Class Standards for Physics

## [HS-PS2-1 Motion and Stability: Forces and Interactions](http://www.nextgenscience.org/pe/hs-ps2-1-motion-and-stability-forces-and-interactions)

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-PS2-2 Motion and Stability: Forces and Interactions](http://www.nextgenscience.org/pe/hs-ps2-2-motion-and-stability-forces-and-interactions)

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-PS2-3 Motion and Stability: Forces and Interactions](http://www.nextgenscience.org/pe/hs-ps2-3-motion-and-stability-forces-and-interactions)

Apply scientific and engineering ideas to design, evaluate, and refine a device that minimizes the force on a macroscopic object during a collision.\*

## [HS-PS2-4 Motion and Stability: Forces and Interactions](http://www.nextgenscience.org/pe/hs-ps2-4-motion-and-stability-forces-and-interactions)

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-PS2-5 Motion and Stability: Forces and Interactions](http://www.nextgenscience.org/pe/hs-ps2-5-motion-and-stability-forces-and-interactions)

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-PS2-6 Motion and Stability: Forces and Interactions](http://www.nextgenscience.org/pe/hs-ps2-6-motion-and-stability-forces-and-interactions)

Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials.\*

## [HS-PS3-1 Energy](http://www.nextgenscience.org/pe/hs-ps3-1-energy)

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-PS3-2 Energy](http://www.nextgenscience.org/pe/hs-ps3-2-energy)

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-PS3-3 Energy](http://www.nextgenscience.org/pe/hs-ps3-3-energy)

Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy.\*

## [HS-PS3-1 Energy](http://www.nextgenscience.org/pe/hs-ps3-1-energy)

## 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-PS3-4 Energy](http://www.nextgenscience.org/pe/hs-ps3-4-energy)

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-PS4-1 Waves and their Applications in Technologies for Information Transfer](http://www.nextgenscience.org/pe/hs-ps4-1-waves-and-their-applications-technologies-information-transfer)

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

## [HS-PS4-2 Waves and their Applications in Technologies for Information Transfer](http://www.nextgenscience.org/pe/hs-ps4-2-waves-and-their-applications-technologies-information-transfer)

Evaluate questions about the advantages of using a digital transmission and storage of information.

## [HS-PS4-3 Waves and their Applications in Technologies for Information Transfer](http://www.nextgenscience.org/pe/hs-ps4-3-waves-and-their-applications-technologies-information-transfer)

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-PS4-5 Waves and their Applications in Technologies for Information Transfer](http://www.nextgenscience.org/pe/hs-ps4-5-waves-and-their-applications-technologies-information-transfer)

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.\*

To learn more about the standards and to view the NGSS Appendices, [**click here**](http://www.nextgenscience.org/get-to-know).

## [HS-PS4-3 Waves and their Applications in Technologies for Information Transfer](http://www.nextgenscience.org/pe/hs-ps4-3-waves-and-their-applications-technologies-information-transfer)

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-PS4-4 Waves and their Applications in Technologies for Information Transfer](http://www.nextgenscience.org/pe/hs-ps4-4-waves-and-their-applications-technologies-information-transfer)

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-PS4-5 Waves and their Applications in Technologies for Information Transfer](http://www.nextgenscience.org/pe/hs-ps4-5-waves-and-their-applications-technologies-information-transfer)

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