

Life Science

Central R-III Curriculum Form - 7th Grade Science

Grade: 7	Subject: 7th Grade Science - Ecosystems: Interactions, Energy, and Dynamics	
Pacing: 11 Weeks	MLS Code(s): 6-8.LS2.B.1 6-8.LS2.A.2 6-8.LS2.A.1 6-8.LS2.C.1 6-8.LS2.C.2 6-8.LS1.C.1	Priority Standards: 6-8.LS2.B.1 Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem. 6-8.LS2.A.2 Construct an explanation that predicts patterns of interactions among and between the biotic and abiotic factors in a given ecosystem. 6-8.LS2.A.1 Analyze and interpret data to provide evidence for the effects of resource availability on individual organisms and populations of organisms in an ecosystem. 6-8.LS2.C.1 Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations. 6-8.LS2.C.2 Evaluate benefits and limitations of differing design solutions for maintaining an ecosystem. Supporting Standard: 6-8.LS1.C.1 Construct a scientific explanation based on evidence for the role of photosynthesis and cellular respiration in the cycling of matter and flow of energy into and out of organisms.
Unit Name/Learning Activities: Ecosystems: Interactions, Energy, and Dynamics Learning Target: Students will develop a model to describe how matter cycles and energy flows among living and nonliving parts of an ecosystem. (6-8.LS2.B.1) Success criteria: - I can develop a model of a food chain to show how energy flows among living and nonliving parts of an ecosystem. - I can create a model to show energy transfer between trophic levels.		Resources: Nature Unhooked, MDC Better Lesson Stemsscopes Phet Gizmos

- I can create a model to describe the cycling of matter and flow of energy.

Learning Target:

Students will predict patterns of interactions among and between the biotic and abiotic factors in a given ecosystem. (6-8.LS2.A.2)

Success criteria:

- I can identify examples of competitive, predatory/exploitation, and mutualistic/symbiotic relationships in an ecosystem.
- I can describe how interactions between organisms have an effect on populations in an ecosystem.
- I can observe mathematical representations of population data to identify relationships in an ecosystem.

Learning Target:

Students will use data to show that the resources organisms have available will affect their population in an area. (6-8.LS2.A.1)

Success criteria:

- I can explain how the amount of resources in an ecosystem affect populations.
- I use evidence to show how a change to the population of one species affect an entire ecosystem.
- I can construct an argument based on evidence that physical changes in an ecosystem affect organisms.

Learning Target:

Students will use data to show how living and nonliving parts of an ecosystem affect what organisms can live in it. (6-8.LS2.C.1)

Success criteria:

- I can model disruptive events to an ecosystem and make predictions on the effects of the populations and communities in that ecosystem.
- I can collect data to provide evidence for the effects of resource availability on organisms.
- I can construct an argument supported by evidence that changes to the components of an ecosystem affect populations.

Learning Targets: Students will evaluate designs that minimize human impacts on the environment and biodiversity. (6-8.LS2.C.2) Success criteria: • I can describe the effects of human action upon biodiversity. • I can evaluate solutions that minimize the effects of human actions on biodiversity. • I can analyze the benefits and limitations of designs that help maintain ecosystems for water, land, and species protection or the prevention of soil erosion.	
Prerequisite Skills:	
Formative Assessment Activities: • Edulastic Quizzes by standard • Poster Project • Big River/Flat River PBL • Field Experience Journal	Summative Assessments: Edulastic: 7th Grade Unit 1 Final (MS Life Science)
Academic Vocabulary: biotic factors, abiotic factors, producers, consumers, primary consumers, secondary consumers, tertiary consumers, photosynthesis, cellular respiration, food chain, food web, niche, trophic levels, herbivores carnivores omnivores, scavengers, decomposers	
Other Resources: US EPA, Missouri State Parks	