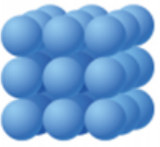




Y4: 'Changing Matters' project knowledge organiser

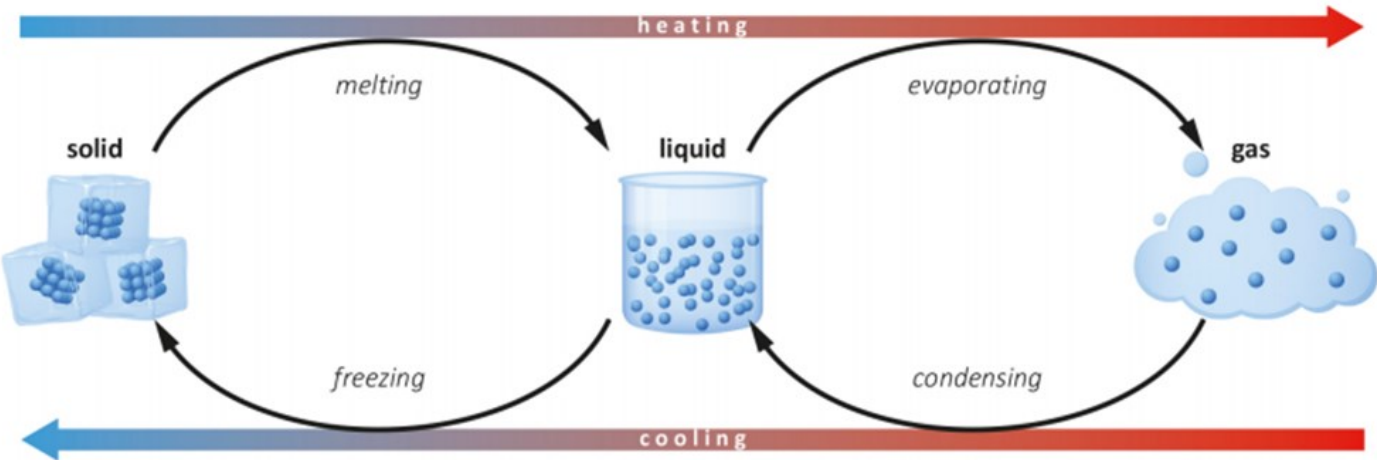
Solids, liquids, and gases

All matter is made up of particles. The arrangement of the particles determines whether the matter is a solid, liquid or gas and its properties.

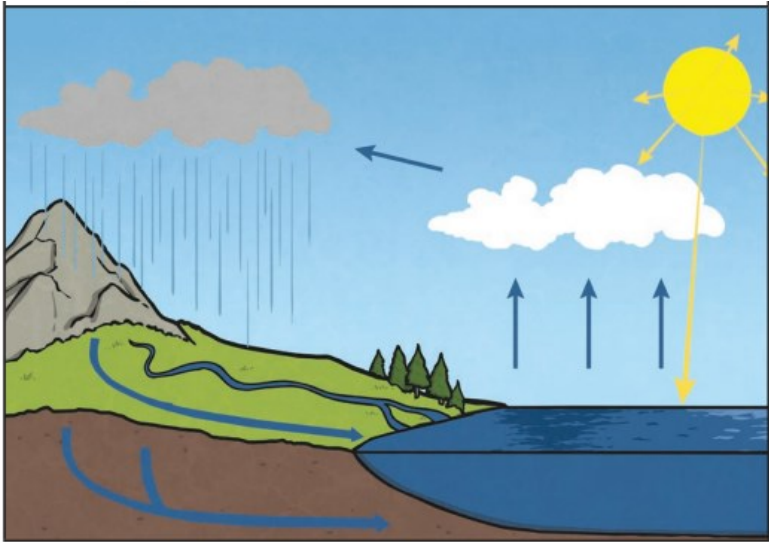
Particle arrangement	Properties	Examples
Solid 	Particles are tightly packed together, which means solids hold their shape and can't be squashed.	wood, brick, rock, sand, ice, butter
Liquid 	Particles are slightly further apart so liquids can flow from one container to another. Liquids cannot change their volume.	water, milk, oil, honey, lemonade, blood
Gas 	Particles are far apart so gases can spread out to fill all the space available. A gas can be squashed to change its volume.	air, oxygen, carbon dioxide, helium, nitrogen, water vapour

Changes of state

Matter can be changed between states by heating or cooling.



The Water Cycle



1. Water from lakes, puddles, rivers and seas is **evaporated** by the sun's heat, turning it into **water vapour**.
2. This **water vapour** rises, then cools down to form water droplets in clouds (**condensation**).
3. When the droplets get too heavy, they fall back to the earth as rain, sleet, hail or snow (**precipitation**).

Key Vocabulary:

- solid:** a state of matter with a fixed shape and volume
- liquid:** a state of matter with a fixed volume but can change shape
- gas:** a state of matter that has no fixed shape or volume and can expand or compress
- temperature:** how hot or cold something is
- degrees Celsius (°C):** a unit of measure for temperature
- boiling:** to heat a liquid to a particular temperature which will allow evaporation to occur
- freezing:** to cool a liquid to a particular temperature to change it to a solid
- melting:** changing from solid to liquid via heat
- boiling point:** the temperature at which liquid boils
- melting point:** the temperature at which solid melts
- evaporation:** the process of changing from a liquid to a gas
- condensation:** the process of changing from a gas to a liquid
- precipitation:** rain, snow, sleet, and hail
- water cycle:** the process by which water circulates between the earth, oceans, air, and land involving precipitation, drainage, and evaporation
- particles:** small portion of matter
- structure:** how the particles within anything are set out

