Gravity Exploration

Name _____

Part A: How much would you weigh on other planets and the moon?

The more mass a planet has, the more gravity it has. Planets which have more mass than Earth would have more gravity than Earth. A person would weigh more on these planets than they do on Earth.

Location	Weight on Earth		Gravity		Calculated Weight
Moon		X	0.17	=	
Mercury		X	0.38	=	
Venus		X	0.86	=	
Mars		X	0.38	=	
Jupiter		X	2.87	=	
Saturn		X	1.32	=	
Uranus		X	0.93	=	
Neptune		X	1.23	=	

Part B: How far could you jump on other planets and the moon?

Determine how far you can jump on the Earth. To do this, place a piece of tape on the floor as a starting line. Jump as far as you can off of both feet. Have your partner mark where you land not where you end up! Measure the distance and record in the table. Do this five times, then find the average.

Jump 1	Jump 2	Jump 3	Jump 4	Jump 5	Average

Location	Average Length on Earth		Gravity		Length
Moon		÷	0.17	=	
Mercury		÷	0.38	=	
Venus		÷	0.86	=	
Mars		÷	0.38	=	
Jupiter		÷	2.87	=	
Saturn		÷	1.32	=	
Uranus		÷	0.93	=	
Neptune		÷	1.23	=	

Conclusion:

1. Complete each statement:

   a. A person would weigh more on _____ than on _____, because

   b. A person could jump further on _____ than on _____, because

   c. The force of gravity between two objects depends on

2. By what factor would your weight change if the Earth's diameter were doubled and its mass were also doubled

3. If you stood atop a ladder that was so tall that you were three times as far from the Earth's center, how would your weight compare with its present value?