other, as well as with the curriculum.

See Florida Statutes 1006.29(4); 1006.34(2)(b).

All components of an instructional package—teacher's edition and materials, student's edition and materials, workbook, all ancillary materials—must be integrated and interdependent and must correspond with each other. For example, support materials in the teacher's edition should align with student activities or assignments. They must match in content and progression of instructional activities.

C. ORGANIZATION OF INSTRUCTIONAL MATERIALS

The structure and format of materials must have enough order and clarity to allow students and teachers to access content and explicitly identify ideas and sequences.

See Florida Statutes 1006.34(2)(a); 1006.34(2)(b).

Providing an explicit and teachable structure can double the amount of information remembered. Clear organization allows students and teachers to discriminate important pieces of information through skimming, reading, or browsing.

Clear organization may be accomplished through a combination of features, but generally not through one feature alone.

Access to content. Some features help in searching and locating information, such as a table of contents; 6-12 content scope and sequence chart, menu or map of content; directions on how to locate information or complete assignments; an index for quick reference; goals and/or objectives, outlines, lists, or checklists for major sections; bibliographies and lists of resources; glossaries for quick access to major terms; introductions, key concepts and themes, visual cues, illustrations, labeled examples, and labeled reviews or summaries.

Visible structure and format. At-a-glance features should signal the organization of content. The following features are desirable:

- chapter or unit titles and/or frames; headings and subheadings;
- typographic cues such as bold, italics, or changes in size of type;
- divisions of content such as borders, boxes, circles, highlighting, visual signposts, icons, or color cues;
- diagrams, labels, and visuals placed near the related content; and numbering of pages and other components.

Objectives or a content outline may serve a similar purpose by introducing main ideas, providing guideposts to use in searching for key information, or serving as a checklist for self-assessment.

Certain types of brief narrative sections also contribute to clear organization. For example, the statement of a clear purpose with content organized around main ideas, principles, concepts, and logical relationships supports the unity and flow of information. Introductions also play a major role when they include anchoring ideas, a list of key points, or conceptual schemes such as metaphors. Summaries also can assist students in understanding the logical order of topics presented.

Logical organization. The pattern of organization of the content should be consistent and logical for the type of subject or topic. Patterns of organization may include comparison and contrast, time sequence, cause-effect or problem-solution-effect, concrete-to-abstract, introduction-review-extension (spiral structure), simple-to-complex, whole-part or part-whole, generalization-examples-review-practice, and conflict-inside view-structure.

D. READABILITY OF INSTRUCTIONAL MATERIALS

Narrative and visuals should engage students in reading or listening as well as in understanding the content at a level appropriate to the students' abilities.

See Florida Statutes 1006.31(4)(e); 1006.34(2)(a); 1006.34(2)(b).

Language style. Language style and visual features can influence the readability of materials. Yet, a popular tool for assessing readability has been the use of a *readability formula* of one type or another. These formulas tend to focus only on a few *countable* characteristics of language style such as the length of words, sentences, and/or paragraphs.

Other features are more important in establishing the readability of instructional materials, such as

- organized, coherent text
- language and concepts familiar to the student
- language that clarifies, simplifies, and explains information
- transition words such as "yet," "also," "next," "for example," "moreover," or "however"
- other phrases that create logical connections
- words with concrete and specific images
- active rather than passive voice
- varied sentence structures
- avoiding choppy sentences and unnecessary words
- specific questions or directions to guide student attention to visuals or key information

Visual features. Visual features that improve readability include

- print that is dark and clear, with good contrast
- paper with clean-cut edges without glare, or computer screens without glare
- margins wide enough on a page or screen to allow easy viewing of the text
- chunking text (Sentence ends on same page as it begins.)
- visuals that are relevant, clear, vivid, and simple enough for students to understand
- quantity of visuals suitable for the intended students (Both lower-ability students and higher-ability students tend to require more visuals.)
- unjustified text (ragged on the right) rather than justified (lined up on the right)
- visuals that contain information in a form different from the text
- graphs, charts, maps, and other visual representations integrated at their point of use
- colors, size of print, spacing, quantity, and type of visuals suitable for the abilities and needs of the intended students

E. PACING OF CONTENT

The amount of content presented at one time or the pace at which it is presented must be of a size or rate that allows students to perceive and understand it.

See Florida Statutes 1006.31(4)(e); 1006.34(2)(a); 1006.34(2)(b).

