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 â€“ 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: 5

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.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. *Content Complexity:* Level 3: Strategic Thinking & Complex Reasoning
	Related Access Point(s)
	SC.5.N.1.In.1 Ask a question about the natural world, use selected reference materials to find information, work with others to carry out a simple experiment, and share results.
	SC.5.N.1.Su.1 Ask questions about the natural world, use selected materials to find information, observe, and identify answers to the question.

	SC.5.N.1.Pa.1 Explore, observe, and select an object or picture to respond to a question about the natural world.
SC.5.N.1.2	Explain the difference between an experiment and other types of scientific investigation. *Content Complexity:* Level 2: Basic Application of Skills & Concepts
	Related Access Point(s)
	SC.5.N.1.In.2 Identify the basic purpose of an experiment.
	SC.5.N.1.Su.2 Identify the result of a simple experiment.
	SC.5.N.1.Pa.2 Recognize that people use observation and actions to get answers to questions about the natural world.
SC.5.N.1.3	Recognize and explain the need for repeated experimental trials. *Content Complexity:* Level 2: Basic Application of Skills & Concepts
	Related Access Point(s)
	SC.5.N.1.Pa.2 Recognize that people use observation and actions to get answers to questions about the natural world.
	SC.5.N.1.In.3 Recognize that experiments may include activities that are repeated.
	SC.5.N.1.Su.3 Recognize that experiments can be repeated with other groups.
SC.5.N.1.4	Identify a control group and explain its importance in an experiment. *Content Complexity:* Level 2: Basic Application of Skills & Concepts
	Related Access Point(s)
	SC.5.N.1.Pa.2 Recognize that people use observation and actions to get answers to questions about the natural world.
	SC.5.N.1.In.3 Recognize that experiments may include activities that are repeated.
	SC.5.N.1.Su.3 Recognize that experiments can be repeated with other groups.
SC.5.N.1.5	Recognize and explain that authentic scientific investigation frequently does not parallel the steps of "the scientific method." *Content Complexity:* Level 2: Basic Application of Skills & Concepts
	Related Access Point(s)
	SC.5.N.1.Pa.2 Recognize that people use observation and actions to get answers to questions about the natural world.
	SC.5.N.1.In.4 Recognize that scientists use various methods to perform investigations, such as reviewing work of other scientists, making observations, and conducting experiments.
	SC.5.N.1.Su.4 Recognize ways that scientific evidence can be collected, such as by observing or measuring.
SC.5.N.1.6	Recognize and explain the difference between personal opinion/interpretation and verified observation. *Content Complexity:* Level 2: Basic Application of Skills & Concepts
	Related Access Point(s)
	SC.5.N.1.Pa.1 Explore, observe, and select an object or picture to respond to a question about the natural world.

	SC.5.N.1.In.5 Determine whether descriptions of observations are based on fact or personal belief.
	SC.5.N.1.Su.5 Recognize facts about a scientific observation.

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.5.P.10.1	Investigate and describe some basic forms of energy, including light, heat, sound, electrical, chemical, and mechanical. *Content Complexity:* Level 2: Basic Application of Skills & Concepts
	Related Access Point(s)
	SC.5.P.10.In.1 Identify forms of energy, including heat, light, sound, electrical, and mechanical.
	SC.5.P.10.Su.1 Recognize uses of electrical energy (popcorn popper, vacuum cleaner), heat energy (grill, heater), light energy (sunlight, flashlight), and mechanical energy (bicycle).
	SC.5.P.10.Pa.1 Recognize a source of light energy (Sun, light bulb).
SC.5.P.10.2	Investigate and explain that energy has the ability to cause motion or create change. *Content Complexity:* Level 3: Strategic Thinking & Complex Reasoning
	Related Access Point(s)
	SC.5.P.10.In.2 Identify ways energy can cause things to move or create changes.
	SC.5.P.10.Su.2 Recognize that energy is required to cause motion.
	SC.5.P.10.Pa.2 Initiate a change in the motion of an object.
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. *Content Complexity:* Level 3: Strategic Thinking & Complex Reasoning
	Related Access Point(s)
	SC.5.P.10.In.3 Identify that electrically charged materials will pull (attract) other materials.
	SC.5.P.10.Su.3 Recognize that electrically charged materials will pull (attract) other materials.
	SC.5.P.10.Pa.3 Demonstrate pushing away (repulsion) and pulling (attraction).
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. *Content Complexity:* Level 3: Strategic Thinking & Complex Reasoning
	Related Access Point(s)
	SC.5.P.10.In.4 Demonstrate that electricity can produce heat, light, and sound.
	SC.5.P.10.Su.4 Recognize examples of electricity as a producer of heat, light, and sound.
	SC.5.P.10.Pa.4 Identify one source of sound, heat, or light that uses electricity.

