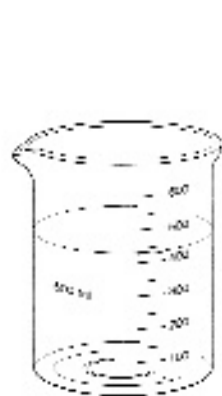
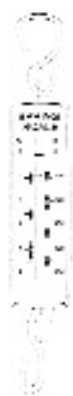


Scientific Instruments, Part 1

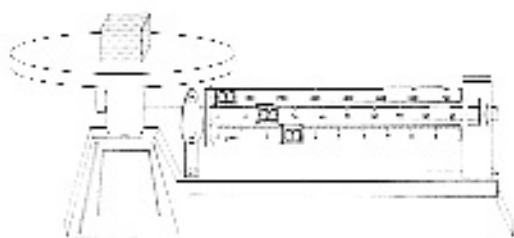
How are volume, mass, and weight measured?



Beakers and graduated cylinders measure volume.



A spring scale measures weight.



A balance measures mass.

Volume is how much space something takes up. Liquid volume is usually measured in **milliliters** using a **graduated cylinder**. Beakers are sometimes used to measure liquid volumes. However, measurements made with a beaker are often less precise than those made with a graduated cylinder. Beakers measure in milliliters or liters.

A **triple-beam balance** uses riders on three beams to measure mass. Riders on one beam measure hundreds of **grams**

(100, 200, etc.). Riders on a second beam measure grams in tens (10, 20, etc.). Riders on the third beam measure grams and tenths of grams (for example, 1.0 and 1.3).

Weight is a measure of the force of gravity on an object. Weight (and other forces) is measured in **newtons** using a **spring scale**. A spring inside the scale stretches when an object is attached to the spring scale. The object's weight determines how much the spring stretches.

Show What You Know

Identify a tool you would use to make each measurement.

_____ 1. volume of a glass of water

_____ 2. weight of a book

_____ 3. mass of a clam shell