It is important that materials contain "bite-size" chunks or blocks of information. The chunks should not be so large, nor the pacing so fast, as to overwhelm students. Neither should the chunks be so small, nor the pacing so slow, as to bore them.

F. EASE OF USE OF MATERIALS

Both print and other media formats of instructional materials must be easy to use and replace and be durable enough for multiple uses over time.

See Florida Statutes 1006.29(4); 1006.38(3)(a); 1006.34(2)(a); 1006.34(2)(b); 1006.38(5); 1006.38(6)(7)(8)(9)

Warranty. The actual physical and technical qualities of materials should match the description contained in the publisher's warranty.

Use. Materials must be designed for practical use in the classroom and school environments. They must be easy to identify and store. Teachers and students must be able to access and use the materials. Some of the factors influencing their ease of use include number of components, size of components, packaging, quality of materials, equipment requirements, and cost to purchase or replace components.

The best choice about weight, size, and number of volumes depends on several factors, such as the organization of the content, how well separate volumes may fit time periods for instruction, and the ages of students. Technical production requirements, such as page limits or different types of bindings, may lead to multiple volumes.

Examples of classroom use include repeated copying of consumable materials and repeated use of other materials by students over time. Students should be able to easily use the materials and take home, in a convenient form, most of the material they need to learn for the course.

Technology-rich resources should work properly, without the purchase of additional software, and run without error. Electronic media for student use should be encoded to prevent accidental or intentional erasure or modification. As with textbooks, electronic media should allow students to easily access and interact with them without extensive supervision or special assistance.

The physical and technical qualities of materials should match with the resources of the schools. Materials such as videos, software, CDs, Internet sites, and transparencies may serve instructional purposes well, but have little value unless they can be implemented with the school's equipment. Publishers should include training, in-service, and consultation to help in effective use of the materials.

Durability. Students and teachers should be able to have materials that will be durable under conditions of expected use. For example, boxes, books, or other materials should not fall apart after normal classroom use. The packaging and form of materials should be flexible and durable enough for multiple uses over time. Durability includes considerations such as

- high-quality paper, ink, binding, and cover
- strength of back, joints, body block, and individual pages
- worry-free technology that runs properly, with easy to hear, see, and control audio and visual material
- the publisher's guarantee for replacement conditions and agreements for reproduction necessary to effectively use the materials

Cost. *Florida's Commissioner of Education will consider the impact of cost in making final decisions.* Cost, while not a direct factor in ease of use, influences the ease with which materials can be obtained or replaced. The impact of cost can be complex to estimate. It requires considering the number of materials available at no additional cost with the purchase of the major program or text, the cost over the adoption period of several years, and the number of ongoing free materials to support implementation. Attractive features such as higher quality paper and visuals and greater use of color may escalate cost, without enhancing learning effectiveness.

Learning

The following features have been found to promote learning and apply to most types of learning outcomes.

A. MOTIVATIONAL STRATEGIES
B. TEACHING A FEW "BIG IDEAS"
C. EXPLICIT INSTRUCTION
D. GUIDANCE AND SUPPORT
E. ACTIVE PARTICIPATION
F. TARGETED INSTRUCTIONAL STRATEGIES
G. TARGETED ASSESSMENT STRATEGIES

The following sections describe the learning features expected for each of these priority areas.

A. MOTIVATIONAL STRATEGIES

Instructional materials must include features to maintain learner motivation.

See Florida Statutes 1006.31(4)(e); 1006.34(2)(a)(b); 1006.38(4).

Expectations. Materials should positively influence the expectations of students. Examples include:

- positive expectations for success
- novel tasks or other approaches to stimulate intellectual curiosity
- meaningful tasks related to student interests, cultural backgrounds, and developmental levels
- activities with relevance to the student's life
- thought-provoking challenges such as paradoxes, dilemmas, problems, controversies, and questioning of traditional ways of thinking
- challenges that are neither too difficult to achieve nor so easy that students become bored
- hands-on tasks in a concrete context and images, sounds, analogies, metaphors, or humorous anecdotes
- variety, including the opportunity for students to ask their own questions, set their own goals, and make other choices during learning

Feedback. Materials should include informative and positive feedback on progress. Examples include

- frequent checks on progress, including testing
- explanatory feedback with information about correctness of responses, how to avoid or correct common mistakes, and/or different approaches to use
- varied forms of assessments (self-assessment, peer assessment, and some learning tasks without formal assessments)

Appearance. Materials should have an appearance generally considered attractive to the intended students.

