Science Standards

GRADE: K

Big Idea1:

A: Scientific inquiry is a multifaceted activity; The processes of science include the formulation of scientifically investigable questions, construction of investigations into those questions, the collection of appropriate data, the evaluation of the meaning of those data, and the communication of this evaluation.

B: The processes of science frequently do not correspond to the traditional portrayal of "the scientific method."

C: Scientific argumentation is a necessary part of scientific inquiry and plays an important role in the generation and validation of scientific knowledge.

D: Scientific knowledge is based on observation and inference; it is important to recognize that these are very different things. Not only does science require creativity in its methods and processes, but also in its questions and explanations.

BENCHMARK CODE	BENCHMARK
SC.K.N.1.1	Collaborate with a partner to collect information. *Cognitive Complexity/Depth of Knowledge Rating:* Low
SC.K.N.1.2	Make observations of the natural world and know that they are descriptors collected using the five senses. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
SC.K.N.1.3	Keep records as appropriate -- such as pictorial records -- of investigations conducted. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
SC.K.N.1.4	Observe and create a visual representation of an object which includes its major features. *Cognitive Complexity/Depth of Knowledge Rating:* High
SC.K.N.1.5	Recognize that learning can come from careful observation. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate

Big Idea5: Humans continue to explore Earth's place in space. Gravity and energy influence the formation of galaxies, including our own Milky Way Galaxy, stars, the Solar System, and Earth. Humankind's need to explore continues to lead to the development of knowledge and understanding of our Solar System.

BENCHMARK CODE	BENCHMARK
SC.K.E.5.1	Explore the Law of Gravity by investigating how objects are pulled toward the ground unless something holds them up. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
SC.K.E.5.2	Recognize the repeating pattern of day and night.

	Cognitive Complexity/Depth of Knowledge Rating: Low
SC.K.E.5.3	Recognize that the Sun can only be seen in the daytime. *Cognitive Complexity/Depth of Knowledge Rating:* Low
SC.K.E.5.4	Observe that sometimes the Moon can be seen at night and sometimes during the day. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
SC.K.E.5.5	Observe that things can be big and things can be small as seen from Earth. *Cognitive Complexity/Depth of Knowledge Rating:* High
SC.K.E.5.6	Observe that some objects are far away and some are nearby as seen from Earth. *Cognitive Complexity/Depth of Knowledge Rating:* High

Big Idea8:

A. All objects and substances in the world are made of matter. Matter has two fundamental properties: matter takes up space and matter has mass.

B. Objects and substances can be classified by their physical and chemical properties.

Mass is the amount of matter (or "stuff") in an object. Weight, on the other hand, is the measure of force of attraction (gravitational force) between an object and Earth.

The concepts of mass and weight are complicated and potentially confusing to elementary students. Hence, the more familiar term of "weight" is recommended for use to stand for both mass and weight in grades K-5. By grades 6-8, students are expected to understand the distinction between mass and weight, and use them appropriately.

BENCHMARK CODE	BENCHMARK
SC.K.P.8.1	Sort objects by observable properties, such as size, shape, color, temperature (hot or cold), weight (heavy or light) and texture. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate

Big Idea9:

A. Matter can undergo a variety of changes.

B. Matter can be changed physically or chemically.

BENCHMARK CODE	BENCHMARK
SC.K.P.9.1	Recognize that the shape of materials such as paper and clay can be changed by cutting, tearing, crumpling, smashing, or rolling. *Cognitive Complexity/Depth of Knowledge Rating:* Low

Big Idea10:

A. Energy is involved in all physical processes and is a unifying concept in many areas of science.

B. Energy exists in many forms and has the ability to do work or cause a change.

BENCHMARK CODE	BENCHMARK
SC.K.P.10.1	Observe that things that make sound vibrate. *Cognitive Complexity/Depth of Knowledge Rating:* Low

Big Idea12:

A. Motion is a key characteristic of all matter that can be observed, described, and measured.

B. The motion of objects can be changed by forces.

BENCHMARK CODE	BENCHMARK
SC.K.P.12.1	Investigate that things move in different ways, such as fast, slow, etc. *Cognitive Complexity/Depth of Knowledge Rating:* High

Big Idea13:

A. It takes energy to change the motion of objects.

B. Energy change is understood in terms of forces--pushes or pulls.

C. Some forces act through physical contact, while others act at a distance.

BENCHMARK CODE	BENCHMARK
SC.K.P.13.1	Observe that a push or a pull can change the way an object is moving. *Cognitive Complexity/Depth of Knowledge Rating:* Low

Big Idea14:

A. All plants and animals, including humans, are alike in some ways and different in others.

B. All plants and animals, including humans, have internal parts and external structures that function to keep them alive and help them grow and reproduce.

C. Humans can better understand the natural world through careful observation.

BENCHMARK CODE	BENCHMARK
SC.K.L.14.1	Recognize the five senses and related body parts. *Cognitive Complexity/Depth of Knowledge Rating:* Low
SC.K.L.14.2	Recognize that some books and other media portray animals and plants with characteristics and behaviors they do not have in real life.

	Cognitive Complexity/Depth of Knowledge Rating: Moderate
SC.K.L.14.3	Observe plants and animals, describe how they are alike and how they are different in the way they look and in the things they do. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate

GRADE: 1

Big Idea1:

A: Scientific inquiry is a multifaceted activity; The processes of science include the formulation of scientifically investigable questions, construction of investigations into those questions, the collection of appropriate data, the evaluation of the meaning of those data, and the communication of this evaluation.

B: The processes of science frequently do not correspond to the traditional portrayal of "the scientific method."

C: Scientific argumentation is a necessary part of scientific inquiry and plays an important role in the generation and validation of scientific knowledge.

D: Scientific knowledge is based on observation and inference; it is important to recognize that these are very different things. Not only does science require creativity in its methods and processes, but also in its questions and explanations.

