

Environmental Science

Ecosystems: Interactions, Energy, and Dynamics **LS2**

- 1 Use mathematical and/or computational representations to support explanations of factors that affect carrying capacities of ecosystems at different scales.** **EN.LS2.1**
- 2 Use mathematical representations to support and revise explanations based on evidence about factors affecting biodiversity and populations in ecosystems of different scales.** **EN.LS2.2**
- 4 Use a mathematical representation to support claims for the cycling of matter and the flow of energy among organisms in an ecosystem.** **EN.LS2.4**
- 6 Evaluate the claims, evidence, and reasoning that the complex interactions in ecosystems maintain relatively consistent numbers and types of organisms in stable conditions, but changing conditions may result in a new ecosystem.** **EN.LS2.6**
- 7 Design, evaluate, and refine a solution for reducing the impact of human activities on the environment and biodiversity.*** **EN.LS2.7**

Biological Unity and Diversity **LS4**

- 6 Use evidence to construct an explanation that describes how a designed solution mitigates adverse impacts of human activity on biodiversity.*** **EN.LS2.6**

Earth Systems **ESS2**

- 1 Develop a model to illustrate how Earth's internal and surface processes operate at different scales of space and time to form continental and ocean-floor features.** **EN.ESS2.1**
- 2 Analyze geoscience data to make the claim that one change to Earth's surface can create feedback and interactions that cause changes to other Earth systems.** **EN.ESS2.2**
- 3 Develop a model based on evidence of Earth's interior to describe the cycling of matter by thermal convection.** **EN.ESS2.3**
- 4 Analyze and interpret data to explore how variations in the flow of energy into and out of Earth's systems cause changes to the atmosphere and climate.** **EN.ESS2.4**
- 5 Plan and conduct investigations of how the structure and resulting properties of water interact with the Earth's materials and surface processes.** **EN.ESS2.5**

6 Develop a quantitative model to describe the cycling of carbon among the hydrosphere, atmosphere, geosphere, and biosphere. EN.ESS2.6

7 Engage in argument from evidence for how the simultaneous co-evolution of Earth's systems and life on Earth led to periods of stability and change over geologic time. EN.ESS2.7

**Earth and Human
Activities** ESS3

1 Construct an explanation based on evidence for how the availability of natural resources, occurrences of natural hazards, and changes in climate affect human activity.* EN.ESS3.1

2 Evaluate competing design solutions for developing, managing, and utilizing energy and mineral resources based on cost-benefit ratios on large and small scales.* EN.ESS3.2

3 Use computational simulations to illustrate changes in the relationships between natural resources, human populations, and biodiversity and their sustainability within Earth's systems.* EN.ESS3.3

4 Evaluate design solutions for a major global or local environmental problem that reduces or stabilizes the impacts of human activities on natural systems.* EN.ESS3.4