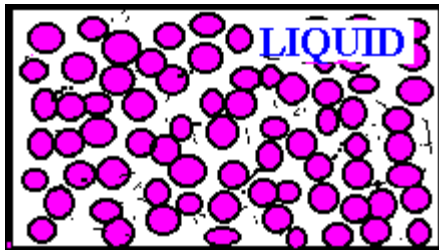
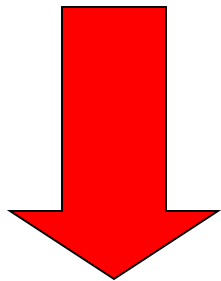
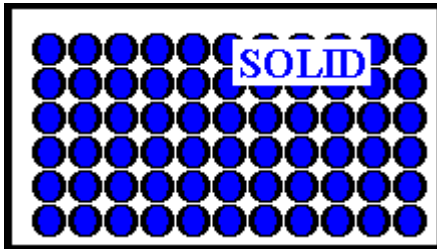


# Changes in states - Melting



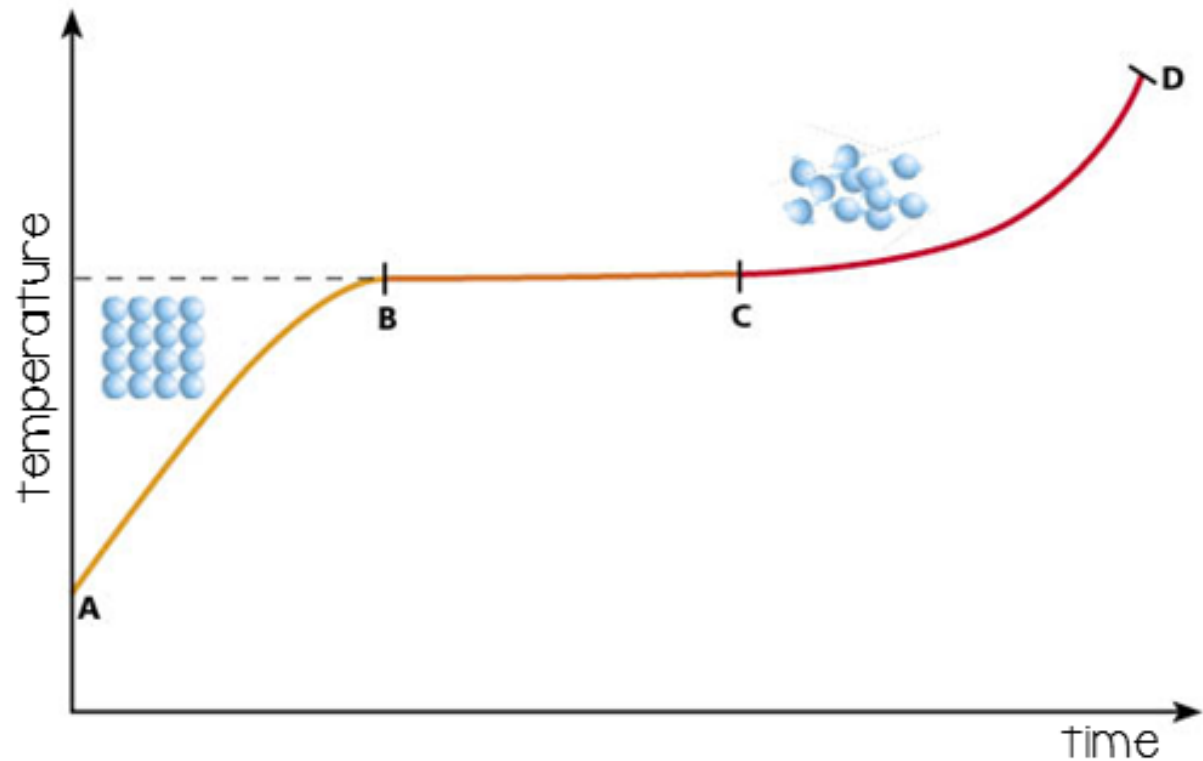
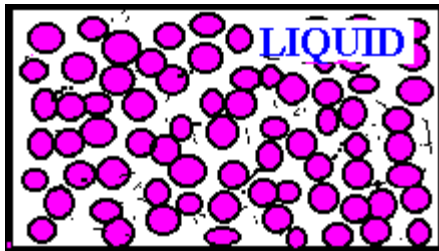
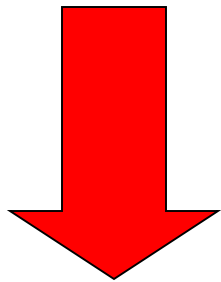
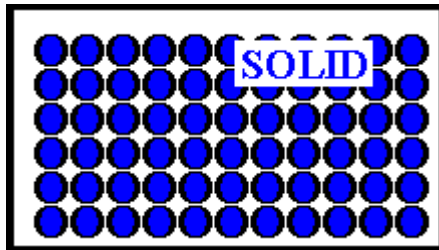
When a solid is heated, the particles gain kinetic energy and vibrate more vigorously.

