

# Unit 1: Ecological Systems

**Suggested Pacing: 4 weeks**

## Unit Overview

In this unit, students will deepen and expand prior knowledge, gained in middle school, of how the cycling of matter and flow of energy regulate ecosystems. Students will also apply proportional reasoning skills to examine data, especially bivariate data, in order to analyze and make scientific claims about patterns, relationships, and changes in the structure and distribution of ecological populations and communities. During this unit, students will build on and deepen their understanding of ecosystem structures as well as the living and nonliving components that regulate those systems. Students should begin to gain an appreciation for the intricate and often fragile interdependent relationships that ecological communities rely on as well as for the ways ecosystems change over time.

## Unit 1 Enduring Understandings

*Students will understand that ...*

- Biological systems depend on the cycling of matter within and between Earth's systems. **(ECO-A)**
- Most ecosystems rely on the conversion of solar energy into chemical energy for use in biological processes. **(ECO-B)**
- The dependence on the availability of abiotic and biotic resources results in complex and dynamic interactions between organisms and populations. **(ECO-C)**
- Changes to the environment can alter interactions between organisms. **(ECO-D)**

## Unit 1 Key Concepts

- Cycling of Matter in the Biosphere
- Population Dynamics
- Defining Ecological Communities
- Ecological Community Dynamics
- Changes in Ecological Communities