

Metric Mania



Lesson 2: Mass

English vs. Metric Units

Which is larger?

1. 1 Pound or 100 Grams
2. 1 Kilogram or 1 Pound
3. 1 Ounce or 1000 Milligrams



1 pound = 453.6 grams



1 ounce of gold =
28,349.5 milligrams



100 kilogram =
220 pounds

kg

g

Metric Units

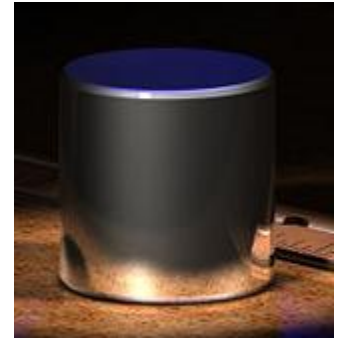
cg

mg

Mass refers to the amount of matter in an object.

The base unit of mass in the metric system is the **kilogram** and is represented by **kg**.

Standard: 1 kilogram is equal to the mass of the **International Prototype Kilogram** (IPK), a platinum-iridium cylinder kept by the BIPM at Sèvres, France.



Kilogram Prototype

Metric Units

1 Kilogram (kg) = 1000 Grams (g)

1 Gram (g) = 1000 Milligrams (mg)

Click the image to watch a short video about mass.



Which is larger?

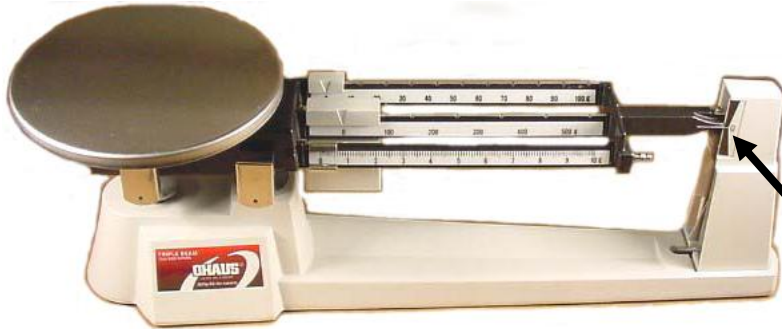
A. 1 kilogram or 1500 grams

C. 12 milligrams or 12 kilograms

B. 1200 milligrams or 1 gram

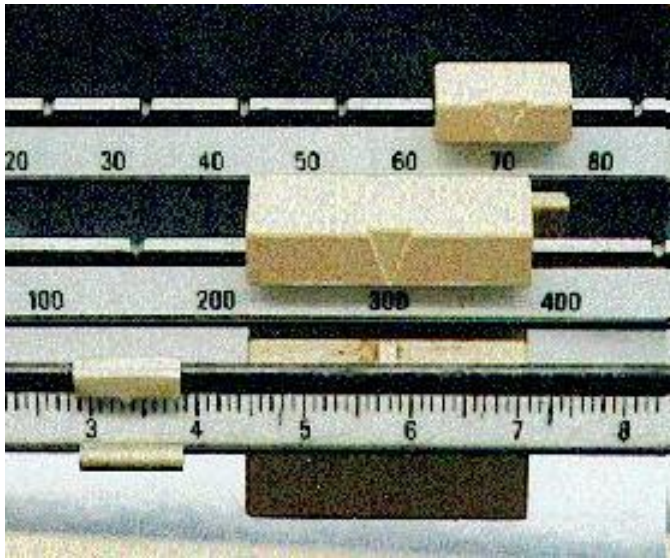
D. 4 kilograms or 4500 grams

Measuring Mass



We will be using **triple-beam balances** to find the mass of various objects.

The objects are placed on the scale and then you move the weights on the beams until you get the lines on the right-side of the scale to match up.



Once you have balanced the scale, you add up the amounts on each beam to find the total mass.

