

Pennsylvania Science Standards	ESS Presentations
Kindergarten	
STANDARD 3.1a: BIOLOGICAL SCIENCES: LIVING AND NON-LIVING ORGANISMS	
3.1a.1 COMMON CHARACTERISTICS OF LIFE	
Identify the similarities and differences of living and non-living things	Living Things Animals and Plants
Categorize plants and animals by external characteristics	Animals and Plants
Describe why living things need air, food and water to survive	Living Things Animals and Plants
3.1a.3 LIFE CYCLES	
Identify stages of life cycles for plants and animals	Growing Up
3.1a.5 FORM AND FUNCTION	
Identify the specific functions of living things' parts	Growing Plants Animals and Plants
3.1a.8 UNIFYING THEMES	
Identify that living things and nonliving things are made of parts that perform specific functions	Growing Plants Animals and Plants
3.1a.9 SCIENCE AS INQUIRY	
Use the five senses as tools with which to observe, collect information, classify, describe and solve problems	Senses
Use observation to develop a descriptive vocabulary based on sensory experiences	Senses
STANDARD 3.1b: BIOLOGICAL SCIENCES: GENETICS	
3.1b.1 HEREDITY	
Compare similar characteristics of own family with other families	
3.1b.2 REPRODUCTION	
Identify different ways living things reproduce	Growing Up
3.1b.5 UNIFYING THEMES	
Explore patterns that regularly occur in nature	Growing Up Growing Plants
3.1b.6 SCIENCE AS INQUIRY	
Connect known ideas with new knowledge to build understanding or refine concepts	
STANDARD 3.1c: BIOLOGICAL SCIENCES: EVOLUTION	
3.1c.2 ADAPTATION	

K-2 Product

3-5 Product

Identify characteristics for animal and human survival identified with seasonal changes	
3.1c.3 UNIFYING THEMES	
Identify reasons for observed changes	
3.1c.4 SCIENCE AS INQUIRY	
Form clear explanations based on observations	Animals and Plants Living Things Growing Plants
STANDARD 3.2a: PHYSICAL SCIENCES: CHEMISTRY	
3.2a.1 PROPERTIES OF MATTER	
Classify items by properties of matter	Marvellous Materials Materials Matter
3.2a.2 STRUCTURE OF MATTER	
Identify the three types of matter	Hot and Cold
3.2a.3 MATTER AND ENERGY FLOW	
Describe the way matter can change	Changing Materials Hot and Cold
3.2a.4 REACTIONS	
Describe what happens when two or more substances are combined	
3.2a.5 UNIFYING THEMES	
Examine and explain change through simple observation and recording	Changing Materials Hot and Cold
STANDARD 3.2b: PHYSICAL SCIENCES: PHYSICS	
3.2b.1 FORCE AND MOTION OF PARTICLES AND RIGID BODIES	
Apply knowledge of motion to new toys and objects	Feel the Force
3.2b.2 ENERGY STORAGE AND TRANSFORMATIONS: CONSERVATION LAWS	
Explore basic energy types and sources	
3.2b.4 ELECTRICAL AND MAGNETIC ENERGY	
Use and explain the concepts of magnetic force	Mysterious Magnets
3.2b.5 NATURE OF WAVES AND SOUND	
Demonstrate and describe variations of sound	Senses
3.2b.6 UNIFYING THEMES	
Identify the relationship between action and its reaction using an "if-then" statement	Feel the Force Senses
3.2 b.7 SCIENCE AS INQUIRY	

Create scientific investigations	Growing Plants
STANDARD 3.3a EARTH AND SPACE SCIENCES: EARTH STRUCTURE, PROCESSES AND CYCLES	
3.3a.1 EARTH FEATURES AND THE PROCESSES THAT CHANGE IT	
Identify and distinguish between earth forms	
3.3a.2 EARTH'S RESOURCES AND MATERIALS	
Distinguish between three types of earth: rock, soil and sand	Rocks Soil
3.3a.4 WATER	
Identify examples of water in solid and liquid states	Hot and Cold
Identify sources of water	
3.3a.5 WEATHER AND CLIMATE	
Identify seasonal changes in the environment	Weather
Distinguish between different types of precipitation	Weather
Collect, describe and record information about weather	Weather
Read a thermometer to identify the temperature	Weather
3.3a.6 UNIFYING THEMES	
Examine and explain change through simple observation and recording	Materials Matter Changing Materials Hot and Cold Weather Growing Plants Feel the Force Senses
STANDARD 3.3b: EARTH AND SPACE SCIENCES: ORIGIN AND EVOLUTION OF THE UNIVERSE	
3.3b.1 COMPOSITION AND STRUCTURE	
Identify features of space	Weather
STANDARD 4.1: ENVIRONMENT AND ECOLOGY	
4.1 WATERSHEDS AND WETLANDS	
Identify bodies of water in the world	
Identify types of moving water	
4.2 RENEWABLE AND NON- RENEWABLE RESOURCES	
Identify products that come from nature	Changing Materials
Identify ways to conserve resources	
4.3 ENVIRONMENTAL HEALTH	