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.5.P.11.1	Investigate and illustrate the fact that the flow of electricity requires a closed circuit (a complete loop). *Content Complexity:* Level 2: Basic Application of Skills & Concepts
	Related Access Point(s)
	SC.5.P.11.In.1 Identify the power source and wires (conductors) in an electrical circuit.
	SC.5.P.11.Su.1 Recognize the power source in an electrical circuit.
	SC.5.P.11.Pa.1 Recognize that electrical systems must be turned on (closed) in order to work.
SC.5.P.11.2	Identify and classify materials that conduct electricity and materials that do not. *Content Complexity:* Level 2: Basic Application of Skills & Concepts
	Related Access Point(s)
	SC.5.P.11.Pa.1 Recognize that electrical systems must be turned on (closed) in order to work.
	SC.5.P.11.In.2 Identify materials that conduct electricity.
	SC.5.P.11.Su.2 Recognize a material that conducts electricity.

Big Idea 13: Forces and Changes in Motion

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.

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

Clarification for grades 6-8: The target understanding for students in grades 6-8 should begin to transition the focus to a more specific definition of forces and changes in motion. Net forces create a change in motion. A change in momentum occurs when a net force is applied to an object over a time interval.

Grades 9-12, Standard 12: Motion - A. Motion can be measured and described

qualitatively and quantitatively. Net forces create a change in motion. B. Momentum is conserved under well-defined conditions. A change in momentum occurs when a net force is applied to an object over a time interval.

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. *Content Complexity:* Level 1: Recall
	Related Access Point(s)
	SC.5.P.13.In.1 Distinguish between movement of an object caused by gravity and movement caused by pushes and pulls.
	SC.5.P.13.Su.1 Recognize that gravity causes an object to move.
	SC.5.P.13.Pa.1 Recognize that pushing or pulling makes an object move.
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. *Content Complexity:* Level 2: Basic Application of Skills & Concepts
	Related Access Point(s)
	SC.5.P.13.Pa.1 Recognize that pushing or pulling makes an object move.
	SC.5.P.13.In.2 Identify that heavier objects take more force to move than lighter ones.
	SC.5.P.13.Su.2 Recognize that a heavier object is harder to move than a light one.
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. *Content Complexity:* Level 2: Basic Application of Skills & Concepts
	Related Access Point(s)
	SC.5.P.13.Pa.1 Recognize that pushing or pulling makes an object move.
	SC.5.P.13.In.2 Identify that heavier objects take more force to move than lighter ones.
	SC.5.P.13.Su.2 Recognize that a heavier object is harder to move than a light one.
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. *Content Complexity:* Level 3: Strategic Thinking & Complex Reasoning
	Related Access Point(s)
	SC.5.P.13.Pa.2 Recognize a way to stop an object from moving.
	SC.5.P.13.In.3 Identify that an opposing force (push or pull) is needed to prevent an object from moving.
	SC.5.P.13.Su.3 Recognize the source of a force (push or pull) used to stop an object from moving.

Big Idea 14: Organization and Development of Living Organisms

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. *Content Complexity:* Level 2: Basic Application of Skills & Concepts
	Related Access Point(s)
	SC.5.L.14.In.1 Distinguish major external and internal body parts, including skin, brain, heart, lungs, stomach, muscles and skeleton, reproductive organs, and sensory organs.
	SC.5.L.14.Su.1 Identify major external and internal body parts, including skin, brain, heart, lungs, stomach, and sensory organs.
	SC.5.L.14.Pa.1 Recognize body parts related to movement and the five senses.
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. *Content Complexity:* Level 2: Basic Application of Skills & Concepts
	Related Access Point(s)
	SC.5.L.14.Su.2 Recognize the functions of the major parts of plants and animals.
	SC.5.L.14.Pa.2 Observe plants and animals and recognize how they are alike in the way they look.

