

Unit: 1 The Nature of Science

Unit summary-

The primary focus of the unit is an understanding as related to:

- What is Science
- Scientific Reasoning
- Designing a Scientific Investigation
- Conducting a Scientific Investigation
- Analyzing the Results of a Scientific Investigation
- Science and Technology

<p><i>Overarching Understandings:</i></p> <ul style="list-style-type: none"> • To understand Earth Features and Processes that Change Earth and Its Resources • To understand Weather, Climate, and Atmospheric Processes • To understand Composition and Structure of the Universe

Topical Understandings	Essential Questions
<ul style="list-style-type: none"> • A scientist observes the world and ask questions. • The scientist develops a hypothesis to answer the question. • The scientist designs an experiment of filed investigation to test the hypothesis. The investigation tests one variable at a time. • The scientist organizes interprets and draws conclusions from the results. • The scientist will communicate the results and conclusions to others. 	<ul style="list-style-type: none"> • What are the forms of energy? • How does energy change from one type to another? • What are series and parallel circuits? • Where does sound come from? • What are characteristics of sound? •

Knowledge	Skills
<ul style="list-style-type: none">• Patterns• Cycles• Science• Observations• Scientific explanation• Prediction• Scientific fact• Opinion• Model• Terrarium• Systems in nature• Human-made systems	

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Unit summary-

The primary focus of the unit is an understanding as related to:

- What is Science
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- Conducting a Scientific Investigation
- Analyzing the Results of a Scientific Investigation
- Science and Technology

Standards

S4.A.1.1.1 Distinguish between a scientific fact and an opinion, providing clear explanations that connect observations and results (e.g., a scientific fact can be supported by making observations).

S4.A.1.1.2 Identify and describe examples of common technological changes past to present in the community (e.g., energy production, transportation, communications, agriculture, packaging materials) that have either positive or negative impacts on society or the environment.

S4.A.1.3.1 Observe and record change by using time and measurement.

S4.A.1.3.2 Describe relative size, distance, or motion.

S4.A.1.3.3 Observe and describe the change to objects caused by temperature change or light.

S4.A.1.3.4 Explain what happens to a living organism when its food supply, access to water, shelter, or space is changed (e.g., it might die, migrate, change behavior, eat something else).

S4.A.1.3.5 Provide examples, predict, or describe how everyday human activities (e.g., solid waste production, food production and consumption, transportation, water consumption, energy production and use) may change the environment.

S4.A.2.1.1 Generate questions about objects, organisms, or events that can be answered through scientific investigations.

S4.A.2.1.2 Design and describe an investigation (a fair test) to test one variable.

S4.A.2.1.3 Observe a natural phenomenon (e.g., weather changes, length of daylight/night, movement of shadows, animal migrations, growth of plants), record observations, and then make a prediction based on those observations.

S4.A.2.1.4 State a conclusion that is consistent with the information/data.

S4.A.2.2.1 Identify appropriate tools or instruments for specific tasks and describe the information they can provide (e.g., measuring: length - ruler, mass - balance scale, volume - beaker, temperature - thermometer; making observations: hand lens, binoculars, telescope).

S4.A.3.1.1 Categorize systems as either natural or human-made (e.g., ballpoint pens, simple electrical circuits, plant anatomy, water cycle).

S4.A.3.1.2 Explain a relationship between the living and nonliving components in a system (e.g., food web, terrarium).

S4.A.3.1.3 Categorize the parts of an ecosystem as either living or nonliving and describe their roles in the system.

S4.A.3.1.4 Identify the parts of the food and fiber systems as they relate to agricultural products from the source to the consumer.

S4.A.3.2.1 Identify what different models represent (e.g., maps show physical features, directions, distances; globes represent Earth; drawings of watersheds depict terrain; dioramas show ecosystems; concept maps show relationships of ideas).

