Science Standards

GRADES: 3-5

Body of Knowledge: COMPUTER SCIENCE - PERSONAL, COMMUNITY, GLOBAL, AND ETHICAL IMPACT	
Standard 1: Responsible use of technology and information	

BENCHMARK CODE	BENCHMARK
SC.35.CS-PC.1.1	Identify appropriate and inappropriate uses of technology when posting to social media, sending e-mail, and browsing the Internet.
SC.35.CS-PC.1.2	Describe responsible uses of modern communication media and devices.
SC.35.CS-PC.1.3	Explain the proper use and operation of security technologies (e.g., passwords, virus protection software, spam filters, pop-up blockers, and cookies).
SC.35.CS-PC.1.4	Define plagiarism and understand the impacts of plagiarized materials.

Standard 2: The impact of computing resources on local and global society	

BENCHMARK CODE	BENCHMARK
SC.35.CS-PC.2.1	Explain how computers and computing devices are used to communicate with others on a daily basis.
SC.35.CS-PC.2.2	Describe types of cyberbullying and explain what actions should be taken if students are either victims or witnesses of these behaviors.
SC.35.CS-PC.2.3	Identify the legal and social consequences of cyberbullying/harassment in social media.
SC.35.CS-PC.2.4	Explain how access to technology helps empower individuals and groups (e.g., gives them access to information, the ability to communicate with others around the world, and allows them to buy and sell things).
SC.35.CS-PC.2.5	Identify ways in which people with special needs access and use adaptive technology.
SC.35.CS-PC.2.6	Communicate about technology using appropriate terminology.
SC.35.CS-PC.2.7	Identify and describe how computing knowledge is essential to performing important tasks and functions.

Standard 3: Evaluation of digital information resources	

BENCHMARK CODE	BENCHMARK
SC.35.CS-PC.3.1	Identify digital information resources used to answer research questions (e.g., online library catalog, online encyclopedias, databases, and websites).
SC.35.CS-PC.3.2	Gather, organize, and analyze information from digital resources.
SC.35.CS-PC.3.3	Compare digital resources for accuracy, relevancy, and appropriateness.

Standard 4: Security, privacy, information sharing, ownership, licensure and copyright

BENCHMARK CODE	BENCHMARK
SC.35.CS-PC.4.1	Describe the difference between digital artifacts that are open or free and those that are protected by copyright.
SC.35.CS-PC.4.2	Explain fair use for using copyrighted materials (e.g., images, music, video, and text).
SC.35.CS-PC.4.3	Describe the purpose of copyright and the possible consequences for inappropriate use of digital materials that are protected by copyright.
SC.35.CS-PC.4.4	Describe the threats to safe and efficient use of devices (e.g., SPAM, spyware, phishing, and viruses) associated with various forms of technology use (e.g., downloading and executing software programs, following hyperlinks, and opening files).

Body of Knowledge: COMPUTER SCIENCE - COMMUNICATION AND COLLABORATION

Standard 1: Communication and collaboration

BENCHMARK CODE	BENCHMARK
SC.35.CS-CC.1.1	Identify technology tools for individual and collaborative data collection, writing, communication, and publishing activities.
SC.35.CS-CC.1.2	Describe key ideas and details while working individually or collaboratively using digital tools and media-rich resources in a way that informs, persuades, and/or entertains.
SC.35.CS-CC.1.3	Identify ways that technology can foster teamwork, and collaboration can support problem solving and innovation.
SC.35.CS-CC.1.4	Describe how collaborating with others can be beneficial to a digital project.
SC.35.CS-CC.1.5	Explain that providing and receiving feedback from others can improve performance and outcomes for collaborative digital projects.

Body of Knowledge: COMPUTER SCIENCE - COMMUNICATION SYSTEMS AND COMPUTING

Standard 1: Modeling and simulations

BENCHMARK CODE	BENCHMARK
SC.35.CS-CS.1.1	Identify the concepts illustrated by a simulation (e.g., ecosystem, predator/prey, and invasive species).
SC.35.CS-CS.1.2	Describe how models and simulations can be used to solve real-world issues in science and engineering.
SC.35.CS-CS.1.3	Answer a question, individually and collaboratively, using data from a simulation.
SC.35.CS-CS.1.4	Create a simple model of a system (e.g., flower or solar system) and explain what the model shows and does not show.