When the particles have enough kinetic energy, they overcome the strong forces of attraction between one another. The particles then can break away from their fixed positions.

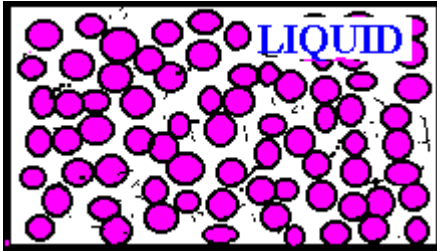
Particles are now able to move throughout the liquid.

Melting occurs when the melting point is reached. The solid changes to its liquid state.

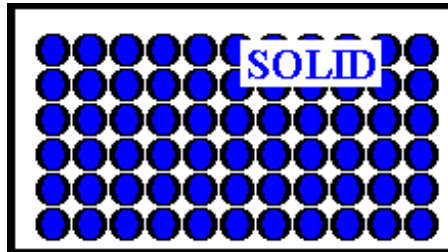
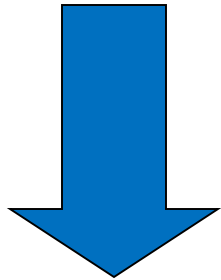
# Changes in states - Melting



# Changes in states - Freezing



When a liquid is cooled, the particles lose kinetic energy and moves slower.

