

Wetlands and Water Tour, Cedar Bog

Description and Curriculum Resources

Tour:	Wetlands and Water
Availability:	Wednesday, Thursday, and Friday September, October, April, May, June 9:30 a.m. – 2:30 p.m.
Time Allowance:	1½ to 2 hours on site
Cost:	\$3.00 admission fee per student
Grades:	Adaptable to all grades Maximum 100 students

Description:

Did you know that Cedar Bog is really a fen? Fens, bogs, marshes and swamps will be compared and contrasted; wetlands ecology, wetlands and man; the functions of wetlands; adaptations to wetlands; the water cycle; and succession.

The bog is accessible by a mulch path and boardwalks; wheelchairs will need assistance. Please ask for parent volunteers to help with students on the trail. The students need to understand that field trips are an extension of classroom learning. Classroom rules still apply. Cedar Bog staff cannot conduct a tour and discipline the students as well.

Tours will occur regardless of the weather, except in the event of severe storms with high winds, thunder and lightening. Boardwalks may be slippery at any time of the year.

Science Academic Content Standards Addressed:

Earth and Space Sciences (Earth Systems)

3rd. Investigate the properties of soil (e.g., color, texture, capacity to retain water, ability to support plant growth)

5th. Investigate ways Earth's renewable resources (e.g., fresh water, air, wildlife and trees) can be maintained.

7th. Analyze data on the availability of fresh water that is essential for life and for most industrial and agricultural processes. Describe how rivers, lakes and groundwater can be depleted or polluted becoming unavailable or unsuitable for life.

7th. Describe how temperature and precipitation determine climatic zones (biomes) (e.g., desert, grasslands, forests, tundra and alpine).

7th. Describe the water cycle and explain the transfer of energy between the atmosphere and hydrosphere.

Earth and Space Sciences (Processes that Shape Earth)

4th. Describe how wind, water and ice shape and reshape Earth's land surface by eroding rock and soil in some areas and depositing them in other areas producing characteristic landforms (e.g., dunes, deltas and glacial moraines).

Life Sciences (Characteristics and Structure of Life)

1st. Explore that organisms, including people, have basic needs which include air, water, food, living space and shelter.

2nd. Identify that there are many distinct environments that support different kinds of organisms.

2nd. Explain why organisms can survive only in environments that meet their needs (e.g., organisms that once lived on Earth have disappeared for different reasons such as natural forces or human-caused effects).

Life Sciences (Evolutionary Theory)

7th. Investigate the great diversity among organisms.

Life Sciences (Diversity and Interdependence of Life)

1st. Investigate that animals eat plants and/or other animals for food and may also use plants or other animals for shelter and nesting.

2nd. Investigate the different structures of plants and animals that help them live in different environments (e.g., lungs, gills, leaves and roots).

2nd. Compare the habitats of many different kinds of Ohio plants and animals and some of the ways animals depend on plants and each other.

3rd. Relate animal structures to their specific survival functions (e.g., obtaining food, escaping or hiding from enemies).

3rd. Describe how changes in an organism's habitat are sometimes beneficial and sometimes harmful.

3rd. Classify animals according to their characteristics (e.g., body coverings and body structure).

4th. Classify common plants according to their characteristics (e.g., tree leaves, flowers, seeds, roots and stems).

5th. Describe the role of producers in the transfer of energy entering ecosystems as sunlight to chemical energy through photosynthesis.

5th. Explain how almost all kinds of animals' food can be traced back to plants.

5th. Trace the organization of simple food chains and food webs (e.g., producers, herbivores, carnivores, omnivores and decomposers).

5th. Summarize that organisms can survive only in ecosystems in which their needs can be met (e.g., food, water, shelter, air, carrying capacity and waste disposal). The world has different ecosystems and distinct ecosystems support the lives of different types of organisms.

5th. Support how an organism's patterns of behavior are related to the nature of that organisms present, the availability of food and resources, and the changing physical characteristics of the ecosystem.

5th. Analyze how all organisms, including humans, cause changes in their ecosystems and how these changes can be beneficial, neutral or detrimental (e.g., beaver ponds, earthworm burrows, grasshoppers eating plants, people planting and cutting trees and people introducing a new species).