Big Idea 15: Diversity and Evolution of Living Organisms

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. *Content Complexity:* Level 3: Strategic Thinking & Complex Reasoning
	Related Access Point(s)
	SC.5.L.15.In.1 Identify ways that plants and animals can be affected by changes in their habitats, such as lack of food or water, disease, or reduced space.
	SC.5.L.15.Su.1 Recognize ways that plants and animals can be affected by changes in their habitats, such as lack of food or water.
	SC.5.L.15.Pa.1 Recognize what happens when plants donâ€™t get water.

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.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. *Content Complexity:* Level 2: Basic Application of Skills & Concepts
	Related Access Point(s)
	SC.5.L.17.In.1 Identify features of common plants and animals that enable them to survive in different habitats (environments).
	SC.5.L.17.Su.1 Recognize that many different kinds of living things are found in different habitats.
	SC.5.L.17.Pa.1 Match common living things with their habitats.

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.5.N.2.1	Recognize and explain that science is grounded in empirical observations that are testable; explanation must always be linked with evidence. *Content Complexity:* Level 2: Basic Application of Skills & Concepts
	Related Access Point(s)
	SC.5.N.2.In.1 Identify that science knowledge is based on observations and evidence.
	SC.5.N.2.Su.1 Recognize that science knowledge is based on careful observations.
	SC.5.N.2.Pa.1 Recognize the importance of making careful observations.
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. *Content Complexity:* Level 2: Basic Application of Skills & Concepts
	Related Access Point(s)

	SC.5.N.2.In.2 Recognize that experiments involve procedures that can be repeated the same way by others.
	SC.5.N.2.Su.2 Recognize the importance of following correct procedures when carrying out science experiments.
	SC.5.N.2.Pa.2 Recognize that a common activity can be repeated.

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.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. *Content Complexity:* Level 1: Recall
	Related Access Point(s)
	SC.5.E.5.In.1 Identify that a galaxy is made of a very large number of stars and the planets that orbit them.
	SC.5.E.5.Su.1 Recognize that a galaxy is a group of stars.
	SC.5.E.5.Pa.1 Recognize that stars are very far away from Earth.
SC.5.E.5.2	Recognize the major common characteristics of all planets and compare/contrast the properties of inner and outer planets. *Content Complexity:* Level 2: Basic Application of Skills & Concepts
	Related Access Point(s)
	SC.5.E.5.In.2 Recognize major differences in the characteristics of the planets in the Solar System.
	SC.5.E.5.Su.2 Recognize that surface of planet Earth is covered by water and land.
	SC.5.E.5.Pa.2 Recognize Earth as the planet where we live.
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. *Content Complexity:* Level 3: Strategic Thinking & Complex Reasoning
	Related Access Point(s)
	SC.5.E.5.Pa.2 Recognize Earth as the planet where we live.
	SC.5.E.5.In.3 Identify that the Solar System includes the Sun, Earth, Moon, and other planets and their moons.
	SC.5.E.5.Su.3 Identify that the Sun, Earth, and Moon are part of the Solar System.