B. TEACHING A FEW "BIG IDEAS"

Instructional materials should thoroughly teach a few important ideas, concepts, or themes.

See Florida Statutes 1006.31(4)(e); 1006.34(2)(a)(b).

Focus. Thoroughly teaching a few big ideas provides focus for the learners' attention. It provides an organizing framework for integrating new information.

Completeness. The thorough teaching of a few big ideas may focus on developing a deeper and more complete understanding of the major themes of a discipline, the content of the subject area, relationships to other disciplines, and the thinking and learning skills required for achieving the specified learning outcomes.

C. EXPLICIT INSTRUCTION

Instructional materials must contain clear statements of information and outcomes.

See Florida Statutes 1006.31(4)(e); 1006.34(2)(a)(b).

Clarity of directions and explanations. To support success in learning, instructional materials should include clear presentation and explanations of

- purposes, goals, and expected outcomes
- concepts, rules, information, and terms
- models, examples, questions, and feedback

For example, development of specific thinking skills requires an explicit statement of the particular *thinking skills* to be learned, along with the *strategies* or *steps to follow*. Explicit instruction for thinking skills might also involve showing *examples* of successful thinking contrasted with examples of poor thinking processes.

Similarly, the development of learning skills requires explicit directions about *when* and *how* to do activities such as note taking, outlining, paraphrasing, abstracting and analyzing, summarizing, self-coaching, memory strategies, persistence, preview and questioning, reading and listening, reflecting, and reciting.

Exclusion of ambiguity. Instructional materials should avoid terms and phrases with ambiguous meanings, confusing directions or descriptions, or inadequate explanations.

D. GUIDANCE AND SUPPORT

Instructional materials must include guidance and support to help students safely and successfully become more independent learners and thinkers.

See Florida Statutes 1006.31(4)(e); 1006.34(2)(a).

Level. The type of guidance and support that helps students become more independent learners and thinkers is sometimes referred to as *scaffolding.* Scaffolding is a solid structure of support that can be removed after a job has been completed. As students gain proficiency, support can diminish, and students can encounter more complex, life-centered problems. Information and activities should provide guidance and support at the level that is needed—no more and no less. Too much can squelch student interest, and too little can lead to failure.

Guidance and support can be accomplished by a combination of the following features:

- organized routines
- advance organizers or models such as
    - condensed outlines or overviews
    - simplified views of information
    - visual representations of new information during initial instruction
    - sample problems
    - questions to focus on key ideas or important features
    - examples of solved problems
    - explanations of how the problems were solved
    - examples of finished products or sample performances
    - analogies, metaphors, or associations to compare one idea to another
- prompts or hints during initial practice
- step-by-step instructions

- immediate and corrective feedback on the accuracy of performance of each step or task, on how to learn from mistakes, and on how to reach the correct answer
- simulations with features for realistic practice
- opportunities for students to do research and to organize and communicate results

Adaptability. Guidance and support must be adaptable to developmental differences and various learning styles. For example, young children tend to understand concepts in concrete terms and overgeneralize new concepts. Some students need more time, some tend to be more impulsive than reflective, some have trouble distinguishing relevant from irrelevant information, and some have better written than spoken language skills. Approaches for developmental differences and various learning styles of students include

- a variety of *activities* such as
    - structured and unstructured activities
    - independent and group work
    - teacher-directed and discovery learning
    - visual and narrative instruction
    - hands-on activities
    - open-ended activities
    - practice without extrinsic rewards or grades
    - simple, complex, concrete, and abstract examples
    - variable pacing or visual breaks
- a variety of *modalities* for the various learning styles of students, such as
    - linguistic-verbal
    - logical-mathematical
    - musical
    - spatial
    - bodily-kinesthetic
    - interpersonal
    - intrapersonal
    - naturalist

E. ACTIVE PARTICIPATION OF STUDENTS

Instructional materials must engage the physical and mental activity of students during the **learning process.**

See Florida Statutes 1006.31(4)(e); 1006.34(2)(a).

Assignments. Instructional materials should include organized activities of periodic, frequent, short assignments that are logical extensions of content, goals, and objectives.

Student responses. Assignments should include questions and application activities during learning that give students opportunities to respond. Active participation of students can be accomplished in a variety of ways. For example, information and activities might require students to accomplish types of activities such as

- responding orally or in writing
- creating visual representations (charts, graphs, diagrams, and illustrations)
- generating products
- generating their own questions or examples
- thinking of new situations for applying or extending what they learn
- completing discovery activities
- adding details to big ideas or concepts from prior knowledge
- forming their own analogies and metaphors
- practicing lesson-related tasks, procedures, behaviors, or skills
- choosing from a variety of activities

F. TARGETED INSTRUCTIONAL STRATEGIES

Instructional materials should include the strategies known to be successful for teaching the learning outcomes targeted in the curriculum requirements.

