Oklahoma Science

Grade 7

Adopted 2020

Matter and Its Interactions	**1.** Develop models to describe the atomic composition of simple molecules and extended structures. 7.PS1.1
	2. Analyze and interpret patterns of data related to the properties of substances before and after the substances interact to determine if a chemical reaction has occurred. 7.PS1.2
	3. Gather and make sense of information to describe that synthetic materials come from natural resources and impact society. 7.PS1.3
	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
	6. Construct, test, and modify a device that releases or absorbs thermal energy by chemical processes to solve a problem. 7.PS1.6
Energy	**1.** Construct and interpret graphical displays of data to describe the proportional relationships of kinetic energy to the mass of an object and to the speed of an object. 7.PS3.1
	2. Develop a model to describe that when objects interacting at a distance change their arrangement, different amounts of potential energy are stored in the system. 7.PS3.2
	5. Construct, use, and present arguments to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the object. 7.PS3.5
From Molecules to Organisms: Structure and Function	**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. Develop a model to describe how food molecules in plants and animals are broken down and rearranged through chemical reactions to form new molecules that support growth and/or release energy as matter moves through an organism. 7.LS1.7
Ecosystems: Interactions, Energy, and Dynamics	**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

	2. **Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.** 7.LS2.2
	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
	4. **Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.** 7.LS2.4
	5. **Evaluate competing design solutions for maintaining biodiversity and ecosystem services.** 7.LS2.5
Earth and Human Activity	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
	3. **Apply scientific principles to design a method for monitoring and minimizing human impact on the environment.** 7.ESS3.3
	4. **Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.** 7.ESS3.4
	5. **Obtain, evaluate, and communicate evidence of the factors that have caused changes in global temperatures over the past century.** 7.ESS3.5