BENCHMARK CODE	BENCHMARK
SC.1.N.1.1	Raise questions about the natural world, investigate them in teams through free exploration, and generate appropriate explanations based on those explorations. *Cognitive Complexity/Depth of Knowledge Rating:* High
SC.1.N.1.2	Using the five senses as tools, make careful observations, describe objects in terms of number, shape, texture, size, weight, color, and motion, and compare their observations with others. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
SC.1.N.1.3	Keep records as appropriate - such as pictorial and written records - of investigations conducted. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
SC.1.N.1.4	Ask "how do you know?" in appropriate situations. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate

Big Idea5: Humans continue to explore Earth's place in space. Gravity and energy influence the formation of galaxies, including our own Milky Way Galaxy, stars, the Solar System, and Earth. Humankind's need to explore continues to lead to the development of knowledge and understanding of our Solar System.	
BENCHMARK CODE	**BENCHMARK**
SC.1.E.5.1	Observe and discuss that there are more stars in the sky than anyone can easily count and that they are not scattered evenly in the sky. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
SC.1.E.5.2	Explore the Law of Gravity by demonstrating that Earth's gravity pulls any object on or near Earth toward it even though nothing is touching the object. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
SC.1.E.5.3	Investigate how magnifiers make things appear bigger and help people see things they could not see without them. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
SC.1.E.5.4	Identify the beneficial and harmful properties of the Sun. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate

Big Idea6: Humans continue to explore the composition and structure of the surface of the Earth. External sources of energy have continuously altered the features of Earth by means of both constructive and destructive forces. All life, including human civilization, is dependent on Earth's water and natural resources.	
BENCHMARK CODE	**BENCHMARK**
SC.1.E.6.1	Recognize that water, rocks, soil, and living organisms are found on Earth's surface. *Cognitive Complexity/Depth of Knowledge Rating:* Low
SC.1.E.6.2	Describe the need for water and how to be safe around water. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
SC.1.E.6.3	Recognize that some things in the world around us happen fast and some happen slowly. *Cognitive Complexity/Depth of Knowledge Rating:* High

Big Idea8: A. All objects and substances in the world are made of matter. Matter has two fundamental properties: matter takes up space and matter has mass. B. Objects and substances can be classified by their physical and chemical properties. Mass is the amount of matter (or "stuff") in an object. Weight, on the other hand, is the measure of force of attraction (gravitational force) between an object and Earth. The concepts of mass and weight are complicated and potentially confusing to elementary students. Hence, the more familiar term of "weight" is recommended for use to stand for both mass and weight in grades K-5. By grades 6-8, students are expected to understand the distinction between mass and weight, and use them appropriately.	
BENCHMARK CODE	**BENCHMARK**
SC.1.P.8.1	Sort objects by observable properties, such as size, shape, color, temperature (hot or cold), weight (heavy or light), texture, and whether objects sink or float.

	Cognitive Complexity/Depth of Knowledge Rating: Moderate

Big Idea12:

A. Motion is a key characteristic of all matter that can be observed, described, and measured.

B. The motion of objects can be changed by forces.

BENCHMARK CODE	BENCHMARK
SC.1.P.12.1	Demonstrate and describe the various ways that objects can move, such as in a straight line, zigzag, back-and-forth, round-and-round, fast, and slow. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate

Big Idea13:

A. It takes energy to change the motion of objects.

B. Energy change is understood in terms of forces--pushes or pulls.

C. Some forces act through physical contact, while others act at a distance.

BENCHMARK CODE	BENCHMARK
SC.1.P.13.1	Demonstrate that the way to change the motion of an object is by applying a push or a pull. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate

Big Idea14:

A. All plants and animals, including humans, are alike in some ways and different in others.

B. All plants and animals, including humans, have internal parts and external structures that function to keep them alive and help them grow and reproduce.

C. Humans can better understand the natural world through careful observation.

BENCHMARK CODE	BENCHMARK
SC.1.L.14.1	Make observations of living things and their environment using the five senses. *Cognitive Complexity/Depth of Knowledge Rating:* Low
SC.1.L.14.2	Identify the major parts of plants, including stem, roots, leaves, and flowers. *Cognitive Complexity/Depth of Knowledge Rating:* Low
SC.1.L.14.3	Differentiate between living and nonliving things. *Cognitive Complexity/Depth of Knowledge Rating:* High

Big Idea16:

A. Offspring of plants and animals are similar to, but not exactly like, their parents or each other.

B. Life cycles vary among organisms, but reproduction is a major stage in the life cycle of all organisms.

BENCHMARK CODE	BENCHMARK
SC.1.L.16.1	Make observations that plants and animals closely resemble their parents, but variations exist among individuals within a population. *Cognitive Complexity/Depth of Knowledge Rating:* Low

Big Idea17:

A. Plants and animals, including humans, interact with and depend upon each other and their environment to satisfy their basic needs.

B. Both human activities and natural events can have major impacts on the environment.

C. Energy flows from the sun through producers to consumers.

BENCHMARK CODE	BENCHMARK
SC.1.L.17.1	Through observation, recognize that all plants and animals, including humans, need the basic necessities of air, water, food, and space. *Cognitive Complexity/Depth of Knowledge Rating:* Low

GRADE: 2

Big Idea1:

A: Scientific inquiry is a multifaceted activity; The processes of science include the formulation of scientifically investigable questions, construction of investigations into those questions, the collection of appropriate data, the evaluation of the meaning of those data, and the communication of this evaluation.

B: The processes of science frequently do not correspond to the traditional portrayal of "the scientific method."

C: Scientific argumentation is a necessary part of scientific inquiry and plays an important role in the generation and validation of scientific knowledge.

