

Instructional Plan for Science 2012 - 2013



“The Scientist is not a person who gives the right answers; he’s the one who asks the right questions.” ~Claude Levi-Strauss (1964)

Grade 5

Seminole County Public Schools

Seminole County Public Schools

3-5

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Instructional Plan for Science

Overview of the Next Generation Sunshine State Standards (NGSSS)

This plan was created by a group of Seminole County teachers representing all regions of the district. Each committee member has considered the grade level plan and has articulated with teachers from the prior and next grade level. The goal is to ensure that students are given ample time to become proficient in benchmark skills, while also supporting a foundation for the fundamentals of the K-12 science continuum.

The Next Generation Sunshine State Standards (NGSSS) for Science reinforce a different way of thinking about science education. There is a shift from **covering** the material to **mastering** the concepts. Big Ideas interlace between grade levels, gradually increasing in complexity and depth.

Bodies of Knowledge

Science concepts are divided into four Bodies of Knowledge. These are *Nature of Science, Physical Science, Earth and Space Science, and Life Science*.

Big Ideas

Eighteen Big Ideas interlace throughout all grade levels and the benchmarks under them build in rigor and depth as students move from K – 6. Each grade level includes benchmarks from all four Bodies of Knowledge, but not every grade level will teach concepts from each Big Idea.

Benchmarks

Each grade level has its own set of specific benchmarks that each student must master. Kindergarten benchmarks are very different from Grade 1 benchmarks. In some Big Ideas, the concept is taught once in a grade level and never touched on again for several years. As such, it is critical that students master every Benchmark for their grade level.

Rationale for Planning Guide

In determining the Planning Guide for the Instructional Plan for Science, many different factors were taken into consideration. Teacher input, flow of curriculum, and number and complexity of benchmarks all influenced the placement of the Bodies of Knowledge. Nature of Science is introduced at the beginning of the year and is to be incorporated throughout each Big Idea. Lab Safety and the use of scientific tools should be introduced at the beginning of the year and re-addressed continuously throughout the year.

A variety of resources and instruction have been included to best fit the needs of your students. Multiple benchmarks can be addressed within the same lesson. Then Next Generation Sunshine State Standards for Science are the mandated curriculum. The textbook is **NOT** the curriculum.

This plan includes the following sections:

- Depth of Knowledge Explanations, K-2 Content Limits, 3-5 NGSSS Vertical Alignment, Big Idea Comparison Chart
- The 5E Learning Model
- Nature of Science, Physical Science, Earth and Space Science, and Life Science
- Pacing Guide, NGSSS Benchmark , Vocabulary, Fusion Resources, and Additional Resources
- Assessments, Misconceptions, Differentiated Instruction, and Literacy Connections

Depth of Knowledge (DOK) / Cognitive Complexity Classification

Low

This category relies heavily on the recall and recognition of previously learned concepts and principles. Items typically specify what the student is to do, which is often to carry out some procedure that can be performed mechanically. It is not left to the student to come up with an original method or solution.

- Identifying a common example or recognizing a concept;
- Retrieving information from a chart, table, diagram, or graph;
- Recognizing a standard scientific representation of a simple phenomenon; or
- Calculating or completing a familiar single-step procedure or equation using a reference sheet.

Moderate

Items in the moderate complexity category involve more flexible thinking and choice among alternatives than low complexity items. They require a response that goes beyond the habitual, is not specified, and ordinarily has more than a single step or thought process. The student is expected to decide what to do – using informal methods of reasoning and problem solving strategies – to bring together knowledge from various domains.

- Applying or inferring relationships among facts, terms, properties, or variables;
- Describing examples and non examples of scientific processes or concepts;
- Predicting or determining the logical next step or outcome;
- Comparing or contrasting structures or functions of different organisms or systems;
- Applying and using concepts from a standard scientific model or theory.

High

High complexity items make heavy demands on student thinking. Students must engage in more abstract reasoning, planning, analysis, judgment, and creative thought. The items require that the student think in an abstract way include, but are not limited to,

- Constructing models for research;
- Generalizing or drawing conclusions;
- Designing an experiment, given data and conditions;
- Explaining or solving a problem in more than one way;
- Providing justification for steps in a solution or process;
- Analyzing an experiment to identify a flaw and propose a method for correcting it;
- Predict a long term effect, outcome, or result of a change within a system.

*Cognitive Complexity Classification of FCAT Items
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The 5 E Learning Model*

Stage	Goal	Student Behavior	Teaching Strategy
Engage	Initiates the learning task. The activity should make connections between past and present learning experiences, and anticipate activities and organize students' thinking toward the learning outcomes of current activities.	Asks questions such as, Why did this happen? What do I already know about this? What can I find out about this? How can this problem be solved? Shows interest in topic.	Generates interest. Generates curiosity. Raises questions and problems. Elicits responses that uncover students' current knowledge about the concept/topic.
Explore	Provide students with a common base of experiences which current concepts, processes, and skills are identified and developed.	Thinks creatively within the limits of the activity. Tests predictions and hypotheses. Forms new predictions and hypotheses. Tries alternatives to solve a problem and discusses them with others. Records observations and ideas. Suspends judgment. Tests ideas.	Encourages students to work together without direct instruction from the teacher. Observes and listens to students as they interact. Asks probing questions to redirect student's investigations when necessary. Provides time for students to puzzle through problems. Acts as a consultant for students.
Explain	Focus students' attention on a particular aspect of their engagement and exploration experiences, and provide opportunities to demonstrate their conceptual understanding, process skills, or behaviors. This phase also provides opportunities for teachers to introduce a concept, process, or skill.	Explains possible solutions or answers to other students. Listens critically to other students' explanations. Questions other students' explanations. Listens to and tries to comprehend explanations offered by the teacher. Refers to previous activities. Uses recorded observations in explanations.	Encourages students to explain concepts and definitions in their own words. Asks for justification (evidence) and clarification from students. Formally provides definitions, explanations, and new vocabulary. Uses students' previous experiences as the basis for explaining concepts.
Elaborate	Challenge and extend students' conceptual understanding and skills. Through new experiences, the students develop deeper and broader understanding, more information, and adequate skills.	Applies new labels, definitions, explanations, and skills in new, but similar, situations. Uses previous information to ask questions, propose solutions, make decisions, design experiments. Draws reasonable conclusions from evidence. Records observations and explanations.	Expects students to use vocabulary, definitions, and explanations provided previously in new context. Encourages students to apply the concepts and skills to new situations. Reminds students of alternative explanations. Refers students to alternative explanations.
Evaluate	Encourage students to assess their understanding and abilities and provide opportunities for teachers to evaluate student progress.	Checks for understanding among peers. Answers open-ended questions by using observations, evidence, and previously accepted explanations. Demonstrates and understanding or knowledge of the concept or skill. Evaluates his or her own progress and knowledge. Asks related questions that would encourage future investigations	Refers students to existing data and evidence and asks, What do you already know? What do you think...? Observe students as they apply new concepts and skills. Assesses students' knowledge and/or skills. Looks for evidence that students have changed their thinking. Allows students to assess their learning and group process skills. Asks open-ended questions such as, Why do you think...? What evidence do you have? What do you know about the problem? How would you answer the question?

**Adapted from the Biological Sciences Curriculum Study*

Big Idea Comparison Chart

The chart below illustrates how the 18 Big Ideas thread throughout grades K through 6. This helps show the responsibility of each grade level to teach the benchmarks from their Big Ideas in-depth to ensure the scientific literacy of their students.

Body of Knowledge	Nature of Science				Earth and Space			Physical Science					Life Science					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Grade Level	The Practice of Science	The Characteristics of Scientific Knowledge	The Role of Theories, Laws, Hypotheses, and Models	Science and Society	Earth in Space and Time	Earth Structures	Earth Systems and Patterns	Properties of Matter	Changes in Matter	Forms of Energy	Energy Transfer and Transformations	Motion of Objects	Forces and Changes in Motion	Organization and Development of Living Organisms	Diversity and Evolution of Living Organisms	Heredity and Reproduction	Interdependence	Matter and Energy Transformations
K	X				X			X	X	X		X	X	X				
1	X				X	X		X				X	X	X		X	X	
2	X					X	X	X	X	X			X	X		X	X	
3	X		X		X	X		X	X	X	X			X	X		X	
4	X	X	X		X	X		X	X	X	X	X				X	X	
5	X	X			X		X	X	X	X	X		X	X	X		X	
6	X	X	X			X	X				X	X	X	X				

NGSSS Vertical Alignment for Grades K – 2

Big Idea	Kindergarten	Grade 1	Grade 2
1: The Practice of Science	- Collection of information; - Make observations with 5 senses; - Record Keeping (pictorial records)	- Raise questions about the natural world; - Using tools and senses to make observations; - Record keeping (pictorial and written)	- Raise questions about the natural world, explain based on observations; - Repeated investigation yields similar results; Inferences vs. observations
2: The Characteristics of Scientific Knowledge			
3: The Role of Theories, Laws, Hypotheses, and Models			
4: Science and Society			
5: Earth in Space and Time	- Gravity; Objects in the sky; Near and far	- Amount of stars in the sky; Magnifiers; Sun-harmful and helpful properties	
6: Earth Structures		-Water, rocks, soil; water safety; Speed of environmental changes	- Earth-rocks; Soil formation and classification
7: Earth Systems and Patterns			-Patterns in nature; Sun's energy; Evaporation; Air; Severe weather
8: Properties of Matter	- Sort by properties – size, shape, color, temperature, weight, and texture	- Sort by properties – size, shape, color, temperature, weight, and textures; sink and float	- Observe and measure by properties; Attraction/repulsion; Solid, liquid, gas
9: Changes in Matter	- Physical changes in matter		- Physical and chemical changes in matter
10: Forms of Energy	- Sound is caused by vibrations		- Energy uses; Forms of energy
11: Energy Transfer and Transformations			
12: Motion of Objects	- Ways thing move – fast and slow	- Ways thing move – zigzag, round, straight, fast, and slow	
13: Forces and Changes in Motion	- Observe push/pull and changes of movement	- Demonstrate push/pull and changes of movement	- Know the effects of applying push/pull; Magnets; Gravity
14: Organization and Development of Living Organisms	- Observe push/pull and changes of movement	- Observe living things with the 5 senses; Plant parts; Differences of living/nonliving	- Human body parts and functions
15: Diversity and Evolution of Living Organisms			
16: Heredity and Reproduction		- Observation of plants/animals and their parents	- Life cycle stages of plants and animals
17: Interdependence		- Basic needs of plants/animals	- Compare/contrast basic needs of plants/animals; Habitats

***Note: The purpose of this chart is to show the progression of common benchmarks in grades in K-2. Not all benchmarks are represented on this chart.**

NGSSS Vertical Alignment for Grades 3 – 5

Big Idea	Grade 3	Grade 4	Grade 5
1: The Practice of Science	- raise questions about the natural world and investigate them through free exploration and systematic investigations - infer based on observations	- raise questions about the natural world using appropriate reference materials and conduct explorations/investigations - keep records that describe observations made	- define a specific problem, interpret data, and defend conclusions from explorations/investigations - recognize and describe differences between observations and interpretations
2: The Characteristics of Scientific Knowledge		- explain that science focuses solely on the natural world	- recognize and explain that science is grounded in empirical observations of the natural world
3: The Role of Theories, Laws, Hypotheses, and Models	- recognize that scientists use models - recognize that all models are approximations	- explain that models can be two- or three-dimensional, exist on computers, or exist in your mind	
4: Science and Society			
5: Earth in Space and Time	- focus is on properties of the Sun and differences between stars	- focus is on the relationship and movements of the Sun, earth, and moon	- focus is on the composition of galaxies, especially our Solar System in the Milky Way Galaxy
6: Earth Structures	- demonstrate that radiant energy from the Sun can heat objects	- identify the three categories of rocks - describe physical weathering and erosion	
7: Earth Systems and Patterns			- recognize factors that impact weather in a particular place - model the water cycle and distinguish between different forms of precipitation
8: Properties of Matter	- measure and compare temperatures, mass, and volume of solids and liquids	- measure and compare materials based on physical properties	- compare and contrast the basic properties of solids, liquids, and gasses
9: Changes in Matter	- describe the changes water undergoes when it changes state	- identify familiar changes in materials that result in other materials	- investigate and describe physical and chemical changes
10: Forms of Energy	- identify some basic forms of energy	- observe and describe some basic forms of energy	- investigate and describe some basic forms of energy
11: Energy Transfer and Transformations	- investigate, observe, and explain how heat is produced	- recognize that heat flows from a hot object to a cool object	- investigate and illustrate the flow of electricity
12: Motion of Objects		- investigate and describe an object in motion and its speed	
13: Forces and Changes in Motion			- identify familiar forces the cause objects to move
14: Organization and Development of Living Organisms	- describe structures in plants - investigate and describe how plants respond to stimuli		- identify organs in the human body - compare and contrast the functions of parts of plants and animals
15: Diversity and Evolution of Living Organisms	- classify animals into major groups - classify flowering and non-flowering plants		- describe how environmental changes affect plants and animals
16: Heredity and Reproduction		- identify process of sexual reproduction in flowering plants - compare and contrast stages in life cycles of plants and animals including complete and incomplete metamorphosis	
17: Interdependence	- describe how animals and plants respond to changing seasons	- compare seasonal changes in Florida	- compare and contrast adaptations of animals and plants for things like seasonal changes

***Note: The purpose of this chart is to show the progression of common benchmarks in Grades 3 – 5. Not all benchmarks are represented.**

LONG RANGE PLANNER

2012-2013

AUG 2012						
S	M	T	W	TH	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

SEP 2012						
S	M	T	W	TH	F	S
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

