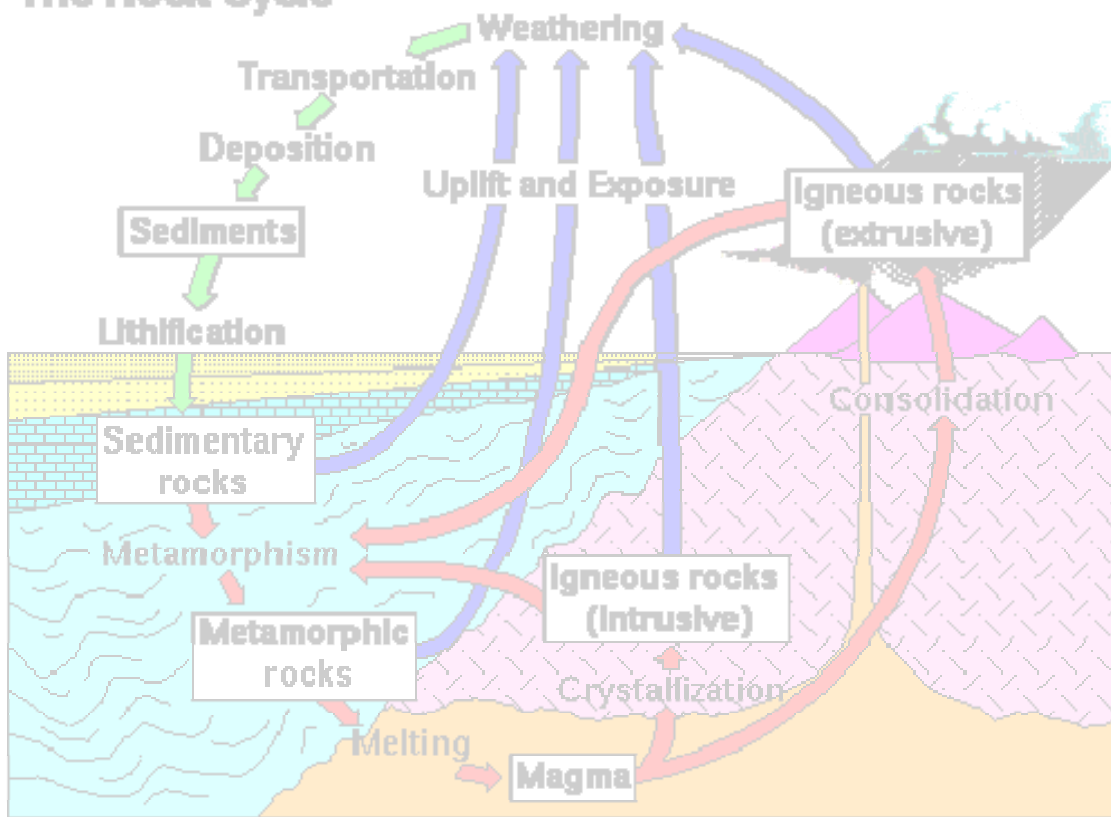


Science Curriculum

The Rock Cycle



Kindergarten Science Skills Based on Tennessee Frameworks

LIFE SCIENCE STANDARDS

Cell Structure and Function

The student will investigate the structure and function of plant and animal cells.

The following skills would be introduced in Kindergarten:

- Assemble and take apart objects to determine that most things are made up of parts.
- Observe and describe what happens when an object is missing a part.

Interactions Between Living Things and Their Environment

The student will investigate how living things interact with one another and with nonliving elements of their environment.

The following skill would be introduced in Kindergarten:

- Recognize that humans have five senses and be able to discriminate among these.

Diversity and Adaptation Among Living Things

The student will understand that living things have characteristics that enable them to survive in their environment.

The following skill would be introduced in Kindergarten:

- Know that different organisms tend to be found in different environments.

EARTH SCIENCE STANDARDS

Earth and Its Place in the Universe

The student will investigate the structure of the universe.

The following skills would be introduced in Kindergarten:

- Identify objects that appear in the day and nighttime sky.
- Classify pictures as representative of day or night.

Atmospheric Cycles

The student will investigate the relationships among atmospheric conditions, weather, and climate.

The following skills would be introduced in Kindergarten:

- Identify daily weather conditions (e.g., hot, cool, sunny, snowy, and rainy).
- Associate clothing and activity choices with various types of weather.