D: Scientific knowledge is based on observation and inference; it is important to recognize that

these are very different things. Not only does science require creativity in its methods and processes, but also in its questions and explanations.	
BENCHMARK CODE	**BENCHMARK**
SC.2.N.1.1	Raise questions about the natural world, investigate them in teams through free exploration and systematic observations, and generate appropriate explanations based on those explorations. *Cognitive Complexity/Depth of Knowledge Rating:* High
SC.2.N.1.2	Compare the observations made by different groups using the same tools. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
SC.2.N.1.3	Ask "how do you know?" in appropriate situations and attempt reasonable answers when asked the same question by others. *Cognitive Complexity/Depth of Knowledge Rating:* High
SC.2.N.1.4	Explain how particular scientific investigations should yield similar conclusions when repeated. *Cognitive Complexity/Depth of Knowledge Rating:* High
SC.2.N.1.5	Distinguish between empirical observation (what you see, hear, feel, smell, or taste) and ideas or inferences (what you think). *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
SC.2.N.1.6	Explain how scientists alone or in groups are always investigating new ways to solve problems. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate

Big Idea6: Humans continue to explore the composition and structure of the surface of Earth. External sources of energy have continuously altered the features of Earth by means of both constructive and destructive forces. All life, including human civilization, is dependent on Earth's water and natural resources.	
BENCHMARK CODE	**BENCHMARK**
SC.2.E.6.1	Recognize that Earth is made up of rocks. Rocks come in many sizes and shapes. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
SC.2.E.6.2	Describe how small pieces of rock and dead plant and animal parts can be the basis of soil and explain the process by which soil is formed. *Cognitive Complexity/Depth of Knowledge Rating:* High
SC.2.E.6.3	Classify soil types based on color, texture (size of particles), the ability to retain water, and the ability to support the growth of plants. *Cognitive Complexity/Depth of Knowledge Rating:* High

Big Idea7: Humans continue to explore the interactions among water, air, and land. Air and water are in constant motion that results in changing conditions that can be observed over time.	
BENCHMARK CODE	**BENCHMARK**
SC.2.E.7.1	Compare and describe changing patterns in nature that repeat themselves, such as weather conditions including temperature and precipitation, day to day and season to season. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
SC.2.E.7.2	Investigate by observing and measuring, that the Sun's energy directly and indirectly warms the water, land, and air. *Cognitive Complexity/Depth of Knowledge Rating:* High

SC.2.E.7.3	Investigate, observe and describe how water left in an open container disappears (evaporates), but water in a closed container does not disappear (evaporate). *Cognitive Complexity/Depth of Knowledge Rating:* High
SC.2.E.7.4	Investigate that air is all around us and that moving air is wind. *Cognitive Complexity/Depth of Knowledge Rating:* High
SC.2.E.7.5	State the importance of preparing for severe weather, lightning, and other weather related events. *Cognitive Complexity/Depth of Knowledge Rating:* Low

Big Idea8: A. All objects and substances in the world are made of matter. Matter has two fundamental properties: matter takes up space and matter has mass.

B. Objects and substances can be classified by their physical and chemical properties.

Mass is the amount of matter (or "stuff") in an object. Weight, on the other hand, is the measure of force of attraction (gravitational force) between an object and Earth.

The concepts of mass and weight are complicated and potentially confusing to elementary students. Hence, the more familiar term of "weight" is recommended for use to stand for both mass and weight in grades K-5. By grades 6-8, students are expected to understand the distinction between mass and weight, and use them appropriately.

BENCHMARK CODE	BENCHMARK
SC.2.P.8.1	Observe and measure objects in terms of their properties, including size, shape, color, temperature, weight, texture, sinking or floating in water, and attraction and repulsion of magnets. *Cognitive Complexity/Depth of Knowledge Rating:* Low
SC.2.P.8.2	Identify objects and materials as solid, liquid, or gas. *Cognitive Complexity/Depth of Knowledge Rating:* Low
SC.2.P.8.3	Recognize that solids have a definite shape and that liquids and gases take the shape of their container. *Cognitive Complexity/Depth of Knowledge Rating:* Low
SC.2.P.8.4	Observe and describe water in its solid, liquid, and gaseous states. *Cognitive Complexity/Depth of Knowledge Rating:* Low
SC.2.P.8.5	Measure and compare temperatures taken every day at the same time. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
SC.2.P.8.6	Measure and compare the volume of liquids using containers of various shapes and sizes. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate

Big Idea9:

A. Matter can undergo a variety of changes.

B. Matter can be changed physically or chemically.

BENCHMARK CODE	BENCHMARK
SC.2.P.9.1	Investigate that materials can be altered to change some of their properties, but not all materials respond the same way to any one alteration. *Cognitive Complexity/Depth of Knowledge Rating:* High

Big Idea10:

A. Energy is involved in all physical processes and is a unifying concept in many areas of science.

B. Energy exists in many forms and has the ability to do work or cause a change.

BENCHMARK CODE	BENCHMARK
SC.2.P.10.1	Discuss that people use electricity or other forms of energy to cook their food, cool or warm their homes, and power their cars. *Cognitive Complexity/Depth of Knowledge Rating:* Low

Big Idea13:

A. It takes energy to change the motion of objects.

B. Energy change is understood in terms of forces--pushes or pulls.

C. Some forces act through physical contact, while others act at a distance.

BENCHMARK CODE	BENCHMARK
SC.2.P.13.1	Investigate the effect of applying various pushes and pulls on different objects. *Cognitive Complexity/Depth of Knowledge Rating:* High
SC.2.P.13.2	Demonstrate that magnets can be used to make some things move without touching them. *Cognitive Complexity/Depth of Knowledge Rating:* Low
SC.2.P.13.3	Recognize that objects are pulled toward the ground unless something holds them up. *Cognitive Complexity/Depth of Knowledge Rating:* Low
SC.2.P.13.4	Demonstrate that the greater the force (push or pull) applied to an object, the greater the change in motion of the object. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate

Big Idea14:

A. All plants and animals, including humans, are alike in some ways and different in others.

B. All plants and animals, including humans, have internal parts and external structures that function to keep them alive and help them grow and reproduce.

