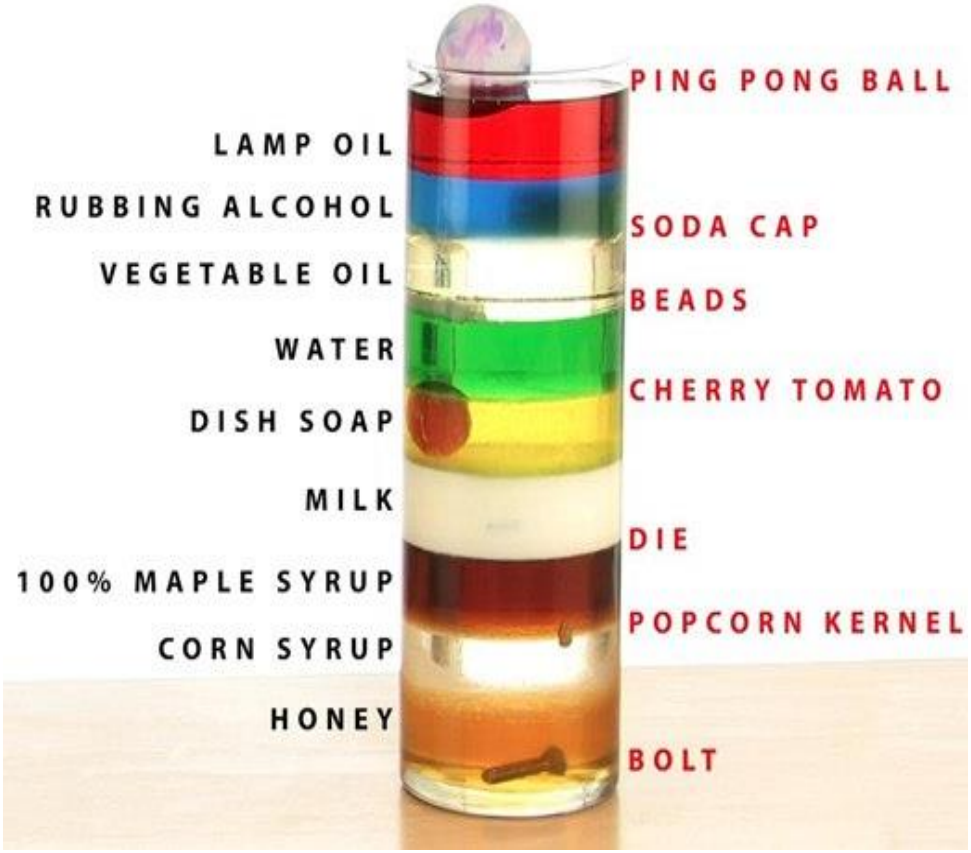
Fun with Liquids

Have you ever heard the phrase "oil and water don't mix"?



The term "<u>miscibility</u>" describes how well two substances mix. "Immiscible" liquids do not mix. When combined together, they form <u>layers</u>.

WHY?

