

Measuring Mass and Weight

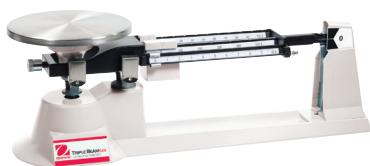
What is mass?

Mass is the amount of matter that something has. The base unit of measurement is the gram (g). The SI unit is the kilogram (kg). It is measured using a balance.

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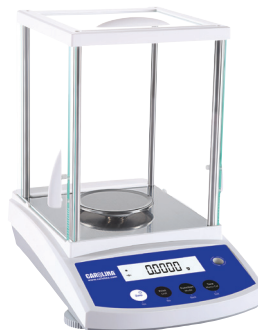
Types of Balances



Triple Beam Balance



Hanging Pan Triple Beam Balance



Analytical Balance



Digital Balance

How to Use a Triple Beam Balance

1. Ensure that your balance or scale is calibrated and reads 0.
2. Place your object on the pan.
3. Move the largest weight until the pointer goes below 0, then move it back one. Repeat with all the weights going from largest to smallest.
4. Add the weight displayed on each of the beams to get the total mass.

Taring a Balance or Scale

The “tare” or “0” button sets the balance display to 0, known as “taring the balance.” To use, place a vessel such as a beaker on the balance, then press the tare/0 button. After the display reads 0, add material to the beaker. The mass shown is that of the material only.

What is weight?

Weight is the force gravity exerts on the mass of an object. The base unit of force is a newton (N)*. Weight is measured with a scale.

Types of Scales



Digital Scale



Digital Scale



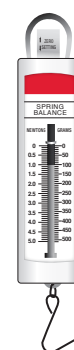
Dial Scale



Dial Scale



Dial Spring Scale



Spring Scale

How to Use an Electronic Balance or Scale

1. Turn on the balance or scale.
2. Ensure that your balance or scale is calibrated and reads 0. You may need to press the tare/0 button to get it to read 0.
3. Ensure that your units are set. Often digital scales and balances have a button that you can press to get to the unit of choice.
4. Center your object on the massing or weighing surface.
5. Read the displayed value.

*Gravity is fairly constant on Earth, so weight and mass are often used interchangeably. This is why scales display weight in grams or pounds (the imperial or customary unit for mass).

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