C. Humans can better understand the natural world through careful observation.

BENCHMARK CODE	BENCHMARK
SC.2.L.14.1	Distinguish human body parts (brain, heart, lungs, stomach, muscles, and skeleton) and their basic functions. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate

Big Idea16:

A. Offspring of plants and animals are similar to, but not exactly like, their parents or each other.

B. Life cycles vary among organisms, but reproduction is a major stage in the life cycle of all organisms.

BENCHMARK CODE	BENCHMARK
SC.2.L.16.1	Observe and describe major stages in the life cycles of plants and animals, including beans and butterflies. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate

Big Idea17:

A. Plants and animals, including humans, interact with and depend upon each other and their environment to satisfy their basic needs.

B. Both human activities and natural events can have major impacts on the environment.

C. Energy flows from the sun through producers to consumers.

BENCHMARK CODE	BENCHMARK
SC.2.L.17.1	Compare and contrast the basic needs that all living things, including humans, have for survival. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
SC.2.L.17.2	Recognize and explain that living things are found all over Earth, but each is only able to live in habitats that meet its basic needs. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate

GRADE: 3

Big Idea1:

A: Scientific inquiry is a multifaceted activity; The processes of science include the formulation of scientifically investigable questions, construction of investigations into those questions, the collection of appropriate data, the evaluation of the meaning of those data, and the communication of this evaluation.

B: The processes of science frequently do not correspond to the traditional portrayal of "the scientific method."

C: Scientific argumentation is a necessary part of scientific inquiry and plays an important role in the generation and validation of scientific knowledge.

D: Scientific knowledge is based on observation and inference; it is important to recognize that these are very different things. Not only does science require creativity in its methods and processes, but also in its questions and explanations.

BENCHMARK CODE	BENCHMARK
SC.3.N.1.1	Raise questions about the natural world, investigate them individually and in teams through free exploration and systematic investigations, and generate appropriate explanations based on those explorations. *Cognitive Complexity/Depth of Knowledge Rating:* High
SC.3.N.1.2	Compare the observations made by different groups using the same tools and seek reasons to explain the differences across groups. *Cognitive Complexity/Depth of Knowledge Rating:* High
SC.3.N.1.3	Keep records as appropriate, such as pictorial, written, or simple charts and graphs, of investigations conducted. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
SC.3.N.1.4	Recognize the importance of communication among scientists. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
SC.3.N.1.5	Recognize that scientists question, discuss, and check each others' evidence and explanations. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
SC.3.N.1.6	Infer based on observation. *Cognitive Complexity/Depth of Knowledge Rating:* High
SC.3.N.1.7	Explain that empirical evidence is information, such as observations or measurements, that is used to help validate explanations of natural phenomena. *Cognitive Complexity/Depth of Knowledge Rating:* High

Big Idea3: The terms that describe examples of scientific knowledge, for example; "theory," "law," "hypothesis," and "model" have very specific meanings and functions within science.	
BENCHMARK CODE	**BENCHMARK**
SC.3.N.3.1	Recognize that words in science can have different or more specific meanings than their use in everyday language; for example, energy, cell, heat/cold, and evidence. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
SC.3.N.3.2	Recognize that scientists use models to help understand and explain how things work. *Cognitive Complexity/Depth of Knowledge Rating:* Low
SC.3.N.3.3	Recognize that all models are approximations of natural phenomena; as such, they do not perfectly account for all observations. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate

Big Idea5: Humans continue to explore Earth's place in space. Gravity and energy influence the formation of galaxies, including our own Milky Way Galaxy, stars, the Solar System, and Earth. Humankind's need to explore continues to lead to the development of knowledge and understanding of our Solar System.	
BENCHMARK CODE	**BENCHMARK**
SC.3.E.5.1	Explain that stars can be different; some are smaller, some are larger, and some appear brighter than others; all except the Sun are so far away that they look like points of light. *Cognitive Complexity/Depth of Knowledge Rating:* High
SC.3.E.5.2	Identify the Sun as a star that emits energy; some of it in the form of light. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
SC.3.E.5.3	Recognize that the Sun appears large and bright because it is the closest star to Earth. *Cognitive Complexity/Depth of Knowledge Rating:* High
SC.3.E.5.4	Explore the Law of Gravity by demonstrating that gravity is a force that can be overcome. *Cognitive Complexity/Depth of Knowledge Rating:* High
SC.3.E.5.5	Investigate that the number of stars that can be seen through telescopes is dramatically greater than those seen by the unaided eye. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate

Big Idea6: Humans continue to explore the composition and structure of the surface of Earth. External sources of energy have continuously altered the features of Earth by means of both constructive and destructive forces. All life, including human civilization, is dependent on Earth's water and natural resources.	
BENCHMARK CODE	**BENCHMARK**
SC.3.E.6.1	Demonstrate that radiant energy from the Sun can heat objects and when the Sun is not present, heat may be lost. *Cognitive Complexity/Depth of Knowledge Rating:* High

Big Idea8:

A. All objects and substances in the world are made of matter. Matter has two fundamental properties: matter takes up space and matter has mass.

B. Objects and substances can be classified by their physical and chemical properties. Mass is the amount of matter (or "stuff") in an object. Weight, on the other hand, is the measure of force of attraction (gravitational force) between an object and Earth.

The concepts of mass and weight are complicated and potentially confusing to elementary students. Hence, the more familiar term of "weight" is recommended for use to stand for both mass and weight in grades K-5. By grades 6-8, students are expected to understand the distinction between mass and weight, and use them appropriately.