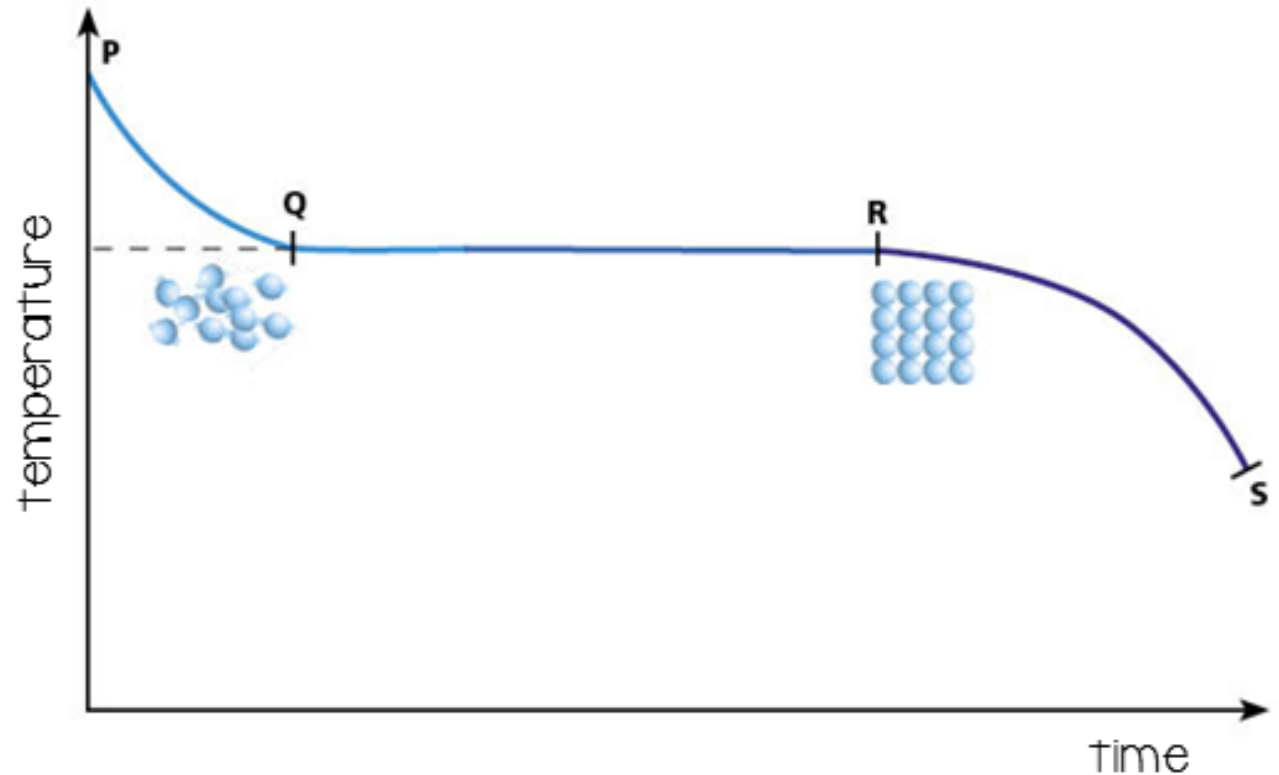
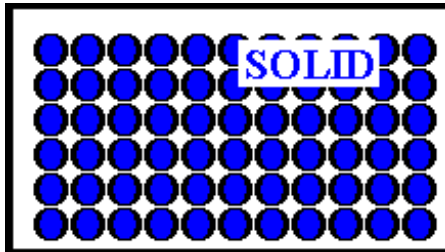
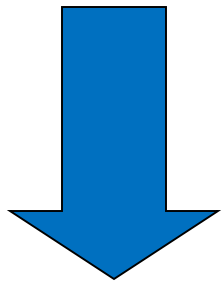
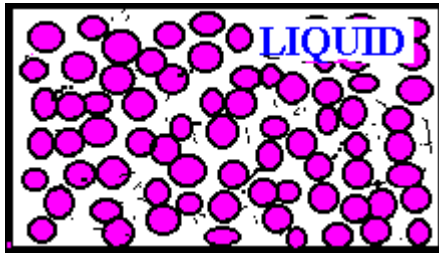


When the particles have lost enough kinetic energy, they move closer to one another and no longer have the energy to slide over one another.

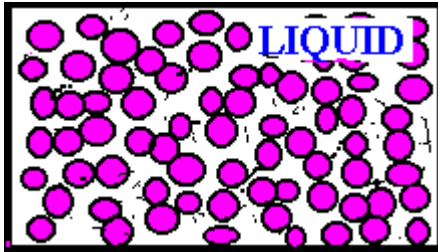
Particles start to settle into their fixed positions.

Freezing occurs when the freezing point is reached. The liquid changes to its solid state.

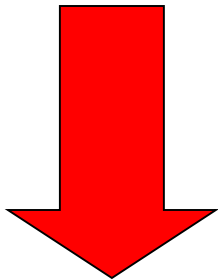
# Changes in states - Freezing



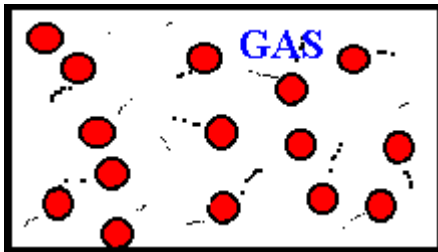
# Changes in states - Boiling



When a liquid is heated, the particles gain kinetic energy and move more vigorously.

