

<b>Physics</b>						
<b>HS-PS2 Motion and Stability: Forces and Interactions</b>						
<b>Crosscutting Concepts: Patterns, Cause and Effect, System and System Models, Structure and Function.</b>						
<b>State Standard</b>	<b>Indicator</b>	<b>Examples</b>	<b>Assessment Boundary</b>	<b>Science and Engineering Practices</b>	<b>Disciplinary Core Ideas</b>	
HS-PS2-1.	Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.	Examples of data could include tables or graphs of position or velocity as a function of time for objects subject to a net unbalanced force, such as a falling object, an object rolling down a ramp, or a moving object being pulled by a constant force.	Assessment is limited to one-dimensional motion and to macroscopic objects moving at non-relativistic speeds.		PS2.A	
HS-PS2-2	Use mathematical representations to support the claim that the total momentum of a system of objects is conserved when there is no net force on the system.	Emphasis is on the quantitative conservation of momentum in interactions and the qualitative meaning of this principle.	Assessment is limited to systems of two macroscopic bodies moving in one dimension.		PS2.A	
HS-PS2-3.	Apply scientific and engineering ideas to design, evaluate, and refine a device that minimizes the force on a macroscopic object during a collision.	Examples of evaluation and refinement could include determining the success of the device at protecting an object from damage and modifying the design to improve it. Examples of a device could include a football helmet or a parachute.	Assessment is limited to qualitative evaluations and/or algebraic manipulations.		PS2.A	
HS-PS2-4.	Use mathematical representations of Newton's Law of Gravitation and Coulomb's Law to describe and predict the gravitational and electrostatic forces between objects.	Emphasis is on both quantitative and conceptual descriptions of gravitational and electric fields.	Assessment is limited to systems with two objects.		PS2.B	
HS-PS2-5.	Plan and conduct an investigation to provide evidence that an electric current can produce a magnetic field and that a changing magnetic field can produce an electric current.	Emphasis is on the principles of electromagnetism of current bearing wires and electric motors.	Assessment is limited to designing and conducting investigations with provided materials and tools.		PS2.B	
HS-PS2-6.	Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials.	Emphasis is on the attractive and repulsive forces that determine the functioning of the material. Examples could include why electrically conductive materials are often made of metal, flexible but durable materials are made up of long chained molecules, and pharmaceuticals are designed to interact with specific receptors.	Assessment is limited to provided molecular structures of specific designed materials.		PS2.B	
<b>HS-PS1 Matter and Its Interactions</b>						
<b>Crosscutting Concepts: Patterns, Cause and Effect, System and System Models, Structure and Function.</b>						
<b>State Standard</b>	<b>Indicator</b>	<b>Examples</b>	<b>Assessment Boundary</b>	<b>Science and Engineering Practices</b>	<b>Disciplinary Core Ideas</b>	
HS-PS1-8	Develop models to illustrate the changes in the composition of the nucleus of the atom and the energy released during the processes of fission, fusion, and radioactive decay.	Emphasis is on simple qualitative models, such as pictures or diagrams, and on the scale of energy released in nuclear processes relative to other kinds of transformations.	Assessment does not include quantitative calculation of energy released. Assessment is limited to alpha, beta, and gamma radioactive decays.			
<b>Physics</b>						
<b>HS-PS3 Energy</b>						
<b>Crosscutting Concepts: Cause and Effect, Systems and System Models, Energy and Matter</b>						
<b>State Standard</b>	<b>Indicator</b>	<b>Examples</b>	<b>Assessment Boundary</b>	<b>Science and Engineering Practices</b>	<b>Disciplinary Core Ideas</b>	