Kindergarten Science Skills

Based on Tennessee Frameworks

Earth Resources

The student will investigate the properties, uses, and conservation of earth's resources.

The following skills would be introduced in Kindergarten:

- Recognize a variety of earth materials (e.g., rocks, pebbles, and sand).
- Classify objects as natural or manmade.

PHYSICAL SCIENCE STANDARDS

Forces and Motion

The student will investigate the effects of force on the movement of objects.

The following skill would be introduced in Kindergarten:

- Recognize that objects can move in different directions and at different speeds.

Structure and Properties of Matter

The student will investigate the characteristic properties of matter.

The following skill would be introduced in Kindergarten:

- Describe an object according to its simple properties.

Energy

The student will investigate energy and its uses.

The following skills would be introduced in Kindergarten:

- Identify the sun as the source of earth's heat and light energy.
- Identify different sounds and their sources.

First Grade Science Skills Based on Tennessee Frameworks

LIFE SCIENCE STANDARDS

Cell Structure and Function

The student will investigate the structure and function of plant and animal cells.

The following skill would be introduced in First Grade:

- Use magnifiers to observe smaller parts of larger objects.

The following skill would be developing in First Grade:

- Observe and describe what happens when an object loses a part.

Interactions Between Living Things and Their Environment

The student will investigate how living things interact with one another and with nonliving elements of their environment.

The following skills would be introduced in First Grade:

- Collect information about organisms that occupy specific environments.
- Provide examples of pollutants in a specific environment.

The following skill would be developing in First Grade:

- Use the senses to explore the environment.

Food Production and Energy for Life

The student will study the basic parts of plants, investigate how plants produce food, and discover that plants and animals use food to sustain life.

The following skill would be introduced in First Grade:

- Recognize the basic needs of living things (e.g., food, water, sunlight, and air).

Diversity and Adaptation Among Living Things

The student will understand that living things have characteristics that enable them to survive in their environment.

The following skill would be introduced in First Grade:

- Observe and note differences among plants and animals of the same kind.

The following skill would be developing in First Grade:

- Recognize the environment in which an organism is typically found.

First Grade Science Skills Based on Tennessee Frameworks

EARTH SCIENCE STANDARDS

Earth and Its Place in the Universe

The student will investigate the structure of the universe.

The following skills would be introduced in First Grade:

- Recognize that the moon is the closest object in the sky.
- Recognize that there are tools for observing objects in the day and nighttime sky.
- Recognize that shadows change length and position during the course of a day.

The following skills would be developing in First Grade:

- Distinguish between objects that appear in the day and nighttime sky.
- Observe and illustrate the position of the sun at different times of the day.

Atmospheric Cycles

The student will investigate the relationships among atmospheric conditions, weather, and climate.

The following skills would be introduced in First Grade:

- Describe weather patterns associated with the seasons.
- Identify the appropriate tool for measuring temperature, precipitation, and wind speed/direction.

The following skills would be developing in First Grade:

- Recognize that weather conditions are constantly changing.
- Associate temperature, precipitation, and wind conditions with various types of weather.

Earth Features

The student will understand that the earth has many geological features that are constantly changing.

The following skill would be introduced in First Grade:

- Distinguish between land and water environments.

Earth Resources

The student will investigate the properties, uses, and conservation of earth's resources.

The following skills would be developing in First Grade:

- Use observable properties to distinguish among a variety of earth materials.
- Identify ways that earth resources benefit man.

First Grade Science Skills Based on Tennessee Frameworks

PHYSICAL SCIENCE STANDARDS

Forces and Motion

The student will investigate the effects of force on the movement of objects.

The following skill would be introduced in First Grade:

- Recognize that objects can move in different directions and at different speeds.

The following skill would be developing in First Grade:

- Observe and describe how the movement of an object can be changed (e.g., push/pull, fast/slow).

Structure and Properties of Matter

The student will investigate the characteristic properties of matter.

The following skill would be introduced in First Grade:

- Distinguish between solids and liquids.

The following skill would be developing in First Grade:

- Compare objects according to weight, length, and size.

Interactions of Matter

The student will investigate the interactions of matter.

The following skill would be introduced in First Grade:

- Observe and describe changes that can occur when two materials interact.