Standard 2: Problem solving and Algorithms

BENCHMARK CODE	BENCHMARK
SC.35.CS-CS.2.1	Solve age-appropriate problems using information organized using digital graphic organizers (e.g., concept maps and Venn-diagrams).
SC.35.CS-CS.2.2	Describe how computational thinking can be used to solve real life issues in science and engineering.
SC.35.CS-CS.2.3	Explain the process of arranging or sorting information into useful order as well as the purpose for doing so.
SC.35.CS-CS.2.4	Solve real-world problems in science and engineering using computational thinking skills.
SC.35.CS-CS.2.5	Explain that there are several possible algorithms for searching within a dataset (such as finding a specific word in a word list or card in a deck of cards).
SC.35.CS-CS.2.6	Write an algorithm to solve a grade-level appropriate problem (e.g., move a character through a maze, instruct a character to draw a specific shape, have a character start,

	repeat or end activity as required or upon a specific event), individually or collaboratively.
SC.35.CS-CS.2.7	Identify and correct logical errors in algorithms; written, mapped, live action, or digital.
SC.35.CS-CS.2.8	Systematically test and identify logical errors in algorithms.
SC.35.CS-CS.2.9	Explain how to correct logical errors in algorithms; written, mapped, live action, or digital.

Standard 3: Digital tools

BENCHMARK CODE	BENCHMARK
SC.35.CS-CS.3.1	Manipulate and publish multimedia artifacts using digital tools (local and online).
SC.35.CS-CS.3.2	Create an artifact (independently and collaboratively) that answers a research question clearly communicating thoughts and ideas.

Standard 4: Hardware and software

BENCHMARK CODE	BENCHMARK
SC.35.CS-CS.4.1	Identify the basic components of a computer (e.g., monitor, keyboard, mouse, controller, speakers).
SC.35.CS-CS.4.2	Describe the function and purpose of various input/output devices and peripherals (e.g., monitor, screen, keyboard, controller, speakers).
SC.35.CS-CS.4.3	Compare and contrast hardware and software.
SC.35.CS-CS.4.4	Identify and solve simple hardware and software problems that may occur during everyday use (e.g., power, connections, application window or toolbar).

Standard 6: Human – Computer interactions and Artificial Intelligence

BENCHMARK CODE	BENCHMARK
SC.35.CS-CS.6.1	Describe how hardware applications (e.g., Global Positioning System (GPS) navigation for driving directions, text-to-speech translation, and language translation) can enable everyone to do things they could not do otherwise.
SC.35.CS-CS.6.2	Compare and contrast human and computer performance on similar tasks (e.g., sorting alphabetically or finding a path across a cluttered room) to understand which is best suited to the task.
SC.35.CS-CS.6.3	Explain that computers model intelligent behavior (as found in robotics, speech and language recognition, and computer animation).

Body of Knowledge: COMPUTER SCIENCE - COMPUTER PRACTICES AND PROGRAMMING

Standard 1: Data analysis

BENCHMARK CODE	BENCHMARK
SC.35.CS-CP.1.1	Explain that searches may be enhanced by using Boolean logic (e.g., using "not", "or", "and").
SC.35.CS-CP.1.2	Identify and describe examples of databases from everyday life (e.g., library catalogs, school records, telephone directories, and contact lists).
SC.35.CS-CP.1.3	Identify, research, and collect a data set on a topic, issue, problem, or question using age-appropriate technologies.
SC.35.CS-CP.1.4	Collect, organize, graph, and analyze data to answer a question using a database or spreadsheet.

Standard 2: Computer programming basics

BENCHMARK CODE	BENCHMARK

SC.35.CS-CP.2.1	Perform keyboarding skills for communication and the input of data and information.
SC.35.CS-CP.2.2	Create, test, and modify a program in a graphical environment (e.g., block-based visual programming language), individually and collaboratively.
SC.35.CS-CP.2.3	Create a program using arithmetic operators, conditionals, and repetition in programs.
SC.35.CS-CP.2.4	Explain that programs need known initial conditions (e.g., set initial score to zero in a game, initialize variables, or initial values set by hardware input).
SC.35.CS-CP.2.5	Detect and correct program errors, including those involving arithmetic operators, conditionals, and repetition, using interactive debugging.

