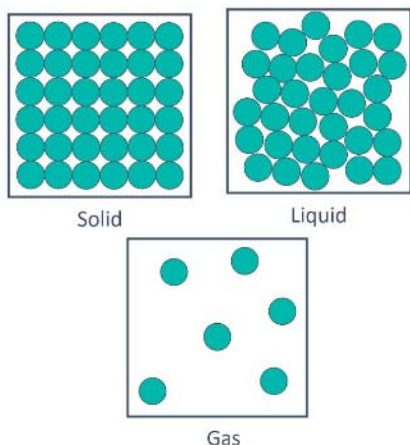


Y7 - Knowledge organiser – 7.2 - Particle Model & Separating Mixtures

The particle model 1

- **Substances** change between solid/ liquid/ gas when particles gain/ lose energy.

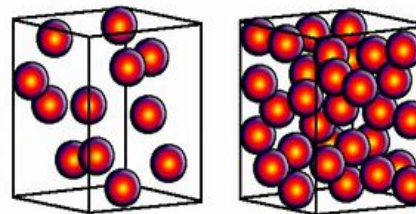


Changes of state 2

- **Evaporate:** change from a liquid to a gas at the surface of a liquid at any temperature.
- **Boil:** change from a liquid to a gas all over the liquid.
- **Condense:** change from a gas to a liquid.
- **Melt:** change from a solid to a liquid.
- **Freeze:** change from a liquid to a solid.
- **Sublime:** change from a solid straight to a gas.

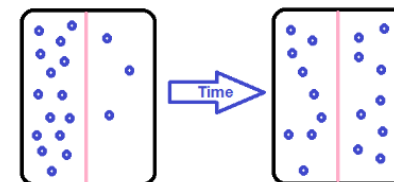
Density 3

- How many particles there are in a given volume.
- Or, how close the particles are.
- Solids are more dense than gases



Behaviour of gases 4

- **Diffusion:** particles in liquids and gases spread out from a high concentration to a low concentration.



- **Gas pressure:** particles collide with walls of the container.

Element, compounds and mixtures 5

- **Element:** only one type of atom.
- **Compound:** two or more types of atoms, *chemically joined*.
- **Mixture:** two or more type of element/ compounds.
- Mixtures can be separated.
- **Pure** substances: only one type of element.

Keywords 6

- **Solvent:** the liquid dissolving the other substance.
- **Solute:** the substance that is being dissolved.
- **Solution:** mixture of solvent and solute.
- **Soluble:** can dissolve in a liquid.
- **Dissolve:** when a solute mixes completely with a solvent.
- **Solubility:** maximum amount of solute that can dissolve in solvent.

Filtration and evaporation 7

- **Filtration:** separating an insoluble solid from a solvent
- **Evaporation:** separating a soluble solid and solvent by turning the solvent into a gas, leaving the solid behind.

Distillation and chromatography 8

- **Distillation:** separating solutions by boiling and condensing the liquids. Makes use of the different boiling points of liquids.
- **Chromatography:** used to separate different coloured substances.

Knowledge organiser quiz

1. How are particles arranged in a solid
2. How are the particles arranged in a liquid?
3. How are the particles arranged in a gas?
4. What happens to the energy of the particles when a substance changes from a liquid to a gas?
5. What is it called when a liquid changes state to a solid?
6. What is it called when a liquid changes state to a gas?
7. What is more dense a solid or a gas?
8. What is diffusion?
9. What is pressure caused by?
10. What is it called when a solid changes state into a liquid?

Answers

1. Tightly packed together
2. Close together but able to move around
3. Spaces between the particles and they can move around freely
4. The energy increases
5. Freezing
6. Evaporating
7. Solid
8. When particles move from an area of high concentration to an area of low concentration
9. Collisions of gas particles with the walls of the container
10. Melting.