OCT 2012						
S	M	T	W	TH	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

NOV 2012						
S	M	T	W	TH	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

DEC 2012						
S	M	T	W	TH	F	S
	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	*19	*20	*21	22
23	24	25	26	27	28	29
30	31					

JAN 2013						
S	M	T	W	TH	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		


FEB 2013						
S	M	T	W	TH	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28		

MAR 2013						
S	M	T	W	TH	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

APR 2013						
S	M	T	W	TH	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

MAY 2013						
S	M	T	W	TH	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	*24	25
26	27	*28	*29	30	31	

PRE UNIT: 3rd & 4th FAIR GAME TESTING/INTRO TO SCIENCE	8/13 – 8/17
UNIT 1: SCIENTISTS AT WORK	8/20 – 8/31
UNIT 4: THE NATURE OF MATTER	9/4 – 9/28
UNIT 5: FORMS OF ENERGY	10/1 – 10/12
UNIT 6: WORKING WITH ELECTRICITY	10/15 – 10/26
UNIT 7: FORCES AND MOTION	10/29 – 11/9
UNIT 2: THE SOLAR SYSTEM AND THE UNIVERSE	12/10 – 1/18
UNIT 3: WEATHER, CLIMATE, AND THE WATER CYCLE	11/12 – 12/7
UNIT 8: THE STRUCTURE OF LIVING THINGS	1/22 – 2/8
UNIT 9: CHANGES IN ENVIRONMENTS	2/11 – 2/22
UNIT 10: PLANT AND ANIMAL ADAPTATIONS	2/24 – 3/15
FCAT REVIEW	3/18 – 4/12
FCAT TESTING	4/15 – 4/24
POST FCAT	4/25 – 5/29

 Non-Instructional Day
* Early Release Day

Nature of Science

Unit 1 Big Ideas

Big Idea 1: The Practice of Science

Big Idea 2: The Characteristics of Scientific Knowledge

Professional Development Resources

Teacher Science Background (Resource section of TE) – pp. TR25, TR34, TR35

Professional Development Videos (www.learner.org) – <http://www.learner.org/workshops/inquiry/videos.html>

Vocabulary

Science	Accurate	*Observation
Evidence	*Investigation	*Scientists
Opinion	*Scientific Method	*Sense
Variable	*Experiment	*Subjectivity
Control	*Inference	*Supernatural
Microscopic	*Microscope	*Theory
Balance	*Model	*Aesthetic
Spring Scale	*Objectivity	(*DOE Vocabulary)

Assessment

- **Diagnostic FAIR GAME Assessment:** found in resource file
- **Lesson Quizzes:** Assessment Guide, pp. AG1-6
- **Unit 1 Benchmark Review:** Student Edition, pp. 57-60
- **Unit 1 Benchmark Test:** pp. AG7-10
- **Performance Assessment:** Short Option TE p. 57; Long Option Assessment Guide, pp. AG10-11
- **Test Generator**
- **Additional Assessments:** [Thinkcentral](http://www.learner.org) under Unit Assessments

Differentiated Instruction

- **Reading/Language Arts benchmarks** – TE p. 2
- **Cross Curriculum Benchmarks** – TE p. 2
- **ESOL** – TE pp. 1H-1I
- **Make Connections** – TE pp. 16A, 36A, 52A
- **Differentiated Inquiry** – TE 20A, 38A, 54A
- **Fusion Online PowerPoint Review** – Lessons 1, 3, 5
- **ScienceSaurus** – Scientific Investigation, pp. 2-27
- **Leveled Reader Titles:**
Use any readers to reinforce unit concepts.

Possible Misconceptions




- See TE pages noted for more information on common misconceptions.*
- ✓ Student provided insufficient data to support their conclusions. (p. 8)
 - ✓ There is more than one scientific method or set of steps to use for investigations. (p. 22)
 - ✓ Models are mistakenly taken as absolute truth. (p. 26)
 - ✓ Students think that collection of data can be arbitrary and doesn't matter. (p. 32)
 - ✓ Students think that the term "measurement" only involves length or distance. (p. 44)
 - ✓ Students think that mass and weight are the same. (p. 46)

Unit 1 Pacing Guide

AUG 2012

S	M	T	W	TH	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

The Nature of Science should be incorporated throughout the Big Ideas.

-  Introduction/FAIR Game testing
-  Nature of Science
-  Non-Instructional Day

Unit 1: Scientists at Work – Lessons 1-6 sequentially

Benchmark	Fusion Resources	Additional Resources
<p>SC.5.N.1.1 (HIGH COMPLEXITY) 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 and organizing data, interpreting data in charts, tables, and graphics, analyze information, make predictions, and defend conclusions.</p> <p>FCAT 2.0 Content Limits:</p> <ul style="list-style-type: none"> • Items will not require the identification or evaluation of a hypothesis. • Items will not require mathematical computations. 	<p>Unit 1, Lessons 3, 5, 6 and Careers in Science Careers in Science: pp. 55-66</p> <p>Flipchart: p. 4 Materials: string, tape, scissors, index cards, balloons, straw, meter stick</p> <p>Flipchart: p. 6 Materials: measuring cup, graduated cylinder, plastic cup, beaker, sharpie marker</p> <p>Flipchart: p. 7 Materials: soil sample, white paper, measuring spoons, hand lens, measuring cup, coffee filter, pan balance, mesh sieve, small container, graduated cylinder, paper bag</p> <p>Digital Lesson 3: What Are Some Types of Investigations?</p> <p>Digital Lesson 5: What Are Some Science Tools?</p> <p>Virtual Lab 6: How Can Scientists Learn From Observations?</p>	<p>AIMS: Practically Predictable</p> <p>NGSSS Benchmark Lessons: Messing Around with Microscopes</p> <p>5th Grade Resource Folder: Additional AIMS activities Journal ideas & starters FCAT Review Notes & PowerPoint Additional misconceptions Web Resources</p>
<p>SC.5.N.1.2 (MODERATE COMPLEXITY) Explain the difference between an experiment and other types of scientific investigation.</p> <p>FCAT 2.0 Content Limits:</p> <ul style="list-style-type: none"> • None Specified 	<p>Unit 1, Lessons 3, 4, 6</p> <p>Flipchart: p. 5 Materials: small ball, meterstick, various floor surfaces (concrete, cork, carpet, tile, vinyl, soil)</p> <p>Digital Lesson 3: What Are Some Types of Investigations?</p> <p>Virtual Lab 4: How do you perform a controlled experiment?</p> <p>Virtual Lab 6: How Can Scientists Learn From Observations?</p>	<p>Probes: Uncovering Student Ideas in Science, NSTA Press Lesson 4 - Volume 3: Doing Science #12, p. 93</p> <p>AIMS: Droopy Drawers</p> <p>5th Grade Resource Folder: Additional AIMS activities Journal ideas & starters FCAT Review Notes & PowerPoint Additional misconceptions Web Resources</p>

Benchmark	Fusion Resources		Additional Resources
<p>SC.5.N.1.3 (MODERATE COMPLEXITY) Recognize and explain the need for repeated experimental trials.</p> <p>FCAT 2.0 Content Limits:</p> <ul style="list-style-type: none"> • None Specified 	<p>Unit 1, Lesson 3</p> <p>Flipchart: p. 4 Materials: For materials, see SC.5.N.1.1</p> <p>Digital Lesson 3: What Are Some Types of Investigations?</p>		<p>AIMS: Bouncing Around</p> <p>5th Grade Resource Folder: Additional AIMS activities Journal ideas & starters FCAT Review Notes & PowerPoint Additional misconceptions Web Resources</p>
<p>SC.5.N.1.4 (MODERATE COMPLEXITY) Identify a control group and explain its importance in an experiment.</p> <p>FCAT 2.0 Content Limits:</p> <ul style="list-style-type: none"> • Items will not require the differentiation between outcome variables (dependent variables) and test variables (independent variables) 	<p>Unit 1, Lesson 3</p> <p>Flipchart: p. 4 Materials: For materials, see SC.5.N.1.1</p> <p>Digital Lesson 3: What Are Some Types of Investigations?</p>		<p>AIMS: Clipping Around with Variables</p> <p>5th Grade Resource Folder: Additional AIMS activities Journal ideas & starters FCAT Review Notes & PowerPoint Additional misconceptions Web Resources</p>
<p>SC.5.N.1.5 (MODERATE COMPLEXITY) Recognize and explain that authentic scientific investigation frequently does not parallel the steps of "the scientific method."</p> <p>FCAT 2.0 Content Limits:</p> <ul style="list-style-type: none"> • None Specified 	<p>Unit 1, Lessons 3, 4</p> <p>Flipchart: p. 4, 5 Materials: For materials, see SC.5.N.1.1 and SC.5.N.1.2.</p> <p>Digital Lesson 3: What Are Some Types of Investigations?</p> <p>Virtual Lab 4: How Do You Perform a Controlled Experiment?</p>		<p>Probes: Uncovering Student Ideas in Science, NSTA Press Lesson 4 - Volume 3: Hypothesis #13, p. 101</p> <p>AIMS: Does This Hold Water</p> <p>NGSSS Benchmark Lessons: Habitat Sweet Habitat</p> <p>5th Grade Resource Folder: Additional AIMS activities Journal ideas & starters FCAT Review Notes & PowerPoint Additional misconceptions Web Resources</p>

Benchmark	Fusion Resources		Additional Resources
SC.5.N.1.6 (MODERATE COMPLEXITY) Recognize and explain the difference between personal opinion/interpretation and verified observation. FCAT 2.0 Content Limits: <ul style="list-style-type: none"> None Specified 	Unit 1, Lesson 1		AIMS: Thumb Fun NGSSS Benchmark Lessons: What Makes the Best Insulator 5th Grade Resource Folder: Additional AIMS activities Journal ideas & starters FCAT Review Notes & PowerPoint Additional misconceptions Web Resources
	Flipchart: p. 2 Materials: Lego pieces or Unifix cubes, assorted everyday objects (leaves, art supplies, cards)	Digital Lesson 1: What Is Science?	
SC.5.N.2.1 (MODERATE COMPLEXITY) Recognize and explain that science is grounded in empirical observations that are testable; explanation must always be linked with evidence. FCAT 2.0 Content Limits: <ul style="list-style-type: none"> None Specified 	Unit 1, Lesson 1, 2		AIMS: Down the Tubes NGSSS Benchmark Lessons: The Apple of My Eye 5th Grade Resource Folder: Additional AIMS activities Journal ideas & starters FCAT Review Notes & PowerPoint Additional misconceptions Web Resources
	Flipchart: p. 2 Materials: For materials, see SC.5.N.2.1 Flipchart: p. 3 Materials: origami weather predictor student page 19, area's weather forecast from newspaper or Internet, scissors, pencil	Digital Lesson 1: What Is Science?	
SC.5.N.2.2 (MODERATE COMPLEXITY) Recognize and explain that when scientific investigations are carried out, the evidence produced by those investigations should be replicable by others. FCAT 2.0 Content Limits: <ul style="list-style-type: none"> None Specified 	Unit 1, Lesson 1		AIMS: Moving Raindrops NGSSS Benchmark Lessons: Measuring Mass 5th Grade Resource Folder: Additional AIMS activities Journal ideas & starters FCAT Review Notes & PowerPoint Additional misconceptions Web Resources
	Flipchart: p. 2 Materials: For materials, see SC.5.N.2.1	Digital Lesson 1: What is Science?	
LEAFS – Common Lab (Nature of Science)			
Benchmark	Learning Goal	Notes	Required Section
SC.5.N.2.2, SC.5.N.1.3 (SC.4.N.1.2, SC.3.N.1.2, SC.3.N.1.5, SC.4.N.1.5) *Approximate Suggested time: 3 ½ hours	Students will be able to create an experiment that is replicable and includes repetition.	This lab can be used at the beginning of the year as a preview and then again at the end of the year.	Explore and Explain

Physical Science

Unit 4 Big Ideas

Big Idea 8: Properties of Matter
Big Idea 9: Changes in Matter
Big Idea 10: Forms of Energy

Big Idea 11: Energy Transfer and Transformations
Big Idea 13: Forces and Changes in Motion

Professional Development Resources

Teacher Science Background (Resource section of TE) – pp. TR17, TR18, TR30, TR32, TR33

Professional Development Videos (www.learner.org) – <http://www.learner.org/resources/series200.html>

Vocabulary

Nature of Matter	Element	*Matter
Temperature	Compound	*Atom
Volume	Solution	*Dissolve
Physical change	*Chemical change	*Freeze
Reaction	*Solid	*Heat
Mixture	*Liquid	*Mass
Atomic theory	*Gas	*Weight
		(*DOE Vocabulary)

Assessment

- **Lesson Quizzes:** Assessment Guide, pp. AG34 – AG39
- **Unit 4 Benchmark Review:** Student Edition pp. 223-226
- **Unit 4 Benchmark Test:** AG40 – AG43
- **Performance Assessment:** Short Option TE p. 221; Long Option Assessment Guide, pp. AG44 – AG 45
- **Test Generator**
- **Additional Assessments:** [Thinkcentral](#) under Unit Assessment

Differentiated Instruction

- **Reading/Language Arts benchmarks** – TE 164
- **Cross Curriculum Benchmarks** – TE p. 164 and TR pp. 40 - 48
- **ESOL** – TE pp. 163H – 163 I
- **Make Connections** – TE pp. 178A, 192A, 208A, 220A
- **Differentiated Inquiry** – TE pp. 194A, 210A
- **Fusion Online PowerPoint Review** – Lessons 1, 2, 4 & 6
- **ScienceSaurus – Matter, pp. 242-267**
- **Leveled Reader Titles:**
 BL: Properties of Matter
 OL: It is Good to Know About Matter
 AL: Organization is Key: Properties of Matter

Possible Misconceptions

See TE pages noted for more information on common misconceptions.