Big Idea 7: Earth Systems and Patterns

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. *Content Complexity:* Level 3: Strategic Thinking & Complex Reasoning
	Related Access Point(s)
	SC.5.E.7.In.1 Label the state of water in each stage of the water cycle.
	SC.5.E.7.Su.1 Match different states of water (liquid and solid) to changes in temperature.
	SC.5.E.7.Pa.1 Distinguish between water as a liquid and ice as a solid.
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. *Content Complexity:* Level 2: Basic Application of Skills & Concepts
	Related Access Point(s)
	SC.5.E.7.In.2 Recognize that water evaporates from the ocean, falls as precipitation, and then goes back into the ocean.
	SC.5.E.7.Su.2 Observe and recognize that water evaporates over time.
	SC.5.E.7.Pa.2 Recognize that wet things will dry when they are left in the air.
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. *Content Complexity:* Level 2: Basic Application of Skills & Concepts
	Related Access Point(s)
	SC.5.E.7.In.3 Identify elements that make up weather, including temperature, precipitation, and wind speed and direction.
	SC.5.E.7.Su.3 Recognize elements of weather, including temperature, precipitation, and wind.
	SC.5.E.7.Pa.3 Recognize the weather conditions including hot/cold and raining/not raining during the day.
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. *Content Complexity:* Level 3: Strategic Thinking & Complex Reasoning
	Related Access Point(s)
	SC.5.E.7.Pa.3 Recognize the weather conditions including hot/cold and raining/not raining during the day.
	SC.5.E.7.In.4 Describe types of precipitation, including rain, snow, and hail.
	SC.5.E.7.Su.4 Identify different types of precipitation, including rain and snow.
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. *Content Complexity:* Level 2: Basic Application of Skills & Concepts
	Related Access Point(s)
	SC.5.E.7.Pa.3 Recognize the weather conditions including hot/cold and raining/not raining during the day.
	SC.5.E.7.In.5 Recognize weather-related differences in environments, such as swamps and deserts.

	SC.5.E.7.Su.5 Match specific weather conditions with different locations.
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. *Content Complexity:* Level 3: Strategic Thinking & Complex Reasoning
	Related Access Point(s)
	SC.5.E.7.Pa.3 Recognize the weather conditions including hot/cold and raining/not raining during the day.
	SC.5.E.7.Su.5 Match specific weather conditions with different locations.
	SC.5.E.7.In.6 Identify features of weather in different climate zones, such as tropical and polar.
SC.5.E.7.7	Design a family preparedness plan for natural disasters and identify the reasons for having such a plan. *Content Complexity:* Level 2: Basic Application of Skills & Concepts
	Related Access Point(s)
	SC.5.E.7.Pa.4 Recognize examples of severe weather conditions.
	SC.5.E.7.Su.6 Identify what to do in severe weather.
	SC.5.E.7.In.7 Identify emergency plans and procedures for severe weather.

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. 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.

Clarification for grades K-2: The use of the more familiar term â€˜weightâ€™ instead of the term â€œmassâ€ 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.5.P.8.1	Compare and contrast the basic properties of solids, liquids, and gases, such as mass, volume, color, texture, and temperature. *Content Complexity:* Level 2: Basic Application of Skills & Concepts
	Related Access Point(s)

	SC.5.P.8.In.1 Identify basic properties of solids, liquids, and gases, such as color, texture, and temperature.
	SC.5.P.8.Su.1 Identify the basic properties of solids and liquids, such as color, texture, and temperature.
	SC.5.P.8.Pa.1 Distinguish between water as a solid or liquid.
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. *Content Complexity:* Level 3: Strategic Thinking & Complex Reasoning
	Related Access Point(s)
	SC.5.P.8.In.2 Identify examples of materials that will dissolve in water and those that will not.
	SC.5.P.8.Su.2 Recognize examples of materials that will dissolve in water.
	SC.5.P.8.Pa.2 Recognize a common substance that dissolves in water.
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. *Content Complexity:* Level 2: Basic Application of Skills & Concepts
	Related Access Point(s)
	SC.5.P.8.In.3 Identify the observable properties of the parts of a mixture, such as the particle size, shape, and color.
	SC.5.P.8.Su.3 Identify the separate parts of a mixture by color or shape.
	SC.5.P.8.Pa.3 Separate a group of objects into its parts.
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. *Content Complexity:* Level 1: Recall
	Related Access Point(s)
	SC.5.P.8.Pa.3 Separate a group of objects into its parts.
	SC.5.P.8.In.4 Recognize that materials are made of very small parts that cannot be seen without a magnifying glass or a microscope.
	SC.5.P.8.Su.4 Use a magnifying tool to see small parts of an object.

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.5.P.9.1	Investigate and describe that many physical and chemical changes are affected by temperature. *Content Complexity:* Level 3: Strategic Thinking & Complex Reasoning
	Related Access Point(s)
	SC.5.P.9.In.1 Observe and identify that heating and cooling can change the properties of materials.
	SC.5.P.9.Su.1 Recognize changes in properties of materials caused by heating or cooling.
	SC.5.P.9.Pa.1 Recognize that freezing changes water to ice.