

Plant and Animal Interactions



Department of
Environmental
Conservation

Topics: Habitats, adaptations, food chains, life cycles

GRADE LEVEL: K-2

Big Ideas:

- Plants and animals need different things to grow and survive.
- A habitat is a place where plants and animals live.
- A habitat contains many plants, animals, and non-living things.
- Plants and animals have adaptations to help meet their basic needs.
- Plants and animals get their food in different ways.
- Most plants get their energy from sunlight.
- Plants depend on water, light, and air to grow.

Learning Objectives: *students will be able to...*

- Describe how plants and animals depend on each other and their environment.
- Model life cycle stages of plants and animals.
- Interpret organized observations and measurements using data charts.
- Create a food chain model.
- Identify the behaviors and physical adaptations that allow animals to survive in their environment.

New York State Science Learning Standards:

K-LS1-1. Use observations to describe patterns of what plants and animals (including humans) need to survive.

K-ESS2-2. Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs.

K-ESS3-1. Use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live.

1-LS1-1. Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs.

1-LS1-2. Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive.

1-LS3-1. Make observations to construct an evidence-based account that some young plants and animals are similar to, but not exactly like, their parents.

2-LS2-1. Plan and conduct an investigation to determine if plants need sunlight and water to grow.

2-LS2-2. Develop a simple model that illustrates how plants and animals depend on each other for survival.

2-LS4-1. Make observations of plants and animals to compare the diversity of life in different habitats.

Key Understandings:

- Plants and animals depend on each other and other resources in their habitats.
- Plants and animals have adaptations to help meet their basic needs.
- Plants depend on water, light and air to grow.
- Animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, seek, find, and take in food, water, and air.

Essential Questions:

- What do plants and animals need to survive in their environment?
- How do plants and animals get what they need to survive?
- How do plants and animals use their external parts to help them survive, grow and meet their needs?
- Can an animal live in both water and air?

- Plants have different parts (roots, stems, leaves, flowers, fruits) that help them survive and grow.
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Students will know...

- Animals are herbivores, carnivores and/or omnivores.
- Key vocabulary terms.
- Most plants get their energy from sunlight.
- The place a plant or animal lives is called a habitat.
- A habitat contains many plants, animals, and non-living things.
- What makes up a food chain.

Vocabulary:

- Adaptation: a change or the process of change by which an organism or species becomes better suited to its environment.
 - Carnivore: an animal that eats meat.
 - Community: a group of living things that interact and are in one place.
 - Food chain: the path by which energy in food moves from one organism to another.
 - Habitat: place where a given plant or animal lives.
 - Herbivore: an animal that eats plants.
 - Life cycle: different stages of life for a living thing.
 - Omnivore: an animal that eats both plants and other animals.
 - Photosynthesis: process used by plants, algae, and certain bacteria to harness energy from sunlight and turn it into chemical energy. Photosynthesis takes in the carbon dioxide produced by all breathing organisms and releases oxygen into the atmosphere.
 - Predator: an animal that eats other animals.
 - Prey: an animal that is eaten by another animal.
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Learning Plan: We recommend doing these lessons in sequential order; however, they can be done as individual lessons. Lessons have multiple links (videos, songs, diagrams, activities) that can be used at the teacher's discretion depending on class time. Some lessons may be advanced for our early learners, modify as needed.

[Pictures of Hudson River animals, plants, and other organisms](#), & [New York Harbor Species ID Guide](#) are available to expand learning about food chains, habitats, life cycles, and other topics covered in these lessons as well as a Biodiversity [Poster](#).

Pre-assess: Use K-W-L to assess students' prior knowledge, have students write or draw in response to the essential questions.

Progress Monitoring: Formative assessment and teacher feedback should be ongoing throughout the lessons. Teachers should develop assessments based on their individual class needs. Think-pair share, exit tickets, interactive discussions, questions and listening, informal observations, quizzes and student work samples can all be used.

Lesson 1: Habitats- Students watch a video, then learn that animals live in habitats and communities and depend on each other and their physical environment to survive. They will investigate and create their own animal habitats. Follow up with the habitat song.

- Video: [Home Sweet Habitat](#)
- What Do Animals Need To Stay Alive? HABITAT! [Student Activity](#) & [Teacher Section](#)
- There's No Place Like Home [Student Activity](#) & [Presentation](#)
- Video: [Habitat Song](#)
- Wildlife Puppets [STEM Activity](#)
- Extension: [Diversity Hunt](#)
- Biodiversity [Poster](#)

Lesson 2: Animal Adaptations- Students watch a video, then identify the physical adaptations that allow organisms to survive in their environment. Students will discover how bird's beak shapes are indicators of where, how, and what a bird eats and how fish use camouflage to survive.