- ✓ Students may think the state of a substance only exists at room temperature. (p. 173)
- ✓ Students may think mixtures and solutions are entirely different. (p. 198)
- ✓ Students may think that saving raw materials is the only reason to recycle. (p. 203)

Unit 4 Pacing Guide

SEPT 2012

S	M	T	W	TH	F	S
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

The Nature of Science should be incorporated throughout the Big Ideas.

-  Physical Science
-  Non-Instructional Day

Unit 4: The Nature of Matter – Lessons 1-6 sequentially

Benchmark	Fusion Resources	Additional Resources
<p>SC.5.P.8.1 (MODERATE COMPLEXITY) Compare and contrast the basic properties of solids, liquids, and gases, such as mass, volume, color, texture, and temperature.</p> <p>FCAT 2.0 Content Limits:</p> <ul style="list-style-type: none"> • Items will not address or assess particle behavior in each state of matter or between states of matter. • Items may refer to common tools used to measure basic properties of solids, liquids, and gases but will not assess specific knowledge of the tools. 	<p>Unit 4, Lesson 1</p> <p>Flipchart: p.17 Materials: 2 plastic containers, thermometer, measuring cup, ice cubes, warm water, boiling water, salt</p> <p>Digital Lesson 1: What Are Solids, Liquids, and Gases?</p>	<p>Probes: Uncovering Student Ideas in Science, NSTA Press Lesson 1 – Volume 3: Is it a Solid #2, p. 25 Lesson 1 – Volume 1: Is it Melting #9, p. 73; Is it Matter #10, p. 79</p> <p>AIMS: A Matter of States</p> <p>NGSSS Benchmark Lessons: Does It Add Up?</p> <p>5th Grade Resource Folder: Additional AIMS activities Journal ideas & starters FCAT Review Notes & PowerPoint Additional misconceptions Web Resources</p>
<p>SC.5.P.8.2 (HIGH COMPLEXITY) 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.</p> <p>FCAT 2.0 Content Limits:</p> <ul style="list-style-type: none"> • Items assessing conditions used to speed up or slow down the dissolving process are limited to temperature, stirring, and/or surface area. • Items will not assess the difference between a mixture and a solution. 	<p>Unit 4, Lessons 4, 5</p> <p>Flipchart: p. 20 Materials: plastic cup, coffee filter, black marker, scissors, pencil, tape, water</p> <p>Flipchart: p. 21 Materials: safety goggles, lab apron, cold tap water, 3 clear containers, measuring spoon, table salt, stopwatch, 2 spoons, coarse salt, warm water</p> <p>Digital Lesson 4: What Are Mixtures and Solutions?</p> <p>Virtual Lab 5: What Affects the Speed of Dissolving?</p>	<p>Probes: Uncovering Student Ideas in Science, NSTA Press Lesson 4 – Volume 1: Lemonade #6, p. 55</p> <p>AIMS: Involving Dissolving</p> <p>NGSSS Benchmark Lessons: Name That Change</p> <p>5th Grade Resource Folder: Additional AIMS activities Journal ideas & starters FCAT Review Notes & PowerPoint Additional misconceptions Web Resources</p>

Benchmark	Fusion Resources	Additional Resources
<p>SC.5.P.8.3 (MODERATE COMPLEXITY) 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.</p> <p>FCAT 2.0 Content Limits:</p> <ul style="list-style-type: none"> • Items will not use the terms <i>solution, solvent, solute, saturation, or catalyst.</i> • Items will not assess the difference between weight and mass. Items will not assess unit of measure. • Items will not require unit conversions to compare data. Items will not address or assess density as a property. 	<p>Unit 4, Lesson 4</p> <p>Flipchart: p. 20 Materials: For materials, see SC.5.P.8.2</p> <p>Digital Lesson 4: What Are Mixtures and Solutions?</p>	<p>Probes: Uncovering Student Ideas in Science, NSTA Press Lesson 4 – Volume 1: Lemonade #6, p. 55</p> <p>AIMS: Messing with Mixtures</p> <p>NGSSS Benchmark Lessons: Poof it’s Gone</p> <p>5th Grade Resource Folder: Additional AIMS activities Journal ideas & starters FCAT Review Notes & PowerPoint Additional misconceptions Web Resources</p>
<p>SC.5.P.8.4 (LOW COMPLEXITY) 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.</p> <p>FCAT 2.0 Content Limits:</p> <ul style="list-style-type: none"> • None Specified 	<p>Unit 4, Lesson 6 and People in Science: pp. 221-222</p> <p>Flipchart: p. 22 Materials: Supplies for making models, such as: plastic foam balls, felt circles, chenille sticks, toothpicks, cotton balls, scissors, glue</p> <p>Digital Lesson 6: What Is The Atomic Theory?</p>	<p>Probes: Uncovering Student Ideas in Science, NSTA Press Lesson 6 – Volume 2: Comparing Cubes #1, p. 19</p> <p>AIMS: Metal Detector</p> <p>NGSSS Benchmark Lessons: Invisible Worlds</p> <p>5th Grade Resource Folder: Additional AIMS activities Journal ideas & starters FCAT Review Notes & PowerPoint Additional misconceptions Web Resources</p>

Benchmark	Fusion Resources		Additional Resources
<p>SC.5.P.9.1 (HIGH COMPLEXITY) Investigate and describe that many physical and chemical changes are affected by temperature.</p> <p>FCAT 2.0 Content Limits:</p> <ul style="list-style-type: none"> Items will not assess particle motion in changes of states of matter. 	Unit 4, Lessons 2, 3		<p>Probes: Uncovering Student Ideas in Science, NSTA Press Lesson 2 – Volume 2: Turning the Dial #5, p. 47; Freezing Ice #7, p. 59 Lesson 2 – Volume 1: Ice Cubes in a Bag #5, p. 49 Lesson 3 – Volume 3: Hot and Cold Balloons #5, p. 45</p> <p>AIMS: Product Testing</p> <p>NGSSS Benchmark Lessons: It’s in the Bag</p> <p>5th Grade Resource Folder: Additional AIMS activities Journal ideas & starters FCAT Review Notes & PowerPoint Additional misconceptions Web Resources</p>
	<p>Flipchart p. 18 Materials: spoon, baking soda, 2 small containers, vinegar, match, salt, 25 pennies, steel nail</p> <p>Flipchart p. 19 Materials: safety goggles, lab apron, graduated cylinder, 3 balloons, 3 plastic tubs, room-temperature water, measuring spoons, funnel, dry yeast, sugar, hot water, ice water, string, ruler</p>	<p>Digital Lesson 2: How Does Matter Change?</p> <p>Virtual Lab 3: How Can Temperature Change Matter?</p>	
	FAIR GAME REVIEW		
<p>Concepts: SC.4.P.9.1 (LOW COMPLEXITY): Chemical Reactions resulting in new properties</p>	<p>4th Grade Digital Lessons: SC.4.P.9.1: TS400022 and TS400023</p> <p>FCAT 2.0 Review PowerPoint: SC.4.P.9.1: Slide 68</p>		
LEAFS – Common Lab (Nature of Matter)			
Benchmark	Learning Goal	Notes	Required Section
<p>SC.5.P.9.1 *Approximate Suggested time: 2 ½ hours</p>	<p>Students will be able to investigate and describe that many physical and chemical changes are affected by temperature.</p>	<p>This lab must be taught after teaching physical and chemical change. (Fusion Lesson 2, pp. 179-192)</p>	<p>Explore</p>

Physical Science

Unit 5 Big Ideas

Big Idea 8: Properties of Matter
Big Idea 9: Changes in Matter
Big Idea 10: Forms of Energy

Big Idea 11: Energy Transfer and Transformations
Big Idea 13: Forces and Changes in Motion

Professional Development Resources

Teacher Science Background (Resource section of TE) – pp. TR22, TR25, TR26, TR27, TR36

Professional Development Videos (www.learner.org) – <http://www.learner.org/resources/series160.html>

Vocabulary

Potential energy ***Energy**
Kinetic energy ***Attraction**
Chemical energy ***Electricity**
Mechanical energy ***Magnetic**
Electrical energy (*DOE Vocabulary)
Static electricity

Assessment

- **Lesson Quizzes:** Assessment Guide, pp. AG46 – AG50
- **Unit 5 Benchmark Review:** Student Edition pp. 277-280
- **Unit 5 Benchmark Test:** AG51 – AG54
- **Performance Assessment:** Short Option TE p. 277; Long Option Assessment Guide, pp. AG55 – AG 56
- **Test Generator**
- **Additional Assessments:** [Thinkcentral](#) under Unit Assessment

Differentiated Instruction

- **Reading/Language Arts Benchmarks** – TE228
- **Cross Curriculum Benchmarks** – TE p. 228
- **ESOL** – TE pp. 227H - 227I
- **Make Connections** – TE pp. 244A, 260A, 274A
- **Differentiated Inquiry** – TE pp. 246A, 262A,
- **Fusion Online PowerPoint Review** – Lessons 1, 3, & 5
- **ScienceSaurus** – Energy, pp. 284-294; Electricity and Magnetism, pp. 295-307
- **Leveled Reader Titles:**
 BL: Energy and Electricity
 OL: It Takes Energy Charge It! and How Electricity Works
 AL: Wind Energy and What Can Robots Do?

Possible Misconceptions


See TE pages noted for more information on common misconceptions.

- ✓ Students may think that energy can be used up. (p. 231)
- ✓ Students may think that having light shine on an object is all that is needed for an object to be seen. (p. 236)
- ✓ Student may associate static electricity with lightning or the tiny shock they get when they touch a metal object after walking across a carpet. (p. 250)
- ✓ Students may think that lightning never strikes twice in the same place. (p. 253)
- ✓ Students may think that electrons move very quickly because they see a light bulb immediately begin glowing. (p. 255)
- ✓ Students may think that motors are a source of energy. (p. 266)
- ✓ Students may believe that an electromagnet must have an iron core. (p. 269)

Unit 5 Pacing Guide

OCT 2012						
S	M	T	W	TH	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

The Nature of Science should be incorporated throughout the Big Ideas.

-  Physical Science
-  Non-Instructional Day

Unit 5: Forms of Energy – Lessons 1-5 sequentially

Benchmark	Fusion Resources	Additional Resources
<p>SC.5.P.10.1 (MODERATE COMPLEXITY) Investigate and describe some basic forms of energy, including light, heat, sound, electrical, chemical, and mechanical.</p> <p>FCAT 2.0 Content Limits:</p> <ul style="list-style-type: none"> Items assessing basic forms of energy are limited to light, heat (thermal), sound, electrical, chemical, and mechanical energy. Items will not assess the transfer of energy. Items assessing light reflection, refraction, or absorption should use the terms <i>reflect</i>, <i>bend</i>, or <i>absorb</i> to describe light's behavior. The terms <i>material</i> or <i>substance</i> should be used rather than the terms <i>medium</i> 	<p>Unit 5, Lessons 1, 2 People In Science: pp.275-276</p> <p>Flipchart: p. 23 Materials: plastic wrap, salt crystals, plastic bowl, metal pan, rubber band, metal spoon</p> <p>Digital Lesson 1: What Is Energy?</p> <p>Virtual Lab 2: What Changes Can Energy Cause?</p> <p>Flipchart: p. 24 Materials: sheet of poster board, aluminum foil, scissors, tape, string</p> <p align="center">FAIR GAME Review</p> <p>Concepts:</p> <ul style="list-style-type: none"> SC.3.P.10.3 (MODERATE): How light travels - SC.3.P.10.4 (MODERATE): Reflect, Refract, Absorb SC.3.P.11.2 (HIGH): Friction SC.4.P.10.3 (HIGH): Sound <p>3rd Grade Digital Lessons: SC.3.P.10.3: TS300020 SC.3.P.10.4: TS300021 SC.3.P.11.2: TS400023 & TS400024</p> <p>4th Grade Digital Lessons: SC.4.P.10.3: TS400024 & TS400025</p> <p>FCAT 2.0 Review PowerPoint: SC.3.P.10.3: Slide 72 SC.3.P.10.4: Slide 81 SC.3.P.11.2: Slide 73 SC.4.P.10.3: Slide 74</p>	<p>Probes: Uncovering Student Ideas in Science, NSTA Press Lesson 1 – Volume 1: Making Sound #4, p. 43; Apple in the Dark #2, p. 31; Birthday Candles #3, p.37</p> <p>AIMS: What is Energy?</p> <p>NGSSS Benchmark Lessons: A Current Affair</p> <p>5th Grade Resource Folder: Additional AIMS activities Journal ideas & starters FCAT Review Notes & PowerPoint Additional misconceptions Web Resources</p>
<p>SC.5.P.10.2 (HIGH COMPLEXITY) Investigate and explain that energy has the ability to cause motion or create change.</p> <p>FCAT 2.0 Content Limits:</p> <ul style="list-style-type: none"> Items will not assess sound and chemical energy. 	<p>Unit 5, Lessons 1, 2</p> <p>Flipchart: p. 23 Materials: For materials, see SC.5.P.10.1</p> <p>Digital Lesson 1: What Is Energy?</p> <p>Virtual Lab 2: What Changes Can Energy Cause?</p> <p>Flipchart: p. 24 Materials: For materials, see SC.5.P.10.1</p>	<p>Probes: Same probes as SC.5.P.10.1 above</p> <p>AIMS: The Big Bopper</p> <p>NGSSS Benchmark Lessons: Bouncing Beams</p> <p>5th Grade Resource Folder: Additional AIMS activities Journal ideas & starters FCAT Review Notes & PowerPoint Additional misconceptions Web Resources</p>

