



# Follow the Bouncing Ball

## Facilitator Background Information

Astronauts have tried this experiment in space! When they drop a bouncy ball it doesn't go anywhere — it just hangs in space. But when they throw the ball at the floor, it bounces back at them and keeps going until it hits the wall of the Space Station! Then it bounces back and forth and back and forth. Very, very gradually it loses a little bit of energy each time it hits a wall. If the wall of the Space Station were not there for the ball to bounce off, the ball would keep going in space!

On Earth, that same bouncy ball, when dropped, would fall to the ground because gravity pulls it toward the center of the Earth. The same thing would happen on the Moon. On Earth, the ball would bounce back up to almost the height from which it was dropped, and then it would continue to bounce, each time a little less high until it stops. The ball loses a bit of energy with each bounce. On the Moon, with gravity 1/6th that of Earth, the ball would bounce higher, but more slowly and for longer.

So should future Olympics be hosted at the International Space Station or on the Moon? On the Moon, astronauts can jump higher than on Earth because of the lower gravity. On the Space Station, with little effort or use of energy, astronauts could jump infinitely high — unless they are stopped by a tether or the walls of the station!