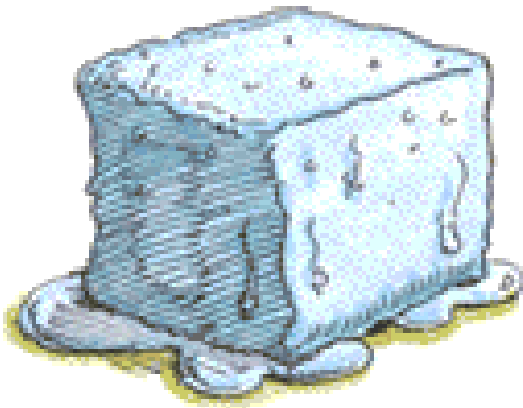


Chapter 2 - Properties of Matter

2-2

Physical Properties



SOLID



LIQUID

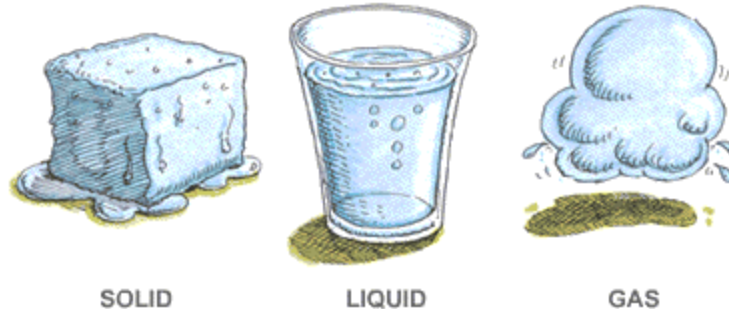


GAS

Don't
forget
plasma!

Physical Properties of Matter

- Can be observed or measured without changing the matter
 - EX: the mass or color of an apple
- Thermal conductivity – rate a substance conducts heat
- State – physical form (solid, liquid, or gas)



Physical Properties of Matter

- Density – mass per unit volume of a substance; the amount of matter in a given space
 - Ex: golf ball versus ping pong ball
- Solubility – the ability to dissolve in another substance
- Ductility – ability to be pulled into a wire
- Malleability – ability to be rolled or pounded into thin sheets



More about Density

- Density of Solids
 - Density is different from mass
 - EX: kg of lead versus a kg of feathers
 - If an object's density is less than water, it floats; if it is more than water, then it sinks
- Density of liquids
 - The densest moves to the bottom, the least dense to the top



The Density Equation

- Density = mass divided by volume

$$\rho = \frac{M}{V}$$



Physical Changes

- Physical changes do NOT form new substances
 - Ex: a melted popsicle or a crushed can



- Ex: ice to water (or water to ice)
- Ex: dissolving drink mixes (like lemonade) into water
- Ex: sawdust from cutting wood

Matter and Physical Changes

- Physical changes do not change the matter
- Matter may change state (solid, liquid, gas)
- Matter may change appearance
 - Ex. A log carved into a sculpture