Benchmark	Fusion Resources	Additional Resources
<p>SC.5.P.10.3 (HIGH COMPLEXITY) 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.</p> <p>FCAT 2.0 Content Limits:</p> <ul style="list-style-type: none"> Items that refer to positive and negative charges in attraction and repulsion properties must be in the context of static electricity. 	<p>Unit 5, Lessons 3, 4</p> <p>Flipchart: p. 25 Materials: puffed-rice cereal, plastic comb, dryer sheet, wool cloth</p> <p>Flipchart: p. 26 Materials: 2 balloons, string, tape, wool cloth</p> <p>Digital Lesson 3: What Is Electricity?</p> <p>Virtual Lab 4: How Do Electric Charges Interact?</p>	<p>AIMS: Electromagnetic Connection</p> <p>NGSSS Benchmark Lessons: What's My Line?</p> <p>5th Grade Resource Folder: Additional AIMS activities Journal ideas & starters FCAT Review Notes & PowerPoint Additional misconceptions Web Resources</p>
<p>MA.5.P.10.4 (HIGH COMPLEXITY) Investigate and explain that electrical energy can be transformed into heat, light, and sound energy, as well as the energy of motion.</p> <p>FCAT 2.0 Content Limits:</p> <ul style="list-style-type: none"> Items will not use more than two energy conversions. Scenarios are limited to abiotic systems. Scenarios referring to energy from the Sun will not use the term <i>radiant</i>. 	<p>Unit 5, Lesson 5</p> <p>Flipchart p.27 Materials: wire, iron nail, tape, battery (D-cell), paper clips</p> <p>Digital Lesson 5: How Do We Use Electricity?</p> <p>FAIR GAME Review</p> <p>Concepts:</p> <ul style="list-style-type: none"> SC.3.E.6.1 (HIGH): Solar energy SC.4.P.11.1 (LOW): Heat flows from hot to cold to change temperature. SC.4.P.11.2 (LOW): Conducting heat <p>3rd Grade Digital Lessons: SC.3.E.6.1: TS300008 & TS300010</p> <p>4th Grade Digital Lessons: SC.4.P.11.1: TS400028 & TS400029 SC.4.P.11.2: TS400031</p> <p>FCAT 2.0 Review PowerPoint: SC.3.E.6.1: Slide 82 SC.4.P.11.1: Slide 83 SC.4.P.11.2: Slide 84</p>	<p>NGSSS Benchmark Lessons: I Finally See the Light</p> <p>5th Grade Resource Folder: Additional AIMS activities Journal ideas & starters FCAT Review Notes & PowerPoint Additional misconceptions Web Resources</p>

Physical Science

Unit 6 Big Ideas

Big Idea 8: Properties of Matter
Big Idea 9: Changes in Matter
Big Idea 10: Forms of Energy

Big Idea 11: Energy Transfer and Transformations
Big Idea 13: Forces and Changes in Motion

Professional Development Resources

Teacher Science Background (Resource section of TE) – pp. TR21, TR25, TR26

Professional Development Videos (www.learner.org) – <http://www.learner.org/resources/series26.html>

Vocabulary

Series circuit
***Electricity (also in 5)**
***Repulsion**
***Conductor**
***Insulator**
***Circuit**
 (*DOE Vocabulary)

Assessment

- **Lesson Quizzes:** Assessment Guide, pp. AG57 – AG58
- **Unit 6 Benchmark Review:** Student Edition pp. 301-302
- **Unit 6 Benchmark Test:** AG59 – AG62
- **Performance Assessment:** Short Option TE p. 301; Long Option Assessment Guide, pp. AG63 – AG 64
- **Test Generator**
- **Additional Assessments:** [Thinkcentral](#) under Unit Assessment

Differentiated Instruction

- **Reading/Language Arts benchmarks** – TE 164
- **Cross Curriculum Benchmarks** – TE p. 164; TR pp. 40 - 48
- **ESOL** – TE pp. 163H – 163 I
- **Make Connections** – TE p. 178A, 192A, 208A, 220A
- **Differentiated Inquiry** – TE pp. 194A, 210A
- **Fusion Online PowerPoint Review** – Lessons 2
- **ScienceSaurus** – Matter, pp. 242-267
- **Leveled Reader Titles:**
 BL: Properties of Matter
 OL: It is Good to Know About Matter
 AL: Organization is Key: Properties of Matter

Possible Misconceptions



- See TE pages noted for more information on common misconceptions.*
- ✓ Students may think the state of a substance only exists at room temperature. (p. 173)
 - ✓ Students may think mixtures and solutions are entirely different. (p. 198)
 - ✓ Students may think that saving raw materials is the only reason to recycle. (p. 203)

Unit 6 Pacing Guide

OCT 2012

S	M	T	W	TH	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

The Nature of Science should be incorporated throughout the Big Ideas.

-  Physical Science
-  Non-Instructional Day

Unit 6: Working with Electricity – Lessons 1-2 sequentially

Benchmark	Fusion Resources	Additional Resources
<p>SC.5.P.11.1 (MODERATE COMPLEXITY) Investigate and illustrate the fact that the flow of electricity requires a closed circuit (a complete loop).</p> <p>FCAT 2.0 Content Limits:</p> <ul style="list-style-type: none"> Items will not assess parallel and series circuits. 	<p>Careers in Science: pp. 299-300 Unit 6, Lessons 1, 2</p> <p>Flipchart: p. 28 Materials: battery (size D) with holder, light bulb with holder, three lengths of wire, switch</p> <p>Flipchart: p. 29 Materials: 2 light bulbs with holders, battery (size D) with holder, switch, 4 lengths of wire</p> <p>Virtual Lab 1: What Is an Electric Circuit?</p> <p>Digital Lesson 2: What Are Electric Circuits, Conductors, and Insulators?</p>	<p>Probes: Uncovering Student Ideas in Science, NSTA Press Lesson 1 – Volume 3: Batteries, Bulbs, and Wires #7, p. 57 Lesson 2 – Volume 1: The Mitten Problem #14, p.103</p> <p>AIMS: Sparky’s Light Kit, Path Finders, Make a Switch, Circuit Breakers, and Electric Currents</p> <p>NGSSS Benchmark Lessons: Let it Flow</p> <p>5th Grade Resource Folder: Additional AIMS activities Journal ideas & starters FCAT Review Notes & PowerPoint Additional misconceptions Web Resources</p>
<p>SC.5.P.11.2 (MODERATE COMPLEXITY) Identify and classify materials that conduct electricity and materials that do not.</p> <p>FCAT 2.0 Content Limits:</p> <ul style="list-style-type: none"> Items assessing electricity will not refer to electrons or the movement of electrons in producing electrical charge. 	<p>Unit 6, Lessons 1, 2</p> <p>Flipchart: p. 28 Materials: For materials, see SC.5.P.11.1</p> <p>Flipchart: p. 29 Materials: For materials, see SC.5.P.11.1</p> <p>Virtual Lab 1: What Is an Electric Circuit?</p> <p>Digital Lesson 2: What Are Electric Circuits, Conductors, and Insulators?</p>	<p>Probes: Uncovering Student Ideas in Science, NSTA Press Lesson 1 – Volume 3: Batteries, Bulbs, and Wires #7, p. 57 Lesson 2 – Volume 1: The Mitten Problem #14, p.103</p> <p>AIMS: Conductor or Insulator</p> <p>NGSSS Benchmark Lessons: What Makes the Best Insulator?</p> <p>5th Grade Resource Folder: Additional AIMS activities Journal ideas & starters FCAT Review Notes & PowerPoint Additional misconceptions Web Resources</p>

Physical Science

Unit 7 Big Ideas

Big Idea 8: Properties of Matter
Big Idea 9: Changes in Matter
Big Idea 10: Forms of Energy

Big Idea 11: Energy Transfer and Transformations
Big Idea 13: Forces and Changes in Motion

Professional Development Resources

Teacher Science Background (Resource section of TE) – pp. TR23, TR29

Professional Development Videos (www.learner.org) – <http://www.learner.org/resources/series136.html>

Vocabulary

Friction
Balanced forces
Unbalanced forces

***Force**
***Gravity**
***Motion**
***Speed**
 (*DOE Vocabulary)

Assessment

- **Lesson Quizzes:** Assessment Guide, pp. AG65 – AG67
- **Unit 7 Benchmark Review:** Student Edition pp. 329-332
- **Unit 7 Benchmark Test:** AG68 – AG71
- **Performance Assessment:** Short Option TE p. 329; Long Option Assessment Guide, pp. AG72 – AG73
- **Test Generator**
- **Additional Assessments:** [Thinkcentral](#) under Unit Assessment

Differentiated Instruction

- **Reading/Language Arts benchmarks** – TE 164
- **Cross Curriculum Benchmarks** – TE p. 164; TR pp. 40 - 48
- **ESOL** – TE pp. 163H – 163 I
- **Make Connections** – TE pp. 178A, 192A, 208A, 220A
- **Differentiated Inquiry** – TE pp. 194A, 210A
- **Fusion Online PowerPoint Review** – Lesson 1
- **ScienceSaurus** – Matter, pp. 242-267
- **Leveled Reader Titles:**
 BL: Properties of Matter
 OL: It is Good to Know About Matter
 AL: Organization is Key: Properties of Matter

Possible Misconceptions



See TE pages noted for more information on common misconceptions.

- ✓ Some students may think than an object at rest has no forces acting on it. (p. 307)
- ✓ Be sure students understand that balanced forces must act on the same object. (p. 311)
- ✓ Some students may think that rockets require a steady force to keep them moving through space. (p. 317)

Unit 7 Pacing Guide

OCT 2012							NOV 2012						
S	M	T	W	TH	F	S	S	M	T	W	TH	F	S
	1	2	3	4	5	6					1	2	3
7	8	9	10	11	12	13	4	5	6	7	8	9	10
14	15	16	17	18	19	20	11	12	13	14	15	16	17
21	22	23	24	25	26	27	18	19	20	21	22	23	24
28	29	30	31				25	26	27	28	29	30	

The Nature of Science should be incorporated throughout the Big Ideas.

-  Physical Science
-  Non-Instructional Day

Unit 7: Forces and Motion – Lessons 1-3 sequentially

Benchmark	Fusion Resources	Additional Resources
<p>SC.5.P.13.1 (LOW COMPLEXITY) Identify familiar forces that cause objects to move, such as pushes or pulls, including gravity acting on falling objects.</p> <p>FCAT 2.0 Content Limits:</p> <ul style="list-style-type: none"> Items assessing familiar forces are limited to pushes, pulls, friction, gravity, and magnetic force. Items may only require the interpretation of two forces at a time. Items referring to friction will only assess the force of friction as a resistance to movement. Items assessing forces applied to objects of different masses are limited to pushes, pulls, and friction. 	<p>Unit 7, Lessons 1, 2, 3 Careers in Science: pp. 327-328</p> <hr/> <p>Flipchart: p. 30 Materials: paper, tape, index cards, table-tennis ball, straw</p> <p>Flipchart: p. 31 Materials: safety goggles, giant rubber band, chair, tape, ruler, toy truck, meterstick, metal bolts</p> <p>Flipchart: p. 32 Materials: springs scale, wood blocks with hooks, sandpaper, waxed paper, vegetable oil</p> <hr/> <p align="center">FAIR GAME Review</p> <hr/> <p>Concepts:</p> <ul style="list-style-type: none"> SC.3.E.5.4 (HIGH): Law of gravity SC.4.P.8.4 (HIGH): Magnetic force <p>Digital Lesson 1: What Are Forces?</p> <p>Virtual Lab 2: How Do Forces Affect Motion?</p> <p>Virtual Lab 3: What Are Balanced and Unbalance Forces?</p> <p>Video Based Projects 4th – It’s a Bird! It’s a Plane www.thinkcentral.com</p> <p>3rd Grade Digital Lessons: SC.3.E.5.4: TS300011</p> <p>4th Grade Digital Lessons: SC.4.P.8.4: TS400020 & TS400021</p> <p>FCAT 2.0 Review PowerPoint: SC.3.E.5.4: Slide 91 SC.4.P.8.4: Slide 92</p>	<p>Probes: Uncovering Student Ideas in Science, NSTA Press Lesson 1 – Volume 3: Dropping Balls #10, p. 79 Lesson 3 – Volume 3: Apple on the Desk #8, p. 63</p> <p>AIMS: Pushed Around</p> <p>NGSSS Benchmark Lessons: Force and Motion</p> <p>5th Grade Resource Folder: Additional AIMS activities Journal ideas & starters FCAT Review Notes & PowerPoint Additional misconceptions Web Resources</p>