6th. Describe how organisms may interact with one another.

7th. Investigate how organisms or populations may interact with one another through symbiotic relationships and how some species have become so adapted to each other that neither could survive without the other (e.g., predator-prey, parasitism, mutualism and commensalism).

7th. Explain how the number of organisms an ecosystem can support depends on adequate biotic (living) resources (e.g., plants, animals) and abiotic (non-living) resources (e.g., light, water and soil).

7th. Explain that some environmental changes occur slowly while others occur rapidly (e.g., forest and pond succession, fires and decomposition).

7th. Explain that photosynthetic cells convert solar energy into chemical energy that is used to carry on life functions or is transferred to consumers and used to carry on their life functions.

Life Sciences (Heredity)

4th. Describe how organisms interact with one another in various ways (e.g., many plants depend on animals for carrying pollen or dispersing seeds).

Physical Sciences (Nature of Matter)

1st. Investigate that water can change from liquid to solid or solid to liquid.

4th. Identify characteristics of a simple physical change (e.g., heating or cooling can change water from one state to another and the change is reversible).

Physical Sciences (Nature of Energy)

1st. Recognize that the sun is an energy source that warms the land, air and water.

5th. Define temperature as the measure of thermal energy and describe the way it is measured.

Science and Technology (Understanding Technology)

5th. Investigate positive and negative impacts of humans activity and technology on the environment.

Science and Technology (Abilities to do Technological Design)

5th. Explain how the solution to one problem may create other problems.

Scientific Inquiry (Doing Scientific Inquiry)

1st. Ask “what happens when” questions

1st. Explore and pursue student-generated “what happens when” questions

2nd. Ask “how can I/we questions (not why questions) in appropriate situations and attempt to give reasonable answers when others ask questions.

4th. Formulate instructions and communicate data in a manner that allows others to understand and repeat an investigation or experiment.

5th. Use evidence and observations to explain and communicate the results of investigations.

5th. Select and safely use the appropriate tools to collect data when conducting investigations and communicating findings to others (e.g., thermometers, timers, balances, spring scales, magnifiers, microscopes and other appropriate tools).

Scientific Ways of Knowing (Nature of Science)

5th. Identify how scientists use different kinds of ongoing investigations depending on the questions they are trying to answer (e.g., observations of things or events in nature, data collection and controlled experiments).

Scientific Ways of Knowing (Science and Society)

5th. Identify a variety of scientific and technological work that people of all ages, backgrounds and groups perform.

Social Studies Academic Content Standards Addressed:

History (Chronology)

5th. Create time lines and identify possible relationships between events.

Geography (Places and Regions)

4th. Describe and compare the landforms, climates, population, vegetation and economic characteristics of places and regions in Ohio.

5th. Describe and compare the landforms, climates, population, culture and economic characteristics of places and regions in North America.

5th. Explain how climate is influenced by: Earth-sun relationships; landforms; vegetation.

Geography (Human Environmental Interaction)

4th. Identify how environmental processes (i.e., glaciation and weathering) and characteristics (landforms, bodies of water, climate, vegetation) influence human settlement and activity in Ohio.

4th. Identify ways that people have affected the physical environment of Ohio including: use of wetlands, use of forests; building farms, towns and transportation systems; using fertilizers, herbicides and pesticides; building dams.

5th. Explain how the characteristics of different physical environments affect human activities in North America.

5th. Analyze the positive and negative consequences of human changes to the physical environment including: Great Lakes navigation; highway systems; irrigation; mining; and introduction of new species.

6th. Describe ways human settlements and activities are influenced by environmental factors and processes in different places and regions including: Bodies of water; Landforms; Climates; Vegetation; Weathering; Seismic activity.

Geography (Movement)

6th. Describe ways humans depend on and modify the environment and the positive and negative consequences of the modifications including: Dam building; Energy production/usage; Agriculture; Urban growth.

Citizenship (Rights and Responsibilities)

5th. Explain the obligation of upholding the U.S. Constitution including: obeying laws; paying taxes; serving on juries.