Energy

The student will investigate energy and its uses.

The following skills would be developing in First Grade:

- Describe the effect of the sun's energy on different materials.
- Classify sounds according to their basic characteristics (e.g., loud/soft, natural/man/made).

Second Grade Science Skills Based on Tennessee Frameworks

LIFE SCIENCE STANDARDS

Cell Structure and Function

The student will investigate the structure and function of plant and animal cells.

The following skills would be developing in Second Grade:

- Use magnifiers to study smaller parts of animals and identify their functions.
- Use magnifiers to observe and describe what occurs when a plant or an animal loses a specific part.

Interactions Between Living Things and Their Environment

The student will investigate how living things interact with one another and with nonliving elements of their environment.

The following skills would be introduced in Second Grade:

- Categorize objects as living or nonliving.
- Determine how organisms interact with the nonliving elements of their environment.

The following skills would be developing in Second Grade:

- Determine how animals interact with the living and nonliving elements in their environment through the senses.
- Recognize different types of pollutants.

Food Production and Energy for Life

The student will study the basic parts of plants, investigate how plants produce food, and discover that plants and animals use food to sustain life.

The following skill would be developing in Second Grade:

- Compare how plants and animals satisfy their basic requirements for life.

Heredity and Reproduction

The student will understand the basic principles of inheritance.

The following skills would be introduced in Second Grade:

- Recognize that all living things come from other living things.
- Match offspring with their parents.
- Recognize that as an organism grows, its appearance may change.

Diversity and Adaptation Among Living Things

The student will understand that living things have characteristics that enable them to survive in their environment.

The following skills would be developing in Second Grade:

- Provide specific examples of differences among animals of the same kind.
- Classify an organism according to the environment in which it can best survive.

Second Grade Science Skills Based on Tennessee Frameworks

Biological Change

The student will understand that living things have changed over time.

The following skill would be introduced in Second Grade:

- Recognize that some plants and animals that formerly inhabited the earth are no longer present on earth.

EARTH SCIENCE STANDARDS

Earth and Its Place in the Universe

The student will investigate the structure of the universe.

The following skill would be introduced in Second Grade:

- Recognize that the phases of the moon occur in a predictable pattern..

The following skills would be developing in Second Grade:

- Recognize that there are innumerable stars in the nighttime sky that vary in brightness, color, and location.
- Recognize that the sun is the brightest object in the sky and earth's closest star.
- Determine the approximate time of day from the position of the sun in the sky.

Earth Features

The student will understand that the earth has many geological features that are constantly changing.

The following skill would be developing in Second Grade:

- Recognize the earth's major geological features (e.g., mountains, oceans, and lakes).

Earth Resources

The student will investigate the properties, uses, and conservation of earth's resources.

The following skills would be introduced in Second Grade:

- Recognize the components of soil and sand.
- Observe the properties of sand and soil.

The following skill would be developing in Second Grade:

- Identify various methods to conserve earth resources (e.g., soil, trees, and water).

Second Grade Science Skills Based on Tennessee Frameworks

PHYSICAL SCIENCE STANDARDS

Forces and Motion

The student will investigate the effects of force on the movement of objects.

The following skill would be introduced in Second Grade:

- Identify materials that are attracted to magnets.

The following skills would be developing in Second Grade:

- Recognize that objects fall unless supported.
- Observe how changing the amount of weight affects a balanced system.

Structure and Properties of Matter

The student will investigate the characteristic properties of matter.

The following skills would be developing in Second Grade:

- Identify physical properties that can be used to describe a material
- Describe ways in which a material can be changed.

Interactions of Matter

The student will investigate the interactions of matter.

The following skills would be developing in Second Grade:

- Recognize that when substances combine they may retain their individual properties (e.g., salt and pepper).
- Recognize that when substances combine they may lose their individual properties (e.g., powdered drink mix with water).

Energy

The student will investigate energy and its uses.

The following skill would be developing in Second Grade:

- Compare the heating and cooling rates of land, air, and water.

Third Grade Science Skills Based on Tennessee Frameworks

LIFE SCIENCE STANDARDS

Cell Structure and Function

The student will investigate the structure and function of plant and animal cells.

The following skill would be developing in Third Grade:

- Recognize that smaller parts of organisms are essential to their well being.

