

High School

Physical

Core Idea Matter and Its Interactions PS1

Topic Structure and Properties of Matter PS1.A

- HS-PS1-2.** Target Level: Make a claim supported by evidence to explain patterns of chemical properties that occur in a substance during a common chemical reaction (e.g., baking soda and vinegar). [EE.HS-PS1-2](#)
 - HS-PS1-2.** Precursor Level: Identify the changes that have occurred during a chemical reaction (e.g., metal-rust, paper-burn). [EE.HS-PS1-2](#)
 - HS-PS1-2.** Initial Level: Recognize that a change has occurred during a chemical reaction. [EE.HS-PS1-2](#)
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Core Idea Motion and Stability: Forces and Interactions PS2

Topic Forces and Motion PS2.A

- HS-PS2-3.** Target Level: Evaluate the effectiveness of safety devices and design a solution that could minimize the force of a collision. [EE.HS-PS2-3](#)
 - HS-PS2-3.** Precursor Level: Use data to compare the effectiveness of safety devices to determine which best minimizes the force of a collision. [EE.HS-PS2-3](#)
 - HS-PS2-3.** Initial Level: Identify safety equipment devices that minimize force of a collision (e.g., floor mats, helmets, or steel-toed boots). [EE.HS-PS2-3](#)
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Core Idea Energy PS3

Topic Conservation of Energy and Energy Transfer PS3.B

- HS-PS3-4.** Target Level: Investigate and predict the temperatures of two liquids before and after combining to show uniform energy distribution. [EE.HS-PS3-4](#)
- HS-PS3-4.** Precursor Level: Compare the temperatures of two liquids of different temperatures before and after combining. [EE.HS-PS3-4](#)
- HS-PS3-4.** Initial Level: Compare relative difference in temperature (warmth, coldness) of two liquids. [EE.HS-PS3-4](#)

Core Idea Waves and Their Applications in Technologies for Information**Transfer PS4****Topic Wave Properties PS4.A**

HS-PS4-5. Target Level: Make a claim supported by evidence that shows how some devices use light and sound waves to transmit and capture information. [EE.HS-PS4-5](#)

HS-PS4-5. Precursor Level: Identify common devices which use light or sound waves to transmit information. [EE.HS-PS4-5](#)

HS-PS4-5. Initial Level: Identify how common technological devices are used for different purposes. [EE.HS-PS4-5](#)

Life**Core Idea From Molecules to Organisms: Structures and Processes LS1****Topic Structure and Function LS1.A**

HS-LS1-2. Target Level: Use a model to illustrate the organization and interaction of major organs into systems (e.g., circulatory, respiratory, digestive, sensory) in the body to provide specific functions. [EE.HS-LS1-2](#)

HS-LS1-2. Precursor Level: Identify which organs work for a specific function. [EE.HS-LS1-2](#)

HS-LS1-2. Initial Level: Recognize that different organs have different functions. [EE.HS-LS1-2](#)

Topic Growth and Development of Organisms LS1.B

HS-LS1-4. Target Level: Use a model to illustrate how growth occurs when cells multiply. [EE.HS-LS1-4](#)

HS-LS1-4. Precursor Level: Use a model to relate the number of cells to the size of a body. [EE.HS-LS1-4](#)

HS-LS1-4. Initial Level: Recognize that organisms are composed of cells. [EE.HS-LS1-4](#)

Core Idea Ecosystems: Interactions, Energy, and Dynamics LS2**Topic Interdependent Relationships in Ecosystems LS2.A**

HS-LS2-2. Target Level: Use a graphical representation to explain the dependence of an animal population on other organisms for food and their environment for shelter. [EE.HS-LS2-2](#)

HS-LS2-2. Precursor Level: Recognize the relationship between population size and available resources for food and shelter from a graphical representation. [EE.HS-LS2-2](#)

HS-LS2-2. Initial Level: Identify food and shelter needs for familiar wildlife. [EE.HS-LS2-2](#)

