

COURSE TITLE: Physics
COURSE LENGTH: 1 year
COURSE CREDIT: 1 credit

COURSE TYPE: required
GRADE LEVEL: 9
PREREQUISITE: n/a

COURSE OBJECTIVES:

1. Students will explain the idea that motion is relative; define speed, velocity, and acceleration; and produce examples of how these terms relate to everyday life.
2. Students will define inertia and clearly state Newton's 1st Law; state and define Newton's 2nd Law describing the relationship between acceleration, net force, and mass; and state Newton's 3rd Law in terms of action/reaction pairs.
3. Students will distinguish between free fall and projectile motion; describe how air resistance affects the motion of falling objects; and identify the changes in horizontal and vertical components of projectiles.
4. Students will give examples of how force, size, and length of time affect change in momentum; state the law of conservation of momentum; and manipulate the equation to solve everyday examples.
5. Students will define and calculate work, power, and the law of conservation of energy; explain the difference between kinetic and potential energy; and give examples of simple machines used in everyday life.
6. Students will describe and compare the relationship between electricity and magnetism; recall and manipulate Ohm's Law; define specific types of circuits; distinguish between DC and AC current; and relate power to current and voltage.

COURSE CONTENT:

1. Mechanical equilibrium
2. Newton's 1st Law
3. Linear motion
4. Projectile motion
5. Newton's 2nd Law
6. Newton's 3rd Law
7. Momentum
8. Energy
9. Electric fields and potential
10. Electric current
11. Electric circuits