- Animal Adaptations [Video](#)
- Bird Beak Buffet [Activity](#)
- [Build a Bird's Nest Craft](#)
- Hogchoker Hunt student [Activity](#) & [Teacher Section](#)
- Seining the Wild River Parts of a Fish [Student Activity](#)

Lesson 3: SAV in (and out) of the Classroom- Students explore the growth and survival of a native submerged plant, *Vallisneria americana*, commonly called water celery. Students will discover why plants, and in particular underwater plants, are important.

- Aquatic Plant Adaptation Model Building [Student Activity](#)
- Wild Water Celery [Student Activity](#)
- SAV in (and out) of the Community Science [Classroom Activity](#)
- Water Celery [Fact Sheet](#) & [Sketch](#)
- Optional: [Water Celery Storytime](#) & [Pictures of Hudson River Animals, Plants, Algae, More...](#)

Lesson 4: Food Chains- Students learn that animals depend on each other and their physical environment by learning about the basics of a food chain and creating one.

- What Do Animals Need to Stay Alive? FOOD! [Student Activity](#) & [Teacher Section](#)
- Plankton Stamps [Activity](#)
- Online Interactive [The Food Chain Game](#)
- Marine Poster [Coloring Page](#)
- Optional: Weaving a Food Web [Student Activity](#)

Lesson 5: Life Cycles- Students listen to a video-story about animals' life cycles and migrations and understand that animals go through their own life stages of growth and development through interactive activities.

- River [Storytime](#)
- Life of a Butterfly [Activity](#)
- [Growing Up as a Dragonfly](#) & [Teacher Section](#)
- [Growing Up as a Striped Bass](#) & [Teacher Section](#)
- Extension- [Growing up as an American Eel](#) & [Teacher Section](#)

Teachers: Would you like to visit us at Norrie Point environmental education center, or have an educator visit your classroom in-person or virtually? Contact us to schedule a program: hrteach@dec.ny.gov

Resources:

Children's Books:

- [Who Eats What? Food Chains and Food Webs](#) by Patricia Lauber
- [What's It Like to Be a Fish?](#) by Wendy Pfeffer
- [Bird, Butterfly, Eel](#) by James Prosek
- [Think of an Eel](#) by Karen Wallace
- [Wild City](#) by Thomas Hynes
- [Salamander Sky](#) by Katy Farber
- [The Secret Pool](#) by Kimberly Ridley
- [Monarch and Milkweed](#) by Helen Frost
- [About Fish](#) by Cathryn Sill
- [Big Night](#) by Sarah Marwil Lamstein
- [Fish is Fish](#) by Leo Lionni
- [Box Turtle](#) by John Himmelman DeVries
- [What's it Like to be a Fish?](#) by Wendy Pfeffer
- [Fish Had a Wish](#) by Michael Garland
- [A Butterfly is Patient](#) by Dianna Hutts Aston
- [A Bed for Bear](#) by Clive McFarland
- [Hibernation Station](#) by Michelle Meadows
- [Who Eats What? Food Chains and Food Webs](#) by Patricia Lauber
- [A Wetland Walk](#) by Sheri Amsel
- [Above and Below](#) by Hanako Clulow
- [Scoot](#) by Cathryn Falwell
- [Butternut Hollow Pond](#) by Brian J. Heinz
- [Under One Rock – Bugs, Slugs and Other Ughs](#) by Anthony D. Fredericks
- [Fantastic Frogs](#) by Penelope Anton
- [A Color of His Own](#) by Leo Lionni
- [Why do Animals Hibernate?](#) By David Martin
- [Animals in Winter](#) by Henrietta Bancroft & Richard G. VanGelder
- [A Hole at the Bottom of the Sea](#) by Jessica Law
- [Where in the Wild? Camouflaged Creatures Concealed... and Revealed](#) by David M. Schwartz and Yael Schy
- [From Caterpillar to Butterfly](#) by Deborah Heiligman
- [Mindy the Mindful Butterfly](#)

Websites:

- [American Museum of Natural History](#)
- [Hudson River Estuary Program Lesson Plans](#)
- [Hudson River Park Science at Home](#)
- [Children's Environmental Literacy Foundation](#)

- [Brooklyn Bridge Park Education](#)
- [Hudson River Foundation Educational Resources Guide](#)
- [Hudson River Virtual River Series](#)
- [NYS Department of Environmental Conservation Education](#)
- [National Geographic For Kids](#)
- [Wildlife Conservation Society Bronx Zoo Stay at Home Science](#)