



Northern York County School District

Curriculum Overview

Course: Kindergarten Science	
Grade Level: K	
Development/Revision Date:	Length of Time: 90 Days
Course Description: Kindergarten students explore the natural world through observation, inquiry, and hands-on investigation. They begin to think like scientists—asking questions, recognizing patterns, and designing simple solutions to problems in their environment.	
Life Science Students observe and describe patterns in what plants, animals, and humans need to survive. They learn that living things depend on their surroundings to meet their needs and may change their environment to do so. Students also begin to categorize how people use and share natural resources to help meet those needs.	
Physical Science Students explore motion by experimenting with pushes and pulls to observe how strength and direction can change how objects move. They collect and analyze simple data to determine if their design solutions work as intended. Students also investigate the effects of sunlight on Earth's surface and use tools and materials to design structures that reduce heat from the sun. These activities help students see how people can create solutions to respond to environmental conditions and value the physical characteristics of the places around them.	
Earth and Space Science Students observe and record local weather conditions over time, identifying seasonal patterns. They use models to represent how plants, animals, and humans rely on their environments and explore how living things can change those environments to meet their needs. Students learn about weather forecasting as a tool to help people prepare for and respond to severe weather. Finally, they communicate ideas for how to reduce human impact on land, water, air, and living things—building an early sense of environmental responsibility and stewardship.	
Throughout the year, students engage in hands-on activities that promote curiosity, problem-solving, and care for the world around them. Kindergarten science builds a foundation for scientific thinking and environmental awareness that grows through each grade level.	

Course Objectives:**Life Science**

- Observe and describe patterns in what plants, animals, and humans need to survive.
- Identify ways living things depend on their environment to meet their needs.
- Explain how plants, animals, and humans can change their surroundings to meet their needs.
- Categorize how people harvest, share, and use natural resources to support living things.

Physical Science

- Plan and conduct simple investigations to explore how pushes and pulls affect the motion of objects.
- Analyze whether design solutions work as intended to change an object's speed or direction.
- Observe the effect of sunlight on Earth's surface.
- Design and build a structure that reduces the warming effect of sunlight.
- Explain how people use tools and materials to respond to environmental conditions and value the physical characteristics of different places.

Earth and Space Science

- Observe and share information about local weather conditions to describe patterns over time.
- Use models to represent how living things depend on their environment for survival.
- Explain how plants, animals, and humans can change the environment to meet their needs.
- Ask questions to learn about weather forecasting and its purpose in preparing for severe weather.
- Communicate simple solutions that can reduce human impact on land, water, air, and living things.
- Explain how places differ in their physical characteristics, meaning, and importance.

Related Standards:**Pennsylvania STEELS State Standards****Life Science**

- **3.1.K.A** Use observations to describe patterns of what plants and animals (including humans) need to survive.

Physical Science

- **3.2.K.A** Analyze data to determine if a design solution works as intended to change the speed or direction of an object with a push or a pull.
- **3.2.K.B** Plan and conduct an investigation to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object.
- **3.2.K.C** Make observations to determine the effect of sunlight on Earth's surface.
- **3.2.K.D** Use tools and materials to design and build a structure that will reduce the warming effect of sunlight on an area.

Earth and Space Science

- **3.3.K.A** Use and share observations of local weather conditions to describe patterns over time.
- **3.3.K.B** Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs.
- **3.3.K.C** Use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live.
- **3.3.K.D** Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather.

- **3.3.K.E** Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment.

Environmental Literacy and Sustainability

- **3.4.K-2.A** Categorize ways people harvest, redistribute, and use natural resources.
- **3.4.K-2.C** Explain ways that places differ in their physical characteristics, their meaning, and their value and/or importance.

Units:

- Trees and Weather
- Materials and Forces
- Animals Two by Two

Concepts:

- **ORGANIZATION FOR MATTER AND ENERGY FLOW IN ORGANISMS** – Living things have needs. Animals need food, and plants need water and sunlight to grow and survive.
- **FORCES AND MOTION / TYPES OF INTERACTIONS / RELATIONSHIP BETWEEN ENERGY AND FORCES** – Pushes and pulls can make things start, stop, or change direction, and stronger pushes or pulls make bigger changes.
- **CONSERVATION OF ENERGY AND ENERGY TRANSFER** – Sunlight gives energy that warms the Earth and affects living things.
- **DEFINING ENGINEERING PROBLEMS / DEVELOPING POSSIBLE SOLUTIONS** – People solve problems by asking questions, thinking of ideas, testing them, and using drawings or models to show solutions.
- **WEATHER AND CLIMATE / NATURAL HAZARDS** – Weather includes sunlight, rain, snow, wind, and temperature, and we can notice patterns and prepare for severe events.
- **NATURAL RESOURCES** – Living things need water, air, and resources from the land to survive, and humans use these resources in many ways.
- **BIODIVERSITY AND HUMANS** – There are many different kinds of living things, and they live in different places on land and in water.
- **HUMAN IMPACTS ON EARTH SYSTEMS** – People's actions can change the environment, but we can make choices to care for the land, water, air, and living things.

Competencies:

- Observe patterns in the natural and human-designed world to describe phenomena and gather evidence.
- Design tests to investigate causes and support or refute ideas.
- Analyze events to identify causes that generate observable patterns.
- Identify parts of systems and how they work together in natural and designed contexts.
- Examine stability and change to determine whether things change slowly or rapidly.

Learning Activities:

Performance Tasks:

<ul style="list-style-type: none"> • Ask questions and defining problems • Plan and carry out investigations • Engage in argument from evidence • Develop and using models • Analyze and interpret data • Construct explanations and design solutions • Obtain, evaluate, and communicate information • Use math and computational thinking 	<ul style="list-style-type: none"> • Formative lesson assessments such as student discussion, questioning, peer collaborative activities, reflections, teacher observations • Summative unit assessments and projects
Other Assessment Measures:	
Textbook/Primary Resource: <ul style="list-style-type: none"> • Lawrence Hall of Science. (2024). <i>FOSS Pathways: Trees and Weather</i>. School Specialty, LLC. • Lawrence Hall of Science. (2024). <i>FOSS Pathways: Materials and Forces</i>. School Specialty, LLC. • Lawrence Hall of Science. (2024). <i>FOSS Pathways: Animals Two by Two</i>. School Specialty, LLC. 	
Supplemental Resource Materials: Discovery Ed, BrainPop, Seesaw, FOSS Thinklink, Youtube Science Videos	