Standard 3: Programming applications

BENCHMARK CODE	BENCHMARK
SC.35.CS-CP.3.1	Write, communicate and publish activities using technology tools.
SC.35.CS-CP.3.2	Present digitally created products, either individually and collaboratively, where a topic, concept, or skill is carefully analyzed or thoughtfully explored.

Science Standards

GRADE: 4

Big Idea 1: The Practice of Science

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

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

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

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

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. *Content Complexity:* Level 3: Strategic Thinking & Complex Reasoning
	Related Access Point(s)
	SC.4.N.1.In.1 Ask a question about the natural world and use selected reference material to find information, observe, explore, and identify findings.
	SC.4.N.1.Su.1 Ask a question about the natural world, explore materials, observe, and share information.

		SC.4.N.1.Pa.1 Explore, observe, and select an object or picture to solve a simple problem.
SC.4.N.1.2	Compare the observations made by different groups using multiple tools and seek reasons to explain the differences across groups. _Content Complexity:_ Level 3: Strategic Thinking & Complex Reasoning	
	Related Access Point(s)	
	SC.4.N.1.In.2 Compare own observations with observations of others.	
	SC.4.N.1.Su.2 Identify information based on observations of self and others.	
	SC.4.N.1.Pa.2 Recognize differences in objects or pictures.	
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. _Content Complexity:_ Level 2: Basic Application of Skills & Concepts	
	Related Access Point(s)	
	SC.4.N.1.In.1 Ask a question about the natural world and use selected reference material to find information, observe, explore, and identify findings.	
	SC.4.N.1.Su.1 Ask a question about the natural world, explore materials, observe, and share information.	
	SC.4.N.1.Pa.1 Explore, observe, and select an object or picture to solve a simple problem.	
SC.4.N.1.4	Attempt reasonable answers to scientific questions and cite evidence in support. _Content Complexity:_ Level 3: Strategic Thinking & Complex Reasoning	
	Related Access Point(s)	
	SC.4.N.1.Pa.1 Explore, observe, and select an object or picture to solve a simple problem.	
	SC.4.N.1.In.3 Relate findings to predefined science questions.	
	SC.4.N.1.Su.3 Answer questions about objects and actions related to science.	
SC.4.N.1.5	Compare the methods and results of investigations done by other classmates. _Content Complexity:_ Level 2: Basic Application of Skills & Concepts	
	Related Access Point(s)	
	SC.4.N.1.In.2 Compare own observations with observations of others.	
	SC.4.N.1.Su.2 Identify information based on observations of self and others.	
	SC.4.N.1.Pa.4 Recognize that people share information about science.	
SC.4.N.1.6	Keep records that describe observations made, carefully distinguishing actual observations from ideas and inferences about the observations. _Content Complexity:_ Level 3: Strategic Thinking & Complex Reasoning	
	Related Access Point(s)	
	SC.4.N.1.Pa.3 Select an object or picture to represent observed events.	
	SC.4.N.1.In.4 Communicate observations and findings through the use of pictures, writing, or charts.	
	SC.4.N.1.Su.4 Record observations using drawings, dictation, or pictures.	

SC.4.N.1.7	Recognize and explain that scientists base their explanations on evidence.
	Content Complexity: Level 2: Basic Application of Skills & Concepts
	Related Access Point(s)
	SC.4.N.1.Pa.4 Recognize that people share information about science.
	SC.4.N.1.In.5 Recognize that scientists perform experiments, make observations, and gather evidence.
	SC.4.N.1.Su.5 Recognize ways that scientists collect evidence, such as by observations or measuring.
SC.4.N.1.8	Recognize that science involves creativity in designing experiments.
	Content Complexity: Level 2: Basic Application of Skills & Concepts
	Related Access Point(s)
	SC.4.N.1.Pa.4 Recognize that people share information about science.
	SC.4.N.1.In.5 Recognize that scientists perform experiments, make observations, and gather evidence.
	SC.4.N.1.Su.5 Recognize ways that scientists collect evidence, such as by observations or measuring.