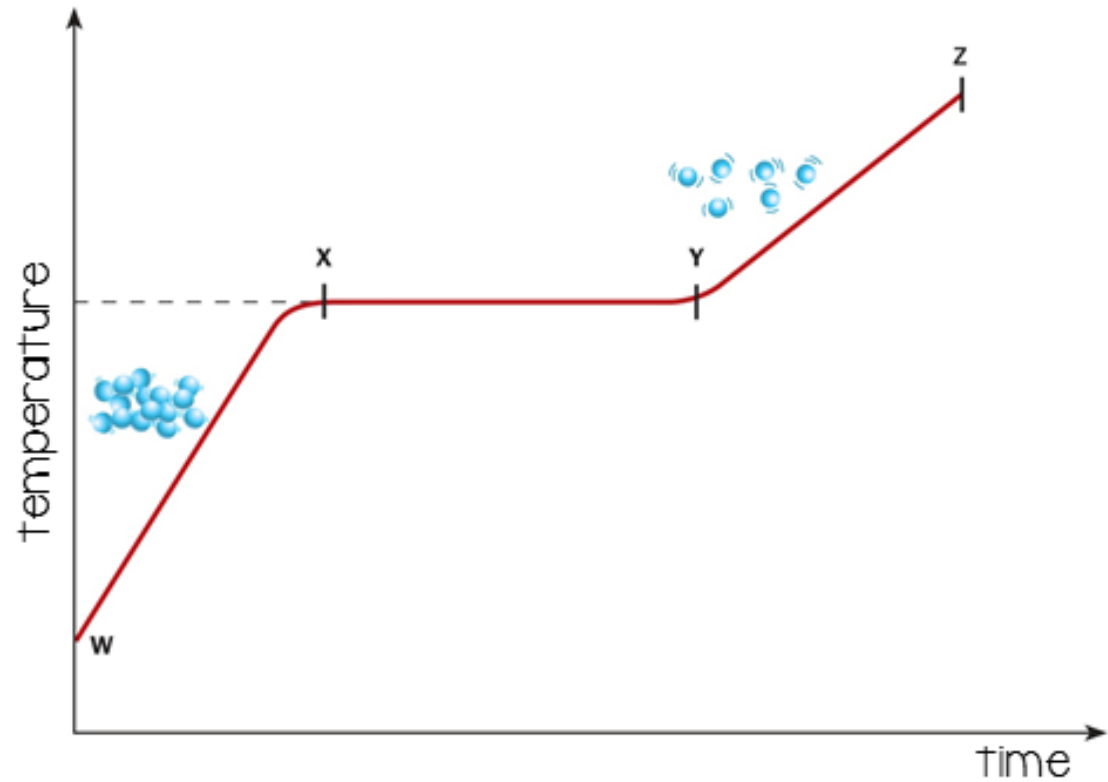
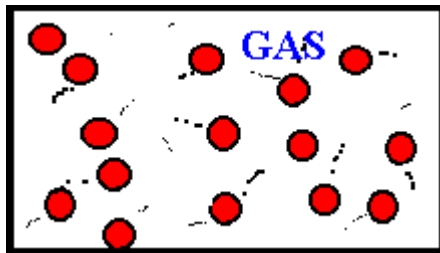
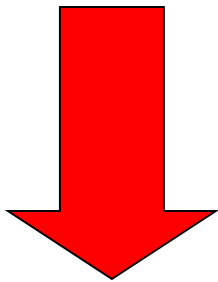
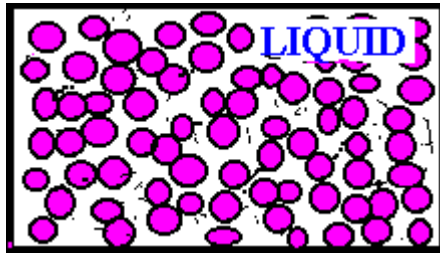


When the particles gain enough kinetic energy, they overcome the strong forces of attraction between one another. The particles then can move further apart and rapidly in any direction.

