



School Program Name: Life in a Vernal Pool
Name of Sanctuary: Broadmoor Wildlife Sanctuary
Grade Level: 3-5
Location Options: This program occurs at the Sanctuary
Time: 2 hours
For more info: broadmoorschool@massaudubon.org
508-655-2296 x7304

Program Description

Students will explore and compare the characteristics of both a vernal pool (a seasonal pond) and the marsh at Broadmoor. Through direct observation and hands-on investigation, students will learn about the salamanders, frogs, and invertebrates that use the vernal pool as a habitat for part or all of their life cycles.

Massachusetts State Curriculum Frameworks

Subject: Science and Technology
Topic: Life Science
Sub-Topic: Characteristics of Plants and Animals
Structures and Functions
Adaptations of Living Things
Energy and Living Things

Learning Standards

Characteristics of Plants and Animals

3-5 Life Science #1: Classify plants and animals according to the physical characteristics that they share.

Structures and Functions

3-5 Life Science #3: Recognize that plants and animals go through predictable life cycles that include birth, growth, development, reproduction, and death.

3-5 Life Science #4: Describe the major stages that characterize life cycles.

Adaptations of Living Things

3-5 Life Science #6: Give examples of how inherited characteristics may change over time as adaptations to changes in the environment that enable organisms to survive, e.g., shape of beak or feet, placement of eyes on head, length of neck, shape of teeth, color.

3-5 Life Science #7: Give examples of how changes in the environment (drought, cold) have caused some plants and animals to die or move to new locations (migration).

3-5 Life Science #8: Describe how organisms meet some of their needs in an environment by using behaviors (patterns of activities) in response to information (stimuli) received from the environment. Recognize that some animal behaviors are instinctive





(e.g., turtles burying their eggs), and others are learned (e.g., humans building fires for warmth, chimpanzees learning how to use tools).

Energy and Living Things

3-5 Life Science #11: Describe how energy derived from the sun is used by plants to produce sugars (photosynthesis) and is transferred within a food chain from producers (plants) to consumers to decomposers.

Massachusetts State Curriculum Frameworks

Subject: English Language Arts
Topic: Language
Sub-Topics: Questioning, Listening, and Contributing Writing

Learning Standards

Questioning, Listening, and Contributing

PreK-12 Language #2: Students will pose questions, listen to the ideas of others, and contribute their own information or ideas in group discussions or interviews in order to acquire new knowledge.

Lesson Objectives

What will students know and be able to do? These objectives must be observable and measurable.

Students will know and be able to:

- Describe significant characteristics of a vernal pool and a marsh.
- Identify three animals that are adapted to needing a vernal pool in order to survive.
- Describe the life cycle of an aquatic invertebrate and an amphibian.
- Create a food chain of vernal pool organisms.

Vocabulary

vernal pool	adaptation	food chain
marsh	life cycle	

Assessments

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

- Mass Audubon educator will observe students exploring, observing, and identifying vernal pool and marsh organisms.
- Students will describe the characteristics of the vernal pool and marsh.
- Students will demonstrate their understanding of a vernal pool by participating in a wrap-up activity.



Summarizer

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

- After Visiting and collecting/identifying organisms from these habitats, students will participate in a food web activity
- Students will share one thing they have learned during the lesson or that was new and exciting for them.

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.



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