BENCHMARK CODE	BENCHMARK
SC.3.P.8.1	Measure and compare temperatures of various samples of solids and liquids. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
SC.3.P.8.2	Measure and compare the mass and volume of solids and liquids. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
SC.3.P.8.3	Compare materials and objects according to properties such as size, shape, color, texture, and hardness. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate

Big Idea9:

A. Matter can undergo a variety of changes.

B. Matter can be changed physically or chemically.

BENCHMARK CODE	BENCHMARK
SC.3.P.9.1	Describe the changes water undergoes when it changes state through heating and cooling by using familiar scientific terms such as melting, freezing, boiling, evaporation, and condensation. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate

Big Idea10:

A. Energy is involved in all physical processes and is a unifying concept in many areas of science.

B. Energy exists in many forms and has the ability to do work or cause a change.

BENCHMARK CODE	BENCHMARK
SC.3.P.10.1	Identify some basic forms of energy such as light, heat, sound, electrical, and mechanical. *Cognitive Complexity/Depth of Knowledge Rating:* Low
SC.3.P.10.2	Recognize that energy has the ability to cause motion or create change. *Cognitive Complexity/Depth of Knowledge Rating:* Low
SC.3.P.10.3	Demonstrate that light travels in a straight line until it strikes an object or travels from one

	medium to another. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
SC.3.P.10.4	Demonstrate that light can be reflected, refracted, and absorbed. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate

Big Idea11:

A. Waves involve a transfer of energy without a transfer of matter.

B. Water and sound waves transfer energy through a material.

C. Light waves can travel through a vacuum and through matter.

BENCHMARK CODE	BENCHMARK
SC.3.P.11.1	Investigate, observe, and explain that things that give off light often also give off heat. *Cognitive Complexity/Depth of Knowledge Rating:* High
SC.3.P.11.2	Investigate, observe, and explain that heat is produced when one object rubs against another, such as rubbing one's hands together. *Cognitive Complexity/Depth of Knowledge Rating:* High

Big Idea14:

A. All plants and animals, including humans, are alike in some ways and different in others.

B. All plants and animals, including humans, have internal parts and external structures that function to keep them alive and help them grow and reproduce.

C. Humans can better understand the natural world through careful observation.

BENCHMARK CODE	BENCHMARK
SC.3.L.14.1	Describe structures in plants and their roles in food production, support, water and nutrient transport, and reproduction. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
SC.3.L.14.2	Investigate and describe how plants respond to stimuli (heat, light, gravity), such as the way plant stems grow toward light and their roots grow downward in response to gravity. *Cognitive Complexity/Depth of Knowledge Rating:* High

Big Idea15:

A. Earth is home to a great diversity of living things, but changes in the environment can affect their survival.

B. Individuals of the same kind often differ in their characteristics and sometimes the differences give individuals an advantage in surviving and reproducing.

BENCHMARK CODE	BENCHMARK
SC.3.L.15.1	Classify animals into major groups (mammals, birds, reptiles, amphibians, fish, arthropods, vertebrates and invertebrates, those having live births and those which lay eggs) according to their physical characteristics and behaviors. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
SC.3.L.15.2	Classify flowering and nonflowering plants into major groups such as those that produce seeds, or those like ferns and mosses that produce spores, according to their physical characteristics. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate

Big Idea17:

A. Plants and animals, including humans, interact with and depend upon each other and their environment to satisfy their basic needs.

B. Both human activities and natural events can have major impacts on the environment.

C. Energy flows from the sun through producers to consumers.

BENCHMARK CODE	BENCHMARK
SC.3.L.17.1	Describe how animals and plants respond to changing seasons. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
SC.3.L.17.2	Recognize that plants use energy from the Sun, air, and water to make their own food. *Cognitive Complexity/Depth of Knowledge Rating:* Low

GRADE: 4

Big Idea1:

A: Scientific inquiry is a multifaceted activity; The processes of science include the formulation of scientifically investigable questions, construction of investigations into those questions, the collection of appropriate data, the evaluation of the meaning of those data, and the communication of this evaluation.

B: The processes of science frequently do not correspond to the traditional portrayal of "the scientific method."

C: Scientific argumentation is a necessary part of scientific inquiry and plays an important role in the generation and validation of scientific knowledge.

D: Scientific knowledge is based on observation and inference; it is important to recognize that these are very different things. Not only does science require creativity in its methods and processes, but also in its questions and explanations.

BENCHMARK CODE	BENCHMARK
SC.4.N.1.1	Raise questions about the natural world, use appropriate reference materials that support understanding to obtain information (identifying the source), conduct both individual and team investigations through free exploration and systematic investigations, and generate appropriate explanations based on those explorations. *Cognitive Complexity/Depth of Knowledge Rating:* High
SC.4.N.1.2	Compare the observations made by different groups using multiple tools and seek reasons to explain the differences across groups. *Cognitive Complexity/Depth of Knowledge Rating:* High
SC.4.N.1.3	Explain that science does not always follow a rigidly defined method ("the scientific method") but that science does involve the use of observations and empirical evidence. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
SC.4.N.1.4	Attempt reasonable answers to scientific questions and cite evidence in support. *Cognitive Complexity/Depth of Knowledge Rating:* High
SC.4.N.1.5	Compare the methods and results of investigations done by other classmates. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
SC.4.N.1.6	Keep records that describe observations made, carefully distinguishing actual observations from ideas and inferences about the observations. *Cognitive Complexity/Depth of Knowledge Rating:* High
SC.4.N.1.7	Recognize and explain that scientists base their explanations on evidence. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
SC.4.N.1.8	Recognize that science involves creativity in designing experiments. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate

Big Idea2:

A: Scientific knowledge is based on empirical evidence, and is appropriate for understanding the natural world, but it provides only a limited understanding of the supernatural, aesthetic, or other ways of knowing, such as art, philosophy, or religion.

B: Scientific knowledge is durable and robust, but open to change.

C: Because science is based on empirical evidence it strives for objectivity, but as it is a human endeavor the processes, methods, and knowledge of science include subjectivity, as well as creativity and discovery.

BENCHMARK CODE	BENCHMARK
SC.4.N.2.1	Explain that science focuses solely on the natural world. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate

Big Idea3: The terms that describe examples of scientific knowledge, for example; "theory," "law," "hypothesis," and "model" have very specific meanings and functions within science.

