Arkansas Science

Grade 8

Adopted 2017

Space Systems	**8-ESS1-1.**	**Develop and use a model of the Earth-sun-moon system to describe the cyclic patterns of lunar phases, eclipses of the sun and moon, and seasons.** 8-ESS1-1
	8-ESS1-2.	**Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system.** 8-ESS1-2
	8-ESS1-3.	**Analyze and interpret data to determine scale properties of objects in the solar system.** 8-ESS1-3
Energy	**8-PS3-1.**	**Construct and interpret graphical displays of data to describe the relationships of kinetic energy to the mass of an object and to the speed of an object.** 8-PS3-1
	8-PS3-2.	**Develop a model to describe that when the arrangement of objects interacting at a distance changes, different amounts of potential energy are stored in the system.** 8-PS3-2
Growth, Development, and Reproduction of Organisms	**8-LS3-1.**	**Develop and use a model to describe why structural changes to genes (mutations) located on chromosomes may affect proteins and may result in harmful, beneficial, or neutral effects to the structure and function of the organism.** 8-LS3-1
	8-LS4-5.	**Gather and synthesize information about the technologies that have changed the way humans influence the inheritance of desired traits in organisms.** 8-LS4-5
History of Earth	**8-ESS1-4.**	**Construct a scientific explanation based on evidence from rock strata for how the geologic time scale is used to organize Earth's 4.6-billion-year-old history.** 8-ESS1-4
Waves and Electromagnetic Radiation	**8-PS4-1.**	**Use mathematical representations to describe a simple model for waves that includes how the amplitude of a wave is related to the energy in a wave.** 8-PS4-1
	8-PS4-2.	**Develop and use a model to describe that waves are reflected, absorbed, or transmitted through various materials.** 8-PS4-2

Skip to main content

	8-PS4-3. Integrate qualitative scientific and technical information to support the claim that digitized signals (sent as wave pulses) are a more reliable way to encode and transmit information. 8-PS4-3
Forces and Interactions	**8-PS2-1.** Apply Newton's Third Law to design a solution to a problem involving the motion of two colliding objects. 8-PS2-1
	8-PS2-2. Plan an investigation to provide evidence that the change in an object's motion depends on the sum of the forces on the object and the mass of the object. 8-PS2-2
	8-PS2-3. Ask questions about data to determine the factors that affect the strength of electric and magnetic forces. 8-PS2-3
	8-PS2-4. Construct and present arguments using evidence to support the claim that gravitational interactions are attractive and depend on the masses of interacting objects. 8-PS2-4
	8-PS2-5. Conduct an investigation and evaluate the experimental design to provide evidence that fields exist between objects exerting forces on each other even though the objects are not in contact. 8-PS2-5
Natural Selection and Adaptations	**8-LS4-1.** Analyze and interpret data for patterns in the fossil record that document the existence, diversity, extinction, and change of life forms throughout the history of life on Earth under the assumption that natural laws operate today as in the past. 8-LS4-1
	8-LS4-2. Apply scientific ideas to construct an explanation for the anatomical similarities and differences among modern organisms and between modern and fossil organisms to infer evolutionary relationships. 8-LS4-2
	8-LS4-3. Analyze displays of pictorial data to compare patterns of similarities in the embryological development across multiple species to identify relationships not evident in the fully formed anatomy. 8-LS4-3
	8-LS4-4. Construct an explanation based on evidence that describes how genetic variations of traits in a population increase some individuals' probability of surviving and reproducing in a specific environment. 8-LS4-4
	8-LS4-6. Use mathematical representations to support explanations of how natural selection may lead to increases and decreases of specific traits in populations over time. 8-LS4-6
Engineering, Technology, and Applications of Science	**8-ETS1-1.** Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions. 8-ETS1-1

Skip to main content

8-ETS1-2. **Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.** `8-ETS1-2`

8-ETS1-3. **Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.** `8-ETS1-3`

8-ETS1-4. **Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.** `8-ETS1-4`