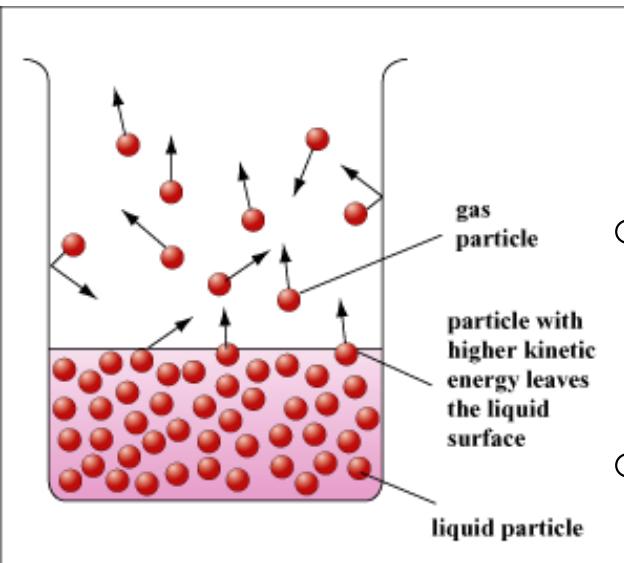


Boiling occurs when the boiling point is reached. The liquid changes to its gaseous state.

# Changes in states - Boiling



# Changes in states - Evaporation



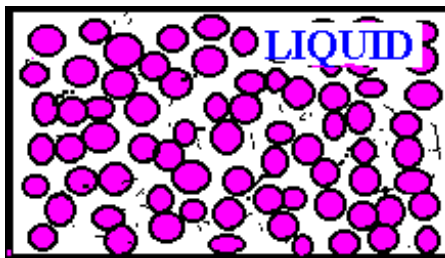
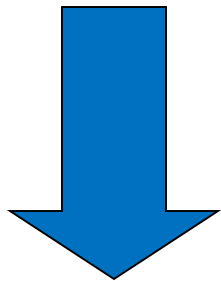
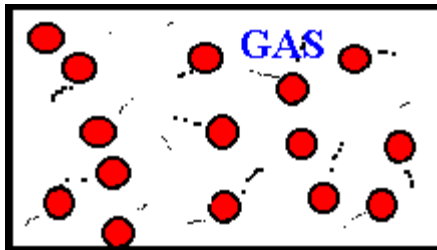
- Evaporation is the process in which a liquid changes into a gas at temperatures **below** than the boiling point.
- Liquids which evaporate readily at room temperature are said to be **volatile**.
- The forces of attraction between particles in such liquids are very **weak** and the particles have enough energy to overcome these forces and **escape** from the surface.

# Boiling Vs Evaporation

<b>Boiling</b>	<b>Evaporation</b>
Occurs at a fixed temperature	Occurs at temperatures above freezing point and below boiling point
Occurs throughout the whole liquid	Occurs only at the surface of the liquid