S4.A.3.2.2 Use models to make observations to explain how systems work (e.g., water cycle, Sun-Earth-Moon system).

S4.A.3.2.3 Use appropriate, simple modeling tools and techniques to describe or illustrate a system (e.g., two cans and string to model a communications system, terrarium to model an ecosystem).

S4.A.3.3.1 Identify and describe observable patterns (e.g., growth patterns in plants, weather, water cycle).

S4.A.3.3.2 Predict future conditions/events based on observable patterns (e.g., day/night, seasons, sunrise/sunset, lunar phases).

Overarching Understandings:

- Reasoning and Analysis
- Processes, Procedures, and Tools of Scientific Investigations
- Systems, Models, and Patterns

Topical Understandings	Essential Questions
<ul style="list-style-type: none">• Identify and explain the application of scientific, environmental, or technological knowledge to possible solutions to problems.• Recognize and describe change in natural or human-made systems and the possible effects of those changes.• Apply skills necessary to conduct an experiment or design a solution to solve a problem.• Identify appropriate instruments for a specific task and describe the information the instrument can provide.• Identify systems and describe relationships among parts of a familiar system (e.g., digestive system, simple machines, water cycle).• Use models to illustrate simple concepts• and compare the models to what they represent• Identify and make observations about patterns that regularly occur and reoccur in nature.•	<ul style="list-style-type: none">• What are the many different patterns in nature?• How to make predictions based on patterns?• What are scientific explanations?• Can scientific explanations be explained, observed, and predicted?• How can you use models, diagrams, drawings, and replicas to represent other things?• What are systems, both natural and human-made?• What are the appropriate tools used to carry out scientific investigations?• What are the tools used to measure distance, weight, volume and temperature?• What are the changes in technology and how have they created positive and negative impacts?
Knowledge	Skills
<ul style="list-style-type: none">• Patterns• Cycles• Science• Observations• Scientific explanation• Prediction• Scientific fact• Opinion• Model• Terrarium• Systems in nature• Human-made systems• Experiments	<ul style="list-style-type: none">• Distinguish between a scientific fact and an opinion, providing clear explanations that connect observations and results (e.g., a scientific fact can be supported by making observations).• Identify and describe examples of common technological changes past to present in the community (e.g., energy production, transportation, communications, agriculture, packaging materials) that have either positive or negative impacts on society or the environment.• Observe and record change by using time and measurement.• Describe relative size, distance, or motion.• Observe and describe the change to objects caused by temperature change or light.• Explain what happens to a living organism when its food supply, access to water, shelter, or space is changed (e.g., it might die, migrate, change behavior, eat something else).• Provide examples, predict, or describe how everyday human activities (e.g., solid waste production, food production and consumption, transportation,

- Variable
- Microscope
- Hand lens
- Binoculars
- Telescope
- Beaker
- Balance
- Mass
- Volume
- Hypothesis
- Technology
- Biotechnology
- Impact of technology

water consumption, energy production and use) may change the environment.

- Generate questions about objects, organisms, or events that can be answered through scientific investigations.
- Design and describe an investigation (a fair test) to test one variable.
- Observe a natural phenomenon (e.g., weather changes, length of daylight/night, movement of shadows, animal migrations, growth of plants), record observations, and then make a prediction based on those observations.
- State a conclusion that is consistent with the information/data.
- Identify appropriate tools or instruments for specific tasks and describe the information they can provide (e.g., measuring: length - ruler, mass - balance scale, volume - beaker, temperature - thermometer; making observations: hand lens, binoculars, telescope).
- Categorize systems as either natural or human-made (e.g., ballpoint pens, simple electrical circuits, plant anatomy, water cycle).
- Explain a relationship between the living and nonliving components in a system (e.g., food web, terrarium).
- Categorize the parts of an ecosystem as either living or nonliving and describe their roles in the system.
- Identify the parts of the food and fiber systems as they relate to agricultural products from the source to the consumer.
- Identify what different models represent (e.g., maps show physical features, directions, distances; globes represent Earth; drawings of watersheds depict terrain; dioramas show ecosystems; concept maps show relationships of ideas).
- Use models to make observations to explain how systems work (e.g., water cycle, Sun-Earth-Moon system).
- Use appropriate, simple modeling tools and techniques to describe or illustrate a system (e.g., two cans and string to model a communications system, terrarium to model an ecosystem).
- Identify and describe observable patterns (e.g., growth patterns in plants, weather, water cycle).
- Predict future conditions/events based on observable patterns (e.g., day/night, seasons, sunrise/sunset, lunar phases).

