

South Carolina Science Standards 2005	ESS Presentations	K-2 Product
Kindergarten		3-5 Product
Standard K-1: The student will demonstrate an understanding of scientific inquiry, including the processes, skills, and mathematical thinking necessary to conduct a simple scientific investigation.		
K-1.1 Identify observed objects or events by using the senses.	Senses Marvellous Materials Materials Matter	
K-1.2 Use tools (including magnifiers and eyedroppers) safely, accurately, and appropriately when gathering specific data.		
K-1.3 Predict and explain information or events based on observation or previous experience.	Mysterious Magnets Hot and Cold Living Things Materials Matter Senses	
K-1.4 Compare objects by using nonstandard units of measurement.		
K-1.5 Use appropriate safety procedures when conducting investigations.		
Standard K-2: The student will demonstrate an understanding of the characteristics of organisms. (Life Science)		
K-2.1 Recognize what organisms need to stay alive (including air, water, food, and shelter).	Living Things	
K-2.2 Identify examples of organisms and nonliving things.	Living Things Animals and Plants	
K-2.3 Match parents with their offspring to show that plants and animals closely resemble their parents.	Growing Up	
K-2.4 Compare individual examples of a particular type of plant or animal to determine that there are differences among individuals.		
K-2.5 Recognize that all organisms go through stages of growth and change called life cycles.	Growing Up	
Standard K-3: The student will demonstrate an understanding of the distinct structures of human body and the different functions they serve. (Life Science)		
K-3.1 Identify the distinct structures in the human body that are for walking, holding, touching, seeing, smelling, hearing, talking, and tasting.		
K-3.2 Identify the functions of the sensory organs (including the eyes, nose, ears, tongue, and skin).		
Standard K-4: The student will demonstrate an understanding of seasonal weather changes. (Earth Science)		
K-4.1 Identify weather changes that occur from day to day.	Weather	

K-4.2 Compare the weather patterns that occur from season to season.	Weather
K-4.3 Summarize ways that the seasons affect plants and animals.	Weather
Standard K-5: The student will demonstrate the understanding that objects can be described by their observable properties. (Physical Science)	
K-5.1 Classify objects by observable properties (including size, color, shape, magnetic attraction, heaviness, texture, and the ability to float in water).	Marvellous Materials Materials Matter Mysterious Magnets
K-5.2 Compare the properties of different types of materials (including wood, plastic, metal, cloth, and paper) from which objects are made.	Marvellous Materials Materials Matter Changing Materials
Grade 1	
Standard 1-1: The student will demonstrate an understanding of scientific inquiry, including the processes, skills, and mathematical thinking necessary to conduct a simple scientific investigation.	
1-1.1 Compare, classify, and sequence objects by number, shape, texture, size, color, and motion, using standard English units of measurement where appropriate.	Marvellous Materials Materials Matter Changing Materials
1-1.2 Use tools (including rulers) safely, accurately, and appropriately when gathering specific data.	Growing Plants Springs
1-1.3 Carry out simple scientific investigations when given clear directions.	Springs Growing Plants Shadows Living Things
1-1.4 Use appropriate safety procedures when conducting investigations.	
Standard 1-2: The student will demonstrate an understanding of the special characteristics and needs of plants that allow them to survive in their own distinct environments. (Life Science)	
1-2.1 Recall the basic needs of plants (including air, water, nutrients, space, and light) for energy and growth.	Living Things Growing Plants
1-2.2 Illustrate the major structures of plants (including stems, roots, leaves, flowers, fruits, and seeds).	Growing Plants
1-2.3 Classify plants according to their characteristics (including what specific type of environment they live in, whether they have edible parts, and what particular kinds of physical traits they have).	Growing Plants Animals and Plants Living Things
1-2.4 Summarize the life cycle of plants (including germination, growth, and the production of flowers and seeds).	Plant Reproduction