# Changes in states - Condensation



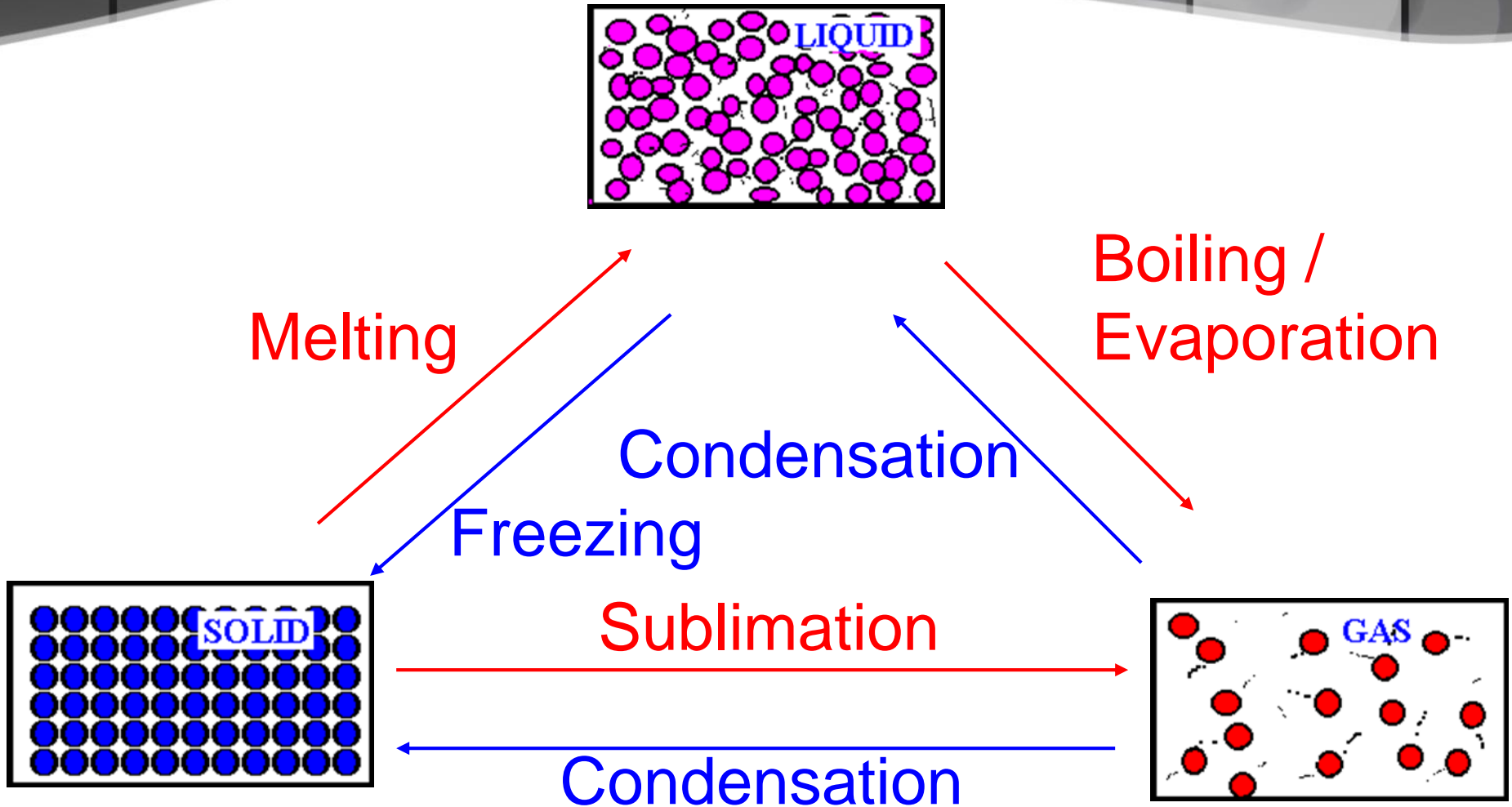
When a gas is cooled, the particles lose kinetic energy and moves much slower.

When the particles lost enough kinetic energy, they move closer to one another and no longer move randomly.

As the particles move closer, the forces of attraction between one another becomes stronger.

The forces of attraction bring the particles closer to one another and eventually the gas turns into a liquid.

