

- PS 1 Students will calculate the average velocity of a moving object using data obtained from measurements of position of the object at two or more times. ([Standard 1](#))
- PS 2 Students will determine and compare the average and instantaneous velocity of an object from data showing its position at given times. ([Standard 1](#))
- PS 3 Students will collect, graph, and interpret data for position vs. time to describe the motion of an object and compare this motion to the motion of another object. ([Standard 1](#))
- PS 4 Students will collect, graph, and interpret data for velocity vs. time to describe the motion of an object. ([Standard 1](#))
- PS 5 Students will describe the acceleration of an object moving in a circular path at constant speed (i.e., constant speed, but changing direction). ([Standard 1](#))
- PS 6 Students will compare the motion of an object relative to two frames of reference. ([Standard 1](#))
- PS 7 Students will describe the balanced forces acting on a moving object commonly encountered (e.g., forces acting on an automobile moving at constant velocity, forces that maintain a body in an upright position while walking). ([Standard 1](#))
- PS 8 Students will use vector diagrams to represent the forces acting on an object. ([Standard 2](#))
- PS 9 Students will calculate the net force acting on an object. ([Standard 2](#))
- PS 10 Students will determine the relationship between force, mass, and acceleration from experimental data and compare the results to Newton's second law. ([Standard 2](#))
- PS 11 Students will determine the magnitude and direction of the acting force when magnitude and direction of the reacting force is known. ([Standard 2](#))
- PS 12 Students will explain how evidence and inference are used to describe fundamental forces in nature, such as the gravitational force. ([Standard 3](#))

- PS 13 Students will describe how the amount of charge affects the electric force. ([Standard 3](#))
- PS 14 Students will investigate the relationship of distance between charged objects and the strength of the electric force. ([Standard 3](#))
- PS 15 Students will describe the types of energy contributing to the total energy of a given system. ([Standard 4](#))
- PS 16 Students will identify the relationship between the speed, wavelength, and frequency of a wave ([Standard 5](#))
- PS 17 Students will explain the observed change in frequency of a mechanical wave coming from a moving object as it approaches and moves away (i.e., Doppler effect). ([Standard 5](#))