



Northern York County School District

Curriculum Overview

Course: 2nd Grade Science

Grade Level: 2

Development/Revision Date:

Length of Time: 90 Days

Course Description:

In 2nd grade science, students build on their natural curiosity by exploring how the world around them works. Through hands-on investigations, modeling, and problem-solving, students learn how living and nonliving things interact, how materials behave and change, and how Earth's surface and resources shape our environment.

Life Science

Students investigate what plants need to grow and how animals help plants survive through seed dispersal and pollination. They explore the diversity of living things by observing plants and animals in different habitats and comparing how each is suited to its environment. Students also learn how people use, redistribute, and depend on natural resources in their daily lives.

Physical Science

Students explore the properties of materials by describing, classifying, and testing them to determine which are best for specific purposes. They experiment with building and taking apart objects to see how materials can be reused or changed. Through investigation, students discover that some changes caused by heating or cooling can be reversed—like melting and freezing—while others cannot.

Earth and Space Science

Students study Earth's surface and how it changes over time. They use models to represent landforms and bodies of water, explore where water is found on Earth, and identify it in both solid and liquid forms. Through observation and comparison, students learn that Earth events—such as erosion or earthquakes—can happen quickly or slowly. They design and compare solutions to reduce the effects of wind and water on land and take part in a local environmental investigation to understand and care for their community.

Throughout the year, students will think like scientists—asking questions, testing ideas, using evidence, and applying what they learn to real-world situations.

Course Objectives:

Life Science

- Plan and conduct investigations to determine whether plants need sunlight and water to grow.
- Develop and use simple models that show how animals help plants by dispersing seeds or pollinating flowers.
- Make observations of plants and animals to compare the diversity of life across different habitats.
- Categorize ways people harvest, redistribute, and use natural resources in their daily lives.

Physical Science

- Plan and conduct investigations to describe and classify materials by their observable properties (color, texture, flexibility, hardness, etc.).
- Analyze data from testing different materials to determine which materials work best for specific purposes.
- Make observations to explain how objects made of smaller parts can be taken apart and reassembled into new objects.
- Construct arguments with evidence to show that some changes caused by heating or cooling can be reversed, while others cannot.

Earth and Space Science

- Use information from multiple sources to explain that Earth events can occur quickly (like volcanoes or landslides) or slowly (like erosion).
- Compare solutions that are designed to prevent or reduce wind and water from changing the shape of the land.
- Develop and use models to represent different types of landforms and bodies of water.
- Gather information to identify where water is found on Earth and recognize that it exists as both solid and liquid.
- Explain how places differ in their physical characteristics and their importance to people and the environment.
- Plan and carry out an investigation to address an issue in the local environment or community.

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

- 3.1.2.A Plan and conduct an investigation to determine if plants need sunlight and water to grow.
- 3.1.2.B Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.
- 3.1.2.C Make observations of plants and animals to compare the diversity of life in different habitats.

Physical Science

- 3.2.2.A Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.
- 3.2.2.B Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.
- 3.2.2.C Make observations to construct an evidence-based account of how an object made of a small set of pieces can be disassembled and made into a new object.
- 3.2.2.D Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot.

Earth and Space Science

- 3.3.2.A Use information from several sources to provide evidence that Earth events can occur quickly or slowly.
- 3.3.2.B Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land.
- 3.3.2.C Develop a model to represent the shapes and kinds of land and bodies of water in an area.
- 3.3.2.D Obtain information to identify where water is found on Earth and that it can be solid or liquid.

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.
- **3.4.K-2.D** Plan and carry out an investigation to address an issue in the local environment and community.

Units:

- Water and Landforms
- Insects and Plants
- Solids and Liquids

Concepts:

- **INTERDEPENDENT RELATIONSHIPS IN ECOSYSTEMS (PLANTS AND LIGHT/WATER)** – Plants need sunlight and water to live and grow.
- **INTERDEPENDENT RELATIONSHIPS IN ECOSYSTEMS (PLANTS AND ANIMALS)** – Plants depend on animals to move their seeds and help with pollination.
- **BIODIVERSITY AND HUMANS** – Many different kinds of living things live in different places on land and in water.
- **NATURAL RESOURCES** – Living things need air, water, and land resources to survive, and humans use natural resources for everything they do.
- **HUMAN IMPACTS ON EARTH SYSTEMS** – People's actions can change the environment, but we can make choices to protect land, water, air, and living things.
- **STRUCTURE AND PROPERTIES OF MATTER (STATES OF MATTER)** – Different kinds of matter exist and can change between solid and liquid depending on temperature, and we can describe matter by how it looks and feels.
- **STRUCTURE AND PROPERTIES OF MATTER (USES AND DESIGN)** – Different materials have properties that make them useful for certain purposes, and many objects can be built from smaller parts.
- **CHEMICAL REACTIONS** – Heating or cooling materials can cause changes; some can be reversed, and others cannot.
- **DEVELOPING POSSIBLE SOLUTIONS** – People can share and explain their ideas for solving problems using sketches, drawings, or models.

Competencies:

- Observe patterns in the natural and human-designed world to describe phenomena and gather evidence.
- Analyze events to identify causes that generate observable patterns.
- Design simple tests to gather evidence supporting or refuting ideas about causes.
- Examine structures to understand how their shape and stability relate to function.
- Track stability and change to determine whether things change slowly or rapidly.
- Investigate energy and matter as objects break apart, combine, or change shape.
- Identify system parts and how they work together in natural and designed systems.

<ul style="list-style-type: none"> • THE HISTORY OF PLANET EARTH – Some changes on Earth happen quickly, while others take a very long time. • EARTH MATERIALS AND SYSTEMS – Wind and water can change the shape of the land. • PLATE TECTONICS AND LARGE-SCALE SYSTEM INTERACTIONS – Maps can show the shapes and locations of land and water in different areas. • THE ROLES OF WATER IN EARTH'S SURFACE PROCESSES – Water is found in oceans, rivers, lakes, and ponds, and it can exist as solid ice or liquid water. 	
<p>Learning Activities:</p> <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 	<p>Performance Tasks:</p> <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
<p>Other Assessment Measures:</p>	
<p>Textbook/Primary Resource:</p> <ul style="list-style-type: none"> • Lawrence Hall of Science. (2024). <i>FOSS Pathways: Water and Landforms</i>. School Specialty, LLC. • Lawrence Hall of Science. (2024). <i>FOSS Pathways: Insects and Plants</i>. School Specialty, LLC. • Lawrence Hall of Science. (2024). <i>FOSS Pathways: Solids and Liquids</i>. School Specialty, LLC. 	
<p>Supplemental Resource Materials: Discovery Ed, Nearpod, BrainPop, Flocabulary, Seesaw, FOSS Thinklink, Youtube Science Videos</p>	