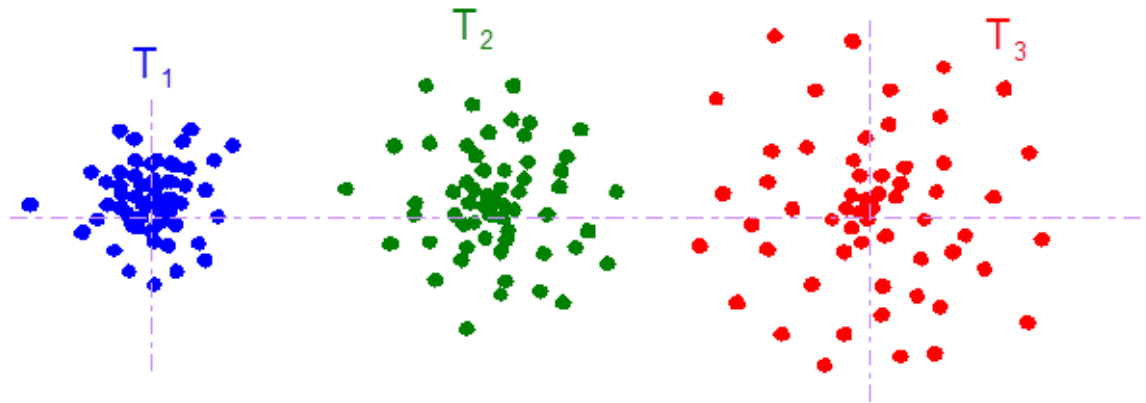
# Changes of State



# Diffusion

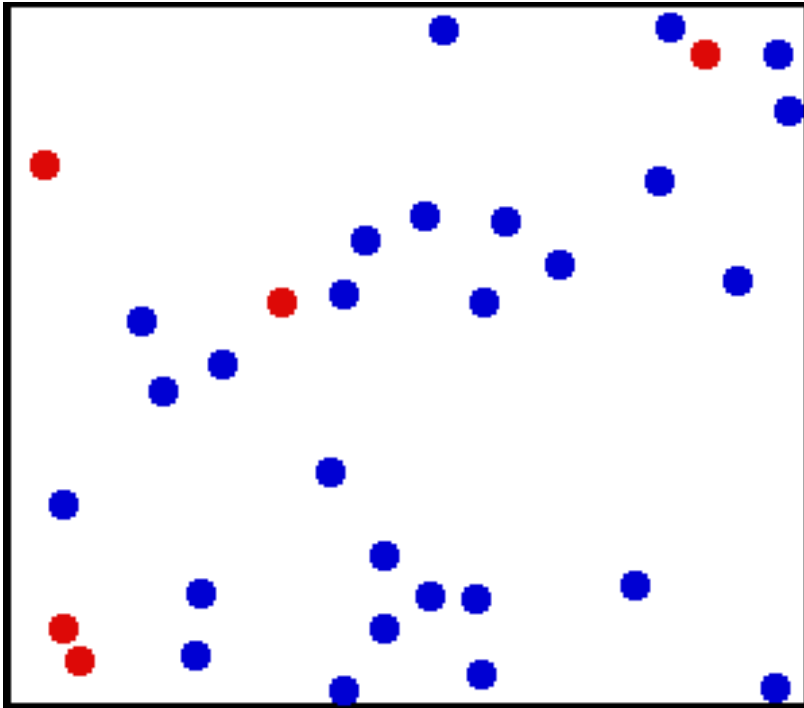
The net movement of molecules from a region of high concentration to a region of low concentration.

Particles spread out from high concentration regions to low concentration regions until they are evenly spread out.



# Diffusion

According to the Kinetic Particle Theory, diffusion occurs because the particles are always in constant motion.



