Northern York County School District

Curriculum Overview

Course: 3rd Grade Science	
Grade Level: 3	
Development/Revision Date:	**Length of Time:** 90 Days

Course Description:

In 3rd grade science, students explore the living and nonliving world through hands-on investigations, data analysis, and evidence-based reasoning. They learn to explain natural phenomena, understand patterns and cause-and-effect relationships, and design solutions to real-world problems.

Life Science

Students study life cycles, inherited traits, and environmental influences on plants and animals. They examine how organisms interact with each other and their habitats, form groups for survival, and respond to environmental changes. Students also evaluate human impacts on ecosystems and propose solutions to environmental challenges.

Physical Science

Students investigate motion, forces, and interactions with magnets. They make observations and measurements to identify patterns, explain cause-and-effect relationships, and apply scientific ideas to solve problems.

Earth and Space Science

Students study weather, climate, and seasonal patterns, represent data visually, and evaluate solutions to reduce the impacts of weather hazards. They explore how humans depend on and affect the environment and propose evidence-based solutions to local and global issues.

Throughout the year, 3rd graders deepen their scientific thinking by observing, questioning, modeling, analyzing data, and communicating evidence-based explanations.

Course Objectives:

Life Science

- Develop models to describe life cycles of organisms, including birth, growth, reproduction, and death.
- Construct arguments that some animals form groups to help members survive.
- Analyze data to show that traits are inherited from parents and that variation exists within species.
- Use evidence to explain how traits can be influenced by the environment.
- Analyze fossil data to provide evidence of past organisms and their environments.
- Explain how variations among individuals can provide survival and reproductive advantages.
- Construct arguments with evidence about which organisms can survive in specific habitats.
- Make evidence-based claims about solutions to environmental changes and their effects on plants and animals.
- Analyze how humans and other living organisms affect and are affected by their environment.
- Make claims about the social and environmental impacts of design solutions and personal actions.

Physical Science

- Make and communicate observations or measurements of an object's motion to identify patterns and predict future motion.
- Plan and conduct investigations to show the effects of balanced and unbalanced forces.
- Ask questions and determine cause-and-effect relationships in electric and magnetic interactions.
- Define simple design problems that can be solved using magnets.

Earth and Space Science

- Represent weather data in tables and graphs to describe seasonal patterns.
- Obtain and combine information to describe climates in different regions.
- Make evidence-based claims about the merit of solutions to reduce weather-related hazards.
- Construct arguments to determine whether action is needed on environmental issues and propose solutions.
- Critique ways people depend on and change the environment.

Related Standards:

Pennsylvania STEELS State Standards

Life Science

- **3.1.3.A** Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death.
- **3.1.3.B** Construct an argument that some animals form groups that help members survive.
- **3.1.3.C** Analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and that variation of these traits exists in a group of similar organisms.
- **3.1.3.D** Use evidence to support the explanation that traits can be influenced by the environment.
- **3.1.3.E** Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago.
- **3.1.3.F** Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing.
- **3.1.3.G** Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.

- **3.1.3.H** Make a claim supported by evidence about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.

Physical Science

- **3.2.3.A** Make and communicate observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion.
- **3.2.3.B** Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object.
- **3.2.3.C** Ask questions to determine cause and effect relationships of electric or magnetic interactions between two objects not in contact with each other.
- **3.2.3.D** Define a simple design problem that can be solved by applying scientific ideas about magnets.

Earth and Space Science

- **3.3.3.A** Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season.
- **3.3.3.B** Obtain and combine information to describe climates in different regions of the world.
- **3.3.3.C** Make a claim supported by evidence about the merit of a design solution that reduces the impacts of a weather-related hazard.

Environmental Literacy and Sustainability

- **3.4.3-5.A** Analyze how living organisms, including humans, affect the environment in which they live, and how their environment affects them.
- **3.4.3-5.B** Make a claim about the environmental and social impacts of design solutions and civic actions, including their own actions.
- **3.4.3-5.E** Construct an argument to support whether action is needed on a selected environmental issue and propose possible solutions.
- **3.4.3-5.F** Critique ways that people depend on and change the environment.

Units:

- Structures of Life
- Water and Climate
- Motion

Concepts:

- **GROWTH AND DEVELOPMENT OF ORGANISMS** – Reproduction is essential for all living things, and plants and animals have unique life cycles.
- **SOCIAL INTERACTIONS AND GROUP BEHAVIOR** – Being part of a group helps animals find food, stay safe, and respond to changes, and groups can be different sizes and have different functions.
- **INHERITANCE OF TRAITS** – Many traits are passed from parents, while others come from interactions with the environment, and some involve both inheritance and environment.
- **VARIATION OF TRAITS** – Organisms of the same kind can look or act differently because of inherited information and environmental influences.
- **EVIDENCE OF COMMON ANCESTRY AND DIVERSITY** – Fossils show that some plants

Competencies:

- Observe patterns of change to make predictions and sort or classify phenomena.
- Identify cause and effect relationships to explain, test, and predict changes.
- Examine structures and materials to understand how substructures and parts serve functions.
- Describe systems in terms of components and their interactions.
- Measure stability and change over time and at different rates.
- Consider scale, proportion, and quantity to understand phenomena across short and long time periods.

and animals lived long ago but no longer exist and reveal information about past environments. • **NATURAL SELECTION** – Some differences between individuals help them survive, find mates, and reproduce. • **ADAPTATION** – Some organisms survive well in certain environments; others survive less well, and some cannot survive at all. • **ECOSYSTEM DYNAMICS, FUNCTIONING, AND RESILIENCE** – Changes in the environment affect which organisms survive, move, or die. • **BIODIVERSITY AND HUMANS** – Populations live in different habitats, and changes in these habitats affect the organisms living there. • **FORCES AND MOTION** – Forces can change the speed or direction of an object, and the strength and direction of each force determine how the object moves. • **TYPES OF INTERACTIONS** – Objects touching or near each other can push or pull, and electric and magnetic forces can act without contact depending on the objects and their positions. • **WEATHER AND CLIMATE** – Scientists record and study weather patterns to predict future weather, and climate describes long-term patterns and variation in an area. • **NATURAL HAZARDS** – Natural processes can cause hazards, and humans can take steps to reduce their impacts. • **HUMAN IMPACTS ON EARTH SYSTEMS** – Human activities affect land, water, air, and other resources, but people can take actions to protect the environment. • **NATURAL RESOURCES** – Humans use energy and fuels from natural sources, which can affect the environment; some resources are renewable and others are not. • **BIODIVERSITY AND HUMANS** – Populations live in different habitats, and changes in those habitats affect the organisms living there.	

Learning Activities:	**Performance Tasks:**
• 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	• 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: • Lawrence Hall of Science. (2024). *FOSS Pathways: Structures of Life*. School Specialty, LLC. • Lawrence Hall of Science. (2024). *FOSS Pathways: Water and Climate*. School Specialty, LLC. • Lawrence Hall of Science. (2024). *FOSS Pathways: Motion*. School Specialty, LLC.	
Supplemental Resource Materials: Discovery Ed, Nearpod, BrainPop, Flocabulary, Seesaw, FOSS Thinklink, Edpuzzle, Youtube Science Videos	