

## **Facilitator's Guide to Gravity**

Gravity is a universal force, like magnetism and electricity. Gravity determines the interactions between stars, planets, and moons. It is the force that keeps planets in orbit around the Sun and holds us to Earth's surface.

Gravity is the natural force of attraction between any two objects. Two properties of those objects determine how much gravitational pull they exert on each other: (1) their masses and (2) the distance that separates them. The gravitational pull between an individual and Earth – or any other planet – depends on the person's mass and the planet's mass and radius. The larger the planet, the further you stand on its surface from the bulk of its mass – in its center. We can measure this pull – it is your weight!

For instance, astronauts walking on the Moon weighed only about one-sixth as much as they did on Earth. The Moon measures only about a quarter of Earth's width, but it is also much less dense than Earth: its mass is just over 1% of Earth's mass! Its gravitational pull is correspondingly smaller.