

Reporting Category Statements Grade 8 Science

May 2024

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Introduction

Students who participate in one or more of Florida's statewide, standardized assessments in grades 3–10 and/or end-of-course (EOC) assessments in Algebra 1, Geometry, Civic, U.S. History, and Biology 1 will receive a detailed score report that is unique to computer-adaptive assessments for each assessment. Each report will contain detailed information about the student's performance, narratives regarding strengths and weaknesses, and suggestions as to steps parents/guardians can take to help students progress in their learning. The information in each report is intended primarily for students and families and is not intended to replace classroom instruction.

The most detailed narrative is provided at the *reporting category* level. Reporting categories refer to major groupings of content and skills, such as Reading Informational Text or Reading Prose and Poetry in English Language Arts (ELA); Number Sense and Operations with Whole Numbers or Algebraic Reasoning in Mathematics; Nature of Science in Science; and Roles, Rights, and Responsibilities in Social Studies; among others. For each of the reporting categories, three tiers of text have been created based on state academic standards and informed by the Achievement Level Descriptors (ALDs) that were written by Florida educators. These tiers include *Below Expectations*, *At/Near Expectations* or *On Grade Level*, and *Above Expectations*. These reports classify student performance into one of the three tiers based on student responses to items that measure the benchmarks associated with that reporting category. Individual benchmark codes can be found in a report beneath the name of the correlated reporting category. Each student's report is tailored to provide specific information based on which of the three tiers that each reporting category score falls into. This document provides the complete set of narratives so that stakeholders can see expectation progressions within a reporting category and, if appropriate, across grades.

Each description included in these reports and the accompanying next steps were drafted by panels of Florida educators and reviewed by larger Florida educator committees facilitated by EdCount, LLC, and consisting of Florida educators, specialists from the Bureau of Standards and Instructional Support and other Florida Department of Education personnel.

It is important to keep in mind that a student's overall score provides the most valid and reliable evidence of what the student knows and can do with respect to the state academic standards. Due to the relatively small size of each reporting category, neither individual nor combined reporting category performance should be used to infer overall performance.

For more information on Florida's statewide, standardized assessments, please see the [Statewide Assessments Guide](#). Please direct questions and comments about these reports to Assessment@fldoe.org.

Additional Resources

The following resources are available to support understanding of the test design for Florida’s statewide, standardized assessments and the skills outlined in the state academic standards.

[Grade 5 Science Achievement Level Descriptions](#)

[Grade 8 Science Achievement Level Descriptions](#)

[Biology 1 EOC Achievement Level Descriptions](#)

[Florida’s Academic Standards for Science](#)

[Science Test Design Summary](#)

Grade 8 Science Reporting Category Statements

Nature of Science			
See Florida State Academic Standards SC.8.N.1.1 [SC.6.N.1.1, SC.6.N.1.3, SC.7.N.1.1, SC.7.N.1.3, SC.7.N.1.4, SC.8.N.1.3, SC.8.N.1.4]; SC.7.N.1.2 [SC.6.N.1.2, SC.6.N.1.4, SC.8.N.1.2]; SC.7.N.1.5 [SC.7.N.3.2, SC.8.N.1.5, SC.8.E.5.10]; SC.6.N.2.2 [SC.7.N.1.6, SC.7.N.1.7, SC.7.N.2.1, SC.8.N.1.6]; and SC.7.N.3.1 [SC.6.N.3.1, SC.8.N.3.2].			
Indicator	Below Expectations	On Grade Level	Above Expectations
What These Results Mean	<p>For example, your learner may be able to:</p> <ul style="list-style-type: none"> Recognize that experiments and scientific investigations are different. Recognize a hypothesis (a statement that can be tested scientifically through experiments and/or other scientific investigations). Recognize test (independent) and outcome (dependent) variables in a scientific experiment. Use simple data (e.g., tables, graphs, charts, observations) to draw a conclusion. Identify examples of repetition (multiple trials) and/or replication (done by other people) in scientific investigations. Recognize the benefits of using scientific models and the value of technology in science. Recognize that scientific knowledge can change over time based on new evidence. Recognize that scientific theories and laws are different. 	<p>For example, your learner may be able to:</p> <ul style="list-style-type: none"> Distinguish between an experiment and other scientific investigations. Determine the value of a hypothesis and identify test (independent) and outcome (dependent) variables in a given scientific experiment. Use data (e.g., tables, graphs, charts, observations) to make inferences, predictions, and/or conclusions. Distinguish between repetition (multiple trials) and replication (done by other people) in scientific investigations. Identify the benefits and limitations of common scientific models and understand the role of technology in science. Describe a change that has occurred in scientific knowledge when given an example. Recognize examples of scientific theories and laws. 	<p>For example, your learner may be able to:</p> <ul style="list-style-type: none"> Compare and contrast experiments and scientific investigations and explain the benefits and limitations of each. Evaluate (explain and support) the use of hypotheses and analyze the test (independent) and outcome (dependent) variables of an experiment. Analyze (examine and interpret) multiple data sets (e.g., tables, graphs, charts, observations) to make inferences and predictions and to defend conclusions. Evaluate the use and importance of repetition (multiple trials) versus replication (done by other people) in a scientific investigation. Analyze and evaluate the benefits and limitations of various scientific models and methods and the role of technology in science. Evaluate the reasons why and conditions under which scientific knowledge has changed. Distinguish between scientific theories and laws.