Big Idea 10: Forms of Energy

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

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

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.
	Content Complexity: Level 2: Basic Application of Skills & Concepts
	Related Access Point(s)
	SC.4.P.10.In.1 Identify forms of energy, such as light, heat, electrical, and energy of motion.
	SC.4.P.10.Su.1 Recognize uses of different forms of energy, including electricity (computer, freezer); heat (camp fire, stove); and energy of motion (rollercoaster, pinball machine).
	SC.4.P.10.Pa.1 Recognize a source of heat energy (fire, heater).
SC.4.P.10.2	Investigate and describe that energy has the ability to cause motion or create change.
	Content Complexity: Level 2: Basic Application of Skills & Concepts
	Related Access Point(s)
	SC.4.P.10.Pa.1 Recognize a source of heat energy (fire, heater).
	SC.4.P.10.In.2 Describe the results of applying electrical energy (turn on lights, make motors run); heat energy (burn wood, change temperature); and energy of motion (go faster, change direction).
	SC.4.P.10.Su.2 Recognize the results of using electrical energy (turning on television); heat energy (burning wood); and energy of motion (rolling ball).

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.
	Content Complexity: Level 3: Strategic Thinking & Complex Reasoning
	Related Access Point(s)
	SC.4.P.10.Pa.2 Recognize objects that create sounds.
	SC.4.P.10.In.3 Recognize that vibrations cause sound and identify sounds as high or low (pitch).
	SC.4.P.10.Su.3 Recognize sounds as high or low (pitch).
SC.4.P.10.4	Describe how moving water and air are sources of energy and can be used to move things.
	Content Complexity: Level 2: Basic Application of Skills & Concepts
	Related Access Point(s)
	SC.4.P.10.Pa.3 Recognize that moving air can move objects.
	SC.4.P.10.In.4 Identify machines that use energy from moving water or air, including a windmill and a waterwheel.
	SC.4.P.10.Su.4 Identify objects that use energy from moving air, such as a pinwheel or sailboat.

Big Idea 11: Energy Transfer and Transformations

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

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

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

Clarification for grades 5-8: The target understanding for Big Idea 11: Energy Transfer and Transformations, is the Law of Conservation of Energy: Energy is conserved as it transfers from one object to another and from one form to another.

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.
	Content Complexity: Level 1: Recall
	Related Access Point(s)
	SC.4.P.11.In.1 Identify that a hot object will make a cold object warm when they touch.
	SC.4.P.11.Su.1 Recognize that a hot object can make a cold object warm when they touch.
	SC.4.P.11.Pa.1 Recognize a temperature change from cold to warm.
SC.4.P.11.2	Identify common materials that conduct heat well or poorly.
	Content Complexity: Level 1: Recall
	Related Access Point(s)
	SC.4.P.11.In.2 Identify materials that are strong conductors of heat, such as metal.
	SC.4.P.11.Su.2 Recognize a common material that is a strong conductor of heat, such as metal.

	SC.4.P.11.Pa.2 Recognize common objects that conduct heat.

Big Idea 12: Motion of Objects

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

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

BENCHMARK CODE	BENCHMARK
SC.4.P.12.1	Recognize that an object in motion always changes its position and may change its direction. *Content Complexity:* Level 1: Recall
	Related Access Point(s)
	SC.4.P.12.In.1 Identify that the position of an object changes when the object is in motion.
	SC.4.P.12.Su.1 Recognize that movement causes an object to change position.
	SC.4.P.12.Pa.1 Recognize that an object can move in different directions, such as left to right, straight line, and zigzag.
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. *Content Complexity:* Level 2: Basic Application of Skills & Concepts
	Related Access Point(s)
	SC.4.P.12.In.2 Identify speed as how long it takes to travel a certain distance.
	SC.4.P.12.Su.2 Identify objects that move at different speeds.
	SC.4.P.12.Pa.2 Recognize an object as moving fast or slow.