Social Studies Skills and Methods (Thinking and Organizing)

5th. Draw inferences from key relevant information.

Social Studies Skills and Methods (Problem Solving)

5th. Use a problem-solving/decision –making process which includes: identifying a problem; gathering information; listing and considering options; considering advantages and disadvantages of options; choosing and implementing a solution; developing criteria for judging its effectiveness; evaluating the effectiveness of the solution.

5th. Formulate instructions and communicate data in a manner that allows others to understand and repeat an investigation or experiment.

Wetlands and Water Glossary:

acid. A substance that dissolves in water with the formation of hydrogen ions and reacts with a base to form a salt and water. It neutralizes alkalis, dissolves some metals, and turns litmus red; typically, a corrosive and sour-tasting liquid.

adaptation. Adjustment to environmental conditions, modification of an organism or its parts that makes it more fit for existence under the conditions of its environment.

atmosphere. The gaseous envelope surrounding the earth; consists of oxygen, nitrogen, and other gases, extends to a height of about 40,774 km (22,000 miles), and rotates the earth.

bacteria. Unicellular, prokaryotic microorganisms that lack chlorophyll, multiply by fission, and can be seen only with a microscope; they occur in three main forms: spherical, rod-shaped, and spiral. Some bacteria cause diseases such as pneumonia, tuberculosis, and anthrax, and others are necessary for fermentation and nitrogen fixation.

biomass. The amount of living matter.

biome. Major ecological community (tropical rain forest, grassland, or desert).

characteristic. A distinguishing trait, feature, quality, or property.

climate. The average course or condition of the weather at a place usually over a period of years as exhibited by temperature, wind velocity, and precipitation.

community. Interacting populations that live in a defined habitat.

conservation. A careful preservation and protection of something; especially planned management of a natural resource to prevent exploitation, destruction, or neglect.

current. Continuous flow of air, water, or electric charge.

cycle. An interval of time during which a sequence of a recurring succession of events or phenomena is completed.

decomposers. Organism such as bacteria and fungi that feed and breakdown dead organisms returning constituents of organic substances to the environment.

diversity. A great deal of variety.

ecological. The interactions and relationships between organisms and their environment.

ecosystem. The complex of a community or organisms and its environment functioning as an ecological unit.

environment. The complex of physical, chemical, and biotic factors that act upon an organism or an ecological community and ultimately determine its form and survival.

evidence. Facts or observations on which a conclusion can be based.

extinct. A species of organisms that no longer exists.

food chain. An arrangement of the organisms of an ecological community according to the order of predation in which each uses the next usually lower member as a food source.

food web. The totality of interacting food chains in an ecological community; interacting food chains in an ecological community.

glaciation. To subject to glacial action in which a large body of ice moves slowly down a slope or valley, or spreads outward on a long surface.

habitat. The place or environment where a plant or animal naturally or normally lives and grows.

humidity. The amount of moisture in the atmosphere.

landform. A natural feature of a land surface.

life cycle. The series of stages in form and functional activity through which an organism passes from fertilized ovum to the fertilized ovum of the next generation.

observe. To watch carefully, especially with attention to details or behavior for the purpose of arriving at a judgement.

pH scale. A numerical measure of the acidity or alkalinity of a chemical solution.

photosynthesis. The chemical process by which chlorophyll-containing plants use light to convert carbon dioxide and water into carbohydrates, releasing oxygen as a byproduct.

pollution. A substance that, when added to the environment causes the environment to be harmful or unfit for living things.

precipitation. A deposit on Earth of hail, mist, rain, sleet, or snow.

resource. Industrial material and capacities (as mineral deposits and waterpower) supplied by nature (earth science) and substances used by an organism for survival (biology).

sediment. Mineral deposited by water, wind, or glaciers.

species. A group of organisms consisting of similar individuals capable of exchanging genes of interbreeding.

water cycle. The sequence of conditions through which water passes from vapor in the atmosphere through precipitation upon land or water surfaces and ultimately back into the atmosphere as a result of evaporation and transpiration.

Cedar Bog is operated by the Ohio Historical Society, a nonprofit organization that serves as the state's partner in preserving and interpreting Ohio's history, archaeology, and natural history.