1-2.5 Explain how distinct environments throughout the world support the life of different types of plants.	
1-2.6 Identify characteristics of plants (including types of stems, roots, leaves, flowers, and seeds) that help them survive in their own distinct environments.	
Standard 1-3: The student will demonstrate an understanding of the features of the sky and the patterns of the Sun and the Moon. (Earth Science)	
1-3.1 Compare the features of the day and night sky.	Weather
1-3.2 Recall that the Sun is a source of heat and light for Earth.	Weather
1-3.3 Recognize that the Sun and the Moon appear to rise and set.	Weather
1-3.4 Illustrate changes in the Moon's appearance (including patterns over time).	The Moon
Standard 1-4: The student will demonstrate an understanding of the properties of Earth materials. (Earth Science)	
1-4.1 Recognize the composition of Earth (including rocks, sand, soil, and water).	Rocks Soil
1-4.2 Classify rocks and sand by their physical appearance .	Rocks
1-4.3 Compare soil samples by sorting them according to properties (including color, texture, and the capacity to nourish growing plants).	Soil
1-4.4 Recognize the observable properties of water (including the fact that it takes the shape of its container, flows downhill, and feels wet).	
1-4.5 Illustrate the locations of water on Earth by using drawings, maps, or models.	
1-4.6 Exemplify Earth materials that are used for building structures or for growing plants.	Rocks
Standard 1-5: The student will demonstrate an understanding of the positions and motions of objects. (Physical Science)	
1-5.1 Identify the location of an object relative to another object.	
1-5.2 Explain the importance of pushing and pulling to the motion of an object.	Feel the Force
1-5.3 Illustrate the fact that sound is produced by vibrating objects.	Senses Sounds
1-5.4 Illustrate ways in which objects can move in terms of direction and speed (including straight forward, back and forth, fast or slow, zigzag, and circular).	Feel the Force
Grade 2	
Standard 2-1: The student will demonstrate an understanding of scientific inquiry, including the processes, skills, and mathematical thinking necessary to conduct a simple scientific investigation.	

2-1.1 Carry out simple scientific investigations to answer questions about familiar objects and events.	Hot and Cold Springs Growing Plants Shadows Rocks Soil
2-1.2 Use tools (including thermometers, rain gauges, balances, and measuring cups) safely, accurately, and appropriately when gathering specific data in US customary (English) and metric units of measurement.	Weather Soil
2-1.3 Represent and communicate simple data and explanations through drawings, tables, pictographs, bar graphs, and oral and written language.	Senses Changing Materials Living Things Light and Dark Soil
2-1.4 Infer explanations regarding scientific observations and experiences.	Materials Matter Hot and Cold Senses Springs Growing Plants Rocks Soil
2-1.5 Use appropriate safety procedures when conducting investigations.	
Standard 2-2: The student will demonstrate an understanding of the needs and characteristics of animals as they interact in their own distinct environments. (Life Science)	
2-2.1 Recall the basic needs of animals (including air, water, food, and shelter) for energy, growth, and protection.	Living Things
2-2.2 Classify animals (including mammals, birds, amphibians, reptiles, fish, and insects) according to their physical characteristics.	Animals and Plants
2-2.3 Explain how distinct environments throughout the world support the life of different types of animals.	Habitats
2-2.4 Summarize the interdependence between animals and plants as sources of food and shelter.	Habitats
2-2.5 Illustrate the various life cycles of animals (including birth and the stages of development).	Growing Up
Standard 2-3: The student will demonstrate an understanding of daily and seasonal weather conditions. (Earth Science)	