BENCHMARK CODE	BENCHMARK
SC.4.N.3.1	Explain that models can be three dimensional, two dimensional, an explanation in your mind, or a computer model. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate

Big Idea5: Humans continue to explore Earth's place in space. Gravity and energy influence the formation of galaxies, including our own Milky Way Galaxy, stars, the Solar System, and Earth. Humankind's need to explore continues to lead to the development of knowledge and understanding of our Solar System.

BENCHMARK CODE	BENCHMARK
SC.4.E.5.1	Observe that the patterns of stars in the sky stay the same although they appear to shift across the sky nightly, and different stars can be seen in different seasons. *Cognitive Complexity/Depth of Knowledge Rating:* High
SC.4.E.5.2	Describe the changes in the observable shape of the moon over the course of about a month. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
SC.4.E.5.3	Recognize that Earth revolves around the Sun in a year and rotates on its axis in a 24-hour day. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
SC.4.E.5.4	Relate that the rotation of Earth (day and night) and apparent movements of the Sun, Moon, and stars are connected. *Cognitive Complexity/Depth of Knowledge Rating:* High
SC.4.E.5.5	Investigate and report the effects of space research and exploration on the economy and culture of Florida. *Cognitive Complexity/Depth of Knowledge Rating:* High

Big Idea6: Humans continue to explore the composition and structure of the surface of Earth. External sources of energy have continuously altered the features of Earth by means of both constructive and destructive forces. All life, including human civilization, is dependent on Earth's water and natural resources.	
BENCHMARK CODE	**BENCHMARK**
SC.4.E.6.1	Identify the three categories of rocks: igneous, (formed from molten rock); sedimentary (pieces of other rocks and fossilized organisms); and metamorphic (formed from heat and pressure). *Cognitive Complexity/Depth of Knowledge Rating:* Low
SC.4.E.6.2	Identify the physical properties of common earth-forming minerals, including hardness, color, luster, cleavage, and streak color, and recognize the role of minerals in the formation of rocks. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
SC.4.E.6.3	Recognize that humans need resources found on Earth and that these are either renewable or nonrenewable. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
SC.4.E.6.4	Describe the basic differences between physical weathering (breaking down of rock by wind, water, ice, temperature change, and plants) and erosion (movement of rock by gravity, wind, water, and ice). *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
SC.4.E.6.5	Investigate how technology and tools help to extend the ability of humans to observe very small things and very large things. *Cognitive Complexity/Depth of Knowledge Rating:* High
SC.4.E.6.6	Identify resources available in Florida (water, phosphate, oil, limestone, silicon, wind, and solar energy). *Cognitive Complexity/Depth of Knowledge Rating:* Low

Big Idea8: A. All objects and substances in the world are made of matter. Matter has two fundamental properties: matter takes up space and matter has mass. B. Objects and substances can be classified by their physical and chemical properties. Mass is the amount of matter (or "stuff") in an object. Weight, on the other hand, is the measure of force of attraction (gravitational force) between an object and Earth. The concepts of mass and weight are complicated and potentially confusing to elementary students. Hence, the more familiar term of "weight" is recommended for use to stand for both mass and weight in grades K-5. By grades 6-8, students are expected to understand the distinction between mass and weight, and use them appropriately.	
BENCHMARK CODE	**BENCHMARK**
SC.4.P.8.1	Measure and compare objects and materials based on their physical properties including: mass, shape, volume, color, hardness, texture, odor, taste, attraction to magnets. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
SC.4.P.8.2	Identify properties and common uses of water in each of its states. *Cognitive Complexity/Depth of Knowledge Rating:* Low
SC.4.P.8.3	Explore the Law of Conservation of Mass by demonstrating that the mass of a whole object is

	always the same as the sum of the masses of its parts. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
SC.4.P.8.4	Investigate and describe that magnets can attract magnetic materials and attract and repel other magnets. *Cognitive Complexity/Depth of Knowledge Rating:* High

Big Idea9:

A. Matter can undergo a variety of changes.

B. Matter can be changed physically or chemically.

BENCHMARK CODE	BENCHMARK
SC.4.P.9.1	Identify some familiar changes in materials that result in other materials with different characteristics, such as decaying animal or plant matter, burning, rusting, and cooking. *Cognitive Complexity/Depth of Knowledge Rating:* Low

Big Idea10:

A. Energy is involved in all physical processes and is a unifying concept in many areas of science.

B. Energy exists in many forms and has the ability to do work or cause a change.

BENCHMARK CODE	BENCHMARK
SC.4.P.10.1	Observe and describe some basic forms of energy, including light, heat, sound, electrical, and the energy of motion. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
SC.4.P.10.2	Investigate and describe that energy has the ability to cause motion or create change. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
SC.4.P.10.3	Investigate and explain that sound is produced by vibrating objects and that pitch depends on how fast or slow the object vibrates. *Cognitive Complexity/Depth of Knowledge Rating:* High
SC.4.P.10.4	Describe how moving water and air are sources of energy and can be used to move things. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate

Big Idea11:

A. Waves involve a transfer of energy without a transfer of matter.

B. Water and sound waves transfer energy through a material.

C. Light waves can travel through a vacuum and through matter.

BENCHMARK CODE	BENCHMARK
SC.4.P.11.1	Recognize that heat flows from a hot object to a cold object and that heat flow may cause

	materials to change temperature. *Cognitive Complexity/Depth of Knowledge Rating:* Low
SC.4.P.11.2	Identify common materials that conduct heat well or poorly. *Cognitive Complexity/Depth of Knowledge Rating:* Low

Big Idea12:

A. Motion is a key characteristic of all matter that can be observed, described, and measured.

B. The motion of objects can be changed by forces.

BENCHMARK CODE	BENCHMARK
SC.4.P.12.1	Recognize that an object in motion always changes its position and may change its direction. *Cognitive Complexity/Depth of Knowledge Rating:* Low
SC.4.P.12.2	Investigate and describe that the speed of an object is determined by the distance it travels in a unit of time and that objects can move at different speeds. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate

Big Idea16:

A. Offspring of plants and animals are similar to, but not exactly like, their parents or each other.

B. Life cycles vary among organisms, but reproduction is a major stage in the life cycle of all organisms.

BENCHMARK CODE	BENCHMARK
SC.4.L.16.1	Identify processes of sexual reproduction in flowering plants, including pollination, fertilization (seed production), seed dispersal, and germination. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
SC.4.L.16.2	Explain that although characteristics of plants and animals are inherited, some characteristics can be affected by the environment. *Cognitive Complexity/Depth of Knowledge Rating:* High
SC.4.L.16.3	Recognize that animal behaviors may be shaped by heredity and learning. *Cognitive Complexity/Depth of Knowledge Rating:* High
SC.4.L.16.4	Compare and contrast the major stages in the life cycles of Florida plants and animals, such as those that undergo incomplete and complete metamorphosis, and flowering and nonflowering seed-bearing plants. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate

Big Idea17: **A. Plants and animals, including humans, interact with and depend upon each other and their environment to satisfy their basic needs.** **B. Both human activities and natural events can have major impacts on the environment.** **C. Energy flows from the sun through producers to consumers.**	
BENCHMARK CODE	**BENCHMARK**
SC.4.L.17.1	Compare the seasonal changes in Florida plants and animals to those in other regions of the country. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
SC.4.L.17.2	Explain that animals, including humans, cannot make their own food and that when animals eat plants or other animals, the energy stored in the food source is passed to them. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
SC.4.L.17.3	Trace the flow of energy from the Sun as it is transferred along the food chain through the producers to the consumers. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
SC.4.L.17.4	Recognize ways plants and animals, including humans, can impact the environment. *Cognitive Complexity/Depth of Knowledge Rating:* High

GRADE: 5

Big Idea1: **A: Scientific inquiry is a multifaceted activity; The processes of science include the formulation of scientifically investigable questions, construction of investigations into those questions, the collection of appropriate data, the evaluation of the meaning of those data, and the communication of this evaluation.** **B: The processes of science frequently do not correspond to the traditional portrayal of "the scientific method."** **C: Scientific argumentation is a necessary part of scientific inquiry and plays an important role in the generation and validation of scientific knowledge.** **D: Scientific knowledge is based on observation and inference; it is important to recognize that these are very different things. Not only does science require creativity in its methods and processes, but also in its questions and explanations.**	
BENCHMARK CODE	**BENCHMARK**
SC.5.N.1.1	Define a problem, use appropriate reference materials to support scientific understanding, plan and carry out scientific investigations of various types such as: systematic observations, experiments requiring the identification of variables, collecting and organizing data, interpreting

	data in charts, tables, and graphics, analyze information, make predictions, and defend conclusions. *Cognitive Complexity/Depth of Knowledge Rating:* High
SC.5.N.1.2	Explain the difference between an experiment and other types of scientific investigation. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
SC.5.N.1.3	Recognize and explain the need for repeated experimental trials. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
SC.5.N.1.4	Identify a control group and explain its importance in an experiment. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
SC.5.N.1.5	Recognize and explain that authentic scientific investigation frequently does not parallel the steps of "the scientific method." *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
SC.5.N.1.6	Recognize and explain the difference between personal opinion/interpretation and verified observation. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate

Big Idea2:

A: Scientific knowledge is based on empirical evidence, and is appropriate for understanding the natural world, but it provides only a limited understanding of the supernatural, aesthetic, or other ways of knowing, such as art, philosophy, or religion.

B: Scientific knowledge is durable and robust, but open to change.

C: Because science is based on empirical evidence it strives for objectivity, but as it is a human endeavor the processes, methods, and knowledge of science include subjectivity, as well as creativity and discovery.

BENCHMARK CODE	BENCHMARK
SC.5.N.2.1	Recognize and explain that science is grounded in empirical observations that are testable; explanation must always be linked with evidence. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
SC.5.N.2.2	Recognize and explain that when scientific investigations are carried out, the evidence produced by those investigations should be replicable by others. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate

Big Idea5: Humans continue to explore Earth's place in space. Gravity and energy influence the formation of galaxies, including our own Milky Way Galaxy, stars, the Solar System, and Earth. Humankind's need to explore continues to lead to the development of knowledge and understanding of our Solar System.

BENCHMARK CODE	BENCHMARK
SC.5.E.5.1	Recognize that a galaxy consists of gas, dust, and many stars, including any objects orbiting the stars. Identify our home galaxy as the Milky Way. *Cognitive Complexity/Depth of Knowledge Rating:* Low
SC.5.E.5.2	Recognize the major common characteristics of all planets and compare/contrast the

	properties of inner and outer planets. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
SC.5.E.5.3	Distinguish among the following objects of the Solar System -- Sun, planets, moons, asteroids, comets -- and identify Earth's position in it. *Cognitive Complexity/Depth of Knowledge Rating:* High

Big Idea7: Humans continue to explore the interactions among water, air, and land. Air and water are in constant motion that results in changing conditions that can be observed over time.	
BENCHMARK CODE	**BENCHMARK**
SC.5.E.7.1	Create a model to explain the parts of the water cycle. Water can be a gas, a liquid, or a solid and can go back and forth from one state to another. *Cognitive Complexity/Depth of Knowledge Rating:* High
SC.5.E.7.2	Recognize that the ocean is an integral part of the water cycle and is connected to all of Earth's water reservoirs via evaporation and precipitation processes. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
SC.5.E.7.3	Recognize how air temperature, barometric pressure, humidity, wind speed and direction, and precipitation determine the weather in a particular place and time. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
SC.5.E.7.4	Distinguish among the various forms of precipitation (rain, snow, sleet, and hail), making connections to the weather in a particular place and time. *Cognitive Complexity/Depth of Knowledge Rating:* High
SC.5.E.7.5	Recognize that some of the weather-related differences, such as temperature and humidity, are found among different environments, such as swamps, deserts, and mountains. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
SC.5.E.7.6	Describe characteristics (temperature and precipitation) of different climate zones as they relate to latitude, elevation, and proximity to bodies of water. *Cognitive Complexity/Depth of Knowledge Rating:* High
SC.5.E.7.7	Design a family preparedness plan for natural disasters and identify the reasons for having such a plan. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate

Big Idea8:

A. All objects and substances in the world are made of matter. Matter has two fundamental properties: matter takes up space and matter has mass.

