



Pond Study (Grades 3-6)

Students will study pond and wetland ecosystems to understand how they can indicate a healthy watershed and how human actions can alter that watershed. Students will collect macro invertebrate samples to monitor and observe.

Grade 3- Science Standards

1. The Nature of Science and Engineering

3-Interactions Among Science, Technology, Engineering, Mathematics, and Society

4. Tools and mathematics help scientists and engineers see more, measure more accurately, and do things that they could not otherwise accomplish.

3.1.3.4.1 Use tools, including rulers, thermometers, magnifiers and simple balances, to improve observations and keep a record of the observations made.

4. Life Science

1. Structure and Function in Living Systems

1. Living things are diverse with many different characteristics that enable them to grow, reproduce and survive.

3.4.1.1.2 Identify common groups of plants and animals using observable physical characteristics, structures and behaviors.

For example: Sort animals into groups such as mammals and amphibians based on physical characteristics.

Another example: Sort and identify common Minnesota trees based on leaf/needle characteristics.

3.4.3.2.1 Give examples of likenesses between adults and offspring in plants and animals that can be inherited or acquired.

For example: Collect samples or pictures that show similarities between adults and their young offspring.

3. Evolution in Living Systems

2. Offspring are generally similar to their parents, but may have variations that can be advantageous or disadvantageous in a particular environment.

3.4.3.2.2 Give examples of differences among individuals that can sometimes give an individual an advantage in survival and reproduction.

Grade 4 Science Standards

3 Earth and Space Science

2. Interdependence Within the Earth System

3. Water circulates through the Earth's crust, oceans and atmosphere in what is known as the water cycle.

4.3.2.3.1 Identify where water collects on Earth, including atmosphere, ground and surface water, and describe how water moves through the Earth system using the processes of evaporation, condensation and precipitation.

Grade 5 Science Standards

4. Life Science

1. Structure and Function in Living Systems

1. Living things are diverse with many different characteristics that enable them to grow, reproduce and survive.

5.4.1.1.1 Describe how plant and animal structures and their functions provide an advantage for survival in a given natural system. *For example:* Compare the physical characteristics of plants or animals from widely different environments, such as desert versus tropical, and explore how each has adapted to its environment.



2. Interdependence Among Living Systems

1. Natural systems have many components that interact to maintain the living system.

5.4.2.1.1 Describe a natural system in Minnesota, such as a wetland, prairie or garden, in terms of the relationships among its living and nonliving parts, as well as inputs and outputs. *For example:* Design and construct a habitat for a living organism that meets its need for food, air and water.

5.4.2.1.2 Explain what would happen to a system such as a wetland, prairie or garden if one of its parts were changed. *For example:* Investigate how road salt runoff affects plants, insects and other parts of an ecosystem. *Another example:* Investigate how an invasive species changes an ecosystem.

4. Human Interactions with Living Systems

1. Humans change environments in ways that can be either beneficial or harmful to themselves and other organisms.

5.4.4.1.1 Give examples of beneficial and harmful human interaction with natural systems. *For example:* Recreation, pollution, or wildlife management.