What would be the mass of the object measured in the picture?

$$\underline{\hspace{2cm}} + \underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}} \text{ g}$$

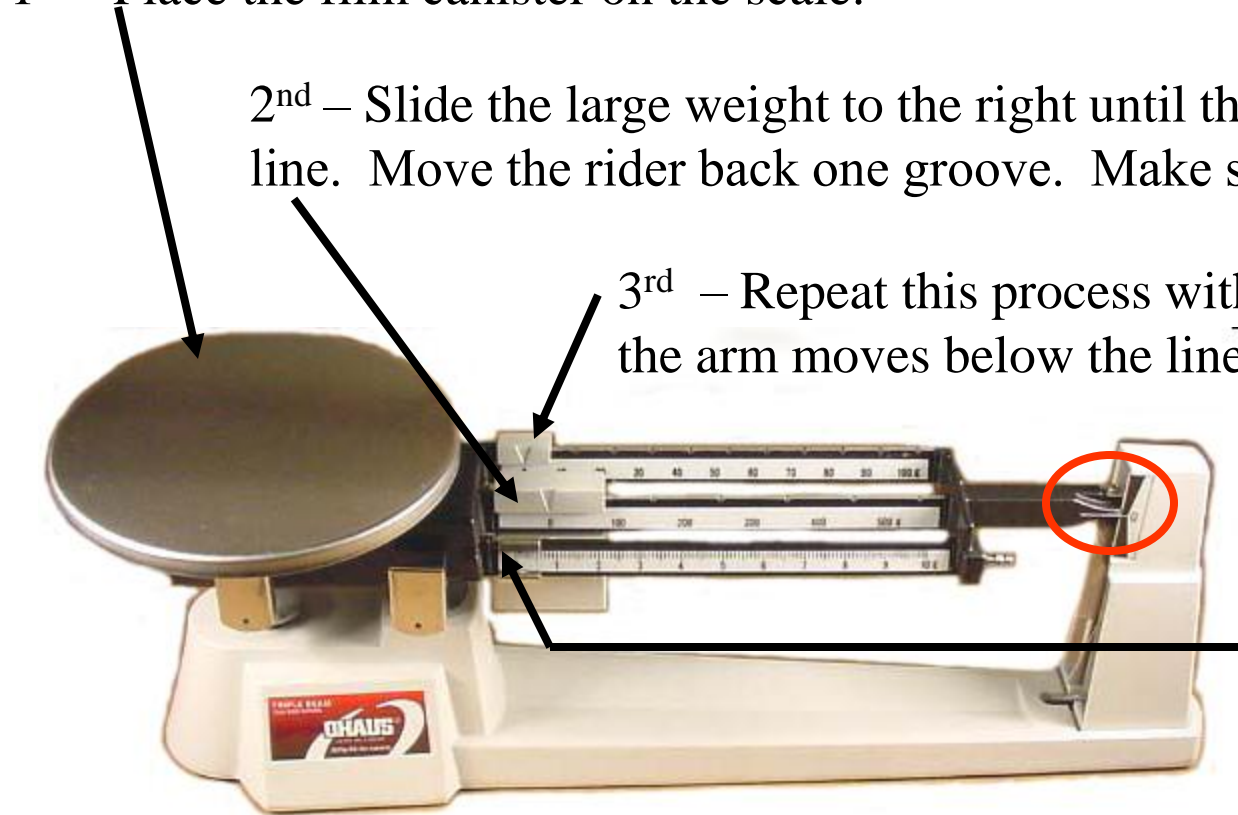
Measuring Mass – Triple-Beam Balance

1st – Place the film canister on the scale.

2nd – Slide the large weight to the right until the arm drops below the line. Move the rider back one groove. Make sure it “locks” into place.

3rd – Repeat this process with the top weight. When the arm moves below the line, back it up one groove.

4th – Slide the small weight on the front beam until the lines match up.



5th – Add the amounts on each beam to find the total mass to the nearest tenth of a gram.

[Click here to try an online activity.](#)