Benchmark	Fusion Resources	Additional Resources
<p>SC.5.P.13.2 (MODERATE COMPLEXITY) Investigate and describe that the greater the force applied to it, the greater the change in motion of a given object.</p> <p>FCAT 2.0 Content Limits:</p> <ul style="list-style-type: none"> Items assessing relationship between mass, force, and motion are limited to a conceptual understanding. Items will not involve mathematical calculations or formulas. Items will address a conceptual understanding of speed and not require mathematical computations. Items may require the identification of the direction of motion but not the magnitude of motion. Scenarios should use Newtons (N) as the unit of measure for forces. 	<p>Unit 7, Lessons 1, 2</p> <p>Flipchart: p. 30 Materials: For materials, see SC.5.P.13.1</p> <p>Digital Lesson 1: What Are Forces?</p> <p>Virtual Lab 2: How Do Forces Affect Motion?</p> <hr/> <p style="text-align: center;">FAIR GAME Review</p> <p>Concepts:</p> <ul style="list-style-type: none"> SC.4.P.12.1 (LOW): Change in motion SC.4.P.12.2 (MODERATE): Speed <p>4th Grade Digital Lessons: SC.4.P.12.1: TS400032 SC.4.P.12.2: TS400033</p> <p>FCAT 2.0 Review PowerPoint: SC.4.P.12.1: Slide 97 SC.4.P.12.2: Slide 98</p>	<p>Probes: Uncovering Student Ideas in Science, NSTA Press Lesson 1 – Volume 3: Dropping Balls #10, p. 79</p> <p>AIMS: Big Dog Charades</p> <p>NGSSS Benchmark Lessons: Motion Notion</p> <p>5th Grade Resource Folder: Additional AIMS activities Journal ideas & starters FCAT Review Notes & PowerPoint Additional misconceptions Web Resources</p>
<p>SC.5.P.13.3 (MODERATE COMPLEXITY) Investigate and describe that the more mass an object has, the less effect a given force will have on the object's motion.</p> <p>FCAT 2.0 Content Limits:</p> <ul style="list-style-type: none"> None Specified 	<p>Unit 7, Lessons 1, 2</p> <p>Flipchart: p. 30 Materials: For materials, see SC.5.P.13.1</p> <p>Digital Lesson 1: What Are Forces?</p> <p>Virtual Lab 2: How Do Forces Affect Motion?</p> <p>Flipchart: p. 31 Materials: For materials, see SC.5.P.13.1</p>	<p>Probes: Uncovering Student Ideas in Science, NSTA Press Lesson 1 – Volume 3: Dropping Balls #10, p. 79</p> <p>NGSSS Benchmark Lessons: Penny Push</p> <p>5th Grade Resource Folder: Additional AIMS activities Journal ideas & starters FCAT Review Notes & PowerPoint Additional misconceptions Web Resources</p>

Benchmark	Fusion Resources		Additional Resources
<p>SC.5.P.13.4 (HIGH COMPLEXITY) 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.</p> <p>FCAT 2.0 Content Limits:</p> <ul style="list-style-type: none"> Items may refer to balanced forces and/or unbalanced forces but not net force. 	<p>Unit 7, Lessons 1, 2</p> <p>Flipchart: p. 30 Materials: For materials, see SC.5.P.13.1</p> <p>Flipchart: p. 31 Materials: For materials, see SC.5.P.13.1</p> <p>Digital Lesson 1: What Are Forces?</p> <p>Virtual Lab 2: How Do Forces Affect Motion?</p>		<p>Probes: Uncovering Student Ideas in Science, NSTA Press Lesson 1 – Volume 3: Dropping Balls #10, p. 79 Lesson 3 – Volume 3: Apple on the Desk #8, p. 63</p> <p>NGSSS Benchmark Lessons: Losing Your Marbles</p> <p>5th Grade Resource Folder: Additional AIMS activities Journal ideas & starters FCAT Review Notes & PowerPoint Additional misconceptions Web Resources</p>
LEAFS – Common Lab (Force and Motion)			
Benchmark	Learning Goal	Notes	Required Section
<p>SC.5.P.1.3.2, SC.5.P.1.3.3, SC.5.P.1.3.4 (SC.5.N.1.1, SC.5.N.1.3, SC.5.N.1.4)</p> <p>*Approximate Suggested time: 5 hours</p>	<p>Students will be able to investigate/understand/demonstrate that the more mass an object has, the harder it is to move with any given force.</p>	<p>Make sure students conduct the experiment using the same surface.</p>	<p>Explore</p>

Earth and Space Science

Unit 2 Big Ideas

Big Idea 5: Earth in Space and Time
Big Idea 7: Earth Systems and Patterns

Professional Development Resources

Teacher Science Resources (Resource section of TE) – pp. TR23, TR30, TR32, TR35
Professional Development Videos (www.learner.org) – <http://www.learner.org/resources/series195.html>

Vocabulary

Milky Way	*Asteroid	*Planet
Galaxy	*Comet	*Solar System
Dwarf planet	*Galaxy	*Space
Astronomy	*Moon	*Vacuum
Star	*Orbit	*Weight
Universe	*Sun	(*DOE Vocabulary)

Assessment

- **Lesson Quizzes:** Assessment Guide, pp. AG13-AG15
- **Unit 2 Benchmark Review:** Student Edition, pp. 95-96
- **Unit 2 Benchmark Test:** pp. AG16-AG19
- **Performance Assessment:** Short Option TE p. 95; Long Option Assessment Guide, pp. AG20-AG21
- **Test Generator**
- **Additional Assessments:** [Thinkcentral](#) under Unit Assessments

Differentiated Instruction

- **Reading/Language Arts benchmarks** – TE p. 62
- **Cross Curriculum Benchmarks** – TE p. 62
- **ESOL** – TE pp. 61H-61I
- **Make Connections** – TE pp. 80A, 92A
- **Differentiated Inquiry** – TE pp. 82A
- **Fusion Online PowerPoint Review** – Lesson 1 & 3
- **ScienceSaurus** – Earth and Its Moon, pp. 218-225; The Solar System and Beyond, pp. 380-385
- **Leveled Reader Titles:**
 BL: Earth Moon, and Beyond
 OL: Earth and Beyond
 AL: Planet Data



Possible Misconceptions

- See TE pages noted for more information on common misconceptions.*
- ✓ Students think planets are the same size as Earth. (p. 69)
 - ✓ Students may think stars are evenly distributed; students think stars do not move. (p. 89)

Unit 2 Pacing Guide

NOV 2012							DEC 2012						
S	M	T	W	TH	F	S	S	M	T	W	TH	F	S
				1	2	3		3	4	5	6	7	8
4	5	6	7	8	9	10	9	10	11	12	13	14	15
11	12	13	14	15	16	17	16	17	18	*19	*20	*21	22
18	19	20	21	22	23	24	23	24	25	26	27	28	29
25	26	27	28	29	30		30	31					

The Nature of Science should be incorporated throughout the Big Ideas.

-  Earth and Space Science
-  Non-Instructional Day
- * Early Release Day

Unit 2: The Solar System and the Universe – Lessons 1-3 sequentially

Benchmark	Fusion Resources	Additional Resources	
<p>SC.5.E.5.1 (LOW COMPLEXITY) 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.</p> <p>FCAT 2.0 Content Limits:</p> <ul style="list-style-type: none"> • Items will only assess a conceptual understanding of a galaxy. • Items will not assess the name of our galaxy in isolation. • Items will not assess objects orbiting stars. • Items will not assess numeric values for distance or number of stars. Items may assess that stars are made of gases but not the specific chemical composition of stars. • Items will not require the identification of specific constellations. Items will not require specific knowledge of quantitative astronomical data. 	<p>Unit 2, Lesson 3</p> <p>Flipchart: p. 10</p> <p>Materials: washable color markers, large coffee filters, newspaper, cup of water, dropper, black poster board, scissors, glue stick</p>	<p>Probes: Uncovering Student Ideas in Science, NSTA Press Lesson 3 – Volume 3: Where Do Stars Go? #25, p. 191 Lesson 3 – Volume 2: Emmy’s Moon and Stars #24, p. 177</p> <p>AIMS: Stars in the Milky Way Galaxy</p> <p>NGSSS Benchmark Lessons: Star Gazing</p> <p>5th Grade Resource Folder: Additional AIMS activities Journal ideas & starters FCAT Review Notes & PowerPoint Additional misconceptions Web Resources</p>	
	FAIR GAME Review		
	<p>Concepts:</p> <ul style="list-style-type: none"> • SC.3.E.5.1 (HIGH): Size, distance, brightness of stars/sun • SC.3.E.5.2 (HIGH): Size, distance, brightness of stars/sun • SC.3.E.5.3 (HIGH): Size, distance, brightness of stars/sun 		<p>3rd Grade Digital Lessons: SC.3.E.5.1: TS300007 SC.3.E.5.2: TS300009 SC.3.E.5.3: TS300008</p> <p>FCAT 2.0 Review PowerPoint: SC.3.E.5.1: Slide 21 SC.3.E.5.2: Slide 23 SC.3.E.5.3: Slide 23</p>

Benchmark	Fusion Resources	Additional Resources
<p>SC.5.E.5.2 (MODERATE COMPLEXITY) Recognize the major common characteristics of all planets and compare/contrast the properties of inner and outer planets</p> <p>FCAT 2.0 Content Limits:</p> <ul style="list-style-type: none"> • Items assessing inner and outer planet groups are limited to: surface composition (whether they are mostly solid or gas), presence of an atmosphere, size, relative position to the Sun, presence of moons or rings, relative temperature, and relative length of a year. • Items will not require specific knowledge of quantitative astronomical data. • Items will not assess the causes of moon phases. • Items will not assess or use vocabulary associated with moon phases, such as <i>waning</i>, <i>waxing</i>, and <i>gibbous</i>. 	<p>Unit 2, Lessons 1, 2</p> <p>Flipchart: p. 8 Materials: markers, tape, measuring tape, paper, string, scissors, wooden stakes</p> <p>Flipchart: p. 9 Materials: poster (planet, moon, asteroid, comet, or other solar system object), binoculars</p> <p>Digital Lesson 1: What Objects Are Part of The Solar System?</p> <p>Virtual Lab 2: How Do We Observe Objects In the Solar System?</p>	<p>AIMS: Can You Planet?</p> <p>NGSSS Benchmark Lessons: How Do I Look?</p> <p>5th Grade Resource Folder: Additional AIMS activities Journal ideas & starters FCAT Review Notes & PowerPoint Additional misconceptions Web Resources</p>

Benchmark	Fusion Resources	Additional Resources
<p>SC.5.E.5.3 (HIGH COMPLEXITY) Distinguish among the following objects of the Solar System -- Sun, planets, moons, asteroids, comets -- and identify Earth's position in it.</p> <p>FCAT 2.0 Content Limits:</p> <ul style="list-style-type: none"> • Items will address a conceptual understanding of our solar system and the characteristics of objects in our solar system. • Items will not assess characteristics of the Sun. • Items will not assess interactions of objects in our solar system. Items will not assess the force of gravity. • Items will assess a conceptual understanding of the apparent movements of the Sun, Moon, and stars and resulting patterns. 	<p>Unit 2, Lesson 1 People in Science: pp.93-94</p> <p>Flipchart: p. 8 Materials: For materials, see SC.5.E.5.2</p> <p>Digital Lesson 1: What Objects Are Part of The Solar System?</p> <hr/> <p>FAIR GAME Review</p> <p>Concepts:</p> <ul style="list-style-type: none"> • SC.4.E.5.1 (HIGH): Earth and moon movements • SC.4.E.5.2 (MODERATE): Earth and moon movements • SC.4.E.5.3 (MODERATE): Earth and moon movements • SC.4.E.5.4 (HIGH): Earth and moon movements <p>4th Grade Digital Lessons: SC.4.E.5.2: TS400009 SC.4.E.5.4: TS4000097 & TS400008</p> <p>FCAT 2.0 Review PowerPoint: SC.4.E.5.1: Slide 30 SC.4.E.5.2: Slide 31 SC.4.E.5.3: Slide 32 SC.4.E.5.4: Slide 32</p> <p>Sun as our Star http://www.teachersdomain.org/resource/ess05.sci.ess.eiu.jp_superstar/</p> <p>Solar System and Space http://edtech.kennesaw.edu/web/solar.html</p>	<p>NGSSS Benchmark Lessons: A Lunar Lap</p> <p>5th Grade Resource Folder: Additional AIMS activities Journal ideas & starters FCAT Review Notes & PowerPoint Additional misconceptions Web Resources</p>

Earth and Space Science

Unit 3 Big Ideas

Big Idea 5: Earth in Space and Time
Big Idea 7: Earth Systems and Patterns

Professional Development Resources

Teacher Science Resources (Resource section of TE) – pp. TR18, TR19, TR27, TR28, TR32, TR37

Professional Development Videos (www.learner.org) – <http://video.nationalgeographic.com/video/science/earth-sci/climate-weather-sci/>

Vocabulary

Atmosphere	Air mass	Barometric Pressure
Condensation	Front	Latitude
Runoff	Weather map	*Humidity
Weather	Air pressure	*Water cycle
Anemometer	Climate	*Evaporation
Barometer	Climate zone	*Precipitation
Wind	Equator	(*DOE Vocabulary)

Assessment

- **Lesson Quizzes:** Assessment Guide, pp. AG22 - AG27
- **Unit 3 Benchmark Review:** Student Edition pp. 159-162
- **Unit 3 Benchmark Test:** AG28 - AG31
- **Performance Assessment:** Short Option TE p. 159; Long Option Assessment Guide, pp. AG32 – AG 33
- **Test Generator**
- **Additional Assessments:** [Thinkcentral](#) under Unit Assessment

Differentiated Instruction

- **Reading/Language Arts benchmarks** – TE p. 62
- **Cross Curriculum Benchmarks**-TE p. 62 and TR pp. 40-48
- **ESOL** – TE pp. 97H-97I
- **Make Connections**– TE pp. 112A, 126A, 140A, 156A
- **Differentiation Inquiry**- TE pp. 114A, 142A
- **Fusion Online PowerPoint Review** – Lesson 1, 3, 4, & 6
- **ScienceSaurus**- Water Cycle, pp. 188-189, Weather and Climate, pp. 198-217
- **Leveled Reader Titles:**
 BL: Weather and the Water Cycle
 OL: Sun, Rain, Hurricane! and What Makes Weather?
 AL: Will It Rain?

Possible Misconceptions



See TE pages noted for more information on common misconceptions.

- ✓ Students might think all locations in a climate zone have the same temperature. (p. 148)

Unit 3 Pacing Guide

DEC 2012							JAN 2013						
S	M	T	W	TH	F	S	S	M	T	W	TH	F	S
	3	4	5	6	7	8			1	2	3	4	5
9	10	11	12	13	14	15	6	7	8	9	10	11	12
16	17	18	*19	*20	*21	22	13	14	15	16	17	18	19
23	24	25	26	27	28	29	20	21	22	23	24	25	26
30	31						27	28	29	30	31		

The Nature of Science should be incorporated throughout the Big Ideas.

-  Earth and Space Science
-  Non-Instructional Day
- * Early Release Day

Unit 3: Weather, Climate, and the Water Cycle – Lessons 1-6 sequentially

Benchmark	Fusion Resources	Additional Resources
<p>SC.5.E.7.1 (HIGH COMPLEXITY) 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.</p> <p>FCAT 2.0 Content Limits:</p> <ul style="list-style-type: none"> • Items will not address or assess transpiration, infiltration, or percolation as processes of the water cycle. • Items assessing the phases of water are limited to a water cycle context. 	<p>Unit 3, Lessons 1, 2</p> <p>Flipchart: p. 11 Materials: 2 shallow rectangular pans, 500mL beaker, fan, black marker</p> <p>Flipchart: p. 12 Materials: 2 plastic containers, modeling clay, plastic wrap, salt, 2 small weights, 2 rubber bands or masking tape, measuring spoons, measuring cup, dropper</p> <p>Digital Lesson 1: What Is The Water Cycle?</p> <p>Virtual Lab 2: What Happens During the Water Cycle?</p>	<p>Probes: Uncovering Student Ideas in Science, NSTA Press Lesson 1 & 2 – Volume 1: Wet Jeans #21, p. 155; Ice Cubes in a Bag #5, p. 49 Lesson 1 & 2 – Volume 3: What are Clouds Made Of? #20, p. 155; Where Did the Water Come From? #21, p. 163; Rainfall #22, p.171</p> <p>AIMS: Moving Raindrops</p> <p>NGSSS Benchmark Lessons: Rainmakers</p> <p>5th Grade Resource Folder: Additional AIMS activities Journal ideas & starters FCAT Review Notes & PowerPoint Additional misconceptions Web Resources</p>
<p>SC.5.E.7.2 (MODERATE COMPLEXITY) 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.</p> <p>FCAT 2.0 Content Limits:</p> <ul style="list-style-type: none"> • None Specified 	<p>Unit 3, Lessons 1, 2 Careers in Science: pp. 157-158</p> <p>Flipchart: p. 11 Materials: For materials, see SC.5.E.7.1</p> <p>Flipchart: p. 12 Materials: For materials, see SC.5.E.7.1</p> <p>Digital Lesson 1: What Is The Water Cycle?</p> <p>Virtual Lab 2: What Happens During the Water Cycle?</p>	<p>Probes: Uncovering Student Ideas in Science, NSTA Press Lesson 1 & 2 – Volume 1: Wet Jeans #21, p. 155; Ice Cubes in a Bag #5, p. 49 Lesson 1 & 2 – Volume 3: What are Clouds Made Of? #20, p. 155; Where Did the Water Come From? #21, p. 163; Rainfall #22, p.171</p> <p>AIMS: What Makes Rain</p> <p>NGSSS Benchmark Lessons: Don't Pressure Me</p> <p>5th Grade Resource Folder: Additional AIMS activities Journal ideas & starters FCAT Review Notes & PowerPoint Additional misconceptions Web Resources</p>

Benchmark	Fusion Resources		Additional Resources
<p>SC.5.E.7.3 (MODERATE COMPLEXITY) Recognize how air temperature, barometric pressure, humidity, wind speed and direction, and precipitation determine the weather in a particular place and time.</p> <p>FCAT 2.0 Content Limits:</p> <ul style="list-style-type: none"> • Items will not require knowledge of specific geographic locations. Items will not assess fronts. • Items may refer to common tools used to measure air temperature, barometric pressure, humidity, wind speed and direction, and precipitation but will not assess specific knowledge of the tools. • Wind speeds will be shown in miles per hour (mph). • The phrase <i>air pressure</i> should be used rather than the phrase <i>barometric pressure</i>. • Scenarios may include a weather map with a key explaining weather symbols. 	<p>Unit 3, Lessons 3, 4, 5</p> <p>Flipchart: p. 13 Materials: 8 ½ x 11 sheets white and blue paper, glue sticks, scissors, pencil, straw, index card, modeling clay, and push pins</p> <p>Flipchart: p. 14 Materials: plastic bottle with cap, dish soap, timer, water, food coloring</p> <p>Flipchart: p. 15 Materials: thermometer, barometer, rain gauge, wind vane, anemometer, hygrometer, cloud chart</p> <p>Digital Lesson 3: How Do We Measure Weather?</p> <p>Digital Lesson 4: How Do Weather Patterns Help Us Predict Weather?</p> <p>Virtual Lab 5: How Can We Observe Weather Patterns?</p>		<p>Probes: Uncovering Student Ideas in Science, NSTA Press Lesson 3 – Volume 3: Thermometer #3, p. 33</p> <p>AIMS: Air Pockets</p> <p>5th Grade Resource Folder: Additional AIMS activities Journal ideas & starters FCAT Review Notes & PowerPoint Additional misconceptions Web Resources</p>
LEAFS – Common Lab (Weather)			
Benchmark	Learning Goal	Notes	Required Section
SC.5.E.7.3 *Approximate Suggested time: 3 hours (over several weeks)	Students will be able to recognize how air temperature, barometric pressure, humidity, wind speed and direction, and precipitation determine the weather in a particular place and time.	Make sure to observe daily for several weeks.	Explore (5 mins/day over 2 weeks)

Benchmark	Fusion Resources	Additional Resources
<p>SC.5.E.7.4 (HIGH COMPLEXITY) Distinguish among the various forms of precipitation (rain, snow, sleet, and hail), making connections to the weather in a particular place and time.</p> <p>FCAT 2.0 Content Limits:</p> <ul style="list-style-type: none"> Items addressing the types of clouds are limited to cumulus, cirrus, stratus, and cumulonimbus as they relate to weather but will not require differentiation among these types of clouds. 	<p>Unit 3, Lessons 3, 5</p> <p>Flipchart: p. 13 Materials: For materials, see SC.5.E.7.3</p> <p>Flipchart: p. 15 Materials: For materials, see SC.5.E.7.3</p> <p>Digital Lesson 3: How Do We Measure Weather?</p> <p>Virtual Lab 5: How Can We Observe Weather Patterns?</p>	<p>Probes: Uncovering Student Ideas in Science, NSTA Press Lesson 3 – Volume 3: Thermometer #3, p. 33</p> <p>AIMS: Weather or Not</p> <p>NGSSS Benchmark Lessons: Ice Flows</p> <p>5th Grade Resource Folder: Additional AIMS activities Journal ideas & starters FCAT Review Notes & PowerPoint Additional misconceptions Web Resources</p>
<p>SC.5.E.7.5 (MODERATE COMPLEXITY) Recognize that some of the weather-related differences, such as temperature and humidity, are found among different environments, such as swamps, deserts, and mountains.</p> <p>FCAT 2.0 Content Limits:</p> <ul style="list-style-type: none"> Items assessing weather-related differences among different environments may include desert, grassland, rainforest, tundra, and wetland. Dual thermometers showing degrees Fahrenheit and degrees Celsius must be used if the scenario requires an illustration of a thermometer. 	<p>Unit 3, Lesson 6</p> <p>Flipchart: p. 16 Materials: safety compass (optional), drawing paper</p> <p>Digital Lesson 6: What Factors Affect Climate?</p>	<p>NGSSS Benchmark Lessons: Testing Water and Soil</p> <p>5th Grade Resource Folder: Additional AIMS activities Journal ideas & starters FCAT Review Notes & PowerPoint Additional misconceptions Web Resources</p>

Benchmark	Fusion Resources		Additional Resources
<p>SC.5.E.7.6 (HIGH COMPLEXITY) Describe characteristics (temperature and precipitation) of different climate zones as they relate to latitude, elevation, and proximity to bodies of water.</p> <p>FCAT 2.0 Content Limits:</p> <ul style="list-style-type: none"> • Items assessing weather and climate are limited to conceptual understanding. • Items will not assess the difference between climate and weather. Items will not address or assess the interpretation of specific characteristics used to forecast weather. • Items assessing climate zones are limited to polar, tropical, and temperate. 	<p>Unit 3, Lesson 6</p> <p>Flipchart: p. 16 Materials: For materials, see SC.5.E.7.5</p> <p>Digital Lesson 6: What Factors Affect Climate?</p>		<p>AIMS: Out Front</p> <p>5th Grade Resource Folder: Additional AIMS activities Journal ideas & starters FCAT Review Notes & PowerPoint Additional misconceptions Web Resources</p>
<p>SC.5.E.7.7 (MODERATE COMPLEXITY) Design a family preparedness plan for natural disasters and identify the reasons for having such a plan.</p> <p>FCAT 2.0 Content Limits:</p> <ul style="list-style-type: none"> • None Specified 	<p>Unit 3, Lesson 4</p> <p>Flipchart: p. 14 Materials: For materials, see SC.5.E.7.3</p> <p>Digital Lesson 4: How Do Weather Patterns Help Us Predict Weather?</p>		<p>AIMS: Packed and Prepared</p> <p>5th Grade Resource Folder: Additional AIMS activities Journal ideas & starters FCAT Review Notes & PowerPoint Additional misconceptions Web Resources</p>

Life Science

Unit 8 Big Ideas

Big Idea 14: Organization and Development of Living Organisms

Big Idea 15: Diversity and Evolution of Living Organisms

Big Idea 17: Interdependence

Professional Development Resources

Teacher Science Resources (Resource section of TE) – pp. TR17, TR18, TR24, TR25

Professional Development Videos (www.learner.org) – <http://www.learner.org/courses/essential/life/session1/closer1.html>

Vocabulary

Organ system	Lungs	Kidneys
Brain	Heart	Bladder
Skin	Stomach	*Organism
Bones	Liver	*Organ
Muscles	Pancreas	(*DOE Vocabulary)

Assessment

- **Lesson Quizzes:** Assessment Guide, pp. AG74 – AG77
- **Unit 8 Benchmark Review:** Student Edition pp. 387-390
- **Unit 8 Benchmark Test:** AG78 – AG81
- **Performance Assessment:** Short Option TE p. 387; Long Option Assessment Guide, pp. AG82 – AG83
- **Test Generator**
- **Additional Assessments:** [Thinkcentral](#) under Unit Assessment

Differentiated Instruction

- **Reading/Language Arts benchmarks** – TE p. 334
- **Cross Curriculum Benchmarks** – TE p. 334
- **ESOL** – TE pp. 333H-333I
- **Make Connections** – TE pp. 350A, 370A, 384A
- **Differentiated Inquiry** – TE p. 352A
- **Fusion Online PowerPoint Review** – Lesson 1, 3, & 4
- **ScienceSaurus-** Cells, Tissues, Organs, and Systems, pp. 106-109, Human Body Systems, pp. 110-125
- **Leveled Reader Titles:**
BL: Cells to Body Systems
OL: Amazing Cells, Amazing Bodies
AL: Human Body Owner's Manual

Possible Misconceptions



See TE pages noted for more information on common misconceptions.

- ✓ Students may believe that reflexes travel to the brain for processing. (p. 339)
- ✓ Students may believe that asthma is contagious because of the outward symptoms. (p. 360)
- ✓ Students may think that blood that is low in oxygen is actually blue when this is just coding used in artwork of the human body. (p. 363)

Unit 8 Pacing Guide

JAN 2013							FEB 2013						
S	M	T	W	TH	F	S	S	M	T	W	TH	F	S
		1	2	3	4	5						1	2
6	7	8	9	10	11	12	3	4	5	6	7	8	9
13	14	15	16	17	18	19	10	11	12	13	14	15	16
20	21	22	23	24	25	26	17	18	19	20	21	22	23
27	28	29	30	31			24	24	26	27	28		

The Nature of Science should be incorporated throughout the Big Ideas.

-  Life Science
-  Non-Instructional Day

Unit 8: The Structure of Living Things – Lessons 1-4 sequentially

Benchmark	Fusion Resources	Additional Resources
<p>SC.5.L.14.1 (MODERATE COMPLEXITY) Identify the organs in the human body and describe their functions, including skin, brain, heart, lungs, stomach, liver, intestines, pancreas, muscles and skeleton, reproductive organs, kidneys, bladder, and sensory organs</p> <p>FCAT 2.0 Content Limits:</p> <ul style="list-style-type: none"> • Items will not assess human body systems. • Items will not require specific knowledge of the parts of organs. Items referring to the intestines may assess the small intestines and/or the large intestines. • Items will not require the memorization of the names of muscles or bones. • Items referring to muscles will only assess the function of muscles as a group. • Diagrams of the reproductive organs will not be used. 	<p>Unit 8, Lessons 1, 2, 3, 4</p> <p>Flipchart: pp. 33 Materials: index cards with different scents (prepare using essential oils of common scents)</p> <p>Flipchart: pp. 34 Materials: paper towels, 3 thermometers, 3 paper plates, marker, graduated cylinder, water, rubbing alcohol, fan</p> <p>Flipchart: pp. 35 Materials: small stress ball</p> <p>Flipchart: pp. 36 Materials: sugar cubes, plastic cups, measuring cups, stopwatch</p> <hr/> <p align="center">FAIR GAME Review</p> <hr/> <p>Concepts:</p> <ul style="list-style-type: none"> • SC.3.L.15.1 (MODERATE): Classifying animals • SC.3.L.15.2 (MODERATE): Classifying plants <p>Digital Lesson 1: What Are Organs and Body Systems?</p> <p>Virtual Lab 2: How Does the Body Stay Cool?</p> <p>Digital Lesson 3: What Body Parts Enable Movement, Support, Respiration, and Circulation?</p> <p>Digital Lesson 4: What Body Parts Enable Digestion, Waste Removal, and Reproduction?</p> <p>3rd Grade Digital Lessons: SC.3.L.15.1: TS300031, TS300032, & TS300033 SC.3.L.15.2: TS300030</p> <p>FCAT 2.0 Review PowerPoint: SC.3.L.15.1: Slide 109 SC.3.L.15.2: Slide 110</p>	<p>Probes: Uncovering Student Ideas in Science, NSTA Press Lesson 3 – Volume 3: Respiration #17, p. 131 Lesson 4 – Volume 1: Does It Have a Life Cycle? #14, p. 111</p> <p>AIMS: Body Systems</p> <p>NGSSS Benchmark Lessons: Lung Power</p> <p>5th Grade Resource Folder: Additional AIMS activities Journal ideas & starters FCAT Review Notes & PowerPoint Additional misconceptions Web Resources</p>

Benchmark	Fusion Resources		Additional Resources
<p>SC.5.L.14.2 (MODERATE COMPLEXITY) 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 stems for support.</p> <p>FCAT 2.0 Content Limits:</p> <ul style="list-style-type: none"> Items addressing and/or assessing the functions of organs or the comparison of physical structures are limited to the brain, heart, lungs, gills, stomach, liver, intestines, pancreas, muscles, bones, exoskeleton, testes, ovaries, kidneys, bladder, skin or body covering, eyes, ears, nose, and tongue. Scenarios will use common names of organisms and will not include scientific names. Scenarios requiring the classification of organisms as vertebrates or invertebrates must include a description or picture of the organisms. 	<p>People in Science: pp. 385-386 Unit 8, Lessons 1, 3, 4</p>		<p>Probes: Uncovering Student Ideas in Science, NSTA Press Lesson 3 – Volume 3: Respiration #17, p. 131 Lesson 4 – Volume 1: Does It Have a Life Cycle? #14, p. 111</p> <p>AIMS: Bag-O-Bones</p> <p>NGSSS Benchmark Lessons: Build a Better Beak</p> <p>5th Grade Resource Folder: Additional AIMS activities Journal ideas & starters FCAT Review Notes & PowerPoint Additional misconceptions Web Resources</p>
	<p>Flipchart: pp. 33 Materials: For materials, see SC.5.L.14.1</p>	<p>Digital Lesson 1: What Are Organs and Body Systems?</p>	
	<p>Flipchart: pp. 35 Materials: For materials, see SC.5.L.14.1</p>	<p>Digital Lesson 3: What Body Parts Enable Movement, Support, Respiration, and Circulation?</p>	
	<p>Flipchart: pp. 36 Materials: For materials, see SC.5.L.14.1</p>	<p>Digital Lesson 4: What Body Parts Enable Digestion, Waste Removal, and Reproduction?</p>	
FAIR GAME Review			
	<p>Concepts:</p> <ul style="list-style-type: none"> SC.3.L.14.1 (MODERATE): Plant structures and roles/support SC.3.L.14.2 (HIGH): Plants stimuli response SC.4.L.16.1 (MODERATE): Plant sexual reproduction 	<p>3rd Grade Digital Lessons: SC.3.L.14.1: TS300026, TS300027 SC.3.L.14.2: TS300026 & TS300027</p> <p>4th Grade Digital Lessons: SC.4.L.16.1: TS400034 & TS400035</p> <p>FCAT 2.0 Review PowerPoint: SC.3.L.14.1: Slide 101 SC.3.L.14.2: Slide 102 SC.4.L.16.1: Slide 103</p>	
LEAFS – Common Lab (Structure of Living Things)			
Benchmark	Learning Goal	Notes	Required Section
<p>SC.5.L.14.2 (SC.3.L.14.1)</p> <p>*Approximate Suggested time: 3 ½ hours</p>	<p>Students will be able to compare and contrast the function or organs and other physical structure of plants and animals including humans.</p>	<p>This lesson should be taught after human body.</p> <p>*See plant PowerPoint</p>	<p>Explore and Explain</p>

Life Science

Unit 9 Big Ideas

Big Idea 14: Organization and Development of Living Organisms

Big Idea 15: Diversity and Evolution of Living Organisms

Big Idea 17: Interdependence

Professional Development Resources

Teacher Science Resources (Resource section of TE) – pp. TR18, TR19, TR20, TR23, TR24, TR25, TR37

Professional Development Videos (www.learner.org) – <http://www.learner.org/resources/series179.html>

Vocabulary

Environment
Ecosystem
Pollution

Conservation
Extinction
***Habitat**
 (*DOE Vocabulary)

Assessment

- **Lesson Quizzes:** Assessment Guide, pp. AG84 – AG85
- **Unit 9 Benchmark Review:** Student Edition pp. 415-418
- **Unit 9 Benchmark Test:** AG86 – AG89
- **Performance Assessment:** Short Option TE p. 415; Long Option Assessment Guide, pp. AG90 – AG91
- **Test Generator**
- **Additional Assessments:** [Thinkcentral](#) under Unit Assessment

Differentiated Instruction

- **Reading/Language Arts benchmarks** – TE p. 334
- **Cross Curriculum Benchmarks** – TE p. 334
- **ESOL** – TE pp. 333H-333I
- **Make Connections** – TE p. 410A
- **Differentiated Inquiry** – TE p. 414A
- **Fusion Online PowerPoint Review** – Lesson 1
- **ScienceSaurus** – Animal and Plant Behavior, pp. 92-97; Pollution, pp. 339-343
- **Leveled Reader Titles**
 BL: Ecosystems and Change
 OL: Changes in Ecosystems
 AL: Journal: The Galapagos Islands

Possible Misconceptions



- See TE pages noted for more information on common misconceptions.*
- ✓ Many people think that choices when using plastics are limited to recycling or wasting. (p. 401)
 - ✓ Some students may think that all extinctions happened long ago. (p. 404)

Unit 9 Pacing Guide

FEB 2013

S	M	T	W	TH	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	24	26	27	28		

The Nature of Science should be incorporated throughout the Big Ideas.

-  Life Science
-  Non-Instructional Day

Unit 9: Changes in Environments – Lessons 1-2 sequentially

Benchmark	Fusion Resources	Additional Resources
<p>SC.5.L.15.1 (HIGH COMPLEXITY) 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.</p> <p>FCAT 2.0 Content Limits:</p> <ul style="list-style-type: none"> • None Specified 	<p>Unit 9, Lesson 1, 2</p> <p>Flipchart: p. 37 Materials: 25 black beans, 25 white beans, black construction paper, white construction paper, timer cup</p> <p>Flipchart: p. 38 Materials: 5 plastic cups, black markers, 125 seeds, potting soil, water, measuring cup</p> <p>Digital Lesson 1: How Do Environmental Changes Affect Organisms?</p> <p>Virtual Lab 2: How Does Drought Affect Plants?</p> <p>Video Based Projects 4th – Alligators Up Close www.thinkcentral.com</p>	<p>Probes: Uncovering Student Ideas in Science, NSTA Press Lesson 1 – Volume 2: Habitat Change #19, p. 143 Lesson 2 – Volume 2: Needs of Seeds #13, p. 101; Plants in the Dark and Light #14, p. 107</p> <p>NGSSS Benchmark Lessons: Clues From the Past</p> <p>5th Grade Resource Folder: Additional AIMS activities Journal ideas & starters FCAT Review Notes & PowerPoint Additional misconceptions Web Resources</p>

Life Science

Unit 10 Big Ideas

Big Idea 14: Organization and Development of Living Organisms

Big Idea 15: Diversity and Evolution of Living Organisms

Big Idea 17: Interdependence

Professional Development Resources

Teacher Science Resources (Resource section of TE) – pp. TR16, TR17, TR20, TR29, TR30, TR31, TR32

Professional Development Videos (www.learner.org) – <http://www.learner.org/resources/series179.html>

Vocabulary

Instinct	Wetland	*Diversity
Grassland	Habitat	*Evolution
Desert	Intertidal zone	*Environment
Taiga	*Adaptation	*Producer
Polar	*Consumer	*Life Cycle
		(*DOE Vocabulary)

Assessment

- **Lesson Quizzes:** Assessment Guide, pp. AG84 – AG85
- **Unit 9 Benchmark Review:** Student Edition pp. 415-418
- **Unit 9 Benchmark Test:** AG86 – AG89
- **Performance Assessment:** Short Option TE p. 415; Long Option Assessment Guide, pp. AG90 – AG91
- **Test Generator**
- **Additional Assessments:** [Thinkcentral](#) under Unit Assessment

Differentiated Instruction

- **Reading/Language Arts benchmarks** – TE p. 420
- **Cross Curriculum Benchmarks** – TE p. 420
- **ESOL** – TE pp. 333H-333I
- **Make Connections** – TE pp. 434A, 452A, 468A
- **Differentiated Inquiry** – TE p. 436A
- **Fusion Online PowerPoint Review** – Lesson 1, 3, & 4
- **ScienceSaurus** – Characteristics of Living Things: pp. 76-97
- **Leveled Reader Titles:**
BL: Plant Growth and Reproduction; Animal Growth and Heredity
OL: Plants and How They Grow; Heredity
AL: The Life of an Oak Tree; Designer Plants



Possible Misconceptions

- See TE pages noted for more information on common misconceptions.*
- ✓ Many people think that plants do not respond to stimuli. (p. 428)
 - ✓ Many people think that polar bears and penguins live together. (p. 448)
 - ✓ Many people think that it is safe to release any freshwater pet fish into lakes and ponds. (p. 455)

Unit 10 Pacing Guide

FEB 2013							MARCH 2013						
S	M	T	W	TH	F	S	S	M	T	W	TH	F	S
					1	2						1	2
3	4	5	6	7	8	9	3	4	5	6	7	8	9
10	11	12	13	14	15	16	10	11	12	13	14	15	16
17	18	19	20	21	22	23	17	18	19	20	21	22	23
24	24	26	27	28			24	25	26	27	28	29	30

The Nature of Science should be incorporated throughout the Big Ideas.

-  Life Science
-  Non-Instructional Day

Unit 10: Plant and Animal Adaptations – Lessons 1-4 sequentially

Benchmark	Fusion Resources	Additional Resources																				
<p>SC.5.L.17.1 (MODERATE COMPLEXITY) Compare and contrast adaptations displayed by animals and plants that enable them to survive in different environments such as life cycles variations, animal behavior and physical characteristics.</p> <p>FCAT 2.0 Content Limits:</p> <ul style="list-style-type: none"> • Items may require knowledge of how animals living in a particular environment are adapted to survive the seasonal changes in that environment. • The term <i>characteristic</i> should be used rather than the term <i>trait</i>. 	<p>Unit 10, Lessons 1, 2, 3, 4 People in Science: pp. 469-470</p> <p>Flipchart: p. 39 Materials: 6 small plant pots, potting soil, grass seeds, pinto beans, marigold seeds, scissors</p> <p>Flipchart: p. 40 Materials: Chopsticks, dropper, large pliers, needle-nose pliers, slotted spoon, forceps, shredded lettuce, juice in a graduated cylinder, rice in plastic foam, gummy worms in sand, sunflower seeds, walnuts</p> <p>Flipchart : p. 41 Materials: faux fur fabric, shortening, plastic glove, 2 plastic bags, ice, water, bowl, thermometer, timer</p> <p>Flipchart: p. 42 Materials: 4 elodea plants, 4 tall plastic cups, salt, water</p> <p align="center">FAIR GAME REVIEW</p> <table border="0"> <tr> <td>Concepts:</td> <td>3rd Grade Digital Lessons:</td> </tr> <tr> <td>• SC.3.L.17.1 (MODERATE): Florida animals</td> <td>SC.3.L.17.1: TS300035</td> </tr> <tr> <td>• SC.4.L.16.2 (HIGH): Inherited and learned behavior</td> <td>4th Grade Digital Lessons:</td> </tr> <tr> <td>• SC.4.L.16.3 (HIGH): Heredity</td> <td>SC.4.L.16.2: TS400037</td> </tr> <tr> <td>• SC.4.L.17.1 (MODERATE): Plants respond to seasons</td> <td>SC.4.L.17.1: TS400038</td> </tr> <tr> <td>• SC.4.L.17.4 (HIGH): Plants/animals impact environment</td> <td>SC.4.L.17.4: TS400041 & TS400042</td> </tr> <tr> <td></td> <td>FCAT 2.0 Review PowerPoint:</td> </tr> <tr> <td></td> <td>SC.3.L.17.1: Slide 118</td> </tr> <tr> <td></td> <td>SC.4.L.16.2: Slide 119</td> </tr> <tr> <td></td> <td>SC.4.L.17.4: Slide 120</td> </tr> </table>	Concepts:	3rd Grade Digital Lessons:	• SC.3.L.17.1 (MODERATE): Florida animals	SC.3.L.17.1: TS300035	• SC.4.L.16.2 (HIGH): Inherited and learned behavior	4th Grade Digital Lessons:	• SC.4.L.16.3 (HIGH): Heredity	SC.4.L.16.2: TS400037	• SC.4.L.17.1 (MODERATE): Plants respond to seasons	SC.4.L.17.1: TS400038	• SC.4.L.17.4 (HIGH): Plants/animals impact environment	SC.4.L.17.4: TS400041 & TS400042		FCAT 2.0 Review PowerPoint:		SC.3.L.17.1: Slide 118		SC.4.L.16.2: Slide 119		SC.4.L.17.4: Slide 120	<p>Probes: Uncovering Student Ideas in Science, NSTA Press Lesson 1 – Volume 2: Habitat Change #19, p. 143</p> <p>AIMS: Banning Together</p> <p>NGSSS Benchmark Lessons: Take A Little</p> <p>5th Grade Resource Folder: Additional AIMS activities Journal ideas & starters FCAT Review Notes & PowerPoint Additional misconceptions Web Resources</p>
Concepts:	3rd Grade Digital Lessons:																					
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	SC.4.L.17.4: Slide 120																					

LEAFs – Common Lab (Plant and Animal Adaptations)

Benchmark	Learning Goal	Notes	Required Section
SC.5.L.17.1 *Approximate Suggested time: 4 ½ hours	Students will be able to compare and contrast adaptations displayed by animals and plants that enable them to survive in different environments such as life cycle variations, animal behaviors and physical characteristics.	Forests and Aquatic can be broken up if more groups are needed. *Review rubric first.	Explore and Explain

FCAT Review

Big Ideas

All Big Ideas should be reviewed.

See FCAT Review Resource Folder included with instructional plan for:

- FCAT 2.0 Specification Questions
- FCAT 2.0 PowerPoint Review

Professional Development Resources

Teacher Science Resources – FCAT Review PowerPoint

Professional Development Article (Scholastic) – <http://www.scholastic.com/teachers/article/make-test-review-fun>

Vocabulary

*galaxy	*season	*pollination	*life cycle	*offspring	decomposers
*Milky Way Galaxy	*supernatural	*complete	*heredity	*consumers	*food chain
*solar system	*axis	metamorphosis	*pollen	*germination	*environment
*space	*moon	*incomplete	*reproduction	*gravity	*pollution
*Sun	*telescope	metamorphosis	*sexual reproduction	*producers	*recycling
*vacuum	*fertilization	*organism		Space probe	(*DOE Vocabulary)

Possible Misconceptions

Earth Science

- ✓ Rocks do not change.
- ✓ Weathering and erosion is essentially the same thing. The two words can be used interchangeably.
- ✓ Erosion happens quickly.
- ✓ Erosion is always bad.

Environmental - Renewable/Non-renewable energy sources

- ✓ Renewable resources never produce any pollution when we use them.
- ✓ Alternative energy sources will replace non-renewable energy sources now and completely.
- ✓ Renewable resources are always cheaper than non-renewable energy sources.



Life Cycle

- ✓ Grass, trees, and other plants die in the winter and are born in the spring.
- ✓ Plant "food" is a misnomer because mineral nutrients are not really food for plants. "Fertilizer" is the correct term.
- ✓ Plants photosynthesize during the day and conduct cellular respiration only at night.
- ✓ Some teaching literature even states this. Cellular respiration occurs continuously in plants, not just at night

FCAT Review Pacing Guide

MARCH 2013						
S	M	T	W	TH	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
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APRIL 2013						
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14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

-  FCAT Review
-  Non-Instructional Day

Suggested Coverage

Earth/Space FAIR GAME	3/18 – 3/21
Physical Science Review	4/1 – 4/5
Nature of Science Review and Life Science FAIR GAME	4/8 – 4/12

FAIR GAME REVIEW CONCEPTS FOR FCAT

Benchmark	Fusion Resources	Additional Resources								
<p>SC.4.E.6.2 (MODERATE COMPLEXITY) 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.</p> <p>FCAT 2.0 Content Limits:</p> <ul style="list-style-type: none"> Items addressing common minerals are limited to quartz, feldspar, mica, calcite, talc, pyrite, and graphite. 	<p>Digital Lesson: What Are Minerals?</p> <p>Virtual Lab: What Are Properties of Minerals?</p> <p>Rocks Minerals: http://www.rocksforkids.com</p> <hr/> <p align="center">FAIR GAME Review</p> <table border="0"> <tr> <td>Concepts:</td> <td>4th Grade Digital Lessons:</td> </tr> <tr> <td> <ul style="list-style-type: none"> SC.4.E.6.1 (LOW): Rock Types </td> <td> <ul style="list-style-type: none"> SC.4.E.6.1: TS400014 </td> </tr> <tr> <td colspan="2">FCAT 2.0 Review PowerPoint:</td> </tr> <tr> <td colspan="2">SC.4.E.6.1: Slide 35 & 36</td> </tr> </table>	Concepts:	4th Grade Digital Lessons:	<ul style="list-style-type: none"> SC.4.E.6.1 (LOW): Rock Types 	<ul style="list-style-type: none"> SC.4.E.6.1: TS400014 	FCAT 2.0 Review PowerPoint:		SC.4.E.6.1: Slide 35 & 36		<p>5th Grade Resource Folder: Additional AIMS activities Journal ideas & starters FCAT Review Notes & PowerPoint Additional misconceptions Web Resources</p>
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<ul style="list-style-type: none"> SC.4.E.6.1 (LOW): Rock Types 	<ul style="list-style-type: none"> SC.4.E.6.1: TS400014 									
FCAT 2.0 Review PowerPoint:										
SC.4.E.6.1: Slide 35 & 36										
<p>SC.4.E.6.3 (MODERATE COMPLEXITY) Recognize that humans need resources found on Earth and that these are either renewable or nonrenewable.</p> <p>FCAT 2.0 Content Limits:</p> <ul style="list-style-type: none"> Items addressing common minerals are limited to quartz, feldspar, mica, calcite, talc, pyrite, and graphite. 	<p>Digital Lesson: What Resources Are Found in Florida?</p> <p>Energy Video: http://www.nap.edu/video/aef_video.html</p> <hr/> <p align="center">FAIR GAME Review</p> <table border="0"> <tr> <td>Concepts:</td> <td>4th Grade Digital Lessons:</td> </tr> <tr> <td> <ul style="list-style-type: none"> SC.4.E.6.6 (LOW): Identifying resources available in Florida. </td> <td> <ul style="list-style-type: none"> SC.4.E.6.6: TS400015 </td> </tr> <tr> <td colspan="2">FCAT 2.0 Review PowerPoint:</td> </tr> <tr> <td colspan="2">SC.4.E.6.1: Slide 39 & 40</td> </tr> </table>	Concepts:	4th Grade Digital Lessons:	<ul style="list-style-type: none"> SC.4.E.6.6 (LOW): Identifying resources available in Florida. 	<ul style="list-style-type: none"> SC.4.E.6.6: TS400015 	FCAT 2.0 Review PowerPoint:		SC.4.E.6.1: Slide 39 & 40		<p>5th Grade Resource Folder: Additional AIMS activities Journal ideas & starters FCAT Review Notes & PowerPoint Additional misconceptions Web Resources</p>
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FCAT 2.0 Review PowerPoint:										
SC.4.E.6.1: Slide 39 & 40										

FAIR GAME REVIEW CONCEPTS FOR FCAT

Benchmark	Fusion Resources	Additional Resources
<p>SC.4.E.6.4 (MODERATE COMPLEXITY) 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).</p> <p>FCAT 2.0 Content Limits:</p> <ul style="list-style-type: none"> • Items may address but will not assess specific landforms resulting from physical weathering and erosion. 	<p>Digital Lesson: How Do Weathering and Erosion Shape Earth’s Surface?</p> <p>Identifying Minerals: http://geology.csupomona.edu/alert/mineral/id1.htm</p> <p>FCAT 2.0 Review PowerPoint: SC.4.E.6.4: Slide 39 & 40</p>	<p>5th Grade Resource Folder: Additional AIMS activities Journal ideas & starters FCAT Review Notes & PowerPoint Additional misconceptions Web Resources</p>
<p>SC.4.L.16.4 (MODERATE COMPLEXITY) 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 non-flowering seed-bearing plants.</p> <p>FCAT 2.0 Content Limits:</p> <ul style="list-style-type: none"> • Items will only assess the life cycles of plants and animals commonly found in Florida. • Items assessing the life cycles of insects are limited to egg, larva, pupa, and adult (complete metamorphosis) or egg, nymph, and adult (incomplete metamorphosis). • Items assessing the life cycles of flowering and nonflowering plants are limited to seed, seedling, and other stages of plant development. • Items assessing the life cycles of animals are limited to egg, embryo, infant, adolescent, and adult stages. • Items will not assess the human life cycle. 	<p>Digital Lesson: How Do Plants Reproduce?</p> <p>Digital Lesson: How Do Animals Reproduce?</p> <p>Beavers with Links to Biomes, and more: http://www.teachersdomain.org/resource/tdc02.sci.life.colt.beaver/</p> <p>FCAT 2.0 Review PowerPoint: SC.4.L.16.4: Slide 114</p> <p>*Note: Best if taught prior to Environmental Center Field Trip</p>	<p>5th Grade Resource Folder: Additional AIMS activities Journal ideas & starters FCAT Review Notes & PowerPoint Additional misconceptions Web Resources</p>

FAIR GAME REVIEW CONCEPTS FOR FCAT

Benchmark	Fusion Resources	Additional Resources												
<p>SC.4.L.17.3 (MODERATE COMPLEXITY) Trace the flow of energy from the Sun as it is transferred along the food chain through the producers to the consumers.</p> <p>FCAT 2.0 Content Limits:</p> <ul style="list-style-type: none"> • Items will not address or assess food webs, trophic levels, or energy pyramids. • Items will not assess more than five components (links) in a food chain. • Items assessing the flow of energy from the Sun through a food chain are limited to the direction of energy flow. • Items will not address or assess the amounts of energy flowing through the food chain or the efficiency of the energy transfers. 	<p>Digital Lesson: What are Food Chains?</p> <p>Food Webs: http://www.k8science.org/resources/files/5_MWF_FoodWebs_s.pdf</p> <p>FCAT 2.0 Review PowerPoint: SC.4.L.17.3: Slide 123</p> <hr/> <p align="center">FAIR GAME Review</p> <table border="0"> <tr> <td>Concepts:</td> <td>3rd Grade Digital Lessons:</td> </tr> <tr> <td> <ul style="list-style-type: none"> • SC.3.L.17.2 (LOW): Plants make food • SC.4.L.17.2 (MODERATE): Animals don't make food </td> <td> <ul style="list-style-type: none"> SC.3.L.17.2: TS300036 & TS300037 </td> </tr> <tr> <td></td> <td>4th Grade Digital Lessons:</td> </tr> <tr> <td></td> <td>SC.4.L.17.2: TS400039</td> </tr> <tr> <td></td> <td>FCAT 2.0 Review PowerPoint:</td> </tr> <tr> <td></td> <td>SC.3.L.17.2: Slide 124 SC.4.L.17.2: Slide 125</td> </tr> </table>	Concepts:	3rd Grade Digital Lessons:	<ul style="list-style-type: none"> • SC.3.L.17.2 (LOW): Plants make food • SC.4.L.17.2 (MODERATE): Animals don't make food 	<ul style="list-style-type: none"> SC.3.L.17.2: TS300036 & TS300037 		4th Grade Digital Lessons:		SC.4.L.17.2: TS400039		FCAT 2.0 Review PowerPoint:		SC.3.L.17.2: Slide 124 SC.4.L.17.2: Slide 125	<p>5th Grade Resource Folder: Additional AIMS activities Journal ideas & starters FCAT Review Notes & PowerPoint Additional misconceptions Web Resources</p>
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<p>SC.4.L.16.4 (MODERATE COMPLEXITY) 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 non-flowering seed-bearing plants.</p> <p>FCAT 2.0 Content Limits:</p> <ul style="list-style-type: none"> • 	<p>Digital Lesson: How Do Plants Reproduce?</p> <p>Digital Lesson: How Do Animals Reproduce?</p> <p>Beavers with Links to Biomes, and more: http://www.teachersdomain.org/resource/tdc02.sci.life.colt.beaver/</p> <p>FCAT 2.0 Review PowerPoint: SC.4.L.16.4: Slide 114</p> <p>*Note: Best if taught previous to Environmental Center Field Trip</p>	<p>5th Grade Resource Folder: Additional AIMS activities Journal ideas & starters FCAT Review Notes & PowerPoint Additional misconceptions Web Resources</p>												

Post FCAT

Rationale

In order to prepare for 6th Grade independent labs, it is required that labs are scaffolded from teacher directed to independent. Students need to complete the LEAFS (Nature of Science) Common Lab again and 2-3 investigations with testable questions. By the third lab, the students should achieve the learning goal.

Benchmarks

SC.5.N.1.1
SC.5.N.1.3
SC.5.N.2.1
SC.5.N.2.2

Learning Goal

Students will be able to create an experiment that is replicable and includes repetition using a student based question.

LEAFS – Common Lab (Nature of Science)

Benchmark	Learning Goal	Notes	Required Section
SC.5.N.2.2, SC.5.N.1.3 (SC.4.N.1.2, SC.3.N.1.2, SC.3.N.1.5, SC.4.N.1.5) *Approximate Suggested time: 3 ½ hours	Students will be able to create an experiment that is replicable and includes repetition	This lab can be used at the beginning of the year as a preview and then again at the end of the year.	Explore and Explain

Testable Question Ideas

1. What materials would make the best insulators?
 2. What affects the solubility of a cube of bouillon in liquid?
 3. What factors affect a balls movement?
 4. How can you build a windmill that lifts weights?
 5. How does the size of a parachute affect its drop rate?
 6. What can you discover about catapults?
- *Some questions adapted from AIMS activities. www.AIMS.org



Notes

- ✓ LEAFS common lab reports can be differentiated for students
- ✓ Copies of the Common Lab Reports can be found in the resource folders.
- ✓ Labs can be completed whole group, small group, or independently to achieve learning goal.

Pacing Guide

APRIL 2013							MAY 2013						
S	M	T	W	TH	F	S	S	M	T	W	TH	F	S
	1	2	3	4	5	6				1	2	3	4
7	8	9	10	11	12	13	5	6	7	8	9	10	11
14	15	16	17	18	19	20	12	13	14	15	16	17	18
21	22	23	24	25	26	27	19	20	21	22	23	*24	25
28	29	30					26	27	*28	*29	30	31	

The Nature of Science should be incorporated throughout the Big Ideas.

-  Post FCAT
-  Non-Instructional Day
- * Early Dismissal