Note: Parent benchmarks are bolded with associated benchmarks in brackets.

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Nature of Science			
See Florida State Academic Standards SC.8.N.1.1 [SC.6.N.1.1, SC.6.N.1.3, SC.7.N.1.1, SC.7.N.1.3, SC.7.N.1.4, SC.8.N.1.3, SC.8.N.1.4]; SC.7.N.1.2 [SC.6.N.1.2, SC.6.N.1.4, SC.8.N.1.2]; SC.7.N.1.5 [SC.7.N.3.2, SC.8.N.1.5, SC.8.E.5.10]; SC.6.N.2.2 [SC.7.N.1.6, SC.7.N.1.7, SC.7.N.2.1, SC.8.N.1.6]; and SC.7.N.3.1 [SC.6.N.3.1, SC.8.N.3.2].			
Indicator	Below Expectations	On Grade Level	Above Expectations
Next Steps	<p>For example, have your learner:</p> <ul style="list-style-type: none"> • Engage in hands-on activities, experiments, or investigations, with adult supervision, (e.g., growing plants) and identify hypotheses, test (independent) variables, and outcome (dependent) variables. • Read articles and/or watch videos from reliable sources of different scientific studies to: <ul style="list-style-type: none"> ○ Determine which are experiments and which are scientific investigations (e.g., an experiment must involve the identification and control of variables). ○ Identify examples of repetition and replication in scientific investigations. • Practice using data to make inferences, predictions, and/or conclusions. • Discuss the advantages of using scientific models by exploring real-world applications. • Explain basic distinctions between scientific theories and laws (e.g., theories explain, while laws describe observed patterns). 	<p>For example, have your learner:</p> <ul style="list-style-type: none"> • Engage in hands-on activities, experiments, or investigations, with adult supervision, (e.g., growing plants) and create a hypothesis to identify test (independent) variables and outcome (dependent) variables, and draw conclusions. • Read articles and/or watch videos from reliable sources of different scientific experiments and investigations to identify the benefits and limitations of each scientific approach. • Analyze a sample data set to make inferences and/or predictions and defend conclusions. • Discuss the difference between repetition and replication in scientific investigations. • Discuss the benefits and limitations of scientific models and describe how new scientific knowledge is formed. • Identify examples of scientific theories and laws, emphasizing how they differ (e.g., theories explain, while laws describe observed patterns). 	<p>For example, have your learner:</p> <ul style="list-style-type: none"> • Engage in hands-on activities, experiments, or investigations, with adult supervision, (e.g., growing plants), create hypotheses, manipulate test (independent) variables, measure outcome (dependent) variables, and draw conclusions. • Read articles and/or watch videos from reliable sources of different scientific experiments and investigations to explain the benefits and limitations of each scientific approach. • Analyze multiple data sets to make inferences or predictions and defend conclusions. • Explain how repetition and replication impact scientific studies. • Analyze the benefits and limitations of multiple scientific models and explain how the use of models helps to form new scientific knowledge. • Discuss the distinctions between scientific theories and laws, emphasizing their unique roles in scientific understanding (e.g., theories explain, while laws describe observed patterns).

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Earth and Space Science			
See Florida State Academic Standards SC.8.E.5.3 [SC.8.E.5.1, SC.8.E.5.2]; SC.8.E.5.5 [SC.8.E.5.6]; SC.8.E.5.7 [SC.8.E.5.4, SC.8.E.5.8]; SC.8.E.5.9 ; SC.7.E.6.2 [SC.6.E.6.1, SC.6.E.6.2, SC.7.E.6.6]; SC.7.E.6.4 [SC.7.E.6.3]; SC.7.E.6.5 [SC.7.E.6.1, SC.7.E.6.7]; SC.6.E.7.4 [SC.6.E.7.2, SC.6.E.7.3, SC.6.E.7.6, SC.6.E.7.9]; and SC.6.E.7.5 [SC.6.E.7.1].			
Indicator	Below Expectations	On Grade Level	Above Expectations
What These Results Mean	<p>For example, your learner may be able to:</p> <ul style="list-style-type: none"> Recognize common astronomical bodies (stars, planets, moons, asteroids, nebulae, galaxies, dwarf planets, comets) and their characteristics and recognize the role of gravity. Recognize some of the relationships between the Sun, Moon, and Earth. Recognize that there are different types of processes involved in changing Earth's surface over time. Identify some of the layers of Earth and common geologic events (earthquakes, volcanic eruptions, mountain building). Identify Earth's spheres (geosphere, hydrosphere, cryosphere, atmosphere, biosphere) and how the cycling of water affects weather and climate. Recognize the atmosphere's role in protecting and insulating Earth. Recognize that the Sun influences temperature on Earth through heat transfer (convection, conduction, radiation). 	<p>For example, your learner may be able to:</p> <ul style="list-style-type: none"> Compare or contrast the characteristics of astronomical bodies (stars, planets, moons, asteroids, nebulae, galaxies, dwarf planets, comets) in the universe and identify the role of gravity. Recall the effect of astronomical bodies on each other, including the effect of the Sun and the Moon on Earth. Identify patterns in the rock cycle and their effect on surface and subsurface events and landform formation. Identify the layers of Earth and connect the scientific theory of plate tectonics to geologic events (earthquakes, volcanic eruption, mountain building). Recognize relationships among Earth's spheres, the composition and structure of Earth's atmosphere, and their influence on weather and climate. Explain how energy from the Sun influences global atmospheric patterns through methods of heat transfer (convection, conduction, radiation). 	<p>For example, your learner may be able to:</p> <ul style="list-style-type: none"> Distinguish the characteristics of astronomical bodies (planets, stars, moons, asteroids, nebulae, galaxies, dwarf planets, comets) and analyze gravitational interactions relating to the formation and motion of planets, stars, and solar systems. Analyze (examine and interpret) how astronomical bodies in the Solar System affect each other. Analyze how patterns in the rock cycle connect to surface and subsurface events for landform creation. Compare the composition of Earth's layers and interpret the scientific theory of plate tectonics to connect it to geologic events (earthquakes, volcanic eruptions, mountain building). Analyze interactions among Earth's spheres, the composition and function of the layers of Earth's atmosphere, and their influence on weather and climate. Evaluate (explain and support) how energy from the Sun influences global atmospheric patterns through methods of heat transfer (convection, conduction, radiation).

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Earth and Space Science			
See Florida State Academic Standards SC.8.E.5.3 [SC.8.E.5.1, SC.8.E.5.2]; SC.8.E.5.5 [SC.8.E.5.6]; SC.8.E.5.7 [SC.8.E.5.4, SC.8.E.5.8]; SC.8.E.5.9 ; SC.7.E.6.2 [SC.6.E.6.1, SC.6.E.6.2, SC.7.E.6.6]; SC.7.E.6.4 [SC.7.E.6.3]; SC.7.E.6.5 [SC.7.E.6.1, SC.7.E.6.7]; SC.6.E.7.4 [SC.6.E.7.2, SC.6.E.7.3, SC.6.E.7.6, SC.6.E.7.9]; and SC.6.E.7.5 [SC.6.E.7.1].			
Indicator	Below Expectations	On Grade Level	Above Expectations
Next Steps	<p>For example, have your learner:</p> <ul style="list-style-type: none"> • Stargaze and use models to identify characteristics of astronomical bodies and describe the role of gravity. • Discuss various landforms and how they were created (e.g., the rock cycle, weathering, erosion, plate tectonics). • Describe Earth’s spheres and how the cycling of water affects weather and climate (e.g., temperature, air pressure, wind direction, wind speed, humidity, precipitation). • Explore and discuss how energy from the Sun influences global atmospheric patterns through methods such as conduction, convection, and radiation. 	<p>For example, have your learner:</p> <ul style="list-style-type: none"> • Stargaze and use models to compare characteristics of astronomical bodies and explain the role of gravity. • Identify rock cycle patterns and understand their effects on landform formation. • Connect plate tectonics to geologic events (volcanic eruptions, earthquakes, mountain building). • Analyze (examine and interpret) how Earth changes due to weathering, erosion, and plate tectonics. • Describe the interactions between Earth’s spheres and how the cycling of water and global patterns (e.g., jet streams, ocean currents, wind currents, El Niño, La Niña) affect weather and climate. • Analyze how energy from the Sun influences global atmospheric patterns through methods such as conduction, convection, and radiation. 	<p>For example, have your learner:</p> <ul style="list-style-type: none"> • Stargaze and use data and models to analyze characteristics of astronomical bodies and gravitational interactions. • Make predictions of future events based on Sun, Earth, and Moon interactions (e.g., tides, eclipses). • Analyze the patterns and relationships in the rock cycle and their effects on landform formation. • Use data or models related to plate tectonics to predict geologic events (volcanic eruptions, earthquakes, mountain building). • Evaluate evidence that Earth has changed over time due to weathering, erosion, and plate tectonics. • Analyze the interactions between Earth’s spheres and how the cycling of water and global atmospheric patterns (e.g., jet streams, ocean currents, wind currents, El Niño, La Niña) affects weather and climate. • Make predictions regarding how solar energy affects atmospheric patterns, temperature differences, and the processes in the systems of both the Sun and Earth.

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Physical Science			
See Florida State Academic Standards SC.8.P.8.4 [SC.8.P.8.3]; SC.8.P.8.5 [SC.8.P.8.1, SC.8.P.8.6, SC.8.P.8.7, SC.8.P.8.8, SC.8.P.8.9]; SC.8.P.9.2 [SC.8.P.9.1, SC.8.P.9.3]; SC.7.P.10.1 [SC.8.E.5.11]; SC.7.P.10.3 [SC.7.P.10.2]; SC.7.P.11.2 [SC.6.P.11.1, SC.7.P.11.3]; SC.7.P.11.4 [SC.7.P.11.1]; SC.6.P.13.1 [SC.6.P.13.2, SC.8.P.8.2]; and SC.6.P.13.3 [SC.6.P.12.1].			
Indicator	Below Expectations	On Grade Level	Above Expectations
What These Results Mean	<p>For example, your learner may be able to:</p> <ul style="list-style-type: none"> Identify common physical properties of substances (e.g., density, thermal or electrical conductivity, solubility, magnetism, melting point, boiling point). Identify examples of atoms, elements, compounds, or mixtures and recognize groups on the Periodic Table of the Elements. Recognize that there are differences between physical and chemical changes. Recognize characteristics of different types of waves (light, sound, and other waves). Recognize that energy can change between forms of potential and kinetic energy. Recognize that an unbalanced force causes a change in motion. Recognize that speed is determined by the distance traveled per unit of time. 	<p>For example, your learner may be able to:</p> <ul style="list-style-type: none"> Classify and compare substances based on their physical properties (e.g., density, thermal or electrical conductivity, solubility, magnetism, melting point, boiling point) and use the density formula ($\text{mass/volume} = \text{density}$) to calculate the density of materials. Explain the scientific theory of atoms using models and recognize how elements are grouped on the Periodic Table of the Elements. Compare properties of compounds, pure substances, and mixtures. Differentiate between physical and chemical changes in substances and recognize that mass is conserved during these changes. Identify and compare characteristics of different types of waves (light, sound, and other waves) and explain light interactions. Describe energy transformations by applying the Law of Conservation of Energy. 	<p>For example, your learner may be able to:</p> <ul style="list-style-type: none"> Classify and compare substances using data and observations of their physical properties (e.g., thermal or electrical conductivity, solubility, magnetism, melting point, boiling point). Analyze (examine and interpret) the density of materials using collected data. Analyze atomic models to describe the structure and properties of atoms. Distinguish among and justify the classification of compounds, pure substances, and mixtures using their properties. Determine whether a physical or chemical change has occurred through observation and apply the Law of Conservation of Mass to these changes. Explain the relative speeds at which different types of waves (light waves, sound waves, and other waves) move through different materials and interpret light interactions (reflection, refraction, absorption). Analyze situations to describe energy transformations and evaluate evidence

