

Earth and Space Science

Earth's Place in the Universe ESS1

- 1 Develop a model based on evidence to illustrate that energy generated by nuclear fusion within the sun (and other stars) radiates to and influences orbiting planets.** E-ESS1-1
- 2 Construct an explanation of the Big Bang Theory based on evidence to show that the universe is changing over time.** E-ESS1-2
- 3 Construct an explanation using evidence to explain the ways elements are produced over the life cycle of a star.** E-ESS1-3
- 4 Use mathematical or computational representations to predict the motion of orbiting objects in the universe due to gravity.** E-ESS1-4
- 5 Evaluate evidence of the past and current movements of continental and oceanic crust and the theory of plate tectonics to explain the ages of crustal rocks.** E-ESS1-5
- 6 Apply scientific reasoning and evidence from ancient Earth materials, meteorites, and other planetary surfaces to construct an account of Earth's formation and early history.** E-ESS1-6

Earth's Systems ESS2

- 1 Use evidence to argue how Earth's internal and external processes operate to form and modify continental and ocean-floor features throughout Earth's history.** E-ESS2-1
- 2 Analyze data to make the claim that one change to Earth's surface can create feedbacks that cause changes to other Earth systems.** E-ESS2-2
- 3 Develop a model based on evidence of Earth's interior that describes cycling of matter through convection processes.** E-ESS2-3
- 4 Use a model to describe how causes of short and long-term variations in the flow of energy into and out of Earth's systems result in changes to climate.** E-ESS2-4
- 5 Investigate the ways that water (given its unique physical and chemical properties) impacts various Earth systems.** E-ESS2-5
- 6 Develop a quantitative model to describe the cycling of carbon through the hydrosphere, atmosphere, geosphere, and biosphere.** E-ESS2-6

7 Communicate scientific information that illustrates how Earth’s systems and life on Earth change and influence each other over time. E-ESS2-7

Earth and Human Activity ESS3

1 Construct an explanation based on evidence for how the availability of natural resources and occurrence of natural hazards have influenced human activity. E-ESS3-1

2 Evaluate competing design solutions that address the impacts of developing, managing, and using Earth’s energy and mineral resources. E-ESS3-2

3 Use computational representation to illustrate the relationships among the management of Earth’s resources, the sustainability of human populations, and biodiversity. E-ESS3-3

4 Evaluate or refine a technological solution that reduces impacts of human activities on natural systems. E-ESS3-4

5 Analyze data and the results from global climate models to make an evidence-based forecast of the current rate of regional or global climate change and associated future impacts to Earth’s systems. E-ESS3-5

6 Use a computational representation to illustrate the relationships among Earth systems and how those relationships are being modified due to human activity. E-ESS3-6

7 Create an argument, based on evidence that describes how changes in climate on Earth have affected human activity. E-ESS3-7