Unit: 2 Biological Science

Unit summary-

The primary focus of the unit is an understanding as related to:

- Characteristics of Living Things
- Ecosystems

S4A.1.3.4 You should be able to explain what happens to a living organism when its food supply, access to water, shelter, or space is changed (e.g., it might die, migrate, change behavior, eat something else).

S4A.1.3.5 You should be able to provide examples, predict or describe how everyday human activities (e.g., solid waste production, food production and consumption, transportation, water consumption, energy production and use) may change the environment.

S4A.3.1.2 You should be able to explain a relationship between the living and nonliving components in a system (e.g., food web, terrarium)

S4A.3.1.3 You should be able to categorize the parts of an ecosystem as either living or nonliving and describe its roles in the system.

S4A.3.1.4 You should be able to identify the parts of the food and fiber system as they relate to agricultural products from the source to the consumer.

S4A.3.3.1 You should be able to identify and describe observable patterns (e.g., growth patterns in plants, weather, water cycle).

S4B.1.1.1 You should be able to identify the life processes of living things (e.g., growth, digestion, respiration).

S4B.1.1.2 You should be able to compare similar functions of external characteristics of organisms (e.g., anatomical characteristics: appendages, type of covering, body segments).

S4B.1.1.3 You should be able to describe basic needs of plants and animals (e.g., air, water, food).

S4B.1.1.4 You should be able to describe how different parts of a living thing work together to provide what the organism needs (e.g., parts of plants: roots, stems, leaves).

S4B.1.1.5 You should be able to describe the life cycles of different organisms (e.g., moth, grasshopper, frog, seed-producing plant).

S4B.2.1.1 You should be able to identify characteristics for plant and animal survival in different environments (e.g., wetland, tundra, desert, prairie, deep ocean forest).

S4B.2.1.2 You should be able to explain how specific adaptations can help a living organism survive (e.g., protective coloration, mimicry, leaf sizes and shapes, ability to catch or retain water).

S4B.2.2.1 You should be able to identify physical characteristics (e.g., height, hair color, eye color, attached earlobes, ability to roll tongue) that appear in both parents and could be passed on to offspring.

S4B.3.1.1 You should be able to describe the living and nonliving components of a local ecosystem (e.g., lentic and lotic systems, forest, cornfield, grasslands, city park, playground).

S4B.3.1.2 You should be able to describe interactions between living and nonliving components (e.g., plants- water, soil, sunlight, carbon dioxide, temperature; animals- food, water, shelter, oxygen, temperature) of a local ecosystem.

S4B.3.2.1 You should be able to describe what happens to a living thing when its habitat is changed.

S4B.3.2.2 You should be able to describe and predict how changes in the environment (e.g., fire, pollution, floods) can affect systems.

S4B.3.2.3 You should be able to explain and predict how changes in seasons affect plants, animals, or daily human life (e.g., food availability, shelter, mobility).

S4B.3.3.1 You should be able to identify everyday human activities (e.g., driving, washing, eating, manufacturing, farming) within a community that depend on the natural environment.

S4B.3.3.2 You should be able to describe the human dependence of the food and fiber systems from production to consumption (e.g., food,

clothing, shelter, products).