2-3.1 Explain the effects of moving air as it interacts with objects.	Weather
2-3.2 Recall weather terminology (including temperature, wind direction, wind speed, and precipitation as rain, snow, sleet, and hail).	Weather
2-3.3 Illustrate the weather conditions of different seasons.	Weather
2-3.4 Carry out procedures to measure and record daily weather conditions (including temperature, precipitation amounts, wind speed as measured on the Beaufort scale, and wind direction as measured with a windsock or wind vane).	Weather
2-3.5 Use pictorial weather symbols to record observable sky conditions.	
2-3.6 Identify safety precautions that one should take during severe weather conditions.	
Standard 2-4: The student will demonstrate an understanding of the properties of matter and the changes that matter undergoes. (Physical Science)	
2-4.1 Recall the properties of solids and liquids.	Hot and Cold Changing State
2-4.2 Exemplify matter that changes from a solid to a liquid and from a liquid to a solid.	Hot and Cold
2-4.3 Explain how matter can be changed in ways such as heating or cooling, cutting or tearing, bending or stretching.	Hot and Cold Changing State
2-4.4 Recognize that different materials can be mixed together and then separated again.	Soil Separating Mixtures
Standard 2-5: The student will demonstrate an understanding of force and motion by applying the properties of magnetism. (Physical Science)	
2-5.1 Use magnets to make an object move without being touched.	Magnets
2-5.2 Explain how the poles of magnets affect each other (that is, they attract and repel one another).	Magnets
2-5.3 Compare the effect of magnets on various materials.	Mysterious Magnets Magnets
2-5.4 Identify everyday uses of magnets.	Mysterious Magnets Magnets
Grade 3	
Standard 3-1: The student will demonstrate an understanding of scientific inquiry, including the processes, skills, and mathematical thinking necessary to conduct a simple scientific investigation.	
3-1.1 Classify objects by two of their properties (attributes).	Materials Matter
3-1.2 Classify objects or events in sequential order.	Rocks Food Chains Water Cycle

3-1.3 Generate questions such as “what if?” or “how?” about objects, organisms, and events in the environment and use those questions to conduct a simple scientific investigation.	Insulators and Conductors Separating Mixtures Friction Circuits Forces
3-1.4 Predict the outcome of a simple investigation and compare the result with the prediction.	Insulators and Conductors Separating Mixtures Friction Circuits Forces
3-1.5 Use tools (including beakers, meter tapes and sticks, forceps/tweezers, tuning forks, graduated cylinders, and graduated syringes) safely, accurately, and appropriately when gathering specific data.	
3-1.6 Infer meaning from data communicated in graphs, tables, and diagrams.	Friction Forces
3-1.7 Explain why similar investigations might produce different results.	
3-1.8 Use appropriate safety procedures when conducting investigations.	
Standard 3-2: The student will demonstrate an understanding of the structures, characteristics, and adaptations of organisms that allow them to function and survive within their habitats. (Life Science)	
3-2.1 Illustrate the life cycles of seed plants and various animals and summarize how they grow and are adapted to conditions within their habitats.	Plant Reproduction
3-2.2 Explain how physical and behavioral adaptations allow organisms to survive (including hibernation, defense, locomotion, movement, food obtainment, and camouflage for animals and seed dispersal, color, and response to light for plants).	Adaptations Plant Reproduction
3-2.3 Recall the characteristics of an organism’s habitat that allow the organism to survive there.	Habitats Adaptations
3-2.4 Explain how changes in the habitats of plants and animals affect their survival.	Habitats Adaptations
3-2.5 Summarize the organization of simple food chains (including the roles of producers, consumers, and decomposers).	Food Chains
Standard 3-3: The student will demonstrate an understanding of Earth’s composition and the changes that occur to the features of Earth’s surface. (Earth Science)	
3-3.1 Classify rocks (including sedimentary, igneous, and metamorphic) and soils (including humus, clay, sand, and silt) on the basis of their properties.	Rocks Soil

