



# Adaptations Introduction

## Connected Next Generation Science Standards

**2-LS2-2** Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.

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

**3-LS1-1** Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death.

**3-LS3-1** Analyze and interpret data to provide evidence that plants and animals have traits adapted from parents and that variation of these traits exists in a group of similar organisms.

**3-LS3-2** Use evidence to support the explanation that traits can be influenced by the environment.

**3-LS4-2** Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing.

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

**5-ESS2-1** Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.

## Overview

Adaptations are inherited traits that allow an organism to survive in its natural environment. By studying the plants and other living organisms in the schoolyard, students can see first-hand the structures and behaviors organisms need for survival in the garden. This unit is best taught in the spring, summer, or fall when there is a variety of living organisms present for exploration.

## Suggested Lesson Sequence

- Adaptations 101
- Adaptation Comparisons
- Seed Exploration
- Seed Modeling
- Pollinator Experiment (Can be started at any time in the unit. Allow at least 2 weeks for data collection.)
- Creating a Planting Plan

## Connected Garden Tasks

- Harvesting
- Seed saving
- Create a pollinator hotel.
- Plant a pollinator garden.



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### MySci Connections

- Grade 3 - Unit 13, Lesson 1 & 2, Explore sections of the lessons

### Favorite Adaptation Books

- *A Seed is Sleepy* by Aston Long
- *Monarchs and Milkweed* by Helen Frost and Leonid Gore
- *Not a Buzz to Be Found: Insects in Winter* by Linda Glaser
- *Amazing Plant Powers: How Plants Fly, Fight, Hide, Hunt, and Change the World* by Loreen Leedy
- *The Hungry Hummingbird* by April Pulley Sayre
- *The Queen Who Banished Bugs: A Tale of Bees, Butterflies, Ants and Other Pollinators* by Ferris Kelly Robinson
- *Why Mosquitoes Buzz in People's Ears* by Verna Aardema

### Garden Further Investigations

- Create leaf rubbings to observe different structures present in leaves found in the garden.
- Create a scavenger hunt that introduces students to common adaptations found in the school garden habitat.
- Look for common plant adaptations found in similar mini-habitats within the garden (e.g. shady areas, bright sunny areas, wet areas).
- Purchase a live butterfly kit and raise caterpillars in the classroom. Release butterflies in the garden. Make sure the butterfly species is native.

### Indoor Further Investigations

- Track monarch migration using the Symbolic Migration Project. <https://journeynorth.org/symbolic-migration>
- Create seed balls (seed bombs) using soil, clay, and wildflower seeds.
- Teach students about the use of biomimicry by scientists and engineers when creating new technology and/or addressing climate change. Have students design a solution to a problem that is inspired by a particular plant or animal adaptation in nature.
- Have students create a new plant that has special adaptations to survive in a unique chosen environment.
- Students can study plant adaptations that are common in different biomes around the world on The Missouri Botanical Garden's MBG Net website: <http://www.mbgnet.net/index.html>
- Research how local native plants are uniquely adapted to live in the St. Louis area.



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### Seed St. Louis Resources

Connect with us on Facebook or Eventbrite to discover upcoming Educator Workshops. Subscribe to us on YouTube to discover season-specific gardening how-to's.



Looking for Field Trip opportunities or need to ask a question about our educational services? Contact [education@seedstl.org](mailto:education@seedstl.org) or 314.588.9600 ext 106.

### Community & Cultural Connections

- Research how different communities and cultures use various edible plants. For example, amaranth (also known as callaloo or pigweed) is traditionally grown for its seeds and eaten as a grain in Mexico, but in Jamaica and East Africa its leaves are harvested. How do the plant parts look different based on the desirable traits? Celtuce or Chinese stem lettuce is another example of communities eating different plant parts.
- Investigate where students' favorite garden plants originally came from. How are the plants well-adapted to both their country of origin and St. Louis?
- Design and plant a garden bed with only plants from a specific region or visit the regional garden beds at Gateway Greening's Demonstration Garden on a field trip.
- Read *Why Mosquitoes Buzz in People's Ears* by Verna Aardema to learn about a West African legend around an animal adaptation. Create your own legends about animal or plant adaptations.