

Mass is an important property of matter. Anything that is made of matter has mass. Finding the mass of an object is easy to do with today's technology. **Mass** is the measurement of the amount of matter in an object. An object consists of the same amount of matter wherever it may be in the universe. On Earth, Mars, or even space, the same object will have the same mass. The only way to change the mass of an object is to change the amount of material within the object.

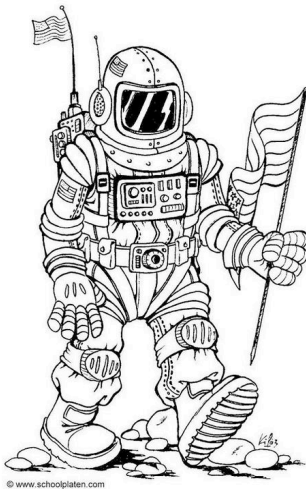
The most common metric unit for mass is the gram (g). Most often, mass units will be expressed as milligrams (mg), grams (g), or kilograms (kg).

How is mass different from weight? **Weight** is a force that results from the gravitational pull on an object. In general, an object will have the same weight anywhere on Earth. However, it will have a different weight on the moon, Mars, or anywhere else in the universe depending on the gravitational force acting upon it.

Mass is not considered a measure of weight. However, on Earth, mass and weight could be considered the same measurement. For example, an object with the mass of 45kg will have the weight of 45kg as well. Remember, this only applies if the object is on Earth, not anywhere else in the known universe.

In space, objects are nearly "weightless" because they are too far away from anything with a large amount of gravity.

To see how well you understand this information, let's see if you can answer the following questions.



1. What is your weight on Earth? _____ lbs
2. On the moon, the gravity is about 1/6 of that on the Earth. Approximately, what is your weight on the moon? _____ lbs
3. What would your weight be in space? _____ lbs
4. What is your mass on Earth? (Divide your weight by 2.2 to convert to kilograms) _____ kg
5. What would your mass be in outer space? _____ kg
6. What is your mass on the moon? _____ kg