

Biodiversity

GRADES 6–8

Guiding Question

What is biodiversity, and why is it important?

Connecting Concepts

- Biodiversity describes the variety of species found in Earth’s terrestrial and oceanic ecosystems. The completeness or integrity of an ecosystem’s biodiversity is often used as a measure of its health. (NGSS, LS2.C: Ecosystem Dynamics, Functioning, and Resilience)
- Changes in biodiversity can influence humans’ resources, such as food, energy, and medicines, as well as ecosystem services that humans rely on—for example, water purification and recycling. (NGSS, LS4.D: Biodiversity and Humans)
- Across the globe, there is considerable variation in soil types, elevation, temperature, wind and precipitation patterns. These variations create the different forest types and associated plants and animals (flora and fauna) that, together with disturbance history and patterns, contribute to that region’s biodiversity. (PLT FLF, 1.D.4)

Scope and Sequence

The collection and order of content below supports an intentional student learning progression.

Activity	Description
Field, Forest, and Stream	Students investigate how the nonliving (abiotic) components of an ecosystem affect the biodiversity found there.
Invasive Species	Students research invasive species to determine how their spread affects biodiversity.
Life on the Edge	Students model the habitat components that organisms need to survive and research a rare, threatened, or endangered species.
If You Were the Boss	Students play the role of forest manager for a public forest, exploring how forest management decisions can affect biodiversity.

See plt.org/academic-standards for detailed standards correlations for each activity.

Storyline

Students explore the concept of biological diversity (biodiversity) and its relationship to ecosystem function.

- Begin the unit with Field, Forest, and Stream. In this activity, students examine the nonliving (abiotic) and living (biotic) components of three different study sites to determine how these affect the types and variety of species found in each. Introduce the term biodiversity and invite students to compare the biodiversity of their three study sites.
- Next, conduct the activity Invasive Species. Challenge students to identify how invasive species affect an area’s biodiversity, and how a reduction in biodiversity can affect an ecosystem.
- Next, use the activity Life on the Edge to further explore how changes in biodiversity can affect an ecosystem. As students research a threatened, rare, or endangered species, encourage them to look for evidence of how a decline in that species can affect the ecosystem as a whole.
- Finish with If You Were the Boss. As students develop a management plan for a public forest, challenge them to maintain as much biodiversity as possible. Point out how the management indicator species (barn owls, wood rats, and woodland salamanders) are used to determine the overall biodiversity of the ecosystem. As a conclusion, ask students to explain why biodiversity is important, using evidence from the unit activities to support their explanation.