S4B.3.3.3 You should be able to identify biological pests (e.g., fungi- molds, plants- foxtail purple loosestrife, Eurasian milfoil; animals- aphids, ticks, zebra mussels, starlings, mice) that compete with human resources.

S4B.3.3.4 You should be able to identify major land uses in the urban, suburban and rural communities (e.g., housing, commercial, recreation).

S4B.3.3.5 You should be able to describe the effects of pollution (e.g., litter) in the community.

S4D.1.3.3 You should be able to describe or compare lentic systems (i.e. ponds, lakes, and bays) and lotic systems (i.e., streams, creeks and rivers).

Overarching Understandings:

- To understand living things, their characteristics, body parts, and their life cycles.

Topical Understandings	Essential Questions
<ul style="list-style-type: none"> • All living things, or organisms, need air, water, food and shelter. • The different parts of an organism work together to meet its needs. • Plants are able to make their own food using energy from sunlight. • Animals are unable to make their own food. However, animals can move from one place to another. Their senses help to guide their movements. • Adaptations help organisms survive in their environment • Each plant and animal has its own unique life cycle. • Plants and animals inherit many characteristics from their parents. • An ecosystem is made up of all the living and nonliving things in an area. The living things in an ecosystem depend on both the living and nonliving parts of the ecosystem to survive. • Energy and nutrients are cycled through an ecosystem. Plants trap energy from the sun. Animals eat plants and other animals. Similar organisms in an ecosystem compete with each other for resources, such as oxygen, water, food, or space. • Changes in the environment can cause changes among the organisms in an ecosystem. • Human activities affect the natural environment. 	<ul style="list-style-type: none"> • What are the basic needs of living things? • How do different parts of organisms work together to meet the needs? • How do plants make their own food using the sun's energy? • How do the senses of animals guide their movement and assist them in survival? • How do different adaptations help organisms survive in their environments? • What are the unique life cycles of plants and animals? • What are the characteristics that plants and animals inherit from their parents? • What are the nonliving and living things in an ecosystem? • How do living things depend on the nonliving things for survival in an ecosystem? • How are energy and nutrients cycled through an ecosystem? • How do plants trap the sun's energy? • How do similar organisms compete for resources in an ecosystem? • How do changes in an ecosystem affect organisms in an ecosystem? • How do human activities affect the natural ecosystem?

Knowledge	Skills
<ul style="list-style-type: none"> • fe process • Growth • Digestion • Respiration • Reproduction • Photosynthesis • Carbon dioxide • Leaves, stems, roots • Adaptations • Inherited characteristics • Life cycles • Metamorphosis • Ecosystems • Lentic system • Lotic system • Predators/prey • Producers • Consumers • Decomposers • Food chain • Food web 	<ul style="list-style-type: none"> • • Describe how different parts of a living thing work together to provide what the organism needs (e.g., parts of plants: roots, stems, leaves). • Describe the life cycles of different organisms (e.g., moth, grasshopper, frog, seed-producing plant). • Identify characteristics for plant and animal survival in different environments (e.g., wetland, tundra, desert, prairie, deep ocean, forest). • Explain how specific adaptations can help a living organism survive (e.g., protective coloration, mimicry, leaf sizes and shapes, ability to catch or retain water). • Identify physical characteristics (e.g., height, hair color, eye color, attached earlobes, ability to roll tongue) that appear in both parents and could be passed on to offspring. • Describe the living and nonliving components of a local ecosystem (e.g., lentic and lotic systems, forest, cornfield, grasslands, city park, playground). • Describe interactions between living and nonliving components (e.g. plants – water, soil, sunlight, carbon dioxide, temperature; animals – food, water, shelter, oxygen, temperature) of a local ecosystem. • Describe what happens to a living thing when its habitat is changed. • Describe and predict how changes in the environment (e.g., fire, pollution, flood, building dams) can affect systems. • Explain and predict how changes in seasons affect plants, animals, or daily human life (e.g., food availability, shelter, mobility). • Identify everyday human activities (e.g., driving, washing, eating, manufacturing, farming) within a community that depend on the natural environment. • Describe the human dependence on the food and fiber systems from production to consumption (e.g., food, clothing, shelter, products). • Identify biological pests (e.g., fungi – molds, plants – foxtail, purple loosestrife, Eurasian water milfoil; animals – aphides, ticks, zebra mussels, starlings,

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mice) that compete with humans for resources.

