

## Ecosystems

GRADES 3–5

### Guiding Question

How are the parts of an ecosystem connected to each other?

### Connecting Concepts

- Organisms are related in food webs in which some animals eat plants for food and other animals eat the animals that eat plants. Organisms can survive only in environments in which their particular needs are met. A healthy ecosystem is one in which multiple species of different types are each able to meet their needs in a relatively stable web of life. (NGSS, LS2.A: Interdependent Relationships in Ecosystems [abridged])
- Matter cycles between the air and soil and among plants, animals, and microbes as these organisms live and die. Organisms obtain gases, and water, from the environment, and release waste matter (gas, liquid, or solid) back into the environment. (NGSS, LS2.B: Cycles of Matter and Energy Transfer in Ecosystems)
- For any particular environment, some kinds of organisms survive well, some survive less well, and some cannot survive at all. (NGSS, LS4.C: Adaptation)
- Forest ecosystems include processes such as photosynthesis, energy flow, and the cycling of nutrients, water, carbon, and other matter. (PLT FLF, 1.C.3)

### Scope and Sequence

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

Activity	Description
<b>Discover Diversity</b>	Students imagine that they are visitors from outer space viewing life on Earth for the first time and describe the life forms they find in study plots.
<b>Field, Forest, and Stream</b> (in Grades 6–8, see 3–5 Variation)	Students identify locations with the most and least sunlight, temperature, moisture, wind, plants, and animals.
<b>Web of Life</b>	Students research and model a forest food web.
<b>Nothing Succeeds Like Succession</b> (in Grades 6–8, see 3–5 Variation)	Students read a story about forest succession and identify the stages of succession.

See [plt.org/academic-standards](http://plt.org/academic-standards) for detailed standards correlations for each activity.

### Storyline

Students explore the concept of an ecosystem as a set of interrelated living and nonliving components.

Storyline continued on next page.



## Ecosystems (cont.)

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- Introduce the unit with the activity Discover Diversity, in which students inventory the life forms they find in different plots. Ask students to compare results and consider how environmental conditions can affect the number and kinds of organisms in a plot.
- Then, using the Variation for Grades 3–5 in the activity Field, Forest, and Stream, invite students to compare the nonliving components of different environments. Encourage them to reflect how factors such as sunlight, temperature, moisture, and wind can influence which organisms live in a particular environment.
- Next, use the activity Web of Life to provide a close-up look at how plants and animals in a forest ecosystem are connected to one another through the transfer of food energy. After researching and modeling a forest food web, encourage students to consider how an ecosystem is affected when one or more of the components changes.
- Conclude the unit with the Variation for Grades 3–5 in Nothing Succeeds Like Succession. Encourage students to identify the stages of forest succession described in the story. Using forest succession as an example, ask students to explain how the organisms and nonliving components of a forest are interconnected.
- Finally, conclude the unit by involving students in planting a tree. The Variation for Grades 3–5 in Plant a Tree encourages them to think about what they like about trees, how trees help people, and how planting trees helps the world.