Describe the effects litter and pollution have on the environment	Pollution
4.4 AGRICULTURE AND SOCIETY	
Explain that agriculture (farming) provides humans with basic needs	
4.6 ECOSYSTEMS AND THEIR INTERACTIONS	
Record and describe events that occur in a cycle	Growing Up Growing Plants
4.7 THREATENED, ENDANGERED AND EXTINCT SPECIES	
Identify why some animals and plants are extinct	
4.8 HUMANS AND THE ENVIRONMENT	
Explain that humans live in shelters dependent on the environment	
4.9 ENVIRONMENTAL LAWS AND REGULATIONS	
State rules that protect the environment	
GRADE ONE	
STANDARD 3.1: UNIFYING THEMES	
A. Know that natural and human-made objects are made up of parts	
Identify and describe what parts make up a system	
Identify systems that are natural and human-made	
B. Know models as useful simplifications of objects or processes	
Identify different types of models	
Apply appropriate simple modeling tools and techniques	
C. Illustrate patterns that regularly occur and reoccur in nature	
Identify observable patterns that occur in nature	Growing Up Growing Plants
Use knowledge of natural patterns to make predictions	Hot and Cold Living Things Growing Plants Shadows Mysterious Magnets
D. Know that scale is an important attribute of natural and human-made objects, events and phenomena	
E. Recognize change in natural and physical systems	
Examine and explain change through recording observations	Hot and Cold Springs Growing Plants Shadows

Describe the change to objects caused by heat, cold or light	Hot and Cold Senses Growing Plants
STANDARD 3.2: INQUIRY AND DESIGN	
A. Identify and use the nature of scientific and technological knowledge	
Distinguish between a scientific fact and a belief	
B. Describe objects in the world using the five senses	
Recognize observational descriptors from each of the five senses	Senses
Use observation to develop a descriptive vocabulary	Senses Changing Materials Living Things Light and Dark Marvellous Materials Materials Matter
C. Recognize and use the elements of scientific inquiry to solve problems	
Generate questions about objects, organisms and/or events that can be answered through investigations	Mysterious Magnets Hot and Cold Living Things Growing Plants Shadows Soil
Conduct an experiment	Growing Plants Soil Springs Shadows
State a conclusion that is consistent with information	Materials Matter Hot and Cold Senses Springs Growing Plants Soil Rocks
D. Recognize and use the technological design process to solve problems	
Recognize and explain basic problems	
Identifying possible solutions and their course of action	
Try a solution	

Describing the solution, identifying its impacts and modifying if necessary	
Showing the steps taken and results	
STANDARD 3.3: BIOLOGICAL SCIENCES	
A. Know the similarities and differences of living things	
Identify life processes of living things	Growing Up
Know that some organisms have similar external characteristics and that similarities and differences are related to environmental habitat	Living Things Animals and Plants Habitats
Describe basic needs of plants and animals	Living Things
B. Know that living things are made up of parts that have specific functions	
Know that different parts of a living thing work together to make the organism function	
C. Know that characteristics are inherited and, thus, offspring closely resemble their parents	
Identify physical characteristics that appear in both parents and offspring	Growing Up
D. Identify changes in living things over time (See Environment and Ecology Standard 4.6.C)	Growing Up Growing Plants
STANDARD 3.4: PHYSICAL SCIENCE, CHEMISTRY AND PHYSICS	
A. Recognize basic concepts about the structure and properties of matter	
Describe properties of matter	Marvellous Materials Materials Matter Changing Materials Mysterious Magnets
Know that combining two or more substances can make new materials with different properties	
Know different material characteristics	Marvellous Materials Materials Matter Changing Materials Mysterious Magnets
B. Know basic energy types and sources	
Identify energy forms and examples	
C. Observe and describe different types of force and motion	
Recognize forces that attract and repel other objects and demonstrate them	Magnets
Describe various types of motions	Feel the Force
STANDARD 3.5: EARTH SCIENCES	
A. Know basic landforms and earth history	