See Florida Statutes 1006.31(4)(e); 1006.34(2)(a)(b); 1003.42.

Alignment. Research has documented the strategies that effectively teach different types of learning outcomes. The learning strategies included in instructional materials should match the findings of research for the targeted learning outcomes. Different types of learning outcomes require different strategies. For example, a strategy for memorizing verbal information might be helpful, but it might not align with the strategies required for learning a concept or for learning how to solve a problem.

Completeness. Not only should strategies be aligned, but they also should be complete enough to effectively teach the targeted outcomes. For example, while the explanation of a problem-solving method or model might be appropriate, other strategies also would be necessary in order for students to learn how to resolve different types of problems.

Research summary. Researchers sometimes use different terms for some similar outcomes. For example, *thinking skills* and *metacognition* refer to some of the same types of skills. The following alphabetical list includes terms as they have appeared in research, even though some terms clearly overlap with each other.

- attitudes
- cognitive strategies
- comprehension and understanding
- concepts
- creativity
- critical thinking
- insight
- metacognition
- motor skills
- multiple intelligences
- problem solving
- knowledge of procedures, principles, and rules
- scientific inquiry
- thinking skills
- verbal information, knowledge, or facts

Effective Teaching Strategies to Support the Development of Specific Learning Outcomes

Attitudes

- Explain and show consequences of choices, actions, or behaviors.
- Provide relevant human or social models that portray the desired choices, actions, or behaviors.

Reading

- Provide appropriate reading strategies.
- Link instruction to effective reading.

Cognitive Strategies

- Monitor and reflect upon the effectiveness of the reading process used.
- Encourage and/or teach: a) organizing and summarizing information; b) self-questioning, self-reflection, and self-evaluation; c) reference skills; and d) when and how to use these different skills.

Comprehension and/or Understanding

- Outline, explain, or visually show what will be read and/or learned in a simple form.
- Explain with concrete examples, metaphors, questions, or visual representations.
- Require students to relate new readings to previously learned information.
- Require students to paraphrase or summarize new information as it is read.
- Require students to construct a visual representation of main ideas (e.g., map, table, graphs, Venn diagram, etc.).
- Give students opportunities to add details, explanations, or examples to basic information.
- Require application of knowledge or information.

Concepts

- Provide clear understanding of each concept.
- Point out important features or ideas.
- Point out examples of the concept, showing similarities and differences.
- Include practice in organizing and classifying concepts.
- Include a wide range of examples in a progressive presentation from simple to more complex examples.
- Emphasize relationships between concepts.

Creativity

- Provide examples of creativity.
- Include models, metaphors, and analogies.
- Encourage novel approaches to situations and problems.
- Show and provide practice in turning a problem upside down or inside out or changing perceptions.
- Encourage brainstorming.
- Include open-ended questions and problems.
- Provide opportunities for ungraded, unevaluated creative performance and behavior.

Critical Thinking

- Create conflict or perplexity by using paradoxes, dilemmas, or other situations to challenge concepts, beliefs, ideas, and attitudes.
- Focus on how to recognize and generate proof, logic, argument, and criteria for judgments.
- Include practice in detecting mistakes, false analogies, relevant versus irrelevant issues, contradictions, discrepant events, and predictions.
- Provide practice in drawing inferences from observations and making predictions from limited information.
- Explain and provide practice in recognizing factors or biases that may influence choice and interpretations such as culture, experience, preferences, desires, interests, and passions, as well as systematic thinking.
- Require students to explain how they form new conclusions and how and why present conclusions may differ from previous ones.

Inquiry

- Emphasize technological design as inquiry and include discovery activities.
- Provide opportunities for experimental design.
- Provide opportunities for critical thinking.
- Facilitate the collection, display, and interpretation of data.
- Promote careful observation, analysis, description, and definition.

Metacognition

- Explain different types of thinking strategies and when to use them.
- Encourage self-evaluation and reflection.
- Include questions to prompt students to wonder why they are doing what they are doing.
- Guide students in how to do systematic inquiry, detect flaws in thinking, and adjust patterns of thinking.

