Growing Students in Science: A Community Partnership to Build Interest and Ability in the Sciences

Making the Connection to Ohio Education Standards

Fourth Grade
Overview Holden Fall Visit: Changing Earth: Investigating Landforms

Landforms are natural land formations that result from geologic forces that cause changes in the Earth's surface. Landform types are diverse: they can be as small as a hill or as large as a mountain range, and as huge as a Great Lake or as small as a local fishing pond.

The focus of the fall program focuses on the variety of processes that shape and reshape the earth’s surface. Students will learn that landforms constantly develop and change as the forces of weathering and erosion change rocks and break them down. They will also realize people have a direct affect on weathering, erosion, and deposition. People can speed up erosion by clearing the land for farming, housing developments, building roads, deforestation, and strip mining. Students develop an understanding reading of topographic maps. They take a closer look at contour lines and contour intervals as they use and build their own topographic map.
Earth’s surface has specific characteristics and landforms that can be identified.

The surface of Earth changes are due to weathering.

The surface of Earth changes is due to erosion and deposition.
General Science
Grade 4

Observe and ask questions about the natural environment.

Plan and conduct simple investigations.

Employ simple equipment and tools to gather data and extend the senses.

Use appropriate mathematics with data to construct reasonable explanations.

Communicate about observations, investigations and explanations.

Review and ask questions about the observations and explanations of others.

Fall
Interpret information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, time lines, animations, or interactive elements on Web pages) and explain how the information contributes to an understanding of the text in which it appears.

Conduct short research projects that build knowledge through investigation of different aspects of a topic.
A map scale and cardinal and intermediate directions can be used to describe the relative location of physical and human characteristics of Ohio and the United States.
Overview Classroom Winter Visit: Changing Forests

Over millions of years, Ohio's lands slowly shifted northward from a position below the equator, as the North American continent. There were times when Ohio was submerged, partially or entirely, underwater. There were times when climatic conditions were warm and tropical; and times when they were cold and arctic. And as Ohio's environment has changed over time, so have the plants and animals that have inhabited its environment.

This program brings the forests to the classroom to explore how forests have changed over time. Students will learn the forests we see today have not always looked the same. The environment is different and the plants are different. Students will look at the fossil evidence of plants and learn first hand that some have gone extinct, some have adapted to their surroundings and there are some new ones that were not around before. Using fossils and real plants students will discover what is the same and what has changed and what might be the reason behind these changes.
Life Sciences
Grade 4

Topic: Earth’s Living History
This topic focuses on using fossil evidence and living organisms to observe that suitable habitats depend upon a combination of biotic and abiotic factors.

Fossils can be compared to one another and to present day organisms according to their similarities and differences.
General Science
Grade 4

Observe and ask questions about the natural environment.

Plan and conduct simple investigations.

Employ simple equipment and tools to gather data and extend the senses.

Use appropriate mathematics with data to construct reasonable explanations.

Communicate about observations, investigations and explanation.

Review and ask questions about the observations and explanations of others.
Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.

Compare and contrast the point of view from which different stories are narrated, including the difference between first- and third-person narration.

Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text.

Describe the overall structure (e.g., chronology, comparison, cause/effect, problem/solution) of events, ideas, concepts, or information in a text or part of a text.

Interpret information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, time lines, animations, or interactive elements on Web pages) and explain how the information contributes to an understanding of the text in which it appears.
Primary and secondary sources can be used to create historical narratives.
Great forests greeted Ohio’s early explorers which covered 25 million acres. Little by little, Ohio’s growing population began to make a dent in the forest cover. By 1800, about 42,000 settlers had claimed their corner of the Ohio wilderness. Even though it was an enormous task, pioneers began to clear hundreds of acres near their villages to plant gardens; clear areas for their homesteads;

Students will visit Holden’s Working Woods. The site was used by Holden to produce maple syrup from 1976-2006. The property, like Ohio, has gone through many changes since settlement. Students study these changes by studying the two types of ecosystems, forest and field, found on the property. They become scientists and study various living and non-living things in the environment. One of the things they discover is that different animals inhabit each ecosystem and how human interaction or natural disaster can change the ecosystem over time.
Topic: Earth’s Living History
This topic focuses on using fossil evidence and living organisms to observe that suitable habitats depend upon a combination of biotic and abiotic factors.

Changes in an organism’s environment are sometimes beneficial to its survival and sometimes harmful.
General Science
Grade 4

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Spring
Various groups of people have lived in Ohio over time including prehistoric and historic American Indians, migrating settlers and immigrants. Interactions among these groups have resulted in both cooperation and conflict.

The economic development of the United States continues to influence and be influenced by agriculture, industry and natural resources in Ohio.

People have modified the environment since prehistoric times. There are both positive and negative consequences for modifying the environment in Ohio and the United States.