Changes of State

Chemistry - Key Stage 3

Particles - Lesson 3

Miss Mason

Recap

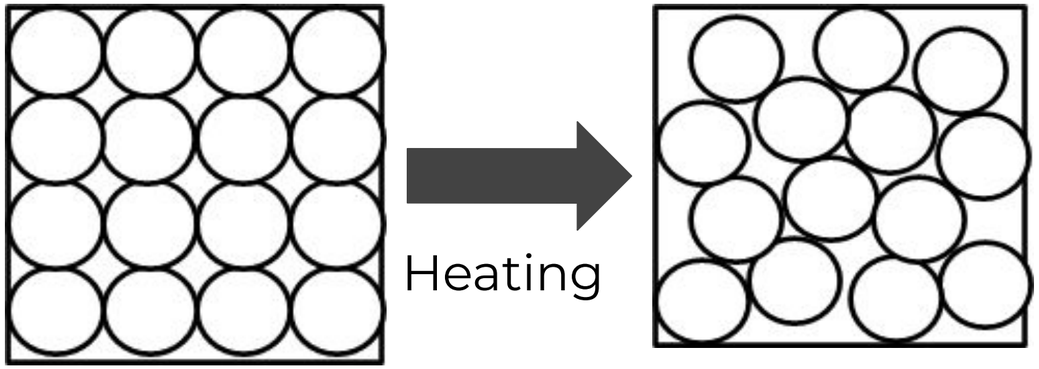
1. Name the 3 states of matter.
S_____, l_____ and g_____.

2. Define diffusion.
The movement of p_____ from an area of _____ concentration to _____ concentration.

3. Identify 2 factors that can affect the rate of diffusion.
T_____ and s_____ a____.

4. Explain why solids are not able to flow or change to fit the shape of their container.
Solids have a _____ shape. Their particles are all _____ and they can only _____ in a fixed position. The particles can't _____ around each other so they can't flow.

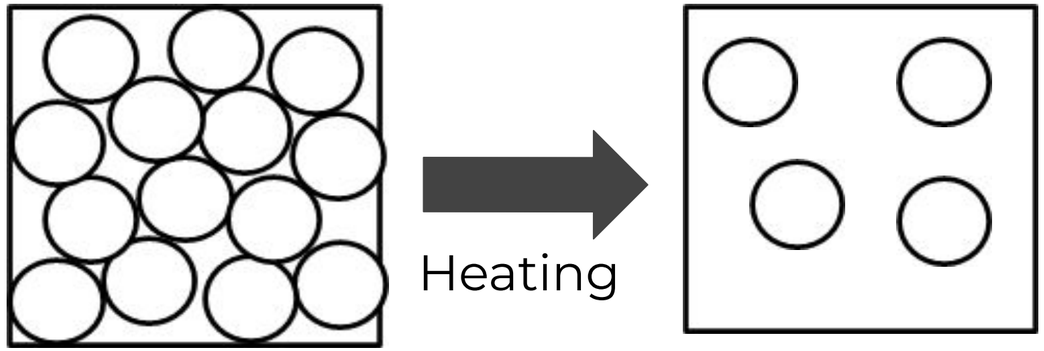
5. What holds the particles in a solid together?
Forces of a_____.



Solid **Liquid**

- <u>Gain</u> kinetic energy
- <u>Breaks</u> forces of attraction between particles
  - Particles move further apart
    - Substance melts
  - New arrangement of particles

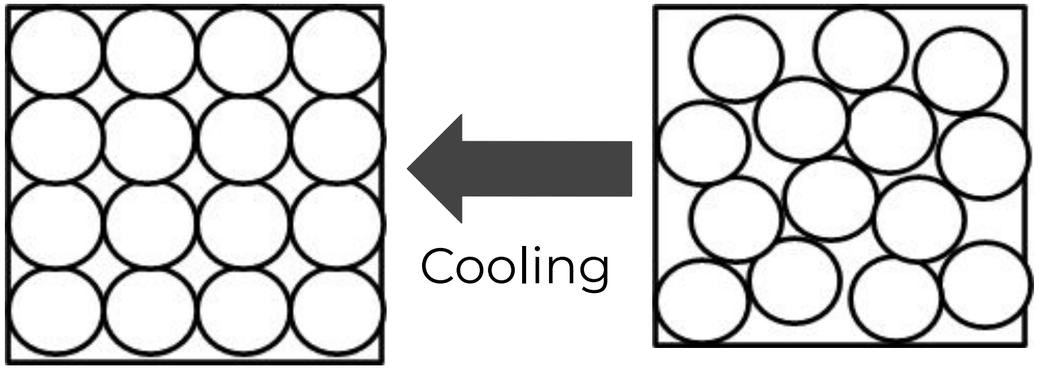
This is what we call a **change of state**.



Liquid **Gas**

- Gain k_____ energy
- Breaks f_____ of attraction between particles
  - Particles move _____ _____.
    - Substance b_____
  - New arrangement of particles

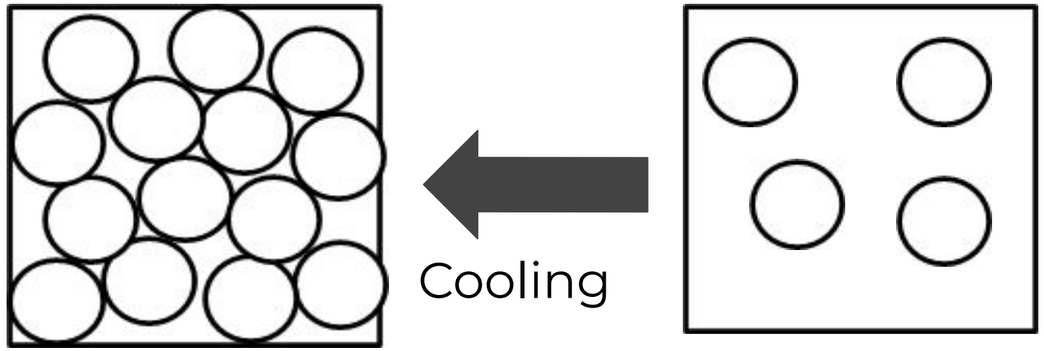
This is what we call a _____ **of** _____.



Solid **Liquid**

- <u>Decrease</u> in store of kinetic energy
  - Particles move closer together
    - Forces of attraction reform
      - Substance freezes
  - New arrangement of particles

This is what we call a **change of state**.



Liquid **Gas**

- Decrease in store of k_____ energy
  - Particles move c_____ together
    - F_____ of a_____ reform
      - Substance c_____
  - New a_____ of particles

This is what we call a _____ **of** _____.

Find the mistakes!

1. Melting is the change of state that occurs when a liquid turns into a gas.
2. Condensing is the change of state that occurs when a gas turns into a solid.
3. When we heat up a substance, there is a decrease in the kinetic energy store of the particles.
4. When we cool a substance, there is enough energy to break the forces of attraction between the particles.
5. Cooling a substance causes particles to move further apart.
6. A change of state is a type of chemical change because we end up with new products.

Describe the changes to the arrangement and movement of particles as an ice lolly melts

Helpful hints:

- What is the starting state of matter?
- What is the final state of matter?
- What has to happen to the particles in order to go from the starting state of matter to the final state of matter?

(Make sure you mention: energy, particle arrangement, forces of attraction).