- Identify major land uses in the urban, suburban and rural communities (e.g., housing, commercial, recreation).
- Describe the effects of pollution (e.g., litter) in the community.
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Unit: 3 Physical Sciences

Unit summary-

The primary focus of the unit is an understanding as related to:

- The properties of Matter
- Motion, Force, and Energy

S4.C1.1.1 You should be able to use physical properties [e.g., shape, size, volume, color, magnetism, state (i.e., solid and gas), conductivity (i.e., heat)] to describe matter.

S4.C1.1.2 You should be able to categorize or group objects using their physical characteristics.

S4.C2.1.1 You should be able to identify energy forms, energy transfer, and energy examples (e.g., light, heat, electrical).

S4.C2.1.2 You should be able to describe the flow of energy through an object or system (e.g., feeling radiant heat from a light bulb, eating food to get energy, using a battery to light a bulb or run a fan).

S4.C2.1.3 You should be able to recognize or illustrate simple direct current series and parallel circuits composed of batteries, light bulbs (or other common loads), wire, and on/off switches.

S4.C2.1.4 You should be able to identify characteristics of sound (e.g., pitch, loudness, reflection).

S4.C3.1.1 You should be able to describe changes in motion caused by forces (e.g., magnetic, pushes or pulls, gravity, friction).

S4.C3.1.2 You should be able to compare the relative movement of objects or describe types of motion that are evident forces (e.g., bouncing ball, moving in a straight line, back and forth, merry-go-round).

S4.C3.1.3 You should be able to describe the position of an object by locating it relative to another object or a stationary background (e.g., geographic direction, left, up).

Overarching Understandings:

- To understand matter, motion and energy.

Topical Understandings	Essential Questions
<ul style="list-style-type: none">• Each piece of matter can be described by its physical properties.• The physical properties of matter include mass, shape, volume, color, texture, magnetism, state, and conductivity.• Matter has three states: solid, liquid, or gas.• Objects can be classified or grouped based on their physical characteristics.• Position is where an object is located compared to other objects.• Motion can be in a straight line, back and forth, in a circle or in any other direction.	<ul style="list-style-type: none">• What are the observable physical properties of matter?• What is the mass of an object?• What is the volume of matter?• What causes matter to change states?• What is magnetism and what are the properties that matter has to be attracted to it?• How does matter conduct electricity and heat?• What are the three states of matter and how do they change forms?• What is position and how does it relate to other objects.

<ul style="list-style-type: none"> • When force is applied to an object, it changes motion. • Different kinds of force: magnetic force, pushes and pulls, gravity and friction. • Energy is the ability to do work. • Energy has power to change or move matter. • Forms of energy; heat, light, electricity, and sound energy. • Energy also has the ability to change from one form to another. • Electricity flows in circuits – series and parallel. • Sound is created through vibration and has characteristics such as loudness and pitch. 	<ul style="list-style-type: none"> • What forms of motion are there? • What is force? • What are the typical types of force? • What is energy? • What are the forms of energy? • How does energy change from one type to another? • What are series and parallel circuits? • Where does sound come from? • What are characteristics of sound?
<p>Knowledge</p>	<p>Skills</p>
<ul style="list-style-type: none"> • Matter • Physical properties • States of matter • Solid, liquid, gas • Mass, • volume • Energy • Magnetism • Conductivity • Position • Motion • Force • Gravity • Friction • Series circuit • Parallel circuit 	<ul style="list-style-type: none"> • Use physical properties [e.g., mass, shape, size, volume, color, texture, magnetism, state (i.e., solid, liquid, and gas), conductivity (i.e., electrical and heat)] to describe matter. • Categorize/group objects using physical characteristics. • Identify energy forms, energy transfer, and energy examples (e.g., light, heat, electrical). • Describe the flow of energy through an object or system (e.g., feeling radiant heat from a light bulb, eating food to get energy, using a battery to light a bulb or run a fan). • Recognize or illustrate simple direct current series and parallel circuits composed of batteries, light bulbs (or other common loads), wire, and on/off switches. • Identify characteristics of sound (e.g., pitch, loudness, reflection). • Describe changes in motion caused by forces (e.g., magnetic, pushes or pulls, gravity, friction). • Compare the relative movement of objects or describe types of motion that are evident (e.g., bouncing ball, moving in a straight line, back and forth, merry-go-round). • Describe the position of an object by locating it relative to another object or a stationary background (e.g., geographic direction, left, up).

Unit summary-

The primary focus of the unit is an understanding as related to:

- Earth's Landforms and Resources
- Weather and Space

<p>Standard:</p> <p>S4.D.1.1.1 Describe how prominent Earth features in Pennsylvania (e.g., mountains, valleys, caves, sinkholes, lakes, rivers) were formed.</p> <p>S4.D.1.1.2 Identify various Earth structures (e.g., mountains, watersheds, peninsulas, lakes, rivers, valleys) through the use of models.</p> <p>S4.D.1.1.3 Describe the composition of soil as weathered rock and decomposed organic remains.</p> <p>S4.D.2.1.3 Identify appropriate instruments (i.e., thermometer, rain gauge, weather vane, anemometer, and barometer) to study weather and what they measure.</p> <p>S4.D.1.2.1 Identify products and by-products of plants and animals for human use (e.g., food, clothing, building materials, paper products).</p> <p>S4.D.1.2.2 Identify the types and uses of Earth materials for renewable, nonrenewable, and reusable products (e.g., human-made products: concrete, paper, plastics, fabrics).</p> <p>S4.D.1.2.3 Recognize ways that humans benefit from the use of water resources (e.g., agriculture, energy, recreation).</p> <p>S4.D.1.3.1 Describe types of freshwater and saltwater bodies (e.g., lakes, rivers, wetlands, oceans).</p> <p>S4.D.1.3.2 Explain how water goes through phase changes (i.e., evaporation, condensation, freezing, and melting).</p> <p>S4.D.1.3.4 Explain the role and relationship of a watershed or a wetland on water sources (e.g., water storage, groundwater recharge, water filtration, water source, water cycle).</p> <p>S4.D.2.1.1 Identify basic cloud types (i.e., cirrus, cumulus, stratus, and cumulonimbus) and make connections to basic elements of weather (e.g., changes in temperature, precipitation).</p> <p>S4.D.2.1.2 Identify weather patterns from data charts or graphs of the data (e.g., temperature, wind direction, wind speed, cloud types, precipitation).</p> <p>S4.D.2.1.3 Identify appropriate instruments (i.e., thermometer, rain gauge, weather vane, anemometer, and barometer) to study weather and what they measure.</p> <p>S4.D.3.1.1 Describe motions of the Sun - Earth - Moon system.</p> <p>S4.D.3.1.2 Explain how the motion of the Sun - Earth - Moon system relates to time (e.g., days, months, years).</p> <p>S4.D.3.1.3 Describe the causes of seasonal change as they relate to the revolution of Earth and the tilt of Earth's axis.</p>
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<p>Overarching Understandings:</p> <ul style="list-style-type: none">• Earth Features and Processes that Change Earth and Its Resources
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Topical Understandings	Essential Questions
<ul style="list-style-type: none">• Changes in Earth's natural history created different landforms in Pennsylvania. These include mountains, valleys, caves, and sinkholes.	<ul style="list-style-type: none">• How are mountains, valleys, caves, and sinkholes created?• Where is fresh water usually found?• Where is salt water usually found?

