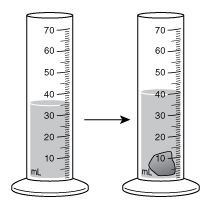
1. What is matter?
   1. **Matter** is anything that has mass and takes up space.
   2. Your body is matter, but light and sound are not matter.
2. What is mass?
   1. **Mass** describes the amount of matter in an object.
   2. A gram (g) is a common unit of mass.
   3. Objects of the same size can be made up of different amounts of matter.
3. How does mass differ from weight?
   1. **Weight** is a measure of the gravitational force on an object.
   2. The greater the mass of an object, the greater the gravitational force on the object and the greater the weight will be.
   3. Mass stays the same for an object even when increased or decreased gravitational forces change the weight of the object.
4. How are mass and weight measured?
   1. A triple-beam balance can be used to determine mass. The balance compares an object’s mass to *countermasses*.
   2. Weight is measured with a spring scale.
   3. The standard scientific unit for weight is the newton (N). A 100-g mass weighs approximately 1 N on Earth
5. How is the amount of space occupied by matter measured?
   1. **Volume** is the amount of space that an object takes up, or occupies.
   2. A balloon and a bowling ball of the same size have the same volume but very different masses.
6. How can volume be determined?
   1. An object’s volume can be determined by a formula if the object has a well-defined shape.
   2. For rectangular solids, volume equals the object’s length times width times height, *or* *V = lwh*.
   3. To calculate volume, all measurements must be in the same units.
   4. Liquid volume is measured with a beaker or graduated cylinder in liters (L) or milliliters (mL).
   5. 1 mL = 1 cm3
   6. *Displacement* of water in a graduated cylinder can be used to find the volume of irregular-shaped solid objects.
   7. How many milliliters of fluid does this object displace?  
      
7. What is density?
   1. **Density** is a measure of the amount of matter in a given volume.
   2. The density of a substance remains the same no matter how much of the substance you have
8. How is density measured ?
   1. Density is mass divided by volume, or *D = m/V*.
   2. Common units for expressing density are grams per cubic centimeter, or g/cm3.
   3. Water has a density of 1 g/mL. Thus, objects with density greater than 1 g/mL sink in water. Objects with density less than 1 g/mL float in water.