

Activity Two: Speed of Orbits

From your tour of the solar system and the models you have created you know that many different size bodies orbit the sun. Do all of the bodies orbit at the same speed? Why or why not?

Centripetal force is the name given to a force that causes an object to move in a circular path. According to Sir Isaac Newton's first law of motion, a moving object will continue to travel in a straight line at a constant speed unless it is acted on by a force. In our solar system that force is provided by our Sun. The sun is so massive that it keeps objects in their orbits. However, each object moves at a different rate.

Purpose: To model the speed of different bodies as they orbit the sun.

Materials: Centripetal force kit, stopwatch, and goggles.

Prediction:

1. You already know that planets are at different distances from the sun. Are the elliptical orbits of the planets the same size? Please explain your answer.

2. If the planets all moved in their orbits at the same speed, which planet should complete its orbit in the smallest amount of time?
