

Background Information for Teachers

*W*hat is gravity? Scientists describe it as a force that can be measured. Gravity is the force that pulls things together such as planets and moons. Gravity keeps our feet on the ground and gives us weight. All objects in space attract each other with the force of gravity. The force of attraction between two objects depends on the mass of the two objects (how much matter is packed into each one) and on the distance the two objects are from each other. The more massive the objects are, the more gravitational pull they have for each other. And the closer the objects are to each other, the greater their force of attraction. Gravity holds everything together: Planets, solar systems, the atmosphere and people. Gravity keeps the Earth in its orbit around the sun, and it keeps us stuck to the Earth. The Earth is not the only thing that has gravity. Objects with more mass have more gravity than things with small mass. Since the Earth is the biggest thing nearby, we're all pulled toward it. Remember: Without gravity we'd be all over the place.



- **Despite what many people think, there is gravity on the moon. However, the gravity of the moon is 1/6th of the gravity of the Earth.**
- **The Earth's gravity makes things have weight. This means that if you weigh 60 pounds on Earth, you would weigh only 10 pounds on the moon. If you could hop over a rock on Earth, you could leap over a car on the moon. The astronaut wears a suit and backpack that weighs 178 pounds on Earth, but weighs only 30 pounds on the moon.**
- **Gravity holds the Earth and the other planets in orbit around the sun.**
- **Gravity makes the Earth, the sun, and all the planets round like a ball.**
- **The movement of water called tides is caused by the Moon's gravity pulling the ocean and Earth toward it. The Moon's "pull" forms a bulge of water on the side of Earth nearest the Moon and another on the opposite side of the Earth. A high tide happens about every 13 hours because the moon takes about 25 hours to come back to the same place in the sky that it was at the night before.**