Identify various earth structures through the use of models	
Identify the composition of soil as weathered rock and decomposed organic remains	Soil
B. Know types and uses of earth materials	
Identify uses of various earth materials (e.g., buildings, highways, fuels, growing plants).	
C. Know basic weather elements	
Identify cloud types	
Explain how the different seasons affect plants, animals, food availability and daily human life	Weather
D. Recognize the earth's different water resources	
Identify and describe types of fresh and salt-water bodies	
Identify examples of water in the form of solid, liquid and gas on or near the surface of the earth	Hot and Cold
Explain and illustrate evaporation and condensation	Changing State
STANDARD 4.1: WATERSHEDS AND WETLANDS	
A. Identify various types of water environments	
Identify the lotic system (e.g., creeks, rivers, streams)	
Identify the lentic system (e.g., ponds, lakes, oceans)	
B. Explain differences between moving and still water	
Identify types of precipitation	Weather
Explain why some water moves and others do not	
C. Identify living things found in water environments	
Identify fish, insects and amphibians that are found in fresh water	
Identify plants found in fresh water	
D. Identify a wetland and the plants and animals found there	
Identify different kinds of wetlands	
Identify plants and animals found in wetlands	
Explain wetlands as habitats for plants and animals	
STANDARD 4.2: RENEWABLE AND NONRENEWABLE RESOURCES	
A. Identify needs of people	
Identify plants, animals and water as natural resources	
Identify how the environment provides for the needs of people	
B. Identify products derived from natural resources	
Identify products made from trees	Changing Materials Marvellous Materials

C. Know that some natural resources have limited life spans	
Identify renewable and nonrenewable resources used in the local community	
Identify various means of conserving natural resources	Pollution
D. Identify by-products and their use of natural resources	
Identify those items that can be recycled and those that cannot	Pollution
Identify use of reusable products	
STANDARD 4.3: ENVIRONMENTAL HEALTH	
A. Know that plants, animals and humans are dependent on air and water	
Know that all living things need air and water to survive	Living Things
Describe potentially dangerous pest controls used in the home	
Identify actions that can prevent or reduce waste pollution	Pollution
B. Identify how human actions affect environmental health	
Identify litter and its effect on the environment	Pollution Habitats
C. Understand that the elements of natural systems are interdependent	
Identify some of the organisms that live together in an ecosystem	Living Things Habitats
STANDARD 4.4: AGRICULTURE AND SOCIETY	
A. Know the importance of agriculture to humans	
Identify people's basic needs	
Know how people depend on agriculture	
B. Identify the role of the sciences in Pennsylvania agriculture	
Identify common animals found on Pennsylvania farms	
Identify common plants found on Pennsylvania farms	
Identify the parts of important agricultural related plants (i.e., corn, soybeans, barley)	
Identify a fiber product from Pennsylvania farms	
Identify what plants and animals need to grow	
STANDARD 4.5: INTEGRATED PEST MANAGEMENT	
A. Know types of Pests	
Identify and categorize pests	
B. Explain Pest control	
Know reasons why people control pests	
Identify chemical labels (e.g., caution, poison, warning)	
C. Understand society's need for integrated pest management	
Identify integrated pest management practices in the home	