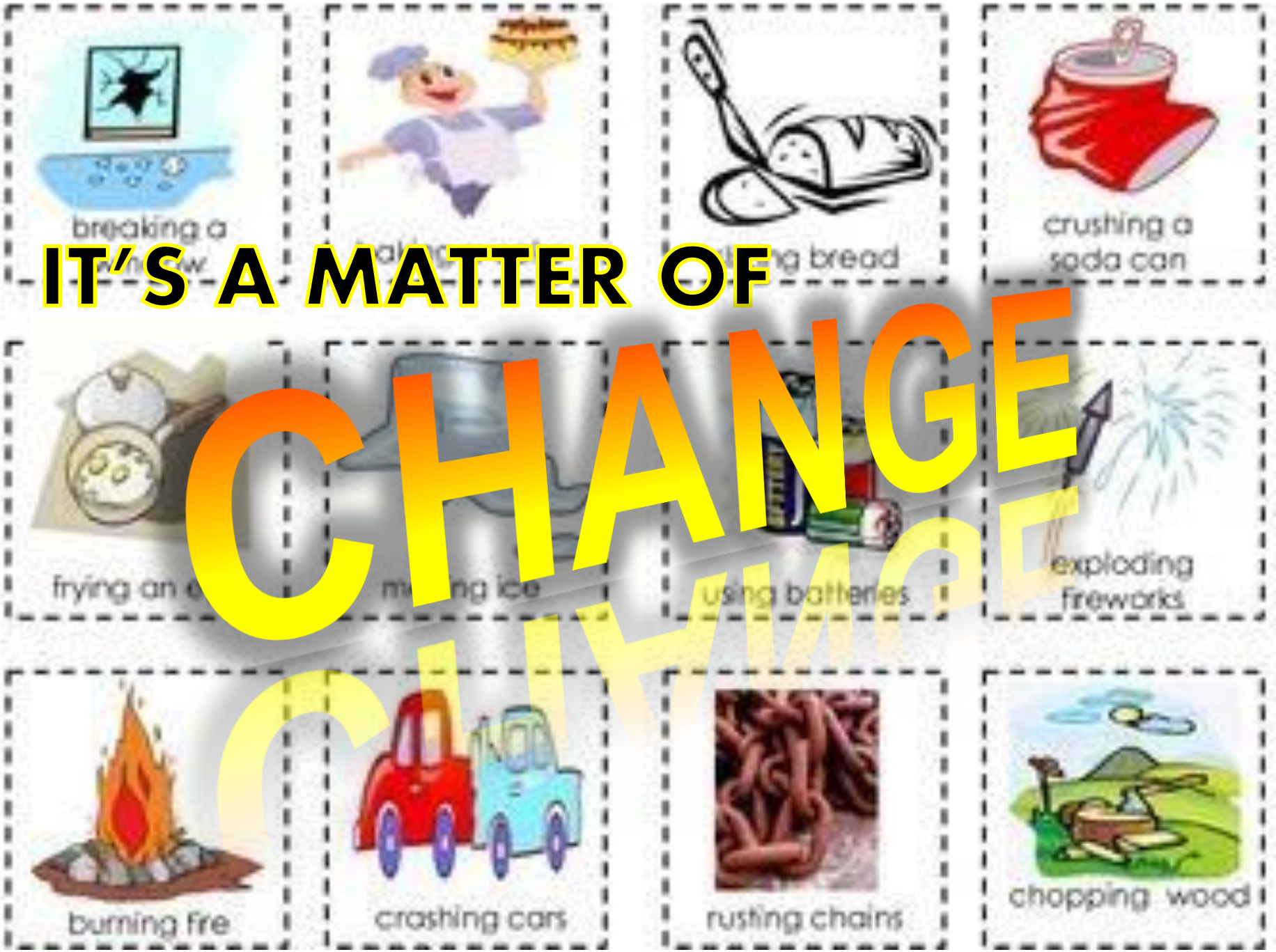
Element, Compound, or Mixture?

Rocks

Neon Gas

Table Sugar

Tea


IT'S A MATTER OF
CHANGE
breaking a
crushing a
soda can
exploding
freworks
burning fre
crashing cars
rusting chains
chopping wood

Physical

CHANGE

Chemical

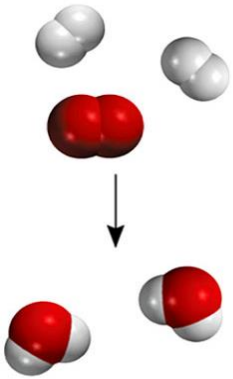
A ***physical change*** **does NOT alter** the composition or identity of a substance.

