Mass vs. Weight

Mass:

Weight:

Objective: To compare the mass of objects to their weight on Earth and other planets.

- The MASS that you find on the electronic balance will be recorded in GRAMS.
- You will then convert GRAMS to KILOGRAMS.
- To find the WEIGHT in NEWTONS on Earth, you will multiply the mass in kilograms by 9.8 m/s^2 because **WEIGHT = mass x acceleration due to gravity**
- To convert NEWTONS to POUNDS, you will divide Newtons by 4.45.

Object	Mass (grams)	Mass (kilograms)	Weight (Newtons)	Weight (Pounds)	Actual Weight in Pounds

1. What do you notice about the weight you calculated in pounds versus the actual weight in pounds when you used the spring scale?

2. What conclusion can you draw about your mass and your weight on Earth?

Choose FIVE of your previously massed objects. Using the acceleration due to gravity on each planet, calculate the WEIGHT in NEWTONS of each object you choose.

Object	Mass (kilograms)	Weight on Mercury	Weight on Venus	Weight on Mars	Weight on Jupiter	Weight on Saturn	Weight on Uranus	Weight on Neptune

1. Why does the weight of an object change depending on your location?

2. Why does the mass of an object stay the same no matter where it is located?