The following skills would be mastered in Third Grade:

- Use magnifiers to study the smaller parts of plants and identify their functions.
- Use magnifiers to observe and describe what occurs when a plant loses a specific part (e.g., leaves, roots).

The following skills would be assessed in Third Grade:

- Identify the part that belongs to a specific plant or animal.
- Identify the part that is missing from a specific plant or animal.
- Identify the function of specific plant and animal parts.

Interactions Between Living Things and Their Environment

The student will investigate how living things interact with one another and with nonliving elements of their environment.

The following skills would be developing in Third Grade:

- Examine an object's characteristics to determine if the object is living or nonliving
- Explain how plants and animals depend upon each other and the nonliving elements of an environment to meet basic needs.
- Describe how environments are affected by various kinds of pollution.

The following skills would be assessed in Third Grade:

- Distinguish between living and nonliving things in an illustration.
- Select the plants and animals found in a specific environment.
- Identify the sense used to collect specific information.
- Identify the environment that has been impacted by pollutants.

Food Production and Energy for Life

The student will study the basic parts of plants, investigate how plants produce food, and discover that plants and animals use food to sustain life.

The following skill would be introduced in Third Grade:

- Examine the major parts of plants and determine their functions.

The following skill would be developing in Third Grade:

- Explain how animals depend on plants to meet their need for energy.

The following skills would be assessed in Third Grade:

- Identify the basic needs of plants and animals.
- Recognize that animals obtain their food by eating plants or other animals.
- Recognize that plants use sunlight, water, and air for photosynthesis.

Heredity and Reproduction

Third Grade Science Skills Based on Tennessee Frameworks

The student will understand the basic principles of inheritance.

The following skills would be developing in Third Grade:

- Recognize that organisms develop the ability to reproduce as they mature.
- Note similarities and differences between parents and offspring.
- Describe how an organism (e.g., frog, butterfly) changes as it matures.

The following skills would be assessed in Third Grade:

- Choose the diagram that depicts a parent with its offspring.
- Select the illustration that shows an adult organism.
- Select the illustration that shows how an organism changes as it matures.

Diversity and Adaptation Among Living Things

The student will understand that living things have characteristics that enable them to survive in their environment.

The following skills would be developing in Third Grade:

- Provide specific examples of differences among plants of the same kind.
- Specify the features that enable a plant or animal to survive in its environment.

The following skills would be assessed in Third Grade:

- Identify groups of similar organisms (i.e., plants and animals).
- Identify an organism that belongs in a specific environment.
- Identify the characteristics that enable a specific plant and/or animal to survive in its environment.

Biological Change

The student will understand that living things have changed over time.

The following skills would be assessed in Third Grade:

- Identify an example, other than a dinosaur, of an extinct organism.
- Identify evidence used to determine that an organism previously existed.
- Match the organism to the evidence for its former existence.

EARTH SCIENCE STANDARDS

Earth and Its Place in the Universe

The student will investigate the structure of the universe.

Third Grade Science Skills Based on Tennessee Frameworks

The following skills would be developing in Third Grade:

- Recognize that planets are major features of the universe
- Explain how day and night result from the rotation of the Earth relative to the sun.

The following skills would be assessed in Third Grade:

- Choose the appropriate tool for observing a specific distant object.
- Identify the components of the solar system (e.g., planets, moon).
- Identify objects found in the day or nighttime sky.
- Identify the approximate time of day from a picture of the sun's position in the sky.
- Identify the four basic phases of the moon.

Atmospheric Cycles

The student will investigate the relationships among atmospheric conditions, weather, and climate.

The following skills would be developing in Third Grade:

- Explain how changes in temperature, precipitation, wind speed/direction result in different weather conditions.
- Use data to prepare an illustration of a specific day's weather.

The following skills would be assessed in Third Grade:

- Select appropriate clothing for a given weather condition.
- Match the cloud type to a specific kind of weather.
- Identify the season when given a description of weather, plants, and animals.
- Match temperature, precipitation, wind speed and direction, and cloud conditions with different weather conditions.
- Identify the appropriate tools to measure temperature and precipitation.

Earth Features

The student will understand that the earth has many geological features that are constantly changing.

The following skill would be developing in Third Grade:

- Compare and contrast a variety of different landforms and bodies of water.