sugar dissolving in water

ice melting

VS

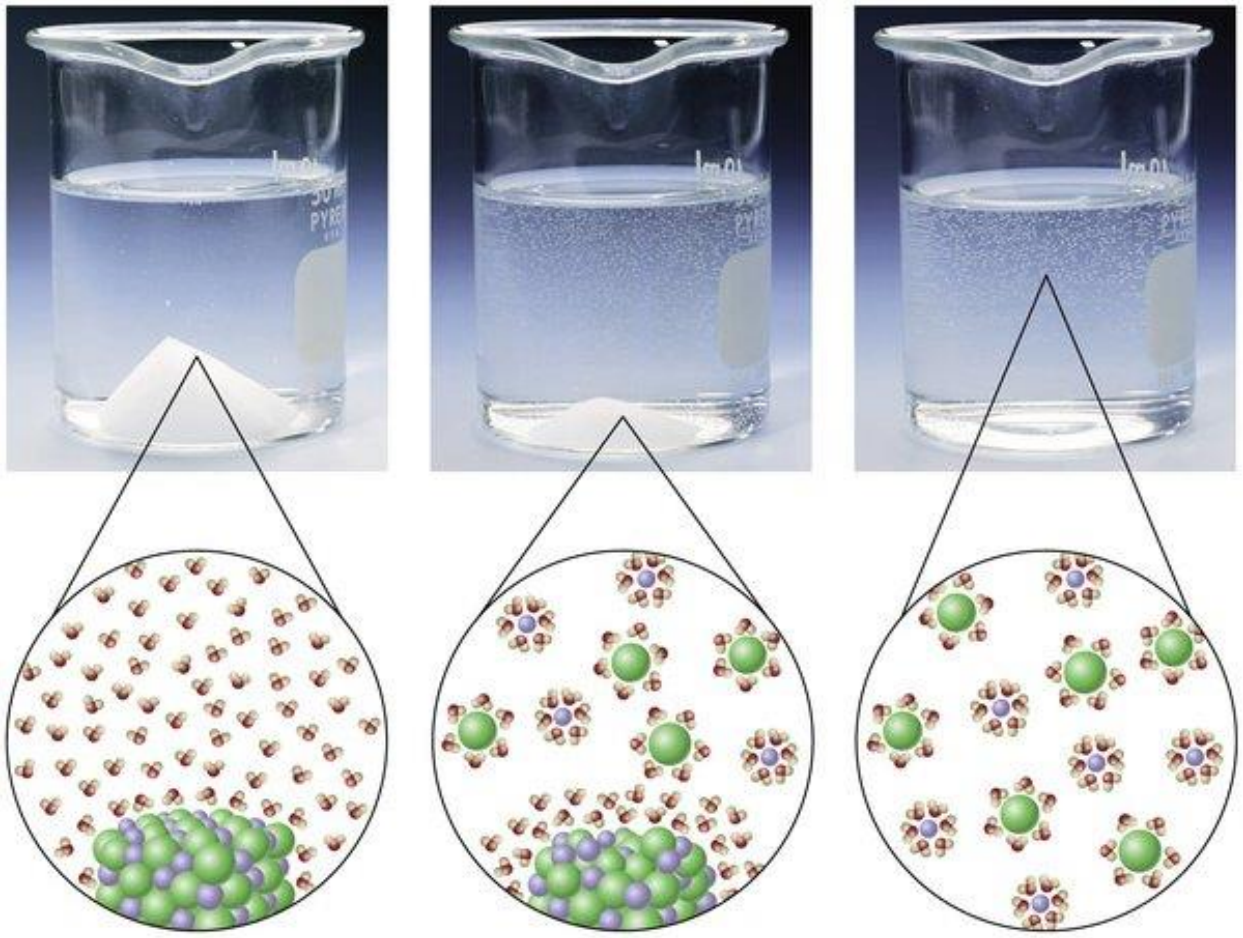
A ***chemical change*** **does alter** the composition or identity of the substance(s) involved.



