Oklahoma Science

Earth and Space Science

Earth's Place in the Universe ESS1

1. Develop a model based on evidence to illustrate the life span of the Sun, and the role of nuclear fusion in the Sun's core to convert matter to energy that eventually reaches Earth in the form of radiation. ES.ESS1.1
2. Construct an explanation of how the universe formed as a single point and continues to expand based on astronomical evidence of light spectra, motion of distant galaxies, and the composition of matter in the universe. ES.ESS1.2
3. Construct an explanation about the process that causes stars to produce elements throughout their life cycle. ES.ESS1.3
4. Use models to determine patterns that can be used to predict the motion of orbiting objects in the Solar System. ES.ESS1.4
5. Evaluate patterns in 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. ES.ESS1.5
6. Apply scientific reasoning and evidence from ancient Earth materials, meteorites, and other planetary surfaces to construct an account of changes in Earth's formation and early history. ES.ESS1.6

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. ES.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. ES.ESS2.2
3. Develop a model based on evidence of Earth's interior to describe the cycling of matter by thermal convection. ES.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. ES.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. ES.ESS2.5
6. Develop a quantitative model to describe the cycling of carbon among the hydrosphere, atmosphere, geosphere, and biosphere. ES.ESS2.6

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	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.** ES.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.** ES.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.*** ES.ESS3.2
	5 **Construct a scientific explanation from evidence for how geological processes cause uneven distribution of natural resources.** ES.ESS3.5