Name_____

GRAVITATIONAL FORCES

Directions: Read the information below.

When you trip on untied shoelaces, you fall. When you jump in the air, you always come back down. This is because of gravity. You have probably heard that gravity is what keep us grounded. Gravity is the force that pushes down on us.

It is responsible in part for the calculation of our weight. The amount of gravity on Earth is different than other planets. This means that a human standing on another planet would have either more or less force pushing down on them giving them a different weight. A 100-pound person on Earth would only weigh about 37 pounds on Mars. If you think that's light, the same person would only weigh about 16 pounds on the moon. Mars and the moon have less gravity than Earth, which is why this is possible. On the other hand, other planets like Neptune have more gravitational force. A 100-pound person on Earth would weigh about 112 pounds on Neptune. Jupiter has an even higher gravitational pull–the same person would weigh about 252 pounds on Jupiter!

Gravity is present throughout our solar system. In fact, it is what is responsible for our rotation around the sun. The Earth rotates in an elliptical pattern around the sun, but does not fly away because we are tethered by a gravitational pull. An object with a larger gravitational pull will exert more force upon objects with smaller gravitational pulls. That's why the sun does not pull toward Earth.

The concept of gravity is all around us. Try observing it the next time you are outside. You may be surprised to find all the places gravity can be seen!

*Sources of statistics from **http://www.exploratorium.edu/ronh/weight/index.html**.

Directions: Answer the questions below.

1. What causes the differences in weight on different planets? Explain your answer, do not simply say 'gravity.'
2. If gravity acts upon us and pushes us downward, why are we still able to stand and jump up, resisting gravity?

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Directions: Record the results of your experiment below.

Object	Mass	Height of Fall	Time of Fall

Consider the results from your table. What do you notice about the relationship between mass and gravitational force?