Density

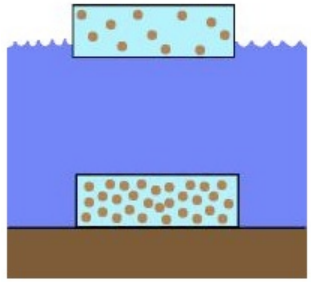
Density is the amount of mass in a certain volume.

- D = M / V

The units for density always have two parts:
- a mass part (kg or g)
- a volume part (ml or cm^3)

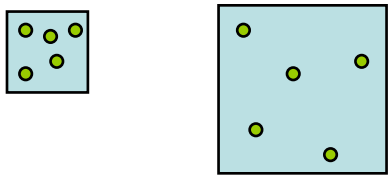
The Density of Water

- The density of water is 1.0 g/cm^3 or 1.0 g/ml
- Objects with a density LESS than 1 will float on water.
- Objects with a density GREATER than 1 will sink in water.



Which one is more dense?

Now which one is more dense?



What is Density?

- Density = $\frac{\text{mass}}{\text{volume}}$
- Units for density: $\frac{g}{ml}$ or $\frac{g}{cm^3}$

Why are these the units for density?

Let's try a density problem!

- Frank has a paper clip. It has a mass of 9g and a volume of $3cm^3$. What is its density?
- Frank also has an eraser. It has a mass of 3g, and a volume of $1cm^3$. What is its density?

Work on these problems.

- Jack has a rock. The rock has a mass of 6g and a volume of $3cm^3$. What is the density of the rock?
- Jill has a gel pen. The gel pen has a mass of 8g and a volume of $2cm^3$. What is the density of the pen?

Liquid Layers

- Check out this picture. Which layer has the highest density?
- Which layer has the lowest density?
- Imagine that the liquids have the following densities:
  - $10g/cm^3$. $3g/cm^3$.
  - $6g/cm^3$. $5g/cm^3$.
- Which number would go with which layer?

Liquid Layers

- If you pour together liquids that don't mix and have different densities, they will form liquid layers.
- The liquid with the highest density will be on the bottom.
- The liquid with the lowest density will be on the top.

Density of Water = 1.0 g/ml

Lamp Oil = 0.60 g/ml

Rubbing Alcohol = 0.87 g/ml

Vegetable Oil = 0.91 g/ml

Dish Soap = 1.03 g/ml

Karo Syrup = 1.33 g/ml

Honey = 1.36 g/ml

Water = 1.0 g/ml