

Why do planets stay in orbit? The planet would travel in a straight line if the gravitational force of the body around which it is orbiting did not pull it inward. To keep forces balanced, planets must travel faster when the gravitational pull is stronger. A stronger gravitational pull might be the result of a larger mass or a reduction in distance between the two bodies.

Many individuals confuse centripetal force with centrifugal force. “**Centrifugal force**” is an imaginary force that seems to push you away from the center of a spinning object. When you ride the car of a spinning ride in an amusement park, your inertia wants to keep you moving in a straight line. However, centripetal force pushes your body toward the center of rotation. You may feel like you are being pushed against the wall of the car as you spin, but the feeling is due to your own inertia resisting a change of motion in direction.

## Equipment

- 2 small plastic buckets with handles (one with holes in the bottom and one without)  
(school supplied)
- 1 wet cloth (school supplied)
- 8 Centripetal Force Kits
- 1 Orbiting Bodies Teacher Kit, which includes: extra washers, extra 15mm rubber stoppers, 20mm rubber stoppers, 26mm rubber stoppers
- 8 stopwatches (school supplied)
- 32 sheets of graph paper (school supplied)
- 32 goggles (school supplied)

## Activity Sheets



Make sure you have copied the activity sheets for this inquiry.

- Activity One: Model of an Orbiting Planet
- Activity Two: Centripetal Force
- Activity Three: Focus Questions for Centripetal Force