3-3.2 Identify common minerals on the basis of their properties by using a minerals identification key.	
3-3.3 Recognize types of fossils (including molds, casts, and preserved parts of plants and animals).	
3-3.4 Infer ideas about Earth's early environments from fossils of plants and animals that lived long ago.	Fossils
3-3.5 Illustrate Earth's saltwater and freshwater features (including oceans, seas, rivers, lakes, ponds, streams, and glaciers).	
3-3.6 Illustrate Earth's land features (including volcanoes, mountains, valleys, canyons, caverns, and islands) by using models, pictures, diagrams, and maps.	
3-3.7 Exemplify Earth materials that are used as fuel, as a resource for building materials, and as a medium for growing plants.	Rocks
3-3.8 Illustrate changes in Earth's surface that are due to slow processes (including weathering, erosion, and deposition) and changes that are due to rapid processes (including landslides, volcanic eruptions, floods, and earthquakes).	Erosion, Transportation and Deposition
Standard 3-4: The student will demonstrate an understanding of the changes in matter that are caused by heat.	
3-4.1 Classify different forms of matter (including solids, liquids, and gases) according to their observable and measurable properties.	Changing State
3-4.2 Explain how water and other substances change from one state to another (including melting, freezing, condensing, boiling, and evaporating).	Changing State
3-4.3 Explain how heat moves easily from one object to another through direct contact in some materials (called conductors) and not so easily through other materials (called insulators).	Insulators and Conductors
3-4.4 Identify sources of heat and exemplify ways that heat can be produced (including rubbing, burning, and using electricity).	Energy Forms
Standard 3-5: The student will demonstrate an understanding of how motion and sound are affected by a push or pull on an object and the vibration of an object. (Physical Science)	
3-5.1 Identify the position of an object relative to a reference point by using position terms such as "above," "below," "inside of," "underneath," or "on top of" and a distance scale or measurement.	
3-5.2 Compare the motion of common objects in terms of speed and direction.	Forces
3-5.3 Explain how the motion of an object is affected by the strength of a push or pull and the mass of the object.	Forces Gravity
3-5.4 Explain the relationship between the motion of an object and the pull of gravity.	Forces Gravity

3-5.5 Recall that vibrating objects produce sound and that vibrations can be transferred from one material to another.	Sounds
3-5.6 Compare the pitch and volume of different sounds.	Sounds
3-5.7 Recognize ways to change the volume of sounds.	Sounds
3-5.8 Explain how the vibration of an object affects pitch.	Sounds
Grade 4	
Standard 4-1: The student will demonstrate an understanding of scientific inquiry, including the processes, skills, and mathematical thinking necessary to conduct a simple scientific investigation.	
4-1.1 Classify observations as either quantitative or qualitative.	
4-1.2 Use appropriate instruments and tools (including a compass, an anemometer, mirrors, and a prism) safely and accurately when conducting simple investigations.	Predicting the Weather Reflection and Refraction
4-1.3 Summarize the characteristics of a simple scientific investigation that represent a fair test (including a question that identifies the problem, a prediction that indicates a possible outcome, a process that tests one manipulated variable at a time, and results that are communicated and explained).	Soil Forces Plant Reproduction
4-1.4 Distinguish among observations, predictions, and inferences.	Separating Mixtures Friction Circuits Plant Reproduction Sounds
4-1.5 Recognize the correct placement of variables on a line graph.	Forces
4-1.6 Construct and interpret diagrams, tables, and graphs made from recorded measurements and observations.	Friction Forces Pollution
4-1.7 Use appropriate safety procedures when conducting investigations.	
Standard 4-2: The student will demonstrate an understanding of the characteristics and patterns of behavior that allow organisms to survive in their own distinct environments. (Life Science)	
4-2.1 Classify organisms into major groups (including plants or animals, flowering or nonflowering plants, and vertebrates [fish, amphibians, reptiles, birds, and mammals] or invertebrates) according to their physical characteristics.	Habitats
4-2.2 Explain how the characteristics of distinct environments (including swamps, rivers and streams, tropical rain forests, deserts, and the polar regions) influence the variety of organisms in each.	Habitats Adaptations

