Wyoming Science

Grades 9, 10, 11, 12

Adopted 2018

Matter and Its Interactions	**SES-HS-PS1-1.**	**Using a model, identify the parts of an atom (protons, neutrons, electrons).** SES-HS-PS1-1
	SES-HS-PS1-2.	**Use a periodic table to identify symbols and atomic numbers for five main group elements (1-20.)** SES-HS-PS1-2
	SES-HS-PS1-3.	**Using models, investigate the results of changes in states of matter.** SES-HS-PS1-3
	SES-HS-PS1-4.	**Using a model, determine if the product absorbs or releases energy, when given the reactants in a chemical reaction.** SES-HS-PS1-4
	SES-HS-PS1-5.	**Conduct an investigation measuring temperature differences, while observing and recording the reactions.** SES-HS-PS1-5
	SES-HS-PS1-6.	**Conduct a chemical experiment by changing a variable.** SES-HS-PS1-6
	SES-HS-PS1-7.	**Integrated in PS1-4.** SES-HS-PS1-7
	SES-HS-PS1-8.	**Compare models which illustrate fusion, fission, and radioactive decay.** SES-HS-PS1-8
Motion and Stability: Forces and Interactions	**SES-HS-PS2-1.**	**Predict the outcome, when changing either mass or force, in an experiment using Newton's Second Law of Motion.** SES-HS-PS2-1
	SES-HS-PS2-2.	**Demonstrate what happens to the velocity of an object when the mass of the** SES-HS-PS2-2
	SES-HS-PS2-3.	**Select between a variety of designs to minimize force on an object, during a collision, and record outcomes.** SES-HS-PS2-3
	SES-HS-PS2-4.	**Demonstrate that gravitational forces are constant.** SES-HS-PS2-4
	SES-HS-PS2-5.	**Conduct an experiment to test for a magnetic field around an electromagnet.** SES-HS-PS2-5
	SES-HS-PS2-6.	**Demonstrate why material selection is important in building stable structures.** SES-HS-PS2-6

Energy	**SES-HS-PS3-1.**	**Demonstrate the differences in the energy of a system when a component is changed.** SES-HS-PS3-1
	SES-HS-PS3-2.	**Demonstrate that energy manifests itself in multiple ways, such as motion, sound, light, and thermal energy.** SES-HS-PS3-2
	SES-HS-PS3-3.	**Conduct an experiment to convert one form of energy to another form of energy.** SES-HS-PS3-3
	SES-HS-PS3-4.	**Conduct an experiment demonstrating the transfer of thermal energy when two components, of different temperature, are combined within a closed system.** SES-HS-PS3-4
	SES-HS-PS3-5.	**Demonstrate that when two interacting objects change position, the interacting forces change.** SES-HS-PS3-5
Waves and Their Applications in Technologies for Information Transfer	**SES-HS-PS4-1.**	**Demonstrate that simple waves have a repeating pattern with a specific wavelength, frequency, and amplitude.** SES-HS-PS4-1
	SES-HS-PS4-2.	**Explore both physical and digital storage.** SES-HS-PS4-2
	SES-HS-PS4-3.	**Not applicable.** SES-HS-PS4-3
	SES-HS-PS4-4.	**No standard at this level.** SES-HS-PS4-4
	SES-HS-PS4-5.	**Not applicable.** SES-HS-PS4-5
From Molecules to Organisms: Structures & Processes	**SES-HS-LS1-1.**	**Construct a model of DNA.** SES-HS-LS1-1
	SES-HS-LS1-2.	**Construct a model of hierarchical organization of interacting systems from smallest to largest.** SES-HS-LS1-2
	SES-HS-LS1-3.	**Identify a feedback mechanism that helps maintain homeostasis.** SES-HS-LS1-3
	SES-HS-LS1-4.	**Use a model to demonstrate mitosis.** SES-HS-LS1-4
	SES-HS-LS1-5.	**Use a model to illustrate how photosynthesis transforms light energy into stored chemical energy.** SES-HS-LS1-5
	SES-HS-LS1-6.	**Construct models of carbon-based molecules.** SES-HS-LS1-6
	SES-HS-LS1-7.	**Use a model to demonstrate that energy can be transferred through breaking and forming bonds.** SES-HS-LS1-7
Ecosystems: Interactions, Energy, and Dynamics	**SES-HS-LS2-1.**	**Describe how the population of a species changes in relation to the availability of resources.** SES-HS-LS2-1

