Science Grade 8

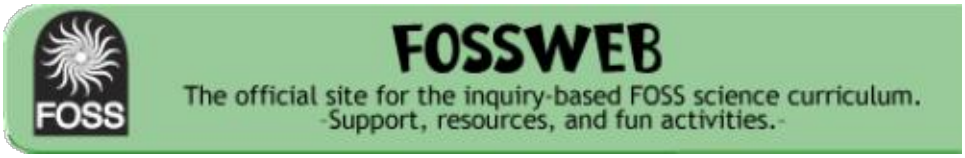
FOSS: Populations and Ecosystems Course

The FOSS Populations and Ecosystems Course explores ecosystems as the largest organizational unit of life on Earth, defined by its physical environment and the organisms that live in the physical environment. Students learn that every organism has a role to play in its ecosystem and has structures and behaviors that allow it to survive. Students raise populations of organisms to discover population dynamics and interactions over a range of conditions. They learn that food is the source of energy used by all life forms in all ecosystems to conduct life processes. Reproduction, including limiting factors, heredity and natural selection are explored as ways to understand both the similarity and the variation within and between species.

FOSS expects students to:

- Study reproductive biology and population dynamics as they raise and observe milkweed bugs in a supportive habitat.
- Construct and observe aquatic and terrestrial ecosystems over time, focusing on the understanding of ecosystem indicators involving biotic and abiotic factors.
- Study the functional roles of populations in an ecosystem as they construct a food web.
- Explore photosynthesis and the transfer of food energy from one trophic level to another through feeding relationships.
- Explore some of the factors in an ecosystem that impose limits on population size.
- Use their knowledge of populations and ecosystems to research and analyze specific ecosystems in the U.S.
- Delve into the concept of adaptation as any structural or behavioral characteristic of an organism that helps it survive and reproduce.
- Explore the concept that variation helps a population to survive environmental changes.
- Learn the basic genetic mechanisms that determine the traits expressed by individuals in a population.
- Study environmental pressures as a mechanism for producing change in the genetic makeup of a population.
- Become familiar with and acquire vocabulary concerning these concepts: species, population, community, ecosystem, food chain, limiting factor, biotic environment, abiotic environment, genetics, trait, adaptation, natural selection.
- Exercise language, social studies, and math skills in the context of science.
- Use scientific thinking processes to conduct investigations and build explanations: observing, communicating, comparing, organizing, relating, and inferring.

For a description of each investigation in the Populations and Ecosystems Course and the correlations to the National Science Education Standards, download the Populations and Ecosystems Course Summary PDF.



STC/MS: Catastrophic Events
Students use a globe to assess geologic and atmospheric patterns on Earth that are related to storms, earthquakes, volcanoes, and other catastrophic events. The unit is divided into 3 parts that build on this activity.

Click here for more information about the Catastrophic Events unit.

Forces in Rocketry (???)

Updated 10/23/07.