4-2.3 Explain how humans and other animals use their senses and sensory organs to detect signals from the environment and how their behaviors are influenced by these signals.	
4-2.4 Distinguish between the characteristics of an organism that are inherited and those that are acquired over time.	
4-2.5 Explain how an organism's patterns of behavior are related to its environment (including the kinds and the number of other organisms present, the availability of food and other resources, and the physical characteristics of the environment).	Habitats Adaptations Interdependence
4-2.6 Explain how organisms cause changes in their environment.	Habitats Adaptations Interdependence Pollution Plant Reproduction
Standard 4-3: The student will demonstrate an understanding of the properties, movements, and locations of objects in the solar system. (Earth Science)	
4-3.1 Recall that Earth is one of many planets in the solar system that orbit the Sun.	Our Solar System
4-3.2 Compare the properties (including the type of surface and atmosphere) and the location of Earth to the Sun, which is a star, and the Moon.	Our Solar System
4-3.3 Explain how the Sun affects Earth.	Days and Seasons Our Solar System
4-3.4 Explain how the tilt of Earth's axis and the revolution around the Sun results in the seasons of the year.	Days and Seasons
4-3.5 Explain how the rotation of Earth results in day and night.	Days and Seasons
4-3.6 Illustrate the phases of the Moon and the Moon's effect on ocean tides.	The Moon
4-3.7 Interpret the change in the length of shadows during the day in relation to the position of the Sun in the sky.	Days and Seasons
4-3.8 Recognize the purpose of telescopes.	Our Solar System
Standard 4-4: The student will demonstrate an understanding of weather patterns and phenomena. (Earth Science)	
4-4.1 Summarize the processes of the water cycle (including evaporation, condensation, precipitation, and runoff).	Water Cycle
4-4.2 Classify clouds according to their three basic types (cumulus, cirrus, and stratus) and summarize how clouds form.	Predicting the Weather
4-4.3 Compare daily and seasonal changes in weather conditions (including wind speed and direction, precipitation, and temperature) and patterns.	Predicting the Weather Days and Seasons
4-4.4 Summarize the conditions and effects of severe weather phenomena (including thunderstorms, hurricanes, and tornadoes) and related safety concerns.	

4-4.5 Carry out the procedures for data collecting and measuring weather conditions (including wind speed and direction, precipitation, and temperature) by using appropriate tools and instruments.	Weather Predicting the Weather
4-4.6 Predict weather from data collected through observation and measurements.	Predicting the Weather
Standard 4-5: The student will demonstrate an understanding of the properties of light and electricity. (Physical Science)	
4-5.1 Summarize the basic properties of light (including brightness and colors).	
4-5.2 Illustrate the fact that light, as a form of energy, is made up of many different colors.	
4-5.3 Summarize how light travels and explain what happens when it strikes an object (including reflection, refraction, and absorption).	Reflection and Refraction
4-5.4 Compare how light behaves when it strikes transparent, translucent, and opaque materials.	Shadows
4-5.5 Explain how electricity, as a form of energy, can be transformed into other forms of energy (including light, heat, and sound).	Energy Forms
4-5.6 Summarize the functions of the components of complete circuits (including wire, switch, battery, and light bulb).	Circuits
4-5.7 Illustrate the path of electric current in series and parallel circuits.	Circuits
4-5.8 Classify materials as either conductors or insulators of electricity.	Insulators and Conductors
4-5.9 Summarize the properties of magnets and electromagnets (including polarity, attraction/repulsion, and strength).	Magnets Electromagnets
4-5.10 Summarize the factors that affect the strength of an electromagnet.	Electromagnets
Grade 5	
Standard 5-1: The student will demonstrate an understanding of scientific inquiry, including the foundations of technological design and the processes, skills, and mathematical thinking necessary to conduct a controlled scientific investigation.	
	Separating Mixtures Friction Circuits Plant Reproduction Sounds Forces
5-1.1 Identify questions suitable for generating a hypothesis.	
5-1.2 Identify independent (manipulated), dependent (responding), and controlled variables in an experiment.	Forces
5-1.3 Plan and conduct controlled scientific investigations, manipulating one variable at a time.	Plant Reproduction Forces

