

Seventh Grade

Matter and Its Interactions PS1

- 1 Develop models to describe the atomic composition of simple molecules and extended structures. 7-PS1-1
- 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
- 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 Undertake a design project to construct, test, and modify a device that either releases or absorbs thermal energy by chemical processes. 7-PS1-6

Energy PS3

- 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 the arrangement of objects interacting at a distance changes, 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: Structures and Processes 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 Develop a model to describe how food molecules in plants and animals are rearranged through chemical reactions forming new molecules that support growth and/or release energy as this matter moves through an organism. 7-LS1-7

Ecosystems: Interactions, Energy, and Dynamics 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
- 2 Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems. 7-LS2-2

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- 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
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**Earth and Human
Activity** 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
 - 3** Apply scientific principles to design a method for monitoring and minimizing a 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** Ask questions to clarify evidence of the factors that have impacted global temperatures over the past century. 7-ESS3-5
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