



High School Physics Essential Standards

Essential Standards Quick Guide

Essential standards are explicitly taught, assessed more than once, and targeted for intervention if students have not yet reached proficiency. Assessments can be both formative and summative. Interventions are implemented within the classroom to support students who are not yet proficient.

All Idaho Content Standards are detailed in the Essential Standards Extended Guide. For the complete standards booklets and for further clarification on supporting content, explanations of standards, and assessment limits please utilize the Idaho Content Standards page. [Idaho Content Science Standards](#)

Essential Standards
Motion and Stability: Forces and Interactions
HS-PSP-1.1 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.
HS-PSP-1.2 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.
HS-PSP-1.3 Apply scientific and engineering ideas to design, evaluate, and refine a device that minimizes the force on a macroscopic object during a collision.
HS-PSP-1.4 Use mathematical representations of Newton’s Law of Gravitation and Coulomb’s Law to describe and predict the gravitational and electrostatic forces between objects.
HS-PSP-1.5 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.
HS-PSP-1.6 Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials.
Energy
HS-PSP-2.1 Create a computational model to calculate the change in the energy of one component in a system when the change in energy of the other component(s) and energy flows in and out of the system are known.
HS-PSP-2.2 Develop and use models to illustrate that energy at the macroscopic scale can be accounted for as a combination of energy associated with the motions of particles (objects) and energy associated with the relative positions of particles (objects).
HS-PSP-2.3 Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy.

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HS-PSP-2.4 Plan and conduct an investigation to provide evidence that the transfer of thermal energy when two components of different temperature are combined within a closed system results in a more uniform energy distribution among the components in the system (second law of thermodynamics).

HS-PSP-2.5 Develop and use a model of two objects interacting through electric or magnetic fields to illustrate the forces between objects and the changes in energy of the objects due to the interaction.

Waves

HS-PSP-3.1 Use mathematical representations to support a claim regarding relationships among the frequency, wavelength, and speed of waves traveling in various media.

HS-PSP-3.3 Evaluate the claims, evidence, and reasoning behind the idea that electromagnetic radiation can be described either by a wave model or a particle model, and that for some situations one model is more useful than the other.

HS-PSP-3.4 Evaluate the validity and reliability of claims in published materials of the effects that different frequencies of electromagnetic radiation have when absorbed by matter.

HS-PSP-3.5 Communicate technical information about how some technological devices use the principles of wave behavior and wave interactions with matter to transmit and capture information and energy.

For Questions Contact

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