Big Idea 16: Heredity and Reproduction

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

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

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. *Content Complexity:* Level 2: Basic Application of Skills & Concepts
	Related Access Point(s)
	SC.4.L.16.In.1 Identify that insects spread pollen to help flowering plants make seeds.
	SC.4.L.16.Su.1 Recognize that many flowering plants grow from their own seeds.
	SC.4.L.16.Pa.1 Recognize that many plants have flowers and leaves.
SC.4.L.16.2	Explain that although characteristics of plants and animals are inherited, some characteristics can be affected by the environment.

	Content Complexity: Level 3: Strategic Thinking & Complex Reasoning
	Related Access Point(s)
	SC.4.L.16.In.2 Identify behaviors that animals have naturally (inherit) and behaviors that animals learn.
	SC.4.L.16.Su.2 Recognize behaviors of common animals.
	SC.4.L.16.Pa.2 Recognize similarities between self and parents.
SC.4.L.16.3	Recognize that animal behaviors may be shaped by heredity and learning. *Content Complexity:* Level 3: Strategic Thinking & Complex Reasoning
	Related Access Point(s)
	SC.4.L.16.In.2 Identify behaviors that animals have naturally (inherit) and behaviors that animals learn.
	SC.4.L.16.Pa.2 Recognize similarities between self and parents.
	SC.4.L.16.Su.3 Recognize behaviors of common animals.
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. *Content Complexity:* Level 2: Basic Application of Skills & Concepts
	Related Access Point(s)
	SC.4.L.16.In.3 Identify similarities in the major stages in the life cycles of common Florida plants and animals.
	SC.4.L.16.Su.4 Recognize the major stages in life cycles of common plants and animals.
	SC.4.L.16.Pa.3 Match offspring of animals with parents.

Big Idea 17: Interdependence

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

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

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

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. *Content Complexity:* Level 2: Basic Application of Skills & Concepts
	Related Access Point(s)
	SC.4.L.17.In.1 Identify seasonal changes in Florida plants and animals.
	SC.4.L.17.Su.1 Recognize seasonal changes in some Florida plants, such as the presence of flowers and change in leaf color.
	SC.4.L.17.Pa.1 Recognize a seasonal change in the appearance of a common plant.

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. _Content Complexity:_ Level 2: Basic Application of Skills & Concepts	
	Related Access Point(s)	
	SC.4.L.17.In.2 Recognize that animals cannot make their own food and they must eat plants or other animals to survive.	
	SC.4.L.17.Su.2 Recognize that animals (consumers) eat plants or other animals for their food.	
	SC.4.L.17.Pa.2 Recognize that animals eat food.	
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. _Content Complexity:_ Level 2: Basic Application of Skills & Concepts	
	Related Access Point(s)	
	SC.4.L.17.Su.2 Recognize that animals (consumers) eat plants or other animals for their food.	
	SC.4.L.17.Pa.2 Recognize that animals eat food.	
	SC.4.L.17.In.3 Recognize that plants (producers) use energy from the Sun to make their food and animals (consumers) eat plants or other animals for their food.	
SC.4.L.17.4	Recognize ways plants and animals, including humans, can impact the environment. _Content Complexity:_ Level 3: Strategic Thinking & Complex Reasoning	
	Related Access Point(s)	
	SC.4.L.17.Su.3 Recognize ways that people can help improve the environment, such as cleaning up trash.	
	SC.4.L.17.Pa.3 Recognize ways that people can help improve the immediate environment, such as cleaning up trash.	
	SC.4.L.17.In.4 Recognize things that people do to help or hurt the environment, such as recycling and pollution.	

Big Idea 2: The Characteristics of Scientific Knowledge

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

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

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

BENCHMARK CODE	BENCHMARK
SC.4.N.2.1	Explain that science focuses solely on the natural world. _Content Complexity:_ Level 2: Basic Application of Skills & Concepts
	Related Access Point(s)
	SC.4.N.2.In.1 Identify that science focuses on the natural world.

BENCHMARK CODE	BENCHMARK
	SC.4.N.2.Su.1 Recognize that science focuses on the natural world.
	SC.4.N.2.Pa.1 Associate science with the natural world in the local environment.

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

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

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. *Content Complexity:* Level 2: Basic Application of Skills & Concepts
	Related Access Point(s)
	SC.4.N.3.In.1 Identify different types of models, such as a replica, a picture, or an animation.
	SC.4.N.3.Su.1 Recognize different types of models, such as a replica or a picture.
	SC.4.N.3.Pa.1 Match a model that is a replica to a real object.

Big Idea 5: Earth in Space and Time

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

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. *Content Complexity:* Level 3: Strategic Thinking & Complex Reasoning
	Related Access Point(s)
	SC.4.E.5.In.1 Identify that there are many stars in the sky with some that create patterns.
	SC.4.E.5.Su.1 Recognize a pattern of stars in the sky, such as the Big Dipper.
	SC.4.E.5.Pa.1 Recognize that there are many stars in the sky.
SC.4.E.5.2	Describe the changes in the observable shape of the moon over the course of about a month. *Content Complexity:* Level 2: Basic Application of Skills & Concepts
	Related Access Point(s)
	SC.4.E.5.In.2 Label three phases of the moon, including full, half (quarter), and crescent.
	SC.4.E.5.Su.2 Identify a full moon and a half (quarter) moon.
	SC.4.E.5.Pa.2 Recognize a full moon as a circle.
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. *Content Complexity:* Level 2: Basic Application of Skills & Concepts
	Related Access Point(s)

	SC.4.E.5.In.3 Recognize that Earth revolves around the Sun.
	SC.4.E.5.Su.3 Recognize that Earth is always turning (rotating).
	SC.4.E.5.Pa.3 Identify morning, noon, and night.
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. *Content Complexity:* Level 3: Strategic Thinking & Complex Reasoning
	Related Access Point(s)
	SC.4.E.5.Pa.3 Identify morning, noon, and night.
	SC.4.E.5.In.4 Recognize that the Sun appears to rise and set because of Earth's rotation in a 24-hour day.
	SC.4.E.5.Su.4 Recognize that the side of Earth facing the Sun has daylight.
SC.4.E.5.5	Investigate and report the effects of space research and exploration on the economy and culture of Florida. *Content Complexity:* Level 3: Strategic Thinking & Complex Reasoning
	Related Access Point(s)
	SC.4.E.5.Pa.4 Recognize a space-related object.
	SC.4.E.5.In.5 Identify objects and people related to the space program in Florida.
	SC.4.E.5.Su.5 Recognize an object or person related to the space program in Florida.

Big Idea 6: Earth Structures

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). *Content Complexity:* Level 1: Recall
	Related Access Point(s)
	SC.4.E.6.In.1 Recognize that rocks are classified by the way they are formed, such as sedimentary.
	SC.4.E.6.Su.1 Sort rocks according to observable characteristics, including color, shape, and size.
	SC.4.E.6.Pa.1 Distinguish rocks from other substances found on the Earth's surface.
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. *Content Complexity:* Level 2: Basic Application of Skills & Concepts
	Related Access Point(s)
	SC.4.E.6.In.2 Identify physical properties (hardness, streak color, and luster) of common minerals, such as rock salt, talc, gold, and silver.