Technology

- Provide a mental and physical model of desired performance.
- Describe steps in the performance.
- Provide practice with kinesthetic and corrective feedback (coaching).

Multiple Intelligences

- Use the verbal-linguistic dimension to focus on reasoning with language, rhythms, and inflections, such as determining meaning and order of words (stories, readings, humor, rhyme, and song).
- Use the logical-mathematical dimension to focus on reasoning with patterns and strings of symbols (pattern blocks, activities to form numbers and letters).
- Use the musical dimension to focus on appreciation and production of musical pitch, melody, and tone.
- Use the spatial dimension to focus on activities of perceiving and transforming perceptions.
- Use the bodily kinesthetic dimension to focus on use and control of body and objects.
- Use the interpersonal dimension to focus on sensing needs, thoughts, and feelings of others.
- Use the intrapersonal dimension to focus on recognizing and responding to one's own needs, thoughts, and feelings.

Problem Solving

- Assure student readiness by diagnosing and strengthening related concept-, rule-, and decision-making skills.
- Provide broad problem-solving methods and models.
- Include practice in solving different types of problems.

- Begin with highly structured problems and then gradually move to less structured ones.
- Use questions to guide thinking about problem components, goals, and issues.
- Provide guidance in observing and gathering information, asking appropriate questions, and generating solutions.
- Include practice in finding trouble, inequities, contradictions, or difficulties and in reframing problems.

Procedural Knowledge, Principles, and Rules

- Define context, problems, situations, or goals and appropriate procedures.
- Explain reasons that procedures work for different types of situations.
- Define procedures—procedures include rules, principles, and/or steps.
- Provide vocabulary and concepts related to procedures.
- Demonstrate step-by-step application of procedures.
- Explain steps as they are applied.
- Include practice in applying procedures.

Scientific Inquiry

- Explain processes and methods of scientific inquiry.
- Explain and provide examples of: a) hypotheses formation; b) valid procedures; c) isolating variables; d) interpretation of data; and e) reporting findings.
- Encourage independent thinking and avoidance of dead ends or simplistic answers.
- Require students to explain, verify, challenge, and critique the results of their inquiry.

Thinking Skills

- Introduce different types of thinking strategies.
- Explain context or conditions of applying different strategies.
- Provide definitions, steps, and lists to use in strategies.
- Include examples of different types of thinking strategies, including how to think with open-mindedness, responsibility, and accuracy.
- Emphasize persisting when answers are not apparent.
- Provide practice in applying, transferring, and elaborating on thinking strategies.
- Integrate metacognitive, critical, and creative-thinking skills.

Verbal Information, Knowledge, or Facts

- Provide a meaningful context to link new information and past knowledge.
- Organize information into coherent groups or themes.
- Use devices to improve memory such as mnemonic patterns, maps, charts, comparisons, groupings, highlighting of key words or first letters, visual images, and rhymes.
- Identify main ideas, patterns, or relationships within information or sets of facts.

G. TARGETED ASSESSMENT STRATEGIES

Instructional materials should include assessment strategies that are known to be successful in determining how well students have achieved the targeted learning outcomes.

See Florida Statutes 1006.31(4)(e); 1006.34(2)(a)(b); 1006.38(4).

Alignment. The assessment strategies should match the learner-performance requirements for the types of learning outcomes that have been targeted for the subject matter, course, or course category. Different strategies are appropriate for assessing different types of learning outcomes. For example, a strategy for testing the acquisition of verbal information would not match the requirements for testing whether or not a student has learned a concept or learned how to solve a problem.

The term "assessment," as used in this section, refers to testing or other strategies that assess student progress as a result of learning activities. The results of such assessment provide information about where to strengthen instruction. But it is very important to ask the right questions. If the type of question matches the type of learning outcome, then students and teachers have relevant information about learning progress.

Completeness. In addition to including assessment strategies that align with the performance requirements of the targeted learning outcomes, the strategies should be complete enough to effectively assess the learners' performance with regard to the targeted outcome. For example, a test item that requires the student to state a rule does not assess whether or not the student knows how to *use* the rule.

Research summary. The research summary for effective assessment strategies for different types of learning outcomes follows the same alphabetical sequence as the previous section.

Effective Assessment Strategies for Specific Learning Outcomes

NOTE. Students should be provided opportunities to learn from their mistakes without being penalized, particularly during the initial stages of new instruction.

Attitudes

- Provide various situations.
- Require choices about behaviors.