hydrogen burns in air to form water

Physical Change Examples

Salt Dissolving in Water

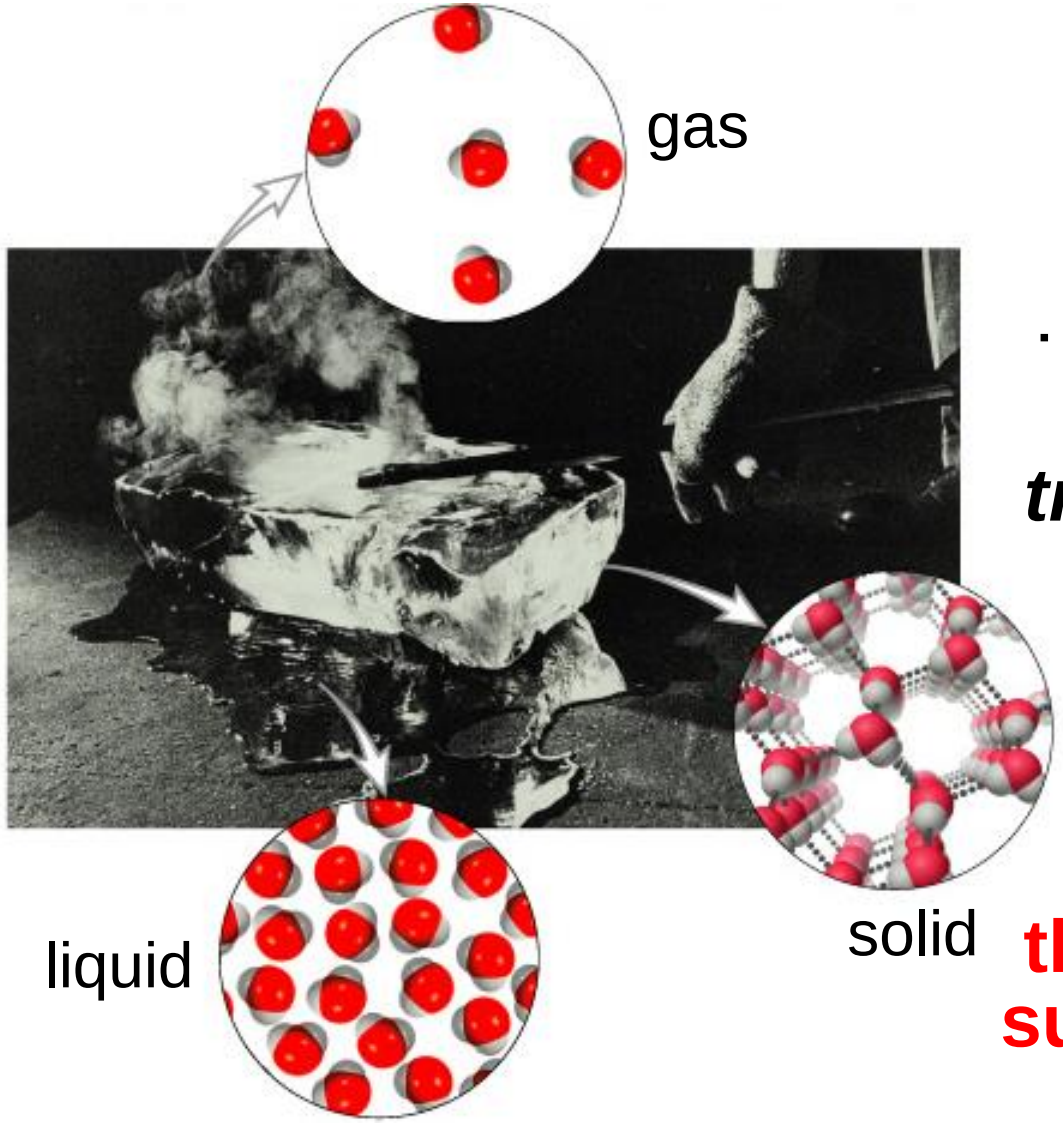


a homogeneous MIXTURE is created

Physical Change Examples

Effect of a Hot Poker on a Block of Ice

A change from **one state of matter to another**…

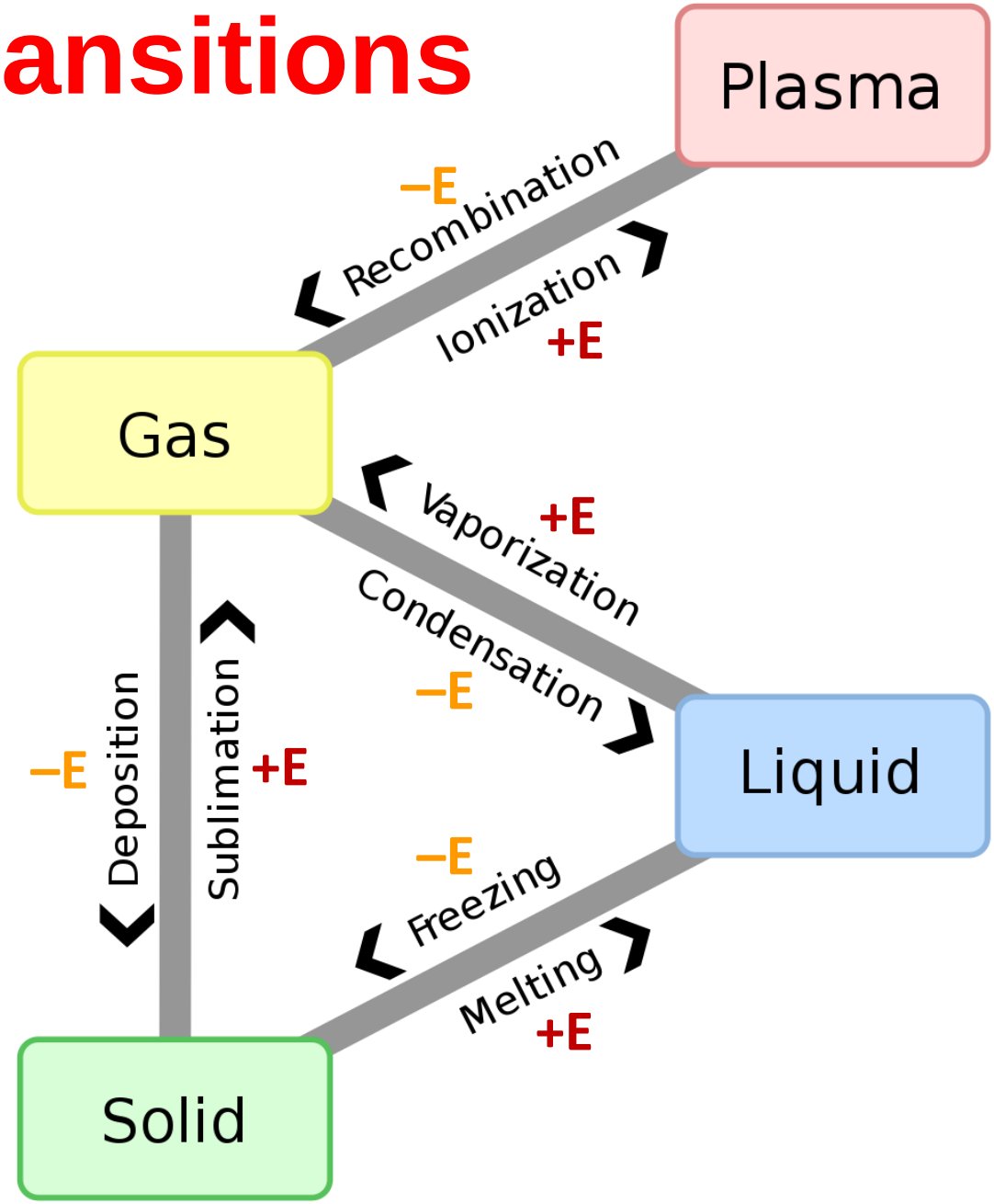


…is called a ***phase transition.***

But it's all the SAME substance!

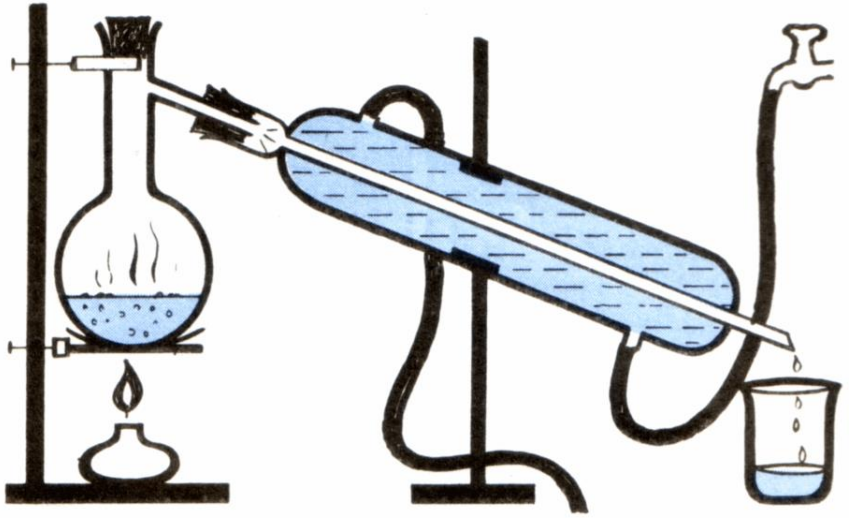
Phase Transitions

- A **phase transition** is the transformation from one phase or state of matter to another one by **heat transfer**.
- Heat can be absorbed (+E) or released (–E) by a substance as it **changes structure**.
- A phase transition can be recognized by an **abrupt change in physical properties**.



Phase Transition Examples

Physical change **can be used to separate a mixture into its components by exploiting their *different physical properties*.**



To separate sweet water (water with sugar dissolved in it): boil the water, collect the vapor and sugar crystals

To separate iron particles from sand mixture: use a magnet.

What kind of mixtures are these?