

Volume and Mass Measurement Information

Chemistry: The science of dealing with the composition, properties and reactions of substances

Review: Estimation Rule: Estimate all measurements to the nearest tenth of the smallest division on the scale.

Accuracy: How correct a measurement is.

Precision: How exact a measurement is (the number of decimal places the measurement has been made to)

Matter: Anything that has mass and volume.

Mass: The amount of matter present in something, units are g and kg.

Volume: How much space something takes up, units are cm^3 , ml and L

Solids:

For regularly shaped solids like cubes, rectangular prisms, cylinders and spheres you use a formula. Units are in cm^3

Apply the estimation rule carefully!

Cube: $V = s^3$

Rectangular Prism: $V = L \times W \times H$

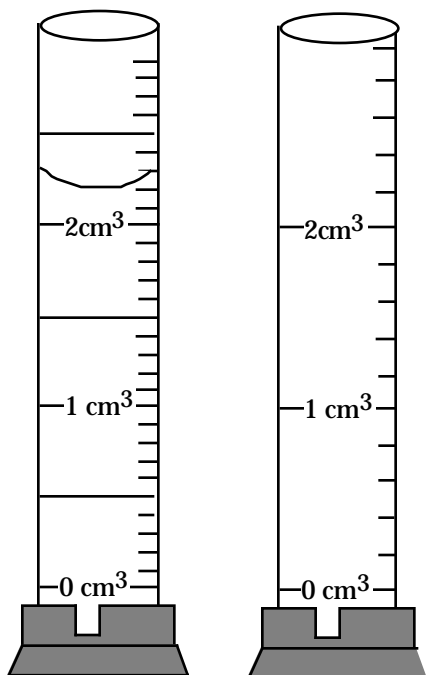
Cylinder: $\pi r^2 h$

Sphere: $V = \frac{4}{3} \pi r^3$

For irregularly shaped solids, like a rock use liquid displacement in a liquid that doesn't dissolve the solid or allow it to float. Place object into a measured amount of liquid, and the amount that the liquid goes up by is equal to the volume of the object.

Liquids:

Use a graduated cylinder. Determine how much each of the smallest divisions equals and apply the estimation rule carefully! See diagram below.



- 1- Place cylinder on a flat and level surface.
- 2- Get eye level with the surface of the liquid.
- 3- Measure the liquid from the center/bottom of the meniscus.