The following skills would be assessed in Third Grade:

- Identify the labeled part of a map or illustration as a continent, ocean, lake, river, mountain, or island.
- Select the illustration that identifies a specific geological feature.
- Identify a geological feature given specific information.

Earth Resources

The student will investigate the properties, uses, and conservation of earth's resources.

The following skill would be introduced in Third Grade:

- Explain the relationship between rocks and minerals.

Third Grade Science Skills Based on Tennessee Frameworks

The following skills would be developing in Third Grade:

- Identify common types of rocks.
- Identify materials and resources that can be reused.

The following skills would be assessed in Third Grade:

- Identify an object as natural or man-made.
- Recognize the properties used to identify specific earth materials.
- Identify methods for conserving natural resources.

PHYSICAL SCIENCE STANDARDS

Forces and Motion

The student will investigate the effects of force on the movement of objects.

The following skill would be introduced in Third Grade:

- Describe the relationship between the amount of force applied to an object and the distance the object moves.

The following skills would be developing in Third Grade:

- Recognize that objects move differently on different surfaces.
- Recognize that magnets can move objects without touching them.
- Describe how changing the position of an object affects a balanced system.

The following skills would be assessed in Third Grade:

- Identify that an unbalanced force is needed to change the direction of an object.
- Select how surface characteristics affect the movement of an object.
- Select an object that would be attracted by a magnet.
- Identify how weights affect a balanced scale.

Structure and Properties of Matter

The student will investigate the characteristic properties of matter.

The following skills would be developing in Third Grade:

- Classify materials according to their physical properties.
- Select and use appropriate tools to observe and measure the physical properties of materials.

The following skills would be assessed in Third Grade:

- Select an object according to a particular property.
- Order objects according to a specific property (e.g., longest to shortest, heaviest to lightest).
- Identify an object when given its properties.
- Identify appropriate tools for determining the weight or length of materials.

Third Grade Science Skills Based on Tennessee Frameworks

Interactions of Matter

The student will investigate the interactions of matter.

The following skill would be developing in Third Grade:

- Explain how materials change their form, color, or texture when they are mixed, separated, or heated.

The following skills would be assessed in Third Grade:

- Identify the effects of mixing two types of materials (e.g., salt and pepper).
- Choose features associated with physical changes.
- Identify methods for separating mixtures.

Energy

The student will investigate energy and its uses.

The following skill would be introduced in Third Grade:

- Differentiate between pitch and volume.

The following skill would be developing in Third Grade:

- Analyze data to explain the heating and cooling of land, air, and water.

The following skills would be assessed in Third Grade:

- Identify the source of the Earth's heat and light energy.
- Identify the illustration that demonstrates the effects of the sun on various materials.
- Identify how sounds are produced.

Fourth Grade Science Skills Based on Tennessee Frameworks

LIFE SCIENCE STANDARDS

Cell Structure and Function

The student will investigate the structure and function of plant and animal cells.

The following skill would be introduced in Fourth Grade:

- Examine a variety of plant and animal cells.

The following skills would be assessed in Fourth Grade:

- Identify the function of specific plant and animal parts.
- Recognize the basic structure of plant and animal cells.
- Identify animal and plant cell structures and functions.

Interactions Between Living Things and Their Environment

The student will investigate how living things interact with one another and with nonliving elements of their environment.

The following skills would be introduced in Fourth Grade:

- Examine and relate how plants and animals interact with each other and their environment.
- Provide evidence and give examples of environmental changes caused by living things.

The following skills would be assessed in Fourth Grade:

- Select plants and animals found in a specific environment.
- Recognize how plants and animals interact with each other in their environment.
- Identify ways that organisms affect their environment.

Food Production and Energy for Life

The student will study the basic parts of plants, investigate how plants produce food, and discover that plants and animals use food to sustain life.

The following skills would be developing in Fourth Grade:

- Explain that animals must obtain food and use food for energy.
- Compare how specific animals obtain oxygen (e.g., gills, lungs).

The following skills would be assessed in Fourth Grade:

- Compare how various animals obtain and use food for energy.
- Match the edible parts of plants with particular plant structures.
- Match the animal with their means of obtaining oxygen.

Fourth Grade Science Skills Based on Tennessee Frameworks

Heredity and Reproduction

The student will understand the basic principles of inheritance.

