Seventh Grade Curriculum Pacing Guide
Patterns in Living Systems
Crosscutting Concepts: Patterns; Structure and Function; Stability and Change; Systems and System Models; Energy and Matter; Cause and Effect; Scale, Proportion, and Quantity

Dynamic Ecosystems Lesson: 15 weeks

Anchoring Phenomenon	GSE	Instructional Segment	Disciplinary Core Ideas	Science and Engineering Practices	Instructional Notes
There are similarities among all organisms, but they are also different and fulfill important roles in the ecosystem. Fossil records provide evidence of the connect of modern organisms to ancestral forms.	**S7L1** a, b **S7L4** a, b **S7L5** a, b, c	**Dynamic Ecosystems**	From *A Framework for K-12 Science Education*: **LS1.A: Structure and Function** **LS1.B: Growth and Development of Organisms** **LS2.A: Interdependent Relationships in Ecosystems** **LS2.B: Cycles of Matter and Energy Transfer in Ecosystems** **LS2.C: Ecosystem Dynamics, Functioning, and Resilience** **LS3.A: Inheritance of Traits** **LS3.B: Variation of Traits** **LS4.A: Evidence of Common Ancestry and Diversity** **LS4.B: Natural Selection** **LS4.C: Adaptation**	• Developing and using models • Obtaining, evaluating, and communicating information • Using mathematical and computational thinking • Analyzing and interpreting data • Constructing explanations	**Background Information:** Ecosystems are composed of biotic and abiotic factors. Biotic factors include organisms that live in populations. Abiotic factors are nonliving factors that affect the survival of organisms in the ecosystems. Ecosystems are comprised of communities interacting in specific areas. Energy from the sun is fixed by autotrophic organisms in the ecosystem and flows throughout the ecosystem to consumers. Energy is also lost as heat. Matter cycles in ecosystems between the biotic and abiotic factors. The fossil record may provide evidence of connections of organisms in different ecosystems and to past organisms. The evolution of populations of organisms in the ecosystem through natural selection is based

					on changes in the environment and the varying ability of organisms in the population to survive those changes. By the end of this unit, students are using the following language in their speaking and writing during EXPLAIN or ELABORATE. ● Predator ● Prey ● Mutualism ● Commensalism ● Competition ● Parasitism ● Producer ● Consumer ● Biotic factors ● Abiotic factors ● Autotrophs ● Heterotrophs ● Decomposers ● Fossils ● Adaptations ● Natural Selection ● Genetic Variation ● Population

This instructional segment will connect to the structure and function segment because it addresses how the single-celled and multicellular organisms are connected in the ecosystem from converting light energy into chemical energy and how chemical energy flows through the ecosystems. It connects to the stability and change segment because it allows students to be introduced to dynamics in ecosystems before they further explore the connection between human activity and stability in ecosystems.