Cognitive Strategies

- Provide learning tasks.
- Require students to choose good strategies for learning and/or to learn new materials without teacher guidance.
- Require students to discuss and explain methods used for various learning tasks.

Comprehension and Understanding

- Provide topic.
- Require summary or restatement of information.
- Provide new context.
- Require application of information.
- Provide several statements using words different from the initial teaching.
- Require identification of the correct meaning.

Concepts

- Provide new examples and non-examples.
- Require identification or classification into the correct categories.

Creativity

- Provide new problems to "turn upside down," study, or resolve. These could be performances, presentations, or products.
- Require products or solutions to fit within the particular functions and resources.
- Provide situations requiring novel approaches.

Critical Thinking

- Require students to evaluate information or results.
- Require the use of analysis and research.

Insight

- Provide situations for inquiry and discovery.
- Provide situations for manipulation.

Metacognition

- Provide different situations or problems.
- Require students to identify types of thinking strategies to analyze and evaluate their own thinking.

Multiple Intelligences

- Provide situations in the modality that is targeted, such as verbal-linguistic, musical, or other modality.
- Provide situations in several modalities, to allow choice.
- Require performance in the targeted or chosen modalities.

Motor Skills

- Provide situations and resources for performance of the skill.
- Include a checklist for evaluation.

Problem Solving

- Require students to choose types of problem-solving strategies for different situations.
- Require solutions to structured and unstructured, simple and complex problems.

Procedural Knowledge, Principles, and Rules

- Provide situations that require students to recognize the correct use of procedures, principles, or rules with routine problems.
- Require students to state procedures, principles, or rules.
- Require students to choose which procedures, principles, or rules to apply in different situations.
- Provide situations that require students to demonstrate the correct use of procedures, principles, or rules with routine problems.

Scientific Inquiry

- Provide situations or problems that require speculation, inquiry, and hypothesis formation.
- Provide research, hands-on activities, and conclusions.

Thinking Skills

- Require students to summarize different types of thinking strategies.
- Provide situations that require students to choose the best type of thinking strategy to use.
- Require students to detect instances of open versus closed-mindedness.
- Require students to detect instances of responsible versus irresponsible and accurate versus inaccurate applications of thinking strategies.
- Provide situations that require the students' persistence to discover or analyze information to obtain answers to specific questions.
- Require students to apply specific thinking strategies to different real-world situations.

Verbal Information, Knowledge, or Facts

- Require students to recall information.
- Require students to restate information.
- Require students to understand information.

Criteria for Evaluation

The instructional materials adoption process must be fair to all publishers who take the time and expense to submit their materials. Applying evaluation criteria consistently to each submission assures that the materials will be judged fairly.

Regardless of format or technology, effective materials have certain characteristics in common, and the basic issues, important for the evaluation of instructional materials, apply to all subject areas and all formats. These issues are addressed in Florida's list of priorities and the criteria as detailed in the previous pages of this document. A link to the evaluation instrument used by adoption committee members is found at the Web site listed below. Evaluators will use the criteria-based instrument to engage in systematic reflection of the processes they follow and decisions they make about the quality of materials submitted by publishers.

The extensive research base and review processes used to identify these criteria establish their validity as an integral part of Florida's instructional materials adoption system. Applying these criteria consistently to each submission helps assure that the materials submitted by publishers will be judged fairly.

The State Instructional Materials Committees will complete a Committee Questionnaire for each submission at the adoption meetings. The Committee Questionnaire is a compilation of the criteria in the committee member evaluation instrument and serves as the official record of the State Instructional Materials Committee. A link to the Committee Questionnaire is found at the Web site listed below.

http://www.fldoe.org/bii/instruct_mat/eval.asp

Link to Curriculum Requirements/Sunshine State Standards

The Next Generation Sunshine State Standards for Science can be found at the following link:

http://www.floridastandards.org/Standards/FLStandardSearch.aspx

The Florida Course Descriptions for K-12 Science Education can be found at the following link:
http://www.floridastandards.org/Courses/CourseDescriptionSearch.aspx

Requirements for Braille Textbook Production

Instructions for Preparing Computer Diskettes and CDs Required for Automated Braille Textbook Production

STATUTORY AUTHORIZATION

Chapter 1003.55(5), Florida Statutes, states that, "….any publisher of a textbook adopted pursuant to the state instructional materials adoption process shall furnish the Department of Education with a computer file in an electronic format specified by the Department at least 2 years in advance that is readily translatable to Braille and can be used for large print or speech access. Any textbook reproduced pursuant to the provisions of this subsection shall be purchased at a price equal to the price paid for the textbook as adopted. The Department of Education shall not reproduce textbooks obtained pursuant to this subsection in any manner that would generate revenues for the department from the use of such computer files or that would preclude the rightful payment of fees to the publisher for use of all or some portion of the textbook."