Identify integrated pest management practices outside the home	
STANDARD 4.6: ECOSYSTEMS AND THEIR INTERACTIONS	
A. Understand that living things are dependent on non-living things in the environment for survival	
Identify and categorize living and non-living things	Living Things
Describe the basic needs of an organism	Living Things
Identify basic needs of a plant and an animal and explain how their needs are met	Living Things Growing Plants
Identify plants and animals with their habitat and food sources	Growing Plants Habitats
Understand the components of a food chain	Food Chains
Identify a local ecosystem and its living and non-living components	Living Things
Identify a simple ecosystem and its living and non-living components	Living Things
Identify common soil textures	Soil
Identify animals that live underground.	
STANDARD 4.7: THREATENED, ENDANGERED AND EXTINCT SPECIES	
A. Identify differences in living things	
Identify characteristics that living things inherit from their parents	
Explain why each of the four elements in a habitat is essential for survival	
Identify local plants or animals and describe their habitat	Living Things
B. Define and understand extinction	
Identify plants and animals that are extinct	
STANDARD 4.8: HUMANS AND THE ENVIRONMENT	
A. Identify the biological requirements of humans	
Identify several ways that people use natural resources	Changing Materials Marvellous Materials
B. Explain how human activities may change the environment	
Identify everyday human activities and how they affect the environment	
C. Know the importance of natural resources in daily life	
Identify items used in daily life that come from natural resources	Changing Materials Marvellous Materials
Identify ways to conserve our natural resources	Pollution
STANDARD 4.9: ENVIRONMENTAL LAWS AND REGULATIONS	
A. Know that there are laws and regulations for the environment	
Explain how the recycling law impacts the school and home	
GRADE TWO	

STANDARD 3.1: UNIFYING THEMES	
A. Know that natural and human-made objects are made up of parts	
Identify and describe what parts make up a system	
Identify systems that are natural and human-made	
B. Know models as useful simplifications of objects or processes	
Identify different types of models	
Apply appropriate simple modeling tools and techniques	
C. Illustrate patterns that regularly occur and reoccur in nature	
Identify observable patterns that occur in nature	Growing Up Growing Plants Weather
Use knowledge of natural patterns to make predictions	Hot and Cold Living Things Growing Plants Shadows Mysterious Magnets
D. Know that scale is an important attribute of natural and human-made objects, events and phenomena	
E. Recognize change in natural and physical systems	
Examine and explain change through recording observations	Hot and Cold Springs Growing Plants Shadows
Describe the change to objects caused by heat, cold or light	Hot and Cold Senses Growing Plants Living Things
STANDARD 3.2: INQUIRY AND DESIGN	
A. Identify and use the nature of scientific and technological knowledge	
Distinguish between a scientific fact and a belief	
B. Describe objects in the world using the five senses	
Recognize observational descriptors from each of the five senses	Senses

Use observation to develop a descriptive vocabulary	Senses Changing Materials Living Things Light and Dark Marvellous Materials Materials Matter
C. Recognize and use the elements of scientific inquiry to solve problems	
Generate questions about objects, organisms and/or events that can be answered through investigations	Mysterious Magnets Hot and Cold Living Things Growing Plants Shadows Soil
Conduct an experiment	Growing Plants Soil Springs Shadows
State a conclusion that is consistent with information	Materials Matter Hot and Cold Senses Springs Growing Plants Soil Rocks
D. Recognize and use the technological design process to solve problems	
Recognize and explain basic problems	
Identifying possible solutions and their course of action	
Try a solution	
Describing the solution, identifying its impacts and modifying if necessary	
Showing the steps taken and results	
STANDARD 3.3: BIOLOGICAL SCIENCES	
A. Know the similarities and differences of living things	
Identify life processes of living things	Growing Up
Know that some organisms have similar external characteristics and that similarities and differences are related to environmental habitat	Living Things Animals and Plants Habitats

Describe basic needs of plants and animals	Living Things
B. Know that living things are made up of parts that have specific functions	
Know that different parts of a living thing work together to make the organism function	
C. Know that characteristics are inherited and, thus, offspring closely resemble their parents	
Identify physical characteristics that appear in both parents and offspring	Growing Up
D. Identify changes in living things over time (See Environment and Ecology Standard 4.6.C)	Growing Up Growing Plants
STANDARD 3.4: PHYSICAL SCIENCE, CHEMISTRY AND PHYSICS	
A. Recognize basic concepts about the structure and properties of matter	
Describe properties of matter	Marvellous Materials Materials Matter Changing Materials Mysterious Magnets
Know that combining two or more substances can make new materials with different properties	Separating Mixtures
Know different material characteristics	Marvellous Materials Materials Matter Changing Materials Mysterious Magnets
B. Know basic energy types and sources	
Identify energy forms and examples	Energy Forms
C. Observe and describe different types of force and motion	
Recognize forces that attract and repel other objects and demonstrate them	Magnets
Describe various types of motions	Feel the Force
STANDARD 3.5: EARTH SCIENCES	
A. Know basic landforms and earth history	
Identify various earth structures through the use of models	
Identify the composition of soil as weathered rock and decomposed organic remains	Soil
B. Know types and uses of earth materials	
Identify uses of various earth materials (e.g., buildings, highways, fuels, growing plants).	
C. Know basic weather elements	
Identify cloud types	

