



Northern York County School District

Curriculum Overview

Course: 1st Grade Science

Grade Level: 1

Development/Revision Date:

Length of Time: 90 Days

Course Description:

In 1st grade science, students explore the natural world through hands-on investigations, observations, and problem-solving activities. The curriculum is designed to develop curiosity, critical thinking, and an understanding of patterns in the environment, life, and physical phenomena.

Life Science

Students learn how living things survive and grow by examining how plants and animals use their external parts to meet their needs. They explore patterns in behavior between parents and offspring and make evidence-based observations to understand how young plants and animals resemble, but are not identical to their parents. Students also apply their learning to design solutions to human problems by mimicking nature.

Physical Science

Students investigate sound and light through experimentation. They plan and conduct investigations to see how vibrations create sound and how sound can make objects vibrate. Students explore how objects can be seen only when illuminated and experiment with light interacting with different materials. They also design and build simple devices using light or sound to solve problems, such as communicating over a distance.

Earth and Space Science

Students observe the sun, moon, and stars to identify predictable patterns. They make seasonal observations to understand how the amount of daylight changes throughout the year. Students also examine how people harvest, redistribute, and use natural resources in everyday life.

Throughout the year, 1st graders engage in active, evidence-based learning to connect observations to real-world problems, develop scientific thinking skills, and deepen their understanding of the natural and designed world.

Course Objectives:

Life Science

- Use materials to design solutions to human problems by mimicking how plants and animals use their external parts to survive and meet their needs.
- Identify patterns in the behavior of parents and offspring that help offspring survive.
- Make observations and construct evidence-based accounts to show that young plants and animals are like, but not exactly like, their parents.

Physical Science

- Plan and conduct investigations to show that vibrating materials can make sound, and that sound can make materials vibrate.
- Make observations to demonstrate that objects can be seen only when illuminated.
- Investigate how light interacts with different materials.
- Use tools and materials to design and build a device that uses light or sound to communicate over a distance.

Earth and Space Science

- Observe the sun, moon, and stars to describe predictable patterns.
- Make observations at different times of year to relate the amount of daylight to the season.
- Categorize ways people harvest, redistribute, and use natural resources.

Related Standards:

Pennsylvania STEELS State Standards

Life Science

- **3.1.1.A** Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs.
- **3.1.1.B** Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive.
- **3.1.1.C** Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents.

Physical Science

- **3.2.1.A** Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate.
- **3.2.1.B** Make observations to construct an evidence based account that objects can be seen only when illuminated.
- **3.2.1.C** Plan and conduct an investigation to determine the effect of placing objects made with different materials in the path of a beam of light.
- **3.2.1.D** Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance.

Earth and Space Science

- **3.3.1.A** Use observations of the sun, moon, and stars to describe patterns that can be predicted.
- **3.3.1.B** Make observations at different times of year to relate the amount of daylight to the time of year.

Environmental Literacy and Sustainability

- **3.4.K-2.A** Categorize ways people harvest, redistribute, and use natural resources.

Units:

- Sound and Light
- Plants and Animals
- Changes in the Sky

Concepts:

- **STRUCTURE AND FUNCTION** – All living things have parts that help them survive and grow; animals use their body parts to move, eat, and stay safe, while plants have parts like roots, stems, leaves, and flowers that help them live and grow.
- **INFORMATION PROCESSING** – Animals use their body parts to sense and respond to the world around them, and plants can also respond to changes in their environment.
- **GROWTH AND DEVELOPMENT OF ORGANISMS** – Plants and animals grow and have young, and parents and offspring often have behaviors that help the young survive.

Competencies:

- Observe patterns in the natural and human-designed world to describe phenomena and use as evidence.
- Design simple tests to gather evidence that supports or refutes ideas about causes.
- Analyze structures to understand how their shape and stability relate to their function.

<ul style="list-style-type: none"> • INHERITANCE OF TRAITS – Young plants and animals are similar to their parents but not exactly the same. • VARIATION OF TRAITS – Living things of the same kind share features but can also look or act a little different from one another. • WAVE PROPERTIES – Sound can make things vibrate, and vibrating things can make sound. • ELECTROMAGNETIC RADIATION (LIGHT AND SHADOWS) – We can see objects when there is light, and light can pass through, partly through, or be blocked by different materials, creating shadows. • ELECTROMAGNETIC RADIATION (REFLECTION) – Mirrors can reflect light and change the direction of a light beam. • INFORMATION TECHNOLOGIES AND INSTRUMENTATION – People use tools and devices to send and receive information across long distances. • THE UNIVERSE AND ITS STARS – The sun, moon, and stars move in patterns that we can observe, describe, and predict. • EARTH AND THE SOLAR SYSTEM – The times of sunrise and sunset change in patterns through the seasons. • NATURAL RESOURCES – Living things need air, water, and land resources to survive, and humans use natural resources for everything they do. 	
<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>	

Textbook/Primary Resource:

- Lawrence Hall of Science. (2024). *FOSS Pathways: Sound and Light*. School Specialty, LLC.
- Lawrence Hall of Science. (2024). *FOSS Pathways: Plants and Animals*. School Specialty, LLC.
- Lawrence Hall of Science. (2024). *FOSS Pathways: Changes in the Sky*. School Specialty, LLC.

Supplemental Resource Materials: Discovery Ed, Nearpod, BrainPop, Flocabulary, Seesaw, FOSS Thinklink, Edpuzzle, Youtube Science Videos