OBJECTIVE

Electronic text (e-text) is needed to accelerate the production of textbooks in Braille and other accessible formats through the use of translation software. Some embedded publisher formatting commands help speed the conversion of English text to Braille or other accessible formats. Therefore, the objective of these instructions is to prompt publishers to provide textbook data in a format that will be useful to Braille and other accessible format producers while at the same time allowing each publisher the flexibility of using existing composition or typesetting systems. Publishers may produce e-text files in one of three formats, as shown in the specifications below.

By April 1, 1998, publishers of adopted student textbooks for literary subjects must be able to provide the computer diskettes UPON REQUEST. Publishers shall provide nonliterary subjects when technology becomes available for the conversion of nonliterary materials to the appropriate format.

The requested computer diskettes shall be provided to the Florida Instructional Materials Center for the Visually Impaired (FIMC), 5002 North Lois Avenue, Tampa, Florida 33614; (813) 872-5281; in Florida WATS (800) 282-9193 or (813) 872-5284 (FAX). The center will contact each publisher of an adopted textbook and provide delivery instructions.

SPECIFICATIONS

1. FORMAT (Three Options):
   a. A full implementation of Standard Generalized Markup Language (SGML).
   b. XML-Extensible Markup Language
   c. ASCII – (Last Resort!)

2. OPERATING SYSTEM: Windows

3. DISKETTE SIZE: 3.5, CD, Zip100

4. DISKETTE CAPACITY: Double-sided/high density

5. DISKETTE LABELING:
   a. Sequential Number/ISBN
   b. Book Title
   c. File Name
   d. Name of Publisher
   e. Name of Typesetting Company/Contact Name
   f. Format Option and Version
   g. Copyright Date
   h. Wording such as: "All rights reserved. As described in Chapter 233.0561(5), Florida Statutes, no use may be made of these diskettes other than the creating of a Braille, Large Print, or Recorded version of the materials contained on this diskette for students with visual impairments in the State of Florida."

6. REQUIRED CONTENTS:
   a. Title Page
   b. List of Consultants and Reviewers (if appropriate)
   c. Table of Contents
   d. All Textbook Chapters
   e. All Appendices
   f. All Glossaries
   g. Indices

7. FILE STRUCTURE: Each chapter of a textbook will be formatted as a separate file.

8. FILE LIST: A separate file listing the structure of the primary files must be provided. This file should be labeled DISKLIST TEXT. In addition, all special instructions (e.g., merging of materials kept in a separate file) should be noted in this file.

9. LOCATION OF SPECIAL DATA: Marginal notes, footnotes, captions, and other special items must be placed consistently within each text file.

10. CORRECTIONS AND CHANGES A conscientious effort should be made to update files to exactly duplicate the adopted printed version of the textbook (including corrections and changes). If this cannot be accomplished in a timely and cost effective manner, the publisher will coordinate with the FIMC Supervisor and provide to the Supervisor one set of marked tearsheets of all corrections and changes not included in the files.

