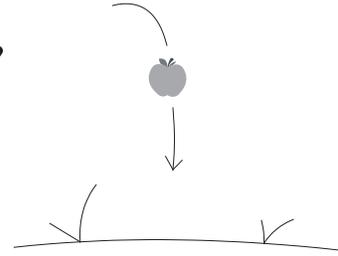
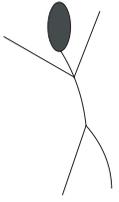


THE SOLAR SYSTEM AND GRAVITY



What is gravity?

Gravity affects everything on earth; humans, animals, plants, molecules, etc. Gravity is an invisible, constant force that pulls everything toward the center of the earth. It is generally defined **as the natural attraction between two objects**. The next time you trip and fall, you can thank gravity. Probably the most famous story about gravity centers around the famous scientist Isaac Newton. Newton is credited with having discovered the force of gravity when, as legend has it, he observed an apple fall from an apple tree.

In modern times, scientists have discovered much more about the awesome power of gravity. Here are two important facts about how objects are affected by gravity:

- 1) **MASS** - the greater the mass, the greater the attraction between two objects
- 2) **DISTANCE** - the force grows weaker if two objects are moved farther apart

How does gravity affect the planets?

In previous sections you learned that the Sun is the source of our weather. The Sun also plays an important role in the orbits of the planets in our solar system. In fact, the Sun regulates gravity for every planet in our solar system. Below are examples where the earth benefits from the Sun's gravity and how humans benefit from the earth's gravity:

- 1) **THE SUN** - the gravitational force of the sun acts on the earth and keeps the earth in its orbit, preventing it from spinning off in space
- 2) **THE EARTH** - the gravitational force of the earth acts on humans and holds us to the earth's surface

Gravity affects everything, everywhere!

Gravity and Weight

The gravitational forces on the planets are different. As such, this affects how much a person weighs. Weight is simply a measurement of the force on an object caused by gravity attempting to pull the object down. If you stepped on a scale on the Moon, you would not weigh as much as you do on Earth because the gravitational pull is weaker on the Moon.

Fill in the blanks to see how much you would weigh on the eight other planets and the moon. Use the formula to figure out your weight.

Enter your weight here: _____

PLANET	FORMULA	YOUR WEIGHT
MERCURY	weight x .38	
VENUS	weight x .91	
MOON	weight x .05	
EARTH	weight x 1	
MARS	weight x .38	
JUPITER	weight x 2.54	
SATURN	weight x 1.08	
URANUS	weight x .91	
NEPTUNE	weight x 1.19	
PLUTO	weight x .08	

Gravity

Answer the following questions.

1) Gravity is the _____ .

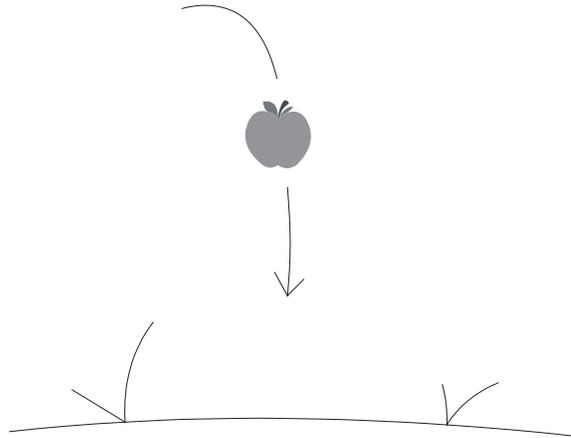
2) What famous scientist is credited with discovering gravitational force?

3) What two factors affect gravitational force? _____

4) How do humans benefit from Earth's gravity? _____

5) How does the earth benefit from the Sun's gravity? _____

6) Gravity affects everything in the solar system. true false



Describe the effect that gravity has on this falling apple.