	SC.4.E.6.Su.2 Sort common minerals, such as rock salt, talc, gold, and silver, by their physical properties (luster and color).
	SC.4.E.6.Pa.2 Recognize common minerals, such as rock salt, talc, gold, and silver.
SC.4.E.6.3	Recognize that humans need resources found on Earth and that these are either renewable or nonrenewable. *Content Complexity:* Level 2: Basic Application of Skills & Concepts
	Related Access Point(s)
	SC.4.E.6.In.3 Recognize that some natural resources used by humans are non-renewable, such as oil.
	SC.4.E.6.Su.3 Recognize that some natural resources can run out (non-renewable).
	SC.4.E.6.Pa.3 Recognize the universal symbol for recycling.
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). *Content Complexity:* Level 2: Basic Application of Skills & Concepts
	Related Access Point(s)
	SC.4.E.6.In.4 Identify that wind and water cause physical weathering and erosion of rocks.
	SC.4.E.6.Su.4 Recognize examples of weathering or erosion in the environment.
	SC.4.E.6.Pa.4 Recognize the effect of weathering on an object.
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. *Content Complexity:* Level 3: Strategic Thinking & Complex Reasoning
	Related Access Point(s)
	SC.4.E.6.In.5 Identify tools used to observe things that are far away and things that are very small.
	SC.4.E.6.Su.5 Recognize tools that will make things look larger, such as a telescope and a magnifier.
	SC.4.E.6.Pa.5 Recognize that something has been magnified.
SC.4.E.6.6	Identify resources available in Florida (water, phosphate, oil, limestone, silicon, wind, and solar energy). *Content Complexity:* Level 1: Recall
	Related Access Point(s)
	SC.4.E.6.In.6 Identify natural resources found in Florida, including solar energy, water, and limestone.
	SC.4.E.6.Su.6 Recognize natural resources found in Florida, such as solar energy and water.
	SC.4.E.6.Pa.6 Recognize water as a resource in Florida.

Big Idea 8: Properties of Matter

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

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

The concepts of mass and weight are complicated and potentially confusing to elementary students. By grades 6-8, students are expected to understand the distinction between mass and weight, and use them appropriately.

Clarification for grades K-2: The use of the more familiar term 'weight' instead of the term "mass" is recommended for grades K-2.

Clarification for grades 3-5: In grade 3, introduce the term mass as compared to the term weight. In grade 4, investigate the concept of weight versus mass of objects. In grade 5, discuss why mass (not weight) is used to compare properties of solids, liquids and gases.

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. *Content Complexity:* Level 2: Basic Application of Skills & Concepts
	Related Access Point(s)
	SC.4.P.8.In.1 Compare objects and materials based on physical properties, such as size, shape, color, texture, weight, hardness, odor, taste, and temperature.
	SC.4.P.8.Su.1 Sort objects by physical properties, such as size, shape, color, texture, weight (heavy or light), and temperature (hot or cold).
	SC.4.P.8.Pa.1 Match objects with similar observable properties, such as size, shape, color, or texture.
SC.4.P.8.2	Identify properties and common uses of water in each of its states. *Content Complexity:* Level 1: Recall
	Related Access Point(s)
	SC.4.P.8.In.2 Identify properties and uses of water in solid and liquid states.
	SC.4.P.8.Su.2 Identify uses of water in solid or liquid states.
	SC.4.P.8.Pa.2 Identify ice as a solid.
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. *Content Complexity:* Level 2: Basic Application of Skills & Concepts
	Related Access Point(s)
	SC.4.P.8.In.3 Identify that a whole object weighs the same as all of its parts together.
	SC.4.P.8.Su.3 Recognize that the parts of an object can be put together to make a whole.
	SC.4.P.8.Pa.3 Recognize that some objects have parts.
SC.4.P.8.4	Investigate and describe that magnets can attract magnetic materials and attract and repel other magnets. *Content Complexity:* Level 3: Strategic Thinking & Complex Reasoning
	Related Access Point(s)

	SC.4.P.8.In.4 Identify objects a magnet will attract.
	SC.4.P.8.Su.4 Demonstrate that magnets can attract other magnets.
	SC.4.P.8.Pa.4 Recognize that objects can stick together.

Big Idea 9: Changes in Matter

A. Matter can undergo a variety of changes.

B. Matter can be changed physically or chemically.

Clarification for grades K-5: The target understanding for students in the elementary grades should focus on Big Ideas A and B.

Clarification for Grades 6-8: The target understanding for students in the middle grades should begin to transition the focus to: C. When matter changes chemically, a rearrangement of bonds between the atoms occurs. This results in new substances with new properties.

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. *Content Complexity:* Level 1: Recall
	Related Access Point(s)
	SC.4.P.9.In.1 Observe and describe properties of materials that have been changed into other materials, such as decayed leaves of a plant.
	SC.4.P.9.Su.1 Indicate differences in materials that have been changed into other materials, such as rust on a can.
	SC.4.P.9.Pa.1 Recognize changes in observable properties of materials.