The following skills would be developing in Fourth Grade:

- Compare the traits of offspring with those of the parent.
- Describe the life cycle of an animal (i.e., frog, mealworm).

The following skills would be assessed in Fourth Grade:

- Distinguish offspring from the parent.
- Recognize the relationship between reproduction and the survival of a species.
- Select the illustration that depicts the life cycle of a specific organism.

Diversity and Adaptation Among Living Things

The student will understand that living things have characteristics that enable them to survive in their environment.

The following skill would be developing in Fourth Grade:

- Classify animals according to their characteristics.

The following skills would be assessed in Fourth Grade:

- Match a plant or animal adaptation to a particular environmental condition.
- Compare and contrast groups of organisms according to their major features.
- Match the form of structures found in living things to their function.

Biological Change

The student will understand that living things have changed over time.

The following skill would be developing in Fourth Grade:

- Examine fossils and explain how they provide information about the types of organisms that lived in the past.

The following skills would be assessed in Fourth Grade:

- Match fossil evidence with organisms that are alive today.
- Identify animal and plant populations as thriving, threatened, endangered, or extinct.
- Infer possible causes of extinction.

Fourth Grade Science Skills Based on Tennessee Frameworks

EARTH SCIENCE STANDARDS

Earth and Its Place in the Universe

The student will investigate the structure of the universe.

The following skills would be developing in Fourth Grade:

- Identify and order the planets in the solar system by their distance from the sun.
- Demonstrate how the earth rotates and revolves.
- Simulate the changing shape of the moon.

The following skills would be assessed in Fourth Grade:

- Determine the order of the planets according to their distance from the sun.
- Recognize that the length and position of a shadow are related to the location of the sun.
- Identify the phases of the moon in the correct sequence.

Atmospheric Cycles

The student will investigate the relationships among atmospheric conditions, weather, and climate.

The following skill would be introduced in Fourth Grade:

- Describe how oceans affect weather and climate.

The following skill would be developing in Fourth Grade:

- Identify and use the proper tools to measure atmospheric conditions (i.e., barometer, thermometer, anemometer, and rain gauge).

The following skills would be assessed in Fourth Grade:

- Identify the cloud type(s) associated with specific weather conditions.
- Choose the appropriate instrument for measuring a given atmospheric condition.
- Identify the basic features of the water cycle.

Earth Features

The student will understand that the earth has many geological features that are constantly changing.

The following skills would be introduced in Fourth Grade:

- Observe and describe how wind and water change the earth's geological features.
- Identify the earth's layers.

The following skills would be assessed in Fourth Grade:

- Recognize specific geological features.
- Determine how wind and water change the earth's geological features.
- Identify the layers of the earth.

Fourth Grade Science Skills Based on Tennessee Frameworks

Earth Resources

The student will investigate the properties, uses, and conservation of earth's resources.

The following skill would be introduced in Fourth Grade:

- Identify the different components of soil.

The following skill would be developing in Fourth Grade:

- Classify earth materials according to their use.

The following skills would be assessed in Fourth Grade:

- Choose the appropriate use for an earth material.
- Identify the basic characteristics of soil.
- Distinguish between renewable and nonrenewable resources.

PHYSICAL SCIENCE STANDARDS

Forces and Motion

The student will investigate the effects of force on the movement of objects.

The following skill would be introduced in Fourth Grade:

- Identify factors that affect the amount of friction.

The following skills would be assessed in Fourth Grade:

- Recognize the effects of gravity.
- Select factors that have the greatest effect on the motion of an object.
- Determine how speed affects distance traveled over time.
- Recognize simple machines (i.e., inclined plane, lever, and pulley)

Structure and Properties of Matter

The student will investigate the characteristic properties of matter.

The following skills would be mastered in Fourth Grade:

- Describe and compare observations made of objects using the naked eye, magnifying glass, and microscope.
- Describe matter by its observable physical properties (i.e., color, shape, texture, weight, volume, and length).

The following skills would be assessed in Fourth Grade:

- Select an object according to its observable physical properties.
- Identify states of matter.
- Determine how various types of matter change state.

Fourth Grade Science Skills Based on Tennessee Frameworks

Interactions of Matter

The student will investigate the interactions of matter.

The following skills would be assessed in Fourth Grade:

- Choose features associated with physical changes.
- Identify characteristics of different types of mixtures.
- Determine methods for separating mixtures.