5-1.4 Use appropriate tools and instruments (including a timing device and a 10x magnifier) safely and accurately when conducting a controlled scientific investigation.	
5-1.5 Construct a line graph from recorded data with correct placement of independent (manipulated) and dependent (responding) variables.	Forces
5-1.6 Evaluate results of an investigation to formulate a valid conclusion based on evidence and communicate the findings of the evaluation in oral or written form.	Insulators and Conductors Separating Mixtures Friction Plant Reproduction Days and Seasons
5-1.7 Use a simple technological design process to develop a solution or a product, communicating the design by using descriptions, models, and drawings.	
5-1.8 Use appropriate safety procedures when conducting investigations.	
Standard 5-2: The student will demonstrate an understanding of relationships among biotic and abiotic factors within terrestrial and aquatic ecosystems. (Life Science)	
5-2.1 Recall the cell as the smallest unit of life and identify its major structures (including cell membrane, cytoplasm, nucleus, and vacuole).	
5-2.2 Summarize the composition of an ecosystem, considering both biotic factors (including populations to the level of microorganisms and communities) and abiotic factors.	
5-2.3 Compare the characteristics of different ecosystems (including estuaries/salt marshes, oceans, lakes and ponds, forests, and grasslands).	
5-2.4 Identify the roles of organisms as they interact and depend on one another through food chains and food webs in an ecosystem, considering producers and consumers (herbivores, carnivores, and omnivores), decomposers (microorganisms, termites, worms, and fungi), predators and prey, and parasites and hosts.	Food Chains Interdependence
5-2.5 Explain how limiting factors (including food, water, space, and shelter) affect populations in ecosystems.	
Standard 5-3: The student will demonstrate an understanding of features, processes, and changes in Earth's land and oceans. (Earth Science)	
5-3.1 Explain how natural processes (including weathering, erosion, deposition, landslides, volcanic eruptions, earthquakes, and floods) affect Earth's oceans and land in constructive and destructive ways.	Erosion, Transportation and Deposition
5-3.2 Illustrate the geologic landforms of the ocean floor (including the continental shelf and slope, the mid-ocean ridge, rift zone, trench, and the ocean basin).	
5-3.3 Compare continental and oceanic landforms.	
5-3.4 Explain how waves, currents, tides, and storms affect the geologic features of the ocean shore zone (including beaches, barrier islands, estuaries, and inlets).	

5-3.5 Compare the movement of water by waves, currents, and tides.	
5-3.6 Explain how human activity (including conservation efforts and pollution) has affected the land and the oceans of Earth.	Pollution
Standard 5-4: The student will demonstrate an understanding of properties of matter. (Physical Science)	
5-4.1 Recall that matter is made up of particles too small to be seen.	
5-4.2 Compare the physical properties of the states of matter (including volume, shape, and the movement and spacing of particles).	Changing State
5-4.3 Summarize the characteristics of a mixture, recognizing a solution as a kind of mixture.	Separating Mixtures
5-4.4 Use the processes of filtration, sifting, magnetic attraction, evaporation, chromatography, and floatation to separate mixtures.	Separating Mixtures
5-4.5 Explain how the solute and the solvent in a solution determine the concentration.	
5-4.6 Explain how temperature change, particle size, and stirring affect the rate of dissolving.	
5-4.7 Illustrate the fact that when some substances are mixed together, they chemically combine to form a new substance that cannot easily be separated.	Separating Mixtures
5-4.8 Explain how the mixing and dissolving of foreign substances is related to the pollution of the water, air, and soil.	
Standard 5-5: The student will demonstrate an understanding of the nature of force and motion. (Physical Science)	
5-5.1 Illustrate the affects of force (including magnetism, gravity, and friction) on motion.	Gravity Forces Friction
5-5.2 Summarize the motion of an object in terms of position, direction, and speed.	Forces
5-5.3 Explain how unbalanced forces affect the rate and direction of motion in objects.	
5-5.4 Explain ways to change the effect that friction has on the motion of objects (including changing the texture of the surfaces, changing the amount of surface area involved, and adding lubrication).	Friction
5-5.5 Use a graph to illustrate the motion of an object.	
5-5.6 Explain how a change of force or a change in mass affects the motion of an object.	Gravity Forces Friction