

Pond Ecosystems

Grade levels: 3–5, & 7

Program Description:

As a local place for students to experience an ecosystem at work, there is nothing like a pond! Students will collect and observe a diversity of fascinating animals and plants whose adaptations to living in water are truly astonishing. They will evaluate the health of a pond by carrying out simple water chemistry tests as well as by identifying animal indicator species.

Massachusetts Curriculum Standards:

Grade 3: Life Science

LS1. From Molecules to Organisms: Structures and Processes

3-LS1-1. Use simple graphical representations to show that different types of organisms have unique and diverse life cycles. Describe that all organisms have birth, growth, reproduction, and death in common but there are a variety of ways in which these happen.

LS3. Heredity: Inheritance and Variation of Traits

3-LS3-1. Provide evidence, including through the analysis of data, that plants and animals have traits inherited from parents and that variation of these traits exist in a group of similar organisms.

LS4. Biological Evolution: Unity and Diversity

3-LS4-2. Use evidence to construct an explanation for how the variations in characteristics among individuals within the same species may provide advantages to these individuals in their survival and reproduction.

3-LS4-3. Construct an argument with evidence that in a particular environment some organisms can survive well, some survive less well, and some cannot survive.

Grade 4: Life Science

LS1. From Molecules to Organisms: Structures and Processes

4-LS1-1. Construct an argument that animals and plants have internal and external structures that support their survival, growth, behavior, and reproduction.



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Grade 5: Life Science

LS2. Ecosystems: Interactions, Energy, and Dynamics

5-LS2-1. Develop a model to describe the movement of matter among producers, consumers, decomposers, and the air, water, and soil in the environment to (a) show that plants produce sugars and plant materials, (b) show that animals can eat plants and/or other animals for food, and (c) show that some organisms, including fungi and bacteria, break down dead organisms and recycle some materials back to the air and soil.

Grade 7: Life Science

LS1. From Molecules to Organisms: Structures and Processes

7.MS-LS1-4. Construct an explanation based on evidence for how characteristic animal behaviors and specialized plant structures increase the probability of successful reproduction of animals and plants.

LS2. Ecosystems: Interactions, Energy, and Dynamics

7.MS-LS2-2. Describe how relationships among and between organisms in an ecosystem can be competitive, predatory, parasitic, and mutually beneficial and that these interactions are found across multiple ecosystems.

7.MS-LS2-3. Develop a model to describe that matter and energy are transferred among living and nonliving parts of an ecosystem and that both matter and energy are conserved through these processes.

7.MS-LS2-4. Analyze data to provide evidence that disruptions (natural or human-made) to any physical or biological component of an ecosystem can lead to shifts in all its populations.

7.MS-LS2-6(MA). Explain how changes to the biodiversity of an ecosystem—the variety of species found in the ecosystem—may limit the availability of resources humans use.



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