Arkansas Science

Grade 7

Adopted 2017

Earth's Systems	**7-ESS2-1.**	**Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process.** 7-ESS2-1
	7-ESS3-1.	**Construct a scientific explanation based on evidence for how the uneven distributions of Earth's mineral, energy, and groundwater resources are the result of past and current geoscience processes.** 7-ESS3-1
Structure and Properties of Matter	**7-PS1-1.**	**Develop models to describe the atomic composition of simple molecules and extended structures.** 7-PS1-1
	7-PS1-3.	**Gather and make sense of information to describe that synthetic materials come from natural resources and impact society.** 7-PS1-3
	7-PS1-4.	**Develop a model that predicts and describes changes in particle motion, temperature, and state of a pure substance when thermal energy is added or removed.** 7-PS1-4
Matter and Energy in Organisms and Ecosystems	**7-LS1-6.**	**Construct a scientific explanation based on evidence for the role of photosynthesis in the cycling of matter and flow of energy into and out of organisms.** 7-LS1-6
	7-LS1-7.	**Develop a model to describe how food is rearranged through chemical reactions forming new molecules that support growth and/or release energy as this matter moves through an organism.** 7-LS1-7
	7-LS2-1.	**Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem.** 7-LS2-1
	7-LS2-3.	**Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem.** 7-LS2-3
	7-LS2-4.	**Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.** 7-LS2-4

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Human Impacts	**7-ESS3-2.**	**Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects.** 7-ESS3-2
Chemical Reactions	**7-PS1-2.**	**Analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction has occurred.** 7-PS1-2
	7-PS1-5.	**Develop and use a model to describe how the total number of atoms does not change in a chemical reaction and thus mass is conserved.** 7-PS1-5
	7-PS1-6.	**Undertake a design project to construct, test, and modify a device that either releases or absorbs thermal energy by chemical processes.** 7-PS1-6
Interdependent Relationships in Ecosystems	**7-LS2-2.**	**Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.** 7-LS2-2
	7-LS2-5.	**Evaluate competing design solutions for maintaining biodiversity and ecosystem services.** 7-LS2-5
History of Earth	**7-ESS2-2.**	**Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales.** 7-ESS2-2
	7-ESS2-3.	**Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of the past plate motions.** 7-ESS2-3
Engineering, Technology, and Applications of Science	**7-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.** 7-ETS1-1
	7-ETS1-2.	**Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.** 7-ETS1-2
	7-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.** 7-ETS1-3
	7-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.** 7-ETS1-4