Explain how the different seasons affect plants, animals, food availability and daily human life	
D. Recognize the earth's different water resources	
Identify and describe types of fresh and salt-water bodies	
Identify examples of water in the form of solid, liquid and gas on or near the surface of the earth	Hot and Cold
Explain and illustrate evaporation and condensation	Changing State
STANDARD 4.1: WATERSHEDS AND WETLANDS	
A. Identify various types of water environments	
Identify the lotic system (e.g., creeks, rivers, streams)	
Identify the lentic system (e.g., ponds, lakes, oceans)	
B. Explain differences between moving and still water	
Identify types of precipitation	Weather
Explain why some water moves and others do not	
C. Identify living things found in water environments	
Identify fish, insects and amphibians that are found in fresh water	
Identify plants found in fresh water	
D. Identify a wetland and the plants and animals found there	
Identify different kinds of wetlands	
Identify plants and animals found in wetlands	
Explain wetlands as habitats for plants and animals	
STANDARD 4.2: RENEWABLE AND NONRENEWABLE RESOURCES	
A. Identify needs of people	
Identify plants, animals and water as natural resources	
Identify how the environment provides for the needs of people	
B. Identify products derived from natural resources	
Identify products made from trees	Changing Materials Marvellous Materials
C. Know that some natural resources have limited life spans	
Identify renewable and nonrenewable resources used in the local community	
Identify various means of conserving natural resources	Pollution
D. Identify by-products and their use of natural resources	
Identify those items that can be recycled and those that cannot	Pollution
Identify use of reusable products	Pollution
STANDARD 4.3: ENVIRONMENTAL HEALTH	
A. Know that plants, animals and humans are dependent on air and water	

Know that all living things need air and water to survive	Living Things
Describe potentially dangerous pest controls used in the home	
Identify actions that can prevent or reduce waste pollution	Pollution
B. Identify how human actions affect environmental health	
Identify litter and its effect on the environment	Pollution Habitats
C. Understand that the elements of natural systems are interdependent	
Identify some of the organisms that live together in an ecosystem	Living Things Habitats
STANDARD 4.4: AGRICULTURE AND SOCIETY	
A. Know the importance of agriculture to humans	
Identify people's basic needs	
Know how people depend on agriculture	
B. Identify the role of the sciences in Pennsylvania agriculture	
Identify common animals found on Pennsylvania farms	
Identify common plants found on Pennsylvania farms	
Identify the parts of important agricultural related plants (i.e., corn, soybeans, barley)	
Identify a fiber product from Pennsylvania farms	
Identify what plants and animals need to grow	Growing Plants Living Things
STANDARD 4.5: INTEGRATED PEST MANAGEMENT	
A. Know types of Pests	
Identify and categorize pests	
B. Explain Pest control	
Know reasons why people control pests	
Identify chemical labels (e.g., caution, poison, warning)	
C. Understand society's need for integrated pest management	
Identify integrated pest management practices in the home	
Identify integrates pest management practices outside the home	
STANDARD 4.6: ECOSYSTEMS AND THEIR INTERACTIONS	
A. Understand that living things are dependent on non-living things in the environment for survival	
Identify and categorize living and non-living things	Living Things Animals and Plants

Describe the basic needs of an organism	Living Things Growing Plants
Identify basic needs of a plant and an animal and explain how their needs are met	Living Things Growing Plants
Identify plants and animals with their habitat and food sources	Living Things Habitats
Understand the components of a food chain	Food Chains
Identify a local ecosystem and its living and non-living components	Living Things Habitats
Identify a simple ecosystem and its living and non-living components	Living Things Habitats
Identify common soil textures	Soil
Identify animals that live underground.	
STANDARD 4.7: THREATENED, ENDANGERED AND EXTINCT SPECIES	
A. Identify differences in living things	
Identify characteristics that living things inherit from their parents	
Explain why each of the four elements in a habitat is essential for survival	
Identify local plants or animals and describe their habitat	Living Things
B. Define and understand extinction	
Identify plants and animals that are extinct	Fossils
STANDARD 4.8: HUMANS AND THE ENVIRONMENT	
A. Identify the biological requirements of humans	
Identify several ways that people use natural resources	
B. Explain how human activities may change the environment	
Identify everyday human activities and how they affect the environment	
C. Know the importance of natural resources in daily life	
Identify items used in daily life that come from natural resources	Changing Materials
Identify ways to conserve our natural resources	Pollution
STANDARD 4.9: ENVIRONMENTAL LAWS AND REGULATIONS	
A. Know that there are laws and regulations for the environment	
Explain how the recycling law impacts the school and home	
GRADE FOUR	
3.1.4 UNIFYING THEMES	
A. Know that natural and human-made objects are made up of parts	

