Finding Volume

What is volume?

- How much space matter takes up
  - Ms. Manning
- the amount of 3-dimensional space occupied by an object
  - www.thefreedictionary.com

How to find volume

- Measure with a rule and then use a mathematical formula
- Use a graduated cylinder or beaker
- Use the displacement method

Using a formula

- The most common formula to use is: length x width x height
- Use it for a rectangular prism (box shape)
- Measure all 3 dimensions using the same unit
- Plug the numbers into the formula
- Label your answer using cubic units

Example using a formula

- V = l x w x h

- V = 4 cm x 3 cm x 12 cm

- V = 144 cubic cm

  or

  144 cm^3

Using a graduated cylinder or beaker

- Select the graduated cylinder or beaker which will be best for what you are going to measure
- Carefully pour the liquid into your container
- Locate the bottom of the meniscus
- Carefully read the number
- Label with the unit which is on the container (usually mL)

Example with a graduated cylinder

- The meniscus appears to be at 19 mL
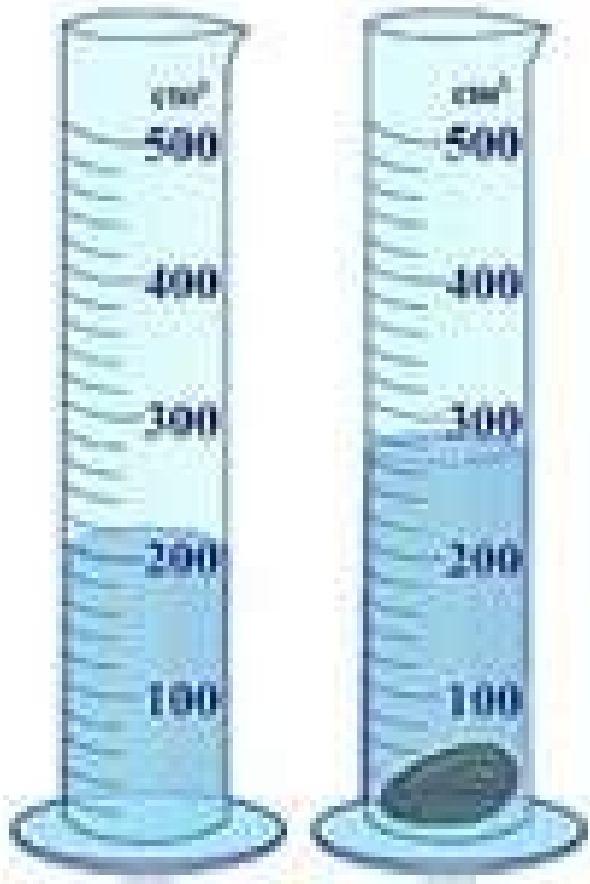
- Therefore the volume is 19 mL
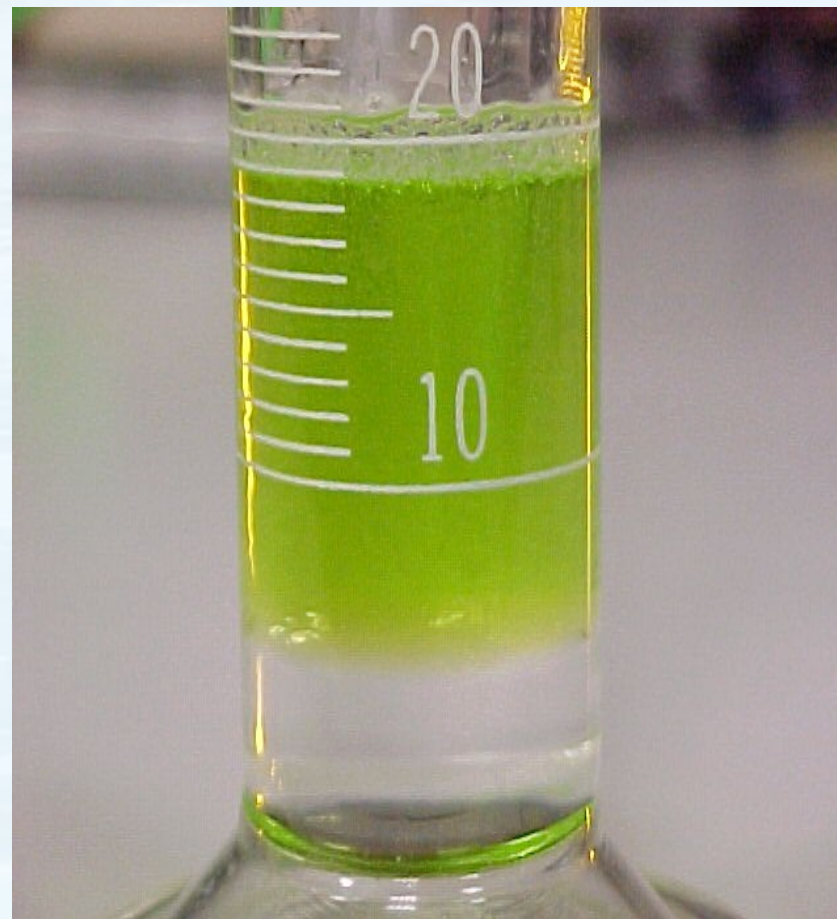
Using the displacement method

- Select an appropriate graduated cylinder or beaker (your item will need to fit inside of it without being too tight or having too much extra space)
- Pour some water into your container (enough so your item will be covered when you drop it in, but not so much that it will overflow or cause the water to go above the numbers)

Using the displacement method (cont.)

- Determine how much water is in your container and write it down
- Carefully get your object into the container without a splash
- Determine the current level of the water
- Find the difference between the current level and the original level (new # - old #)
- Change your label to cubic centimeters

Displacement Example

$$300 \text{ mL}$$
$$-\ \underline{200 \text{ mL}}$$
$$100 \text{ mL} = 100 \text{ cm}^3$$