**If there is space these particles want to spread out evenly.**

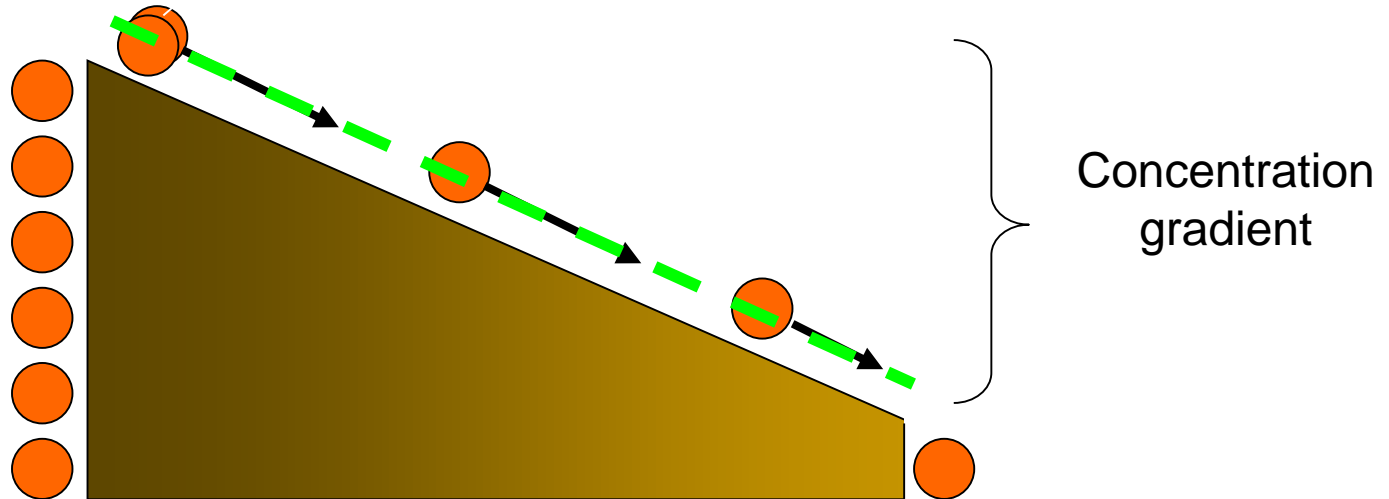
# Diffusion

**Concentration refers to the amount of substance in a given volume.**

The difference between the high concentration regions and low concentration regions → concentration gradient

# Diffusion

Molecule moves from a region of high concentration to that of a low one.

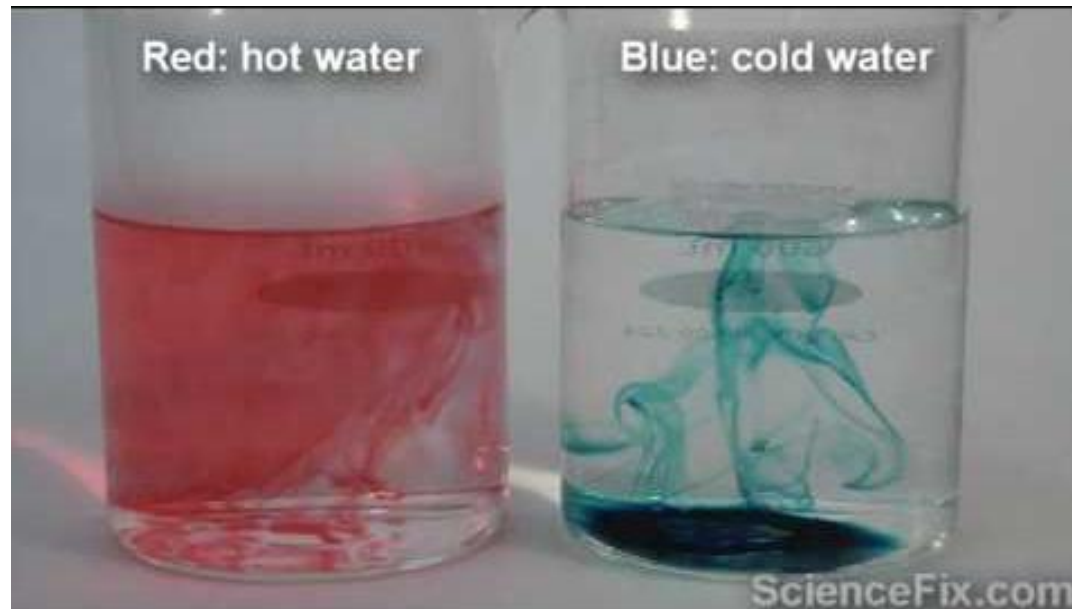


The ***steeper*** the concentration gradient, the ***faster*** diffusion takes place

# Diffusion

The **higher** the temperature, the **faster** diffusion takes place.

- Particles have higher kinetic energy at **higher temperature** and hence move faster.



# Diffusion

The **lower** the molecular mass, the **faster** diffusion takes place.