Identify and describe what parts make up a system.	Habitats Food Chains Circuits Water Cycle Body Systems Plant Reproduction
Identify systems that are natural and human-made (e.g., ball point pen, simple electrical circuits, plant anatomy).	Springs Food Chains Circuits Water Cycle Body Systems Plant Reproduction
Describe the purpose of analyzing systems.	
Know that technologies include physical technology systems (e.g., construction, manufacturing, transportation), informational systems and biochemical-related systems	
B. Know models as useful simplifications of objects or processes	
Identify different types of models.	
Identify and apply models as tools for prediction and insight.	Separating Mixtures Friction Circuits Plant Reproduction Sounds Forces
Apply appropriate simple modeling tools and techniques.	Friction Forces
Identify theories that serve as models (e.g., molecules).	
C. Illustrate patterns that regularly occur and reoccur in nature.	
Identify observable patterns (e.g., growth patterns in plants, crystal shapes in minerals, climate, structural patterns in bird feathers).	Predicting the Weather Plant Reproduction Days and Seasons The Moon Water Cycle

Use knowledge of natural patterns to predict next occurrences (e.g., seasons, leaf patterns, lunar phases).	Predicting the Weather Plant Reproduction Days and Seasons The Moon Water Cycle
D. Know that scale is an important attribute of natural and human made objects, events and phenomena.	
Identify the use of scale as it relates to the measurement of distance, volume and mass.	
Describe scale as a ratio (e.g., map scales)	
Explain the importance of scale in producing models and apply it to a model.	
E. Recognize change in natural and physical systems	
Recognize change as fundamental to science and technology concepts.	
Examine and explain change by using time and measurement.	
Describe relative motion.	Forces Gravity
Describe the change to objects caused by heat, cold, light or chemicals.	Changing State Reflection and Refraction Separating Mixtures Erosion, Transportation and Deposition
3.2.4 INQUIRY AND DESIGN	
A. Identify and use the nature of scientific and technological knowledge.	
Distinguish between a scientific fact and a belief.	
Provide clear explanations that account for observations and results.	Insulators and Conductors Separating Mixtures Friction Plant Reproduction Days and Seasons

Relate how new information can change existing perceptions.	<ul style="list-style-type: none"> Insulators and Conductors Separating Mixtures Friction Plant Reproduction Gravity Days and Seasons Circuits Sounds Forces
B. Describe objects in the world using the five senses.	
Recognize observational descriptors from each of the five senses (e.g., see-blue, feel-rough).	<ul style="list-style-type: none"> Reflection and Refraction Sounds
Use observations to develop a descriptive vocabulary.	<ul style="list-style-type: none"> Reflection and Refraction Sounds
C. Recognize and use the elements of scientific inquiry to solve problems.	
Generate questions about objects, organisms and/or events that can be answered through scientific investigations.	<ul style="list-style-type: none"> Insulators and Conductors Separating Mixtures Friction Plant Reproduction Gravity Days and Seasons Circuits Sounds Forces
Design an investigation.	<ul style="list-style-type: none"> Forces Soil
Conduct an experiment.	<ul style="list-style-type: none"> Forces Gravity Plant Reproduction Friction Separating Mixtures Circuits

State a conclusion that is consistent with the information.	Insulators and Conductors Separating Mixtures Friction Plant Reproduction Days and Seasons Forces
D. Recognize and use the technological design process to solve problems.	
Recognize and explain basic problems.	
Identify possible solutions and their course of action.	
Try a solution.	
Describe the solution, identify its impacts and modify if necessary.	
Show the steps taken and the results.	
3.3.4 BIOLOGICAL SCIENCES	
A. Know the similarities and differences of living things.	
Identify life processes of living things (e.g., growth, digestion, react to environment).	Body Systems Adaptations
Know that some organisms have similar external characteristics (e.g., anatomical characteristics; appendages, type of covering, body segments) and that similarities and differences are related to environmental habitat.	Habitats
Describe basic needs of plants and animals.	Plant Reproduction Food Chains Habitats Adaptations Interdependence
B. Know that living things are made up of parts that have specific functions.	
Identify examples of unicellular and multicellular organisms.	
Determine how different parts of a living thing work together to make the organism function.	Body Systems
C. Know that characteristics are inherited and, thus, offspring closely resemble their parents.	
Identify characteristics for animal and plant survival in different climates.	Adaptations
Identify physical characteristics that appear in both parents and offspring and differ between families, strains or species.	Adaptations
D. Identify changes in living things over time.	
Compare extinct life forms with living organisms.	Fossils

3.4.4 PHYSICAL SCIENCE, CHEMISTRY AND PHYSICS	
A. Recognize basic concepts about the structure and properties of matter.	
Describe properties of matter (e.g., hardness, reactions to simple chemical tests).	Rocks Insulators and Conductors Changing State Separating Mixtures
Know that combining two or more substances can make new materials with different properties.	Separating Mixtures
Know different material characteristics (e.g., texture, state of matter, solubility).	Changing State Separating Mixtures
B. Know basic energy types, sources and conversions.	
Identify energy forms and examples (e.g., sunlight, heat, stored, motion).	Energy Forms
Know the concept of the flow of energy by measuring flow through an object or system.	Energy Forms
Describe static electricity in terms of attraction, repulsion and sparks.	
Apply knowledge of the basic electrical circuits to design and construction simple direct current circuits.	Circuits
Classify materials as conductors and nonconductors.	Insulators and Conductors
Know and demonstrate the basic properties of heat by producing it in a variety of ways.	
Know the characteristics of light (e.g., reflection, refraction, absorption) and use them to produce heat, color or a virtual image.	Reflection and Refraction
C. Observe and describe different types of force and motion.	
Identify characteristics of sound (pitch, loudness and echoes)	Sounds
Recognize forces that attract or repel other objects and demonstrate them.	Gravity Forces Magnets
Describe various types of motions.	Forces
Compare the relative movement of objects and describe types of motion that are evident.	
Describe the position of an object by locating it relative to another object or the background (e.g., geographic direction, left, up).	
D. Describe the composition and structure of the universe and the earth's place in it.	
Recognize earth's place in the solar system.	Our Solar System
Explain and illustrate the causes of seasonal changes.	Days and Seasons

Identify planets in our solar system and their general characteristics.	Our Solar System
Describe the solar system motions and use them to explain time (e.g., days, seasons), major lunar phases and eclipses.	Our Solar System Days and Seasons The Moon
3.5.4 EARTH SCIENCES	
A. Know basic landforms and earth history.	
Describe earth processes (e.g., rusting, weathering, erosion) that have affected selected physical features in students' neighborhoods.	Erosion, Transportation and Deposition
Identify various earth structures (e.g., mountains, faults, drainage basins) through the use of models.	
Identify the composition of soil as weathered rock and decomposed organic remains.	Soil
Describe fossils and the type of environment they lived in (e.g., tropical, aquatic, desert).	Fossils
B. Know types and uses of earth materials.	
Identify uses of various earth materials (e.g., buildings, highways, fuels, growing plants).	Rocks
Identify and sort earth materials according to a classification key (e.g., soil/rock type).	Rocks Soil
C. Know basic weather elements.	
Identify cloud types.	Predicting the Weather
Identify weather patterns from data charts (including temperature, wind direction and speed, precipitation) and graphs of the data.	Predicting the Weather
Explain how the different seasons affect plants, animals, food availability and daily human life.	Adaptations
D. Recognize the earth's different water resources.	
Know that approximately three-fourths of the earth is covered by water.	Water Cycle
Identify and describe types of fresh and salt-water bodies.	
Identify examples of water in the form of solid, liquid and gas on or near the surface of the earth.	Changing State Water Cycle
Explain and illustrate evaporation and condensation.	Changing State Water Cycle
Recognize other resources available from water (e.g., energy, transportation, minerals, food).	