B. Objects and substances can be classified by their physical and chemical properties. Mass is the amount of matter (or "stuff") in an object. Weight, on the other hand, is the measure of force of attraction (gravitational force) between an object and Earth.

The concepts of mass and weight are complicated and potentially confusing to elementary students. Hence, the more familiar term of "weight" is recommended for use to stand for both mass and weight in grades K-5. By grades 6-8, students are expected to understand the distinction between mass and weight, and use them appropriately.

BENCHMARK CODE	BENCHMARK
SC.5.P.8.1	Compare and contrast the basic properties of solids, liquids, and gases, such as mass, volume, color, texture, and temperature. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
SC.5.P.8.2	Investigate and identify materials that will dissolve in water and those that will not and identify the conditions that will speed up or slow down the dissolving process. *Cognitive Complexity/Depth of Knowledge Rating:* High
SC.5.P.8.3	Demonstrate and explain that mixtures of solids can be separated based on observable properties of their parts such as particle size, shape, color, and magnetic attraction. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
SC.5.P.8.4	Explore the scientific theory of atoms (also called atomic theory) by recognizing that all matter is composed of parts that are too small to be seen without magnification. *Cognitive Complexity/Depth of Knowledge Rating:* Low

Big Idea9:

A. Matter can undergo a variety of changes.

B. Matter can be changed physically or chemically.

BENCHMARK CODE	BENCHMARK
SC.5.P.9.1	Investigate and describe that many physical and chemical changes are affected by temperature. *Cognitive Complexity/Depth of Knowledge Rating:* High

Big Idea10:

A. Energy is involved in all physical processes and is a unifying concept in many areas of science.

B. Energy exists in many forms and has the ability to do work or cause a change.

BENCHMARK CODE	BENCHMARK
SC.5.P.10.1	Investigate and describe some basic forms of energy, including light, heat, sound, electrical, chemical, and mechanical. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
SC.5.P.10.2	Investigate and explain that energy has the ability to cause motion or create change. *Cognitive Complexity/Depth of Knowledge Rating:* High
SC.5.P.10.3	Investigate and explain that an electrically-charged object can attract an uncharged object and can either attract or repel another charged object without any contact between the objects. *Cognitive Complexity/Depth of Knowledge Rating:* High
SC.5.P.10.4	Investigate and explain that electrical energy can be transformed into heat, light, and sound energy, as well as the energy of motion. *Cognitive Complexity/Depth of Knowledge Rating:* High

Big Idea11:

A. Waves involve a transfer of energy without a transfer of matter.

B. Water and sound waves transfer energy through a material.

C. Light waves can travel through a vacuum and through matter.

BENCHMARK CODE	BENCHMARK
SC.5.P.11.1	Investigate and illustrate the fact that the flow of electricity requires a closed circuit (a complete loop). *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
SC.5.P.11.2	Identify and classify materials that conduct electricity and materials that do not. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate

Big Idea13:

A. It takes energy to change the motion of objects.

B. Energy change is understood in terms of forces--pushes or pulls.

C. Some forces act through physical contact, while others act at a distance.

BENCHMARK CODE	BENCHMARK
SC.5.P.13.1	Identify familiar forces that cause objects to move, such as pushes or pulls, including gravity acting on falling objects. *Cognitive Complexity/Depth of Knowledge Rating:* Low
SC.5.P.13.2	Investigate and describe that the greater the force applied to it, the greater the change in motion of a given object. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
SC.5.P.13.3	Investigate and describe that the more mass an object has, the less effect a given force will have on the object's motion. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
SC.5.P.13.4	Investigate and explain that when a force is applied to an object but it does not move, it is because another opposing force is being applied by something in the environment so that the forces are balanced. *Cognitive Complexity/Depth of Knowledge Rating:* High

Big Idea14:

A. All plants and animals, including humans, are alike in some ways and different in others.

B. All plants and animals, including humans, have internal parts and external structures that function to keep them alive and help them grow and reproduce.

C. Humans can better understand the natural world through careful observation.

BENCHMARK CODE	BENCHMARK

SC.5.L.14.1	Identify the organs in the human body and describe their functions, including the skin, brain, heart, lungs, stomach, liver, intestines, pancreas, muscles and skeleton, reproductive organs, kidneys, bladder, and sensory organs. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
SC.5.L.14.2	Compare and contrast the function of organs and other physical structures of plants and animals, including humans, for example: some animals have skeletons for support -- some with internal skeletons others with exoskeletons -- while some plants have stems for support. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate

Big Idea15:

A. Earth is home to a great diversity of living things, but changes in the environment can affect their survival.

B. Individuals of the same kind often differ in their characteristics and sometimes the differences give individuals an advantage in surviving and reproducing.

BENCHMARK CODE	BENCHMARK
SC.5.L.15.1	Describe how, when the environment changes, differences between individuals allow some plants and animals to survive and reproduce while others die or move to new locations. *Cognitive Complexity/Depth of Knowledge Rating:* High

Big Idea17:

A. Plants and animals, including humans, interact with and depend upon each other and their environment to satisfy their basic needs.

B. Both human activities and natural events can have major impacts on the environment.

C. Energy flows from the sun through producers to consumers.

BENCHMARK CODE	BENCHMARK
SC.5.L.17.1	Compare and contrast adaptations displayed by animals and plants that enable them to survive in different environments such as life cycles variations, animal behaviors and physical characteristics. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate