



Grade 5 Science
Achievement Level Descriptions

Grade 5 Statewide Science Assessment Reporting Category — Nature of Science

Students performing at the mastery level of this reporting category will be able to formulate testable questions, evaluate investigations and experiments, organize data, identify a control group, interpret data, analyze information, distinguish between observations and opinions, and defend conclusions.

Achievement Level	Achievement Level Descriptions
Level 5	<p><u>Students will consistently be able to</u></p> <ul style="list-style-type: none">• formulate a testable question and evaluate its importance in a scientific investigation;• evaluate a written procedure or experimental setup and suggest improvements;• analyze an experiment or investigation for flaws in science processes and suggest changes;• justify the need for scientific investigations to be replicable by others;• differentiate experiments and other types of scientific investigations;• differentiate observations, predictions, and inferences in a scientific investigation;• analyze the reasons for differences in data across trials and groups;• interpret and analyze data to generate explanations and defend conclusions; and• analyze a conclusion in an experiment or investigation using data.
Level 4	<p><u>Students will usually be able to</u></p> <ul style="list-style-type: none">• identify a testable question and evaluate its importance in a scientific investigation;• evaluate a written procedure or experimental setup;• analyze an experiment or investigation and identify flaws in science processes;• evaluate the need for scientific investigations to be replicable by others;• distinguish between experiments and other types of scientific investigations;• distinguish among observations, predictions, and inferences in a scientific investigation;• evaluate reasons for differences in data across trials and groups;• interpret and analyze data to generate explanations and defend conclusions; and• evaluate a conclusion using data.

<p style="text-align: center;">Level 3</p>	<p><u>Students will generally be able to</u></p> <ul style="list-style-type: none"> • define a testable question and recognize its importance in a scientific investigation; • identify a control group in an experiment and why it is needed; • relate that scientific investigations should be replicable by others; • compare experiments and other types of scientific investigations; • identify observations, predictions, and inferences in a scientific investigation; • review an experiment to identify significant differences in data across trials and groups; and • interpret data to generate explanations and/or defend conclusions.
<p style="text-align: center;">Level 2</p>	<p><u>Students may be able to demonstrate limited ability to</u></p> <ul style="list-style-type: none"> • recognize a testable question in a scientific investigation; • recognize a control group in an experiment; • identify some elements of a written procedure or experimental setup; • recognize the need for scientific investigations to be replicable by others; • recognize that there are differences between experiments and other types of scientific investigations; • identify observations, predictions, or inferences; • recognize differences in data across trials and groups; and • identify data that supports an explanation.
<p style="text-align: center;">Level 1</p>	<p>Performance at this level indicates an inadequate level of success with the challenging content of the <i>Next Generation Sunshine State Standards</i> for science.</p>

Grade 5 Statewide Science Assessment Reporting Category — Earth and Space Science

Students performing at the mastery level of this reporting category will be able to distinguish among objects in the Solar System, identify categories of rocks and characteristics of minerals, differentiate physical weathering and erosion, identify characteristics associated with different climate zones, and identify factors that affect weather.

Achievement Level	Achievement Level Descriptions
Level 5	<p><u>Students will consistently be able to</u></p> <ul style="list-style-type: none">• differentiate the basic components of a galaxy;• differentiate among objects in the Solar System including their characteristics and their relative positions to Earth;• analyze the movement, patterns, and relationships among the Moon, Earth, Sun, and other stars;• interpret a classification key to identify and describe a mineral sample;• assess the role of minerals in the formation of rocks;• apply knowledge of the types of rocks to identify a rock sample and analyze how it was formed;• analyze why some resources are renewable and why other resources are nonrenewable resources;• differentiate physical weathering and erosion and identify examples of each;• analyze why water changes states as it moves through the water cycle and the importance of the ocean to the water cycle;• predict the weather for a particular place and time; and• analyze why different regions may have different climates when given conditions that determine weather.

<p style="text-align: center;">Level 4</p>	<p><u>Students will usually be able to</u></p> <ul style="list-style-type: none"> • compare the basic components of a galaxy; • compare objects in the Solar System including their characteristics and their relative positions to Earth; • evaluate the movement, patterns, and relationships among the Moon, Earth, Sun, and other stars; • compare the physical properties of minerals; • evaluate the role of minerals in the formation of rocks; • classify rock samples by category or ways they were formed; • distinguish between renewable and nonrenewable resources; • compare physical weathering and erosion; • evaluate how water changes states as it moves through the water cycle and the ocean's role in the process; • evaluate conditions that determine the weather in a particular place and time; and • relate the characteristics of climate to the conditions in different locations.
<p style="text-align: center;">Level 3</p>	<p><u>Students will generally be able to</u></p> <ul style="list-style-type: none"> • distinguish the basic components of a galaxy and identify our Galaxy; • distinguish objects in the Solar System, their characteristics, and relative positions to Earth; • interpret the movement, patterns, and relationships among the Moon, Earth, Sun, and other stars; • identify the common physical properties of minerals; • recognize the role of minerals in the formation of rocks; • identify the three categories of rocks and recognize how they are formed; • recognize examples of renewable and nonrenewable resources; • recall the basic differences between physical weathering and erosion; • relate how water changes states as it moves through the water cycle and the ocean's role in the process; • recognize conditions that determine the weather in a particular place and time; and • relate characteristics of the three main climate zones.

<p style="text-align: center;">Level 2</p>	<p><u>Students may be able to demonstrate limited ability to</u></p> <ul style="list-style-type: none"> • recognize the basic components of a galaxy; • identify objects in the Solar System and their characteristics and relative positions to Earth; • recognize some of the movement, patterns, and relationships among the Moon, Earth, Sun, and other stars; • identify some of the common physical properties of minerals; • recognize the role of minerals in the formation of rocks; • identify the three categories of rocks or recognize how they are formed; • recognize examples of renewable and nonrenewable resources; • recognize the basic differences between physical weathering and erosion; • recognize that water changes states as it moves through the water cycle and the ocean’s role in the process; • recognize conditions that determine the weather in a particular place and time; and • recognize the characteristics of climate in different locations.
<p style="text-align: center;">Level 1</p>	<p>Performance at this level indicates an inadequate level of success with the challenging content of the <i>Next Generation Sunshine State Standards</i> for science.</p>

Grade 5 Statewide Science Assessment Reporting Category — Physical Science

Students performing at the mastery level of this reporting category will be able to identify basic forms of energy, identify familiar forces, trace the conversion of electric energy into other forms of energy, and distinguish relationships among mass, force, and motion.

Achievement Level	Achievement Level Descriptions
Level 5	<p><u>Students will consistently be able to</u></p> <ul style="list-style-type: none">• differentiate the physical properties of solids, liquids, and gases;• analyze how mixtures of solids can be separated by observable properties;• analyze the properties of materials that dissolve in water and the conditions that affect the dissolving process;• use data from investigations to determine the conditions that result in physical and chemical changes in materials;• analyze how physical and chemical changes are affected by temperature;• analyze forms of energy including their properties and behaviors;• evaluate examples showing that energy has the ability to cause motion or create change;• evaluate examples to determine if energy is transformed from one form to another;• use data from investigations to evaluate materials that are good conductors of heat and materials that are good conductors of electricity;• analyze how heat flows from one object to another and the effect it has on those objects;• analyze an experiment and formulate the rule that the flow of electricity requires a closed circuit;• choose an experimental design to show the effect electrically-charged objects can have on other objects;• analyze how familiar forces affect the movement of objects;• analyze data or observations to determine the speed of an object; and• analyze data or observations to determine the relationships among mass, force, and motion of objects.

<p style="text-align: center;">Level 4</p>	<p><u>Students will usually be able to</u></p> <ul style="list-style-type: none"> • compare physical properties of solids, liquids, and gases; • evaluate how mixtures of solids can be separated by observable properties; • evaluate the properties of materials that dissolve in water and the conditions that affect the dissolving process; • compare physical and chemical changes in materials; • relate how physical and chemical changes are affected by temperature; • evaluate the basic forms of energy, including their properties and behaviors; • apply the knowledge that energy has the ability to cause motion or create change; • relate that electrical energy can be transformed into other forms of energy; • evaluate which materials are good conductors of heat and which materials are good conductors of electricity; • interpret how heat flows from one object to another and the effect it has on those objects; • relate why the flow of electricity requires a closed circuit; • evaluate the effect electrically-charged objects can have on other objects; • evaluate familiar forces and how they affect the movement of objects; • relate how the speed of an object is determined; and • evaluate the relationships among mass, force, and motion of objects.
<p style="text-align: center;">Level 3</p>	<p><u>Students will generally be able to</u></p> <ul style="list-style-type: none"> • compare the physical properties of solids, liquids, and gases; • relate how mixtures of solids can be separated by observable properties; • identify materials that dissolve in water and conditions that affect the dissolving process; • relate familiar physical and chemical changes in materials; • relate how physical and chemical changes are affected by temperature; • relate the basic forms of energy based on their properties and behaviors; • identify or explain that electrical energy can be transformed into other forms of energy; • identify materials that are good conductors of heat and materials that are good conductors of electricity; • recognize that heat flows from one object to another and the effect it has on those objects; • determine in an investigation that the flow of electricity requires a closed circuit; • interpret the effect electrically-charged objects can have on other objects; • identify familiar forces and how they affect the movement of objects; • identify how the speed of an object is determined; and • relate mass and force to the motion of objects.

<p style="text-align: center;">Level 2</p>	<p><u>Students may be able to demonstrate limited ability to</u></p> <ul style="list-style-type: none"> • identify the physical properties of solids, liquids, and gases; • recognize how mixtures of solids can be separated by observable properties; • identify materials that dissolve in water; • recognize familiar physical and or chemical changes in materials; • recognize that physical and chemical changes are affected by temperature; • identify basic forms of energy based on their properties and behaviors; • recognize that electrical energy can be transformed into other forms of energy; • recognize some materials that are good conductors of heat and some materials that are good conductors of electricity; • recognize that heat flows from one object to another and the effect it has on those objects; • recognize that the flow of electricity requires a closed circuit; • recall the effect electrically-charged objects can have on other objects; • identify familiar forces and how they affect the movement of objects; • recall how the speed of an object is determined; and • recognize relationships among mass, force, and motion of objects.
<p style="text-align: center;">Level 1</p>	<p>Performance at this level indicates an inadequate level of success with the challenging content of the <i>Next Generation Sunshine State Standards</i> for science.</p>

Grade 5 Statewide Science Assessment Reporting Category — Life Science

Students performing at the mastery level of this reporting category will be able to identify the functions of human body organs, compare life cycles of Florida plants and animals, identify adaptations in animals and plants that allow them to survive, and trace energy through a food chain.

Achievement Level	Achievement Level Descriptions
<p align="center">Level 5</p>	<p>Students will consistently be able to</p> <ul style="list-style-type: none"> • connect structures to the functions of plant parts, including those involved in sexual reproduction of flowering plants; • predict how plants will respond to certain stimuli; • differentiate common organs in the human body and their functions; • relate the common functions of organs and other physical structures in plants and animals; • evaluate a classification system for animals based on physical characteristics and behaviors; • evaluate a classification system for flowering and nonflowering plants based on physical characteristics; • differentiate the life cycles of Florida flowering and nonflowering plants • differentiate the life cycles of Florida animals, including incomplete and complete metamorphosis; • analyze how certain adaptations of plants and animals enable them to survive and reproduce in different environments and seasons; • evaluate examples of animal behaviors that are shaped by heredity and examples that are shaped by learning; • differentiate plant or animal characteristics that are inherited from those that are affected by the environment; • analyze seasonal changes in Florida plants and animals and compare them to those in other regions of the country; • analyze ways in which plants and animals, including humans, can impact the environment; • predict the impact that environmental changes may have on the survival and reproduction of plants and animals; • evaluate a model that explains how energy is transferred from the Sun through a food chain; and • differentiate the ways plants and animals obtain their energy.

<p style="text-align: center;">Level 4</p>	<p><u>Students will usually be able to</u></p> <ul style="list-style-type: none">• relate structures to the functions of plant parts, including those involved in sexual reproduction in flowering plants;• evaluate how plants respond to stimuli;• distinguish common organs in the human body and their functions;• compare the common function of organs and other physical structures in plants and animals;• classify animals into major groups based on physical characteristics and behaviors;• classify flowering and nonflowering plants based on physical characteristics;• compare the life cycles of Florida flowering and nonflowering plants;• compare the life cycles of Florida animals, including incomplete and complete metamorphosis;• contrast how adaptations of plants and animals enable them to survive in different environments and seasons;• evaluate examples of animal behaviors that may be shaped by heredity and learning;• distinguish plant or animal characteristics that are inherited from those that are affected by the environment;• compare seasonal changes in Florida plants and animals to those in other regions of the country;• evaluate ways in which plants and animals, including humans, can impact the environment;• assess the impact environmental changes may have on the survival and reproduction of plants and animals;• interpret how energy is transferred from the Sun through a food chain; and• relate that plants make their own food while animals obtain energy from what they eat.
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<p>Level 3</p>	<p><u>Students will generally be able to</u></p> <ul style="list-style-type: none">• identify the structures and functions of plant parts, including those involved in sexual reproduction;• relate how plants respond to light and gravity;• identify common organs in the human body and/or describe their functions;• distinguish the common functions of structures in plants and animals;• classify animals into major groups based on physical characteristics and behaviors;• classify flowering and nonflowering plants based on physical characteristics;• identify the life cycles of Florida plants and animals;• identify adaptations of plants and animals that enable them to survive in different environments and seasons;• recognize that some animal behaviors are shaped by heredity and some are shaped by learning;• recall that some plant and animal characteristics are inherited and that some are affected by the environment;• distinguish seasonal changes in Florida plants and animals to those in other regions of the country;• recognize ways in which plants and animals, including humans, can impact the environment;• identify the impact environmental changes may have on the survival and reproduction of plants and animals;• trace the flow of energy from the Sun through a food chain;• recall that plants make their own food; and• recall that animals obtain energy from what they eat.
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<p style="text-align: center;">Level 2</p>	<p><u>Students may be able to demonstrate limited ability to</u></p> <ul style="list-style-type: none"> • identify some structures or functions of plant parts; • recognize that plants respond to light and gravity; • identify organs in the human body and/or their functions; • identify functions of some structures common to plants and animals; • sort animals based on physical characteristics; • sort plants into groups according to physical characteristics; • recognize life cycles of Florida plants and animals; • recognize that plants and animals have adaptations; • recognize that animal behaviors may be shaped by heredity and learning; • recognize seasonal changes in Florida plants and animals; • recognize ways in which plants and/or animals, including humans, can impact the environment; • recognize that environmental changes may impact plants and animals; • recognize that energy is transferred from the Sun through a food chain; • recognize that plants make their own food; and • recognize that animals obtain energy from what they eat.
<p style="text-align: center;">Level 1</p>	<p>Performance at this level indicates an inadequate level of success with the challenging content of the <i>Next Generation Sunshine State Standards</i> for science.</p>