Energy

The student will investigate energy and its uses.

The following skills would be introduced in Fourth Grade:

- Describe how light behaves when it strikes different surfaces.
- Explain how the volume and pitch of sound are controlled.
- Construct and explain a simple electrical circuit.
- Categorize materials as conductors or insulators.

The following skills would be assessed in Fourth Grade:

- Identify different forms of energy.
- Distinguish between the volume and the pitch of sound.
- Select a simple electrical circuit.
- Recognize that various materials conduct heat.

Fifth Grade Science Skills Based on Tennessee Frameworks

LIFE SCIENCE STANDARDS

Cell Structure and Function

The student will investigate the structure and function of plant and animal cells.

The following skill would be introduced in Fifth Grade:

- Differentiate among cells, tissues, organs, and systems.

The following skills would be developing in Fifth Grade:

- Draw and label the basic structures of plant and animal cells (i.e., cell wall, cell membrane, cytoplasm, nucleus, and chloroplasts).
- Compare and contrast the basic structures of plant and animal cells (i.e., cell membrane, cytoplasm, and nucleus)

The following skills would be assessed in Fifth Grade:

- Identify basic structures of plant and animal cells.
- Compare and contrast basic structures and functions of plant and animal cells.
- Distinguish between single cell and multicellular organisms.

Interactions Between Living Things and Their Environment

The student will investigate how living things interact with one another and with nonliving elements of their environment.

The following skills would be developing in Fifth Grade:

- Classify specific kinds of relationships among plants and animals within an ecosystem.
- Predict the consequences of a human action on the environment.

The following skills would be assessed in Fifth Grade:

- Determine various types of plant and animal relationships within an ecosystem.
- Identify environmental changes caused by living things.
- Predict the effects of human actions and/or natural disasters on the environment.

Food Production and Energy for Life

The student will study the basic parts of plants, investigate how plants produce food, and discover that plants and animals use food to sustain life.

The following skill would be introduced in Fifth Grade:

- Describe how various plant structures are associated with food production (i.e., stems, leaves, and stomata).

The following skills would be assessed in Fifth Grade:

- Match plant structures with their functions.
- Identify photosynthesis as the food manufacturing process in plants.
- Identify what plants need (i.e., water, sunlight, and carbon dioxide) to manufacture food.

Fifth Grade Science Skills Based on Tennessee Frameworks

Heredity and Reproduction

The student will understand the basic principles of inheritance.

The following skills would be introduced in Fifth Grade:

- Explain the function of the flower in plant reproduction.
- Observe specific plants and explain how they grow from and produce seeds (i.e., sunflowers, and beans).
- Compare and contrast how different plants reproduce (i.e., flowers and spores).

The following skills would be developing in Fifth Grade:

- Recognize that new generations of living things arise through reproduction.
- Describe the life cycle of a fast growing plant.

The following skills would be assessed in Fifth Grade:

- Compare the traits of parents and their offspring.
- Infer the importance of reproduction to the survival of a species.
- Recognize the difference between complete and incomplete metamorphosis.

Diversity and Adaptation Among Living Things

The student will understand that living things have characteristics that enable them to survive in their environment.

The following skills would be developing in Fifth Grade:

- Classify plants according to their characteristics.
- Compare how plants are adapted to different environments (e.g., palm tree, fir tree, and cactus).

The following skills would be assessed in Fifth Grade:

- Match the form with the function of structures in living things.
- Compare how organisms adapt to different environments.
- Identify adaptations that enhance the survival of organisms in an environment.
- Determine which organisms are likely to survive in a particular environment.

Biological Change

The student will understand that living things have changed over time.

The following skill would be developing in Fifth Grade:

- Explain how fossils provide information about the past.

The following skills would be assessed in Fifth Grade:

- Compare the causes that led to the extinction of various organisms.
- Analyze how fossils provide information about the past.
- Compare the relative age of fossils in rock layers.

Fifth Grade Science Skills Based on Tennessee Frameworks

EARTH SCIENCE STANDARDS

Earth and Its Place in the Universe

The student will investigate the structure of the universe.

The following skills would be developing in Fifth Grade:

- Explain why the moon appears to change shape.
- Explain the difference between rotation and revolution in the solar system.