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Physical Science			
See Florida State Academic Standards SC.8.P.8.4 [SC.8.P.8.3]; SC.8.P.8.5 [SC.8.P.8.1, SC.8.P.8.6, SC.8.P.8.7, SC.8.P.8.8, SC.8.P.8.9]; SC.8.P.9.2 [SC.8.P.9.1, SC.8.P.9.3]; SC.7.P.10.1 [SC.8.E.5.11]; SC.7.P.10.3 [SC.7.P.10.2]; SC.7.P.11.2 [SC.6.P.11.1, SC.7.P.11.3]; SC.7.P.11.4 [SC.7.P.11.1]; SC.6.P.13.1 [SC.6.P.13.2, SC.8.P.8.2]; and SC.6.P.13.3 [SC.6.P.12.1].			
Indicator	Below Expectations	On Grade Level	Above Expectations
			<p>that supports the Law of Conservation of Energy.</p> <ul style="list-style-type: none"> Classify types of forces that can move objects and analyze the relationship between mass, distance, and gravitational force. Analyze observations and investigations to explain the effects of an unbalanced force on motion and analyze the motion of objects using distance-time graphs.
Next Steps	<p>For example, have your learner:</p> <ul style="list-style-type: none"> Sort substances based on their physical properties. Use visuals (e.g., the Periodic Table of the Elements) to explore atoms and elements. Conduct safe at-home investigations, with adult supervision, that result in physical and/or chemical changes (e.g., freezing water into ice, melting chocolate, observing the effects of lemon juice on a cut apple, mixing vinegar with baking soda). Identify the physical or chemical changes and that mass is conserved. Observe how light interacts (reflection, refraction, absorption) with different substances. 	<p>For example, have your learner:</p> <ul style="list-style-type: none"> Use data and observations to classify and compare substances based on their physical properties. Use the Periodic Table of the Elements to describe the properties of elements and how they combine to form compounds. Conduct safe at-home investigations, with adult supervision, that result in physical and/or chemical changes (e.g., freezing water into ice, melting chocolate, observing the effects of lemon juice on a cut apple, mixing vinegar with baking soda). Explain the physical or chemical changes and describe how mass is conserved. 	<p>For example, have your learner:</p> <ul style="list-style-type: none"> Develop an investigation to classify and compare substances based on their physical properties. Relate the structure of atoms to the organization of the Periodic Table of the Elements and to how they combine to form compounds. Conduct safe at-home investigations, with adult supervision, to observe physical and/or chemical changes (e.g., freezing water into ice, melting chocolate, observing the effects of lemon juice on a cut apple, mixing vinegar with baking soda), and relate how mass is conserved based on the Law of Conservation of Mass Explore different properties of waves and how they interact with different

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Physical Science			
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Indicator	Below Expectations	On Grade Level	Above Expectations
	<ul style="list-style-type: none"> • Create a model of the electromagnetic spectrum based on wave characteristics (frequency and wavelength). • Discuss the different forms of energy and the ways in which heat flows and transfers (conduction, convection, radiation). • Conduct hands-on demonstrations, with adult supervision, of contact (touching) and non-contact forces (e.g., electric, magnetic, gravitational) and describe the force being demonstrated. • Analyze (examine and interpret) distance versus time graphs of an object moving at constant speed. 	<ul style="list-style-type: none"> • Conduct an investigation, with adult supervision, to determine how light can be reflected, refracted, or absorbed. • Compare and contrast different types of waves in the electromagnetic spectrum based on their characteristics (frequency and wavelength). • Classify different forms of energy, describe energy transformations, and observe the effects of heat flow and transfer (conduction, convection, radiation) on temperature and changes in states of matter. • Conduct hands-on demonstrations, with adult supervision, of contact (touching) and non-contact forces (e.g., electric, magnetic, gravitational). Analyze (examine and interpret) the relationship between contact forces and non-contact forces and explain how unbalanced forces affect speed, direction of motion, or both. • Analyze distance versus time graphs of multiple objects moving at constant speeds. 	<p>materials (e.g., understanding how light behaves in different materials or creating a mini science project on the electromagnetic spectrum).</p> <ul style="list-style-type: none"> • Cite examples of the Law of Conservation of Energy in real-world energy transformations and interpret data to explain heat flow and the effects of heat transfer. • Analyze situations where different forces caused changes in motion and explain how the strength of the gravitational force can change. • Create graphs using data to analyze the relationship between speed and distance and time traveled for multiple objects.

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Life Science			
See Florida State Academic Standards SC.6.L.14.1 ; SC.6.L.14.2 [SC.6.L.14.3]; SC.6.L.14.4 ; SC.6.L.14.5 [SC.6.L.14.6]; SC.6.L.15.1 ; SC.7.L.15.2 [SC.7.L.15.1, SC.7.L.15.3]; SC.7.L.16.1 [SC.7.L.16.2, SC.7.L.16.3]; SC.7.L.17.2 [SC.7.L.17.1, SC.7.L.17.3]; and SC.8.L.18.4 [SC.8.L.18.1, SC.8.L.18.2, SC.8.L.18.3].			
Indicator	Below Expectations	On Grade Level	Above Expectations
What These Results Mean	<p>For example, your learner may be able to:</p> <ul style="list-style-type: none"> Recognize levels of organization in living things and organelles in plant and animal cells. Identify some general functions of the major body systems and recognize various infectious agents. Group organisms according to shared characteristics and identify that they change over time. Recognize a genotype (genetic makeup) or phenotype (observable trait) when given a Punnett square or a pedigree. Recognize that organisms require hereditary information. Identify differences between sexual and asexual reproduction. Identify that organisms in an ecosystem interact. Recognize that mass and energy are conserved in living systems. Identify the process of photosynthesis and/or cellular respiration. 	<p>For example, your learner may be able to:</p> <ul style="list-style-type: none"> Identify and compare levels of organization in living things and the structure and function of major organelles in plant and animal cells. Identify general functions of the major body systems and how they maintain homeostasis. Compare and contrast properties of various infectious agents. Explain how and why organisms are classified and factors that contribute to their change over time. Determine genotypic (genetic makeup) and phenotypic (observable traits) probabilities using Punnett squares and/or pedigrees. Describe that every organism contains hereditary information and compare sexual and asexual reproduction. Compare and contrast relationships among organisms and identify limiting factors that may affect populations in an ecosystem. Recognize the Laws of Conservation of Mass and Energy in living systems. Understand matter transfer in the carbon cycle. Describe the importance of photosynthesis and cellular respiration. 	<p>For example, your learner may be able to:</p> <ul style="list-style-type: none"> Analyze (examine and interpret) models of the levels of organization of living things and of plant and animal cells. Evaluate the way in which major body systems interact to maintain homeostasis. Compare and contrast the effects of various infectious agents on the human body. Analyze how and why organisms are classified and connect the factors that contribute to their change over time. Analyze inheritance patterns using Punnett squares and pedigrees. Describe the relationship between DNA, chromosomes, and heredity. Compare and contrast sexual and asexual reproduction in relation to heredity. Analyze food webs to explain relationships and energy transfers among organisms and the effects of limiting factors in an ecosystem. Evaluate (explain and support) how living systems adhere to the Laws of Conservation of Mass and Energy. Analyze models illustrating matter transfer in the carbon cycle.

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Life Science			
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Indicator	Below Expectations	On Grade Level	Above Expectations
			<ul style="list-style-type: none"> Connect the processes of photosynthesis and cellular respiration to real-world applications.
Next Steps	<p>For example, have your learner:</p> <ul style="list-style-type: none"> Sort the components of living things based on the hierarchical organization of organisms (atoms, molecules, cells, tissues, organs, organ system, organism). Discuss where cells come from, their processes, and their organelles (cell wall, cell membrane, nucleus, cytoplasm, chloroplast, mitochondria, vacuole). Review models of the major systems of the body to describe their general structures and functions (digestive, respiratory, circulatory, reproductive, excretory, immune, nervous, musculoskeletal). Explore real-world scenarios (e.g., exercising, response to hot or cold weather) to identify homeostasis in cells and major body systems. Identify and discuss real-world examples of infectious agents (viruses, bacteria, fungi, parasites). Create or use a mnemonic device (e.g., NEWS for North, East, West, South) to recall the classification of organisms. 	<p>For example, have your learner:</p> <ul style="list-style-type: none"> Use models to identify patterns in the hierarchical organization of organisms (atoms, molecules, cells, tissues, organs, organ system, organism). Discuss the components of cell theory, how cells maintain homeostasis, and the function of each organelle (cell wall, cell membrane, nucleus, cytoplasm, chloroplast, mitochondria, vacuole). Discuss general functions of the major systems of the body (digestive, respiratory, circulatory, reproductive, excretory, immune, nervous, musculoskeletal) and explain how the body systems maintain homeostasis. Discuss how infectious agents (viruses, bacteria, fungi, parasites) can infect humans using real-world examples. Analyze (examine and interpret) how and why organisms are classified and investigate how factors contribute to the change in organisms over time. Use Punnett squares and pedigrees to calculate genotypic and phenotypic probabilities. 	<p>For example, have your learner:</p> <ul style="list-style-type: none"> Analyze models to justify patterns in the hierarchical organization of organisms (atoms, molecules, cells, tissues, organs, organ system, organism). Analyze models of cells to discuss the components of cell theory, explain how cells maintain homeostasis, and describe the function of each organelle (cell wall, cell membrane, nucleus, cytoplasm, chloroplast, mitochondria, vacuole). Connect the general functions of the major systems of the body (digestive, respiratory, circulatory, reproductive, excretory, immune, nervous, musculoskeletal) to how the systems interact to maintain homeostasis. Compare and contrast how various infectious agents (viruses, bacteria, fungi, parasites) affect the human body using real-world examples. Compare classification systems used for organisms. Analyze the relationship between genetic variation, environmental

Note: Parent benchmarks are bolded with associated benchmarks in brackets.

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Life Science			
See Florida State Academic Standards SC.6.L.14.1 ; SC.6.L.14.2 [SC.6.L.14.3]; SC.6.L.14.4 ; SC.6.L.14.5 [SC.6.L.14.6]; SC.6.L.15.1 ; SC.7.L.15.2 [SC.7.L.15.1, SC.7.L.15.3]; SC.7.L.16.1 [SC.7.L.16.2, SC.7.L.16.3]; SC.7.L.17.2 [SC.7.L.17.1, SC.7.L.17.3]; and SC.8.L.18.4 [SC.8.L.18.1, SC.8.L.18.2, SC.8.L.18.3].			
Indicator	Below Expectations	On Grade Level	Above Expectations
	<ul style="list-style-type: none"> • Relate the concepts of genetic variation and environmental factors to the change in organisms over time. • Practice using Punnett squares or pedigrees to determine genotypes and phenotypes. • Identify examples of sexual and asexual reproduction and discuss the relationship to heredity. • Take nature walks to observe ecosystems. Discuss how organisms interact with each other and how the environment can affect populations (e.g., the effects of a drought on the availability of water and food). • Use an illustration to explain the processes of the carbon cycle, photosynthesis (including the roles of light, carbon dioxide, water, and chlorophyll; production of food; release of oxygen), and cellular respiration (the process of breaking down food to provide energy and release carbon dioxide) <ul style="list-style-type: none"> ○ Connect each process to the Laws of Conservation of Mass and Energy. 	<ul style="list-style-type: none"> • Compare and contrast sexual and asexual reproduction and describe the relationship to heredity. • Describe examples of different relationships that exist between organisms in a community (mutualism, predation, parasitism, competition, commensalism) and explain how limiting factors (food, shelter, water, space, disease, parasitism, predation, nesting sites) affect populations. • Create a diagram to explain the processes of the carbon cycle, photosynthesis (including the roles of light, carbon dioxide, water, and chlorophyll; production of food; release of oxygen), and cellular respiration (the process of breaking down food to provide energy and release carbon dioxide) <ul style="list-style-type: none"> ○ Apply the Laws of Conservation of Mass and Energy to each cycle. 	<p>factors, and the change in organisms over time.</p> <ul style="list-style-type: none"> • Create Punnett squares and analyze inheritance patterns in pedigrees to determine genotypic (genetic makeup) and phenotypic (observable traits) probabilities. • Differentiate between sexual and asexual reproduction and explain the relationship to heredity. • Create food webs to explore relationships between organisms in an ecosystem and hypothesize the effects of limiting factors (food, shelter, water, space, disease, parasitism, predation, nesting sites) on the ecosystem. • Analyze models of the carbon cycle, photosynthesis, and cellular respiration to cite evidence of the Laws of Conservation of Mass and Energy.

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