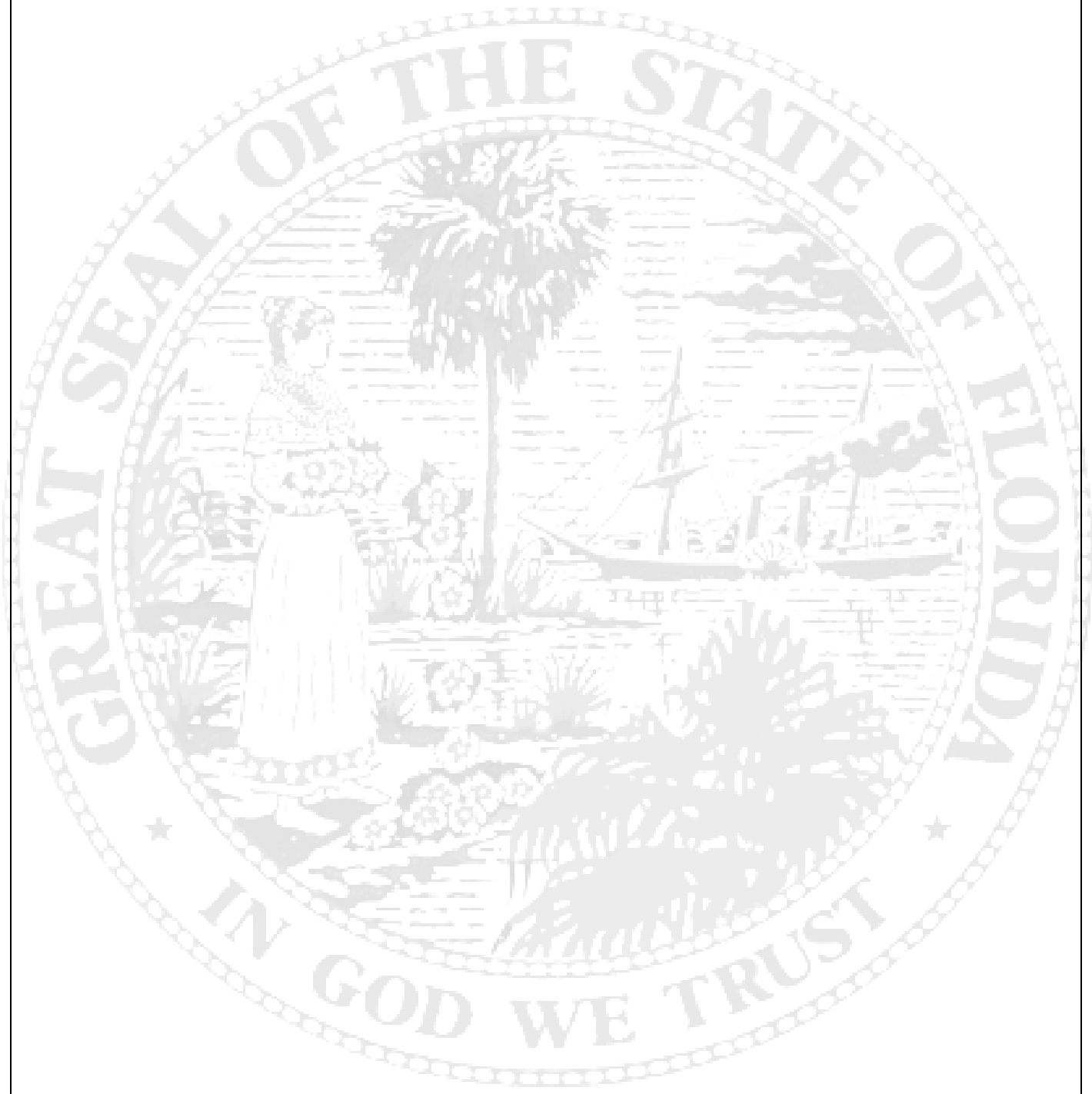
Federal Requirements for the National Instructional Materials Accessibility Standard (NIMAS)

National Instructional Materials Accessibility Standard (NIMAS) guides the production and electronic distribution of digital versions of textbooks and other instructional materials so they can be more easily converted to accessible formats, including Braille and text-to-speech. A National Instructional Materials Access Center (NIMAC) has been established to receive and catalog publishers' electronic files of print instructional materials in the NIMAS format.

These files will be used for the production of alternate formats as permitted under the law for students with print disabilities. Under these guidelines, “textbook” means the principal tool of instruction used in the classroom. It is a printed book or books that contain most, if not all, of the academic content a student needs to learn to meet the State or Local Education Agency’s curriculum requirements for that subject area. “Related core materials” are printed materials, other than textbooks, designed for use by students in the classroom in conjunction with a textbook and which, together with the textbook, are necessary to meet the curriculum requirements for the intended course. The materials should be directly related to the textbook and wherever possible they should be published by the publisher of the textbook. Related core materials do not include materials that are not written and published primarily for use by students in the classroom (e.g., trade books not bundled with the textbook, newspapers, and reference works) or ancillary or supplemental materials that are not necessary to meet the curriculum requirements for the intended course. For purposes of these definitions, the term “curriculum requirements for the intended course” refers to relevant curriculum standards and requirements as established by a state educational agency or local educational agency.

The details of the metadata elements required as part of the NIMAS File set will be found at http://www.nimac.us/docs/Metadata0509.DOC. Please note that some elements are required, while others are optional. Some fields also allow for multiple entries (e.g., subject terms).

Complete information concerning NIMAS and NIMAC can be found at http://nimas.cast.org and http://www.nimac.us. (IDEA-2004).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