



School Program Name:	Rock On
Name of Sanctuary:	Moose Hill Wildlife Sanctuary
Grade Level:	Grades 3 – 5
Location Options:	At the sanctuary
Time:	2 hours or combine with a second program for a full-day field trip
For more info:	moosehilledu@massaudubon.org

Program Description

Through games, hikes and comparisons students will learn about the rock cycle and how soils are formed. Use a simple key to determine igneous, sedimentary and metamorphic rocks; observe erosion and weathering atop Moose Hill. Samples of soil cores are used to make connections between soil types and plant communities.

Significant savings are offered when you select a second program to create a full-day of hands-on learning at Moose Hill. This program combines well with Tree-mendous Trees, Habitat Hunt, Tracks and Traces or Settling New England. Because of our large trail system and full-day option, we can serve up to 130 students for many programs. We provide a ratio of one Moose Hill teacher-naturalist to 12 to 14 students.

Massachusetts State Curriculum Frameworks

Subject:	Science and Technology
Topic:	Earth Science

Learning Standards

Rocks and Their Properties

- 3-5 Earth Science #1: Give a simple explanation of what a mineral is and some examples, e.g., quartz, mica.
- 3-5 Earth Science #2: Identify the physical properties of minerals (hardness, color, luster, cleavage, and streak), and explain how minerals can be tested for these different physical properties.
- 3-5 Earth Science #3: Identify the three categories of rocks (metamorphic, igneous, and sedimentary) based on how they are formed, and explain the natural and physical processes that create these rocks.

Soil

- 3-5 Earth Science #4: Explain and give examples of the ways in which soil is formed (the weathering of rock by water and wind and from the decomposition of plant and animal remains).
- 3-5 Earth Science #5: Recognize and discuss the different properties of soil, including color, texture (size of particles), the ability to retain water, and the ability to support the growth of plants.



Earth's History

3-5 Earth Science #12: Give examples of how the surface of the earth changes due to slow processes such as erosion and weathering, and rapid processes such as landslides, volcanic eruptions, and earthquakes.

Lesson Objectives

Students will know and be able to:

- Identify the three categories of rocks.
- Demonstrate an understanding of how rocks are categorized by how they are formed by showing hand motions learned in the program.
- Describe how soil is formed by the processes of rock weathering and erosion and decomposition of organic materials.
- Recognize and discuss the three different properties of soil. These may include color, size of particles, the ability to retain water, and the ability to support the growth of plants.

Vocabulary

Mineral	Pressure	Texture
Rock	Bedrock	Particle
Igneous	Physical properties	Soil
Sedimentary	Weathering	Decomposition
Metamorphic	Erosion	

Assessments

How will the Mass Audubon educator know that the students have met the standards?

- Mass Audubon educator will observe students observing and identifying rocks.
- Students will participate in answering teacher prompted questions.
- Students will demonstrate their understanding of the rock cycle by participating in a wrap-up activity.

Summarizer

How will the Mass Audubon educator close the lesson to see if students met your objective?

- Students will name the key properties of the three rock types when the educator makes different hand symbols.
- After playing a rock cycle game, students will describe how the process exists on earth.



Mass Audubon School Programs

At Mass Audubon we strive to create learning experiences that are enriching, innovative, meaningful, and engaging. All our school programs are aligned with Massachusetts Curriculum Frameworks. Our network of wildlife sanctuaries and nature centers located in urban, suburban, and rural communities around the state enable us to have strong relationships with local schools.

Our Education Foundations

- Place-based education is an educational philosophy that connects learning to what is local for an individual. We help build conservation communities, working with students and teachers in cities and towns to develop place-based environmental education that is linked directly to their home community.
- Inquiry-based learning is focused on teamwork, being learner-centered, questioning ourselves and the world around us, providing a more focused, time-intensive exploration, promoting lifelong learning, communication, and learning as fun.
- We are fully committed to creating a positive and supportive environment for all learners.
- We strive to be culturally sensitive, recognizing and embracing cultural differences.

Differentiated Instruction

- We strive to create a positive learning environment that is inclusive, supportive to all learners, and sensitive to cultural diversity.
- Outdoor classroom experiences are structured to meet the needs of the particular learners.
- Students work in small groups using hands-on materials.
- A variety of educational media are used, including colorful illustrations.
- With advance notice, efforts will be made to accommodate all learning styles and physical needs.

Notes

- Nature exploration is dependent upon the weather and other conditions. A class might observe different wildlife than they expected to see. An outdoor lesson can sometimes provide unexpected, but enriching teachable moments on a natural history topic that was not planned.
- Mass Audubon nature centers each have a unique landscape and will customize programs to work best at their particular site.
- Our lessons can be adapted to incorporate a classroom teacher's needs when given enough notice.

