

# Physics

## Quarter 1 Standards

1. **Essential HS.P3U1.6:** I can collect, analyze, and interpret data regarding the change in motion of an object or system in one dimension, to construct an explanation using Newton's Laws.
2. **Essential HS.P4U1.8:** I can engage in argument from evidence that the net change of energy in a system is always equal to the total energy exchanged between the system and the surroundings.
3. **Essential HS.P4U3.9:** I can engage in argument from evidence regarding the ethical, social, economic, and/or political benefits and liabilities of energy usage and transfer.
4. **Incorporated Earth Science Standard: HS.E2U1.16:** Construct an explanation of how gravitational forces impact the evolution of planetary motion, structure, surfaces, atmospheres, moons, and rings.
5. **PlusHS.Phy.P4U1.6:** I can analyze and interpret data to quantitatively describe changes in energy within a system and/or energy flows in and out of a system.
6. **PlusHS.Phy.P4U2.7:** I can design, evaluate, and refine a device that works within given constraints to transfer energy within a system.
7. **PlusHS.Phy.P4U1.8:** I can use mathematic and computational thinking to explain the relationship between power, current, voltage, and resistance.

## Quarter 2 Standards

1. **Essential HS.P2U1.5** - I can construct an explanation for a field's strength and influence on an object (electric, gravitational, magnetic).
2. **Essential HS.P3U1.6:** I can collect, analyze, and interpret data regarding the change in motion of an object or system in one dimension, to construct an explanation using Newton's Laws.
3. **Essential HS.P3U2.7:** I can use mathematics and computational thinking to explain how Newton's laws are used in engineering and technologies to create products to serve human ends.
4. **Essential HS.P4U3.9:** I can engage in argument from evidence regarding the ethical, social, economic, and/or political benefits and liabilities of energy usage and transfer.
5. **Incorporated Earth Science Standard: HS.E2U1.16:** Construct an explanation of how gravitational forces impact the evolution of planetary motion, structure, surfaces, atmospheres, moons, and rings.

6. **PlusHS.Phy.P3U1.2:** I can develop and use mathematical models of Newton's law of gravitation and Coulomb's law to describe and predict the gravitational and electrostatic forces between objects.
7. **PlusHS.Phy.P3U1.4:** I can engage in argument from evidence regarding the claim that the total momentum of a system is conserved when there is no net force on the system.
8. **PlusHS.Phy.P3U1.3:** I can develop a mathematical model, using Newton's laws, to predict the motion of an object or system in two dimensions (projectile and circular motion).
9. **PlusHS.Phy.P3U2.5:** I can design, evaluate, and refine a device that minimizes or maximizes the force on a macroscopic object during a collision.
10. **PlusHS.Phy.P4U1.6:** I can analyze and interpret data to quantitatively describe changes in energy within a system and/or energy flows in and out of a system.
11. **PlusHS.Phy.P4U1.8:** I can use mathematic and computational thinking to explain the relationship between power, current, voltage, and resistance.
12. **PlusHS.Phy.P4U2.7:** I can design, evaluate, and refine a device that works within given constraints to transfer energy within a system.

## Quarter 3 Standards

1. **Essential HS.P2U1.5** - I can construct an explanation for a field's strength and influence on an object (electric, gravitational, magnetic).
2. **Essential HS.P4U1.8:** I can engage in argument from evidence that the net change of energy in a system is always equal to the total energy exchanged between the system and the surroundings.
3. **Essential HS.P4U3.9:** I can engage in argument from evidence regarding the ethical, social, economic, and/or political benefits and liabilities of energy usage and transfer.
4. **PlusHS.Phy.P2U1.1:** I can plan and carry out investigations to design, build, and refine a device that works within given constraints to demonstrate that an electric current can produce a magnetic field and that a changing magnetic field can produce an electric current.
5. **PlusHS.Phy.P3U1.2:** I can develop and use mathematical models of Newton's law of gravitation and Coulomb's law to describe and predict the gravitational and electrostatic forces between objects.

6. **PlusHS.Phy.P4U1.6:** I can analyze and interpret data to quantitatively describe changes in energy within a system and/or energy flows in and out of a system.
7. **PlusHS.Phy.P4U2.7:** I can design, evaluate, and refine a device that works within given constraints to transfer energy within a system.
8. **PlusHS.Phy.P4U1.8:** I can use mathematic and computational thinking to explain the relationship between power, current, voltage, and resistance.

## Quarter 4 Standards

1. **Essential HS.P4U1.8:** I can engage in argument from evidence that the net change of energy in a system is always equal to the total energy exchanged between the system and the surroundings.
2. **Essential HS.P4U3.9:** I can engage in argument from evidence regarding the ethical, social, economic, and/or political benefits and liabilities of energy usage and transfer.
3. **Essential HS.P4.U1.10:** I can construct an explanation about the relationships among the frequency, wavelength, and speed of waves traveling in various media, and their applications to modern technology.
4. **Incorporated Earth Science Standard: HS.E2U1.17:** Construct an explanation of the origin, expansion, and scale of the universe based on astronomical evidence.
5. **PlusHS.Phy.P4U1.6:** I can analyze and interpret data to quantitatively describe changes in energy within a system and/or energy flows in and out of a system.
6. **PlusHS.Phy.P4U1.8:** I can use mathematic and computational thinking to explain the relationship between power, current, voltage, and resistance.
7. **PlusHS.Phy.P4U2.7:** I can design, evaluate, and refine a device that works within given constraints to transfer energy within a system.