Core Idea Heredity: Inheritance and Variation of Traits LS3

Topic Variation of Traits LS3.B

- HS-LS3-2. Target Level: Defend why reproduction may or may not result in offspring with different traits. EE.HS-LS3-2
- HS-LS3-2. Precursor Level: Make a claim supported by evidence that parents and offspring may have different traits. EE.HS-LS3-2
- HS-LS3-2. Initial Level: Compare traits of parents and offspring. EE.HS-LS3-2

Core Idea Biological Evolution: Unity and Diversity LS4

Topic Adaptation LS4.C

- HS-LS4-2. Target Level: Explain how the traits of particular species allow them to survive in their specific environments. EE.HS-LS4-2
- HS-LS4-2. Precursor Level: Identify factors in an environment that require special traits to survive. EE.HS-LS4-2
- HS-LS4-2. Initial Level: Match particular species to their various environments. EE.HS-LS4-2

Earth and Space

Core Idea Earth's Place in the Universe ESS1

Topic Earth and the Solar System ESS1.B

- HS-ESS1-4. Target Level: Use a model of Earth and the Sun to show how Earth's tilt and orbit around the Sun cause changes in seasons. EE.HS-ESS1-4
- HS-ESS1-4. Precursor Level: Use a model of Earth and sun to show how Earth's positions in its orbit around the Sun correspond with the four seasons. EE.HS-ESS1-4
- HS-ESS1-4. Initial Level: Identify characteristics of the seasons. EE.HS-ESS1-4

Core Idea Earth's Systems ESS2

Topic Earth's Materials and Systems ESS2.A

HS-ESS2-1. Target Level: Use a model to show how constructive forces (e.g., volcanoes) and destructive mechanisms (e.g., weathering, coastal erosions) change Earth's surface. EE.HS-ESS2-1

HS-ESS2-1. Precursor Level: Recognize if processes that change Earth's surface are constructive or destructive. EE.HS-ESS2-1

HS-ESS2-1. Initial Level: Recognize changes (e.g., mountain formation, erosion, and glacial changes) that occurred on Earth's surface. EE.HS-ESS2-1

Topic Weather and Climate ESS2.D

HS-ESS2-4. Target Level: Using a model, recognize how the effects of changes in climate can impact human lives. EE.HS-ESS2-4

HS-ESS2-4. Precursor Level: Recognize climate changes have occurred (e.g., a change in average temperature, precipitation patterns, glacial ice volumes, sea levels). EE.HS-ESS2-4

HS-ESS2-4. Initial Level: Recognize the differences between geographical climates (e.g., Minnesota versus Florida, desert versus rainforest). EE.HS-ESS2-4

Core Idea Earth and Human Activity ESS3

Topic Natural Resources ESS3.A

HS-ESS3-1. Target Level: Construct an explanation based on evidence for how natural hazards have influenced human activity. EE.HS-ESS3-1

HS-ESS3-1. Precursor Level: Recognize how natural hazards (e.g., floods, earthquakes, tornadoes) influence human activity. EE.HS-ESS3-1

HS-ESS3-1. Initial Level: Recognize characteristics of natural hazards (e.g., floods, earthquakes, tornadoes). EE.HS-ESS3-1

HS-ESS3-2. Target Level: Construct an argument for a strategy to conserve, recycle, or reuse resources. EE.HS-ESS3-2

HS-ESS3-2. Precursor Level: Describe the factors that would favor one strategy to conserve, recycle, or reuse resources over another. EE.HS-ESS3-2

HS-ESS3-2. Initial Level: Recognize strategies to manage objects (e.g., dispose, repurpose, or recycle). EE.HS-ESS3-2

Topic Human Impacts on Earth Systems ESS3.C

HS-ESS3-3. Target Level: Analyze data to determine the effects of a conservation strategy on the level of a natural resource. EE.HS-ESS3-3

HS-ESS3-3. Precursor Level: Organize data on the effects of conservation strategies (e.g., using less energy, using rechargeable batteries, recycling or repurposing materials). EE.HS-ESS3-3

HS-ESS3-3. Initial Level: Gather data on the effects of a local (e.g., class or school-wide) conservation strategy. EE.HS-ESS3-3