	SES-HS-LS2-2.	**Identify factors that affect biodiversity in different environments.** SES-HS-LS2-2
	SES-HS-LS2-3.	**Construct models of matter and energy cycles.** SES-HS-LS2-3
	SES-HS-LS2-4.	**Integrated in SES-HS-LS2-3.** SES-HS-LS2-4
	SES-HS-LS2-5.	**Construct a model of the carbon cycle to include interaction with the atmosphere.** SES-HS-LS2-5
	SES-HS-LS2-6.	**Demonstrate how a change in conditions can change an ecosystem.** SES-HS-LS2-6
	SES-HS-LS2-7.	**Compare and contrast detrimental or enhancing impacts on the environment.** SES-HS-LS2-7
	SES-HS-LS2-8.	**Identify organisms that demonstrate group behaviors.** SES-HS-LS2-8
Heredity: Inheritance and Variation of Traits	**SES-HS-LS3-1.**	**Identify traits that are passed from parent to offspring.** SES-HS-LS3-1
	SES-HS-LS3-2.	**Demonstrate that mutations can occur in DNA.** SES-HS-LS3-2
	SES-HS-LS3-3.	**Not applicable.** SES-HS-LS3-3
Biological Evolution: Unity & Diversity	**SES-HS-LS4-1.**	**Construct a model demonstrating lineage from an ancient extinct animal to a modern animal.** SES-HS-LS4-1
	SES-HS-LS4-2.	**Demonstrate how a population can adapt to survive.** SES-HS-LS4-2
	SES-HS-LS4-3.	**Not applicable.** SES-HS-LS4-3
	SES-HS-LS4-4.	**Demonstrate how a population can change based on natural selection.** SES-HS-LS4-4
	SES-HS-LS4-5.	**Using evidence indicate the emergence of a new species over time.** SES-HS-LS4-5
	SES-HS-LS4-6.	**Observe and describe the impacts of human activity on biodiversity.** SES-HS-LS4-6
Earth's Place in the Universe	**SES-HS-ESS1-1.**	**Construct a model to illustrate the life span of the sun.** SES-HS-ESS1-1
	SES-HS-ESS1-2.	**Construct a model of the expanding Universe.** SES-HS-ESS1-2
	SES-HS-ESS1-3.	**Compare life cycles of other stars to our sun.** SES-HS-ESS1-3
	SES-HS-ESS1-4.	**Use a simulation to represent the motion of orbiting objects in the solar system.** SES-HS-ESS1-4

	SES-HS-ESS1-5.	**Use models to explore the theory of plate tectonics.** SES-HS-ESS1-5
	SES-HS-ESS1-6.	**From a model, construct an account of Earth's formation and early history.** SES-HS-ESS1-6
Earth's Systems	**SES-HS-ESS2-1.**	**Construct a model that demonstrates the formation of valleys and mountains.** SES-HS-ESS2-1
	SES-HS-ESS2-2.	**Construct a model demonstrating that one change to Earth's surface can cause changes to other Earth systems.** SES-HS-ESS2-2
	SES-HS-ESS2-3.	**Construct a model of the Earth's interior.** SES-HS-ESS2-3
	SES-HS-ESS2-4.	**Use a model to identify changes in the flow of energy that can change the climate.** SES-HS-ESS2-4
	SES-HS-ESS2-5.	**Construct a model depicting how water in the form of ice, liquid, and/or gas has changed the landscape.** SES-HS-ESS2-5
	SES-HS-ESS2-6.	**Integrated in SES-HS-LS2-5.** SES-HS-ESS2-6
	SES-HS-ESS2-7.	**Explain how life on Earth had to adapt to changes in the atmosphere, hydrosphere, or geosphere.** SES-HS-ESS2-7
Earth and Human Activity	**SES-HS-ESS3-1.**	**Demonstrate how the availability of natural resources, the occurrence of natural hazards, and/or changes in climate have influenced human activity.** SES-HS-ESS3-1
	SES-HS-ESS3-2.	**From factors provided, select which factors need to be considered, prior to developing energy or mineral resources.** SES-HS-ESS3-2
	SES-HS-ESS3-3.	**Integrated in SES-HS-ESS3-2.** SES-HS-ESS3-3
	SES-HS-ESS3-4.	**Construct a model of a technological solution that reduces impacts of human activities on natural systems.** SES-HS-ESS3-4
	SES-HS-ESS3-5.	**Use global climate models to identify global, or regional, change in climate and associated future impacts to Earth systems.** SES-HS-ESS3-5
	SES-HS-ESS3-6.	**Use a computational representation to illustrate how changes to the environment affect Earth systems.** SES-HS-ESS3-6
Engineering, Technology, & Applications of Science	**SES-HS-ETS1-1.**	**Identify a local, regional, or global challenge for solutions that account for societal needs and wants.** SES-HS-ETS1-1

SES-HS-ETS1-2. **Identify a solution to a real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering.** SES-HS-ETS1-2

SES-HS-ETS1-3. **Identify solutions to a real-world problem based on a range of constraints, including cost, safety, reliability, and aesthetics, as well as possible social, cultural, and environmental impacts.** SES-HS-ETS1-3

SES-HS-ETS1-4. **Use a computer simulation to model the impact of proposed solutions to a real-world problem.** SES-HS-ETS1-4

SES-HS-ETS1-5. **Given reliable materials, identify valid vs. invalid claims.** SES-HS-ETS1-5