The following skill would be mastered in Fifth Grade:

- Demonstrate how moon phases occur.

The following skills would be assessed in Fifth Grade:

- Distinguish among the planets according to specific characteristics.
- Identify and arrange the phases of the moon in the correct sequence.
- Identify the force that pulls objects toward the Earth.
- Differentiate between the Earth's rotation and its revolution.
- Recognize that the appearance of an object in the sky is affected by its size, motion, and distance from the Earth.

Atmospheric Cycles

The student will investigate the relationships among atmospheric conditions, weather, and climate.

The following skills would be introduced in Fifth Grade:

- Analyze data obtained from studies of atmospheric conditions (i.e., air pressure, wind speed, and precipitation).
- Explain the effects of landforms on weather and climate.

The following skill would be developing in Fifth Grade:

- Demonstrate the components and processes of the water cycle.

The following skills would be assessed in Fifth Grade:

- Distinguish between weather and climate.
- Predict weather conditions based on an analysis of atmospheric data.
- Identify how various geographic features affect weather and climate.
- Identify the basic features of the water cycle.

Fifth Grade Science Skills Based on Tennessee Frameworks

Earth Features

The student will understand that the earth has many geological features that are constantly changing.

The following skills would be developing in Fifth Grade:

- Explain how certain forces cause changes in the earth's geological features (i.e., wind, water, and plate tectonics).
- Construct a model that depicts the layers of the earth.

The following skills would be assessed in Fifth Grade:

- Identify forces that cause geological change.
- Recognize that the age of Earth materials can be determined by their position in rock layers.
- Identify characteristics of the earth's layers.

Earth Resources

The student will investigate the properties, uses, and conservation of earth's resources.

The following skills would be developing in Fifth Grade:

- Choose the appropriate use for an earth material (e.g., fuel, monument, and house foundation).
- Describe the process of soil formation.

The following skills would be assessed in Fifth Grade:

- Select a diagram that illustrates the most appropriate use of an earth material.
- Select the soil characteristics that best support plant growth.
- Recognize the impact of society's use of nonrenewable resources over time.

PHYSICAL SCIENCE STANDARDS

Forces and Motion

The student will investigate the effects of force on the movement of objects.

The following skill would be introduced in Fifth Grade:

- Explain the relationship between slope and the amount of force.

The following skills would be developing in Fifth Grade:

- Explain the effect that gravity has on objects found on earth.
- Explain the relationships among mass, force, and distance traveled.
- Explore and explain the use of simple machines.

The following skills would be assessed in Fifth Grade:

- Identify the effect that gravity has on objects found on or near the earth's surface.
- Determine the effect of slope and friction on the speed of an object.
- Match simple machines with their uses.

Fifth Grade Science Skills Based on Tennessee Frameworks

Structure and Properties of Matter

The student will investigate the characteristic properties of matter.

The following skills would be developing in Fifth Grade:

- Describe how evaporation and condensation occur as a result of temperature change.
- Explain why different types of matter freeze, melt, and/or evaporate at different rates.

The following skills would be assessed in Fifth Grade:

- Select a material according to a description of its physical properties.
- Determine the appropriate metric unit of measurement for specific properties of matter.
- Recognize the law of conservation of matter.
- Recognize how heat loss or gain is associated with a change in the state of matter.

Interactions of Matter

The student will investigate the interactions of matter.

The following skill would be introduced in Fifth Grade:

- Identify conditions associated with a chemical change.

The following skills would be assessed in Fifth Grade:

- Distinguish between physical and chemical changes.
- Compare the effect of physical and chemical changes on matter.
- Identify a substance as an acid (i.e., vinegar or lemon juice) or a base (i.e., soap or baking soda).

Energy

The student will investigate energy and its uses.

The following skill would be introduced in Fifth Grade:

- Construct and explain a parallel circuit.

The following skills would be developing in Fifth Grade:

- Demonstrate and explain how energy can change form.
- Observe and describe how lenses affect a beam of light.
- Explore and describe the uses of magnets.

The following skills would be assessed in Fifth Grade:

- Recognize how various materials conduct heat.
- Differentiate between potential and kinetic energy.
- Identify ways that energy is transferred.
- Select the illustration that depicts how lenses refract light.
- Identify the poles of a magnet.
- Identify the description of a magnetic field.
- Distinguish between series and parallel circuits.