<ul style="list-style-type: none"> • Fresh water is usually found in lakes, rivers, streams, creeks, watersheds and wetlands. • Salt water is usually found in oceans and bays. • Water goes through phase changes, causing the water cycle. • Earth contains many valuable resources, including rocks, soil and water. • Humans benefit from using Earth's resources. These resources can be used to make renewable, nonrenewable and reusable products. • Earth is surrounded by a blanket of air, known as the atmosphere. Air takes up space and moves around us a wind. • Air pressure can be measured with an instrument called a barometer. • Weather describes Earth's atmosphere. These conditions include temperature, wind, wind speed and direction, precipitation and barometric pressure. • Different types of clouds usually accompany different kinds of weather. • Earth rotates on its axis. This spinning causes us to have day and night. • Earth is tilted on its axis as it orbits around the sun. The tilting explains why the seasons of the year change from spring and summer to fall and winter. • The view of the moon changes as it orbits Earth each month. 	<ul style="list-style-type: none"> • What is the water cycle? • What are the phases of the water cycle? • What are Earth's resources? • What are the human benefits from Earth's resources? • What are renewable, nonrenewable and reusable products? • What is the atmosphere? • What instruments measures air pressure? • What is weather? • What is used to record and measure information about weather? • What are the four basic types of clouds? • What is the Earth's axis? • What do we get from Earth's rotation? • What do we get from Earth revolving around the sun? • What causes seasons to change? • What are the phases of the moon?
<p>Knowledge</p>	<p>Skills</p>
<ul style="list-style-type: none"> • Glaciers • Water Erosion • Sinkholes • Salt Water • Fresh Water • Pond • Bay • River • Wetland 	<ul style="list-style-type: none"> • Describe how prominent Earth features in Pennsylvania (e.g., mountains, valleys, caves, sinkholes, lakes, rivers) were formed. • Identify various Earth structures (e.g., mountains, watersheds, peninsulas, lakes, rivers, valleys) through the use of models. • Describe the composition of soil as weathered rock and decomposed organic remains. • Identify products and by-products of plants and animals for human use (e.g., food, clothing, building materials, paper products).

- Watershed
- Groundwater
- Atmosphere
- Barometer
- Weather
- Rotate
- Axis
- Orbit
- Moon

- Identify the types and uses of Earth materials for renewable, nonrenewable, and reusable products (e.g., human-made products: concrete, paper, plastics, fabrics).
- Recognize ways that humans benefit from the use of water resources (e.g., agriculture, energy, recreation).
- Describe types of freshwater and saltwater bodies (e.g., lakes, rivers, wetlands, oceans).
- Explain how water goes through phase changes (i.e., evaporation, condensation, freezing, and melting).
- Describe or compare lentic systems (i.e., ponds, lakes, and bays) and lotic systems (i.e., streams, creeks, and rivers).
- Explain the role and relationship of a watershed or a wetland on water sources (e.g., water storage, groundwater recharge, water filtration, water source, water cycle).
- Identify basic cloud types (i.e., cirrus, cumulus, stratus, and cumulonimbus) and make connections to basic elements of weather (e.g., changes in temperature, precipitation).
- Identify weather patterns from data charts or graphs of the data (e.g., temperature, wind direction, wind speed, cloud types, precipitation).
- Identify appropriate instruments (i.e., thermometer, rain gauge, weather vane, anemometer, and barometer) to study weather and what they measure.
- Describe motions of the Sun - Earth - Moon system.
- Explain how the motion of the Sun - Earth - Moon system relates to time (e.g., days, months, years).
- Describe the causes of seasonal change as they relate to the revolution of Earth and the tilt of Earth's axis.