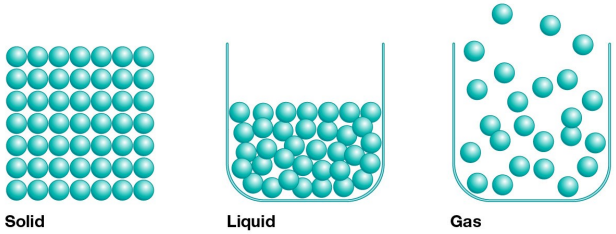
States of Matter



Curriculum Links:

- Compare and group materials together, according to whether they are solids, liquids or gases
- Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C)
- Identify the part played by evaporation and condensation in the water cycle and associate the rate of

Key Facts:

- Particles are what materials are made of, they are so small we cannot see them with our eyes
- Properties of a substance depend on what its particles are like, particles behave differently in solids, liquids and gasses
- A solid material holds its shape, they have vibrating particles which are closely packed. Solids always take up the same amount of space
- A liquid fits the shape of the container it is in, the particles are close together but random. The particles can move over each other and can be poured
- Gas particles can escape from open containers. The particles spread out and move in all directions
- When water is heated the particles move faster until they have enough energy to move more freely. The water evaporates into water vapour
- When water is cooled the particles slow down until a solid structure is formed—it has frozen
- During the water cycle, the water evaporates from the Earth, rises into the atmosphere , cools and condenses into rain and falls again as precipitation

Possible experiences:

- Group materials based on their state
- Explore the effect of temperature on substances such as chocolate, butter etc. Compare melting points.
- Investigate the temperature materials change state
- Observe evaporation over time

We should already know:

- That some materials are used because of their properties
- Examples of different materials and their properties

Key Vocabulary

Condensation	Drops of water which form when water vapour touches a cold surface
Evaporation	To turn from a liquid to a gas
Freezing	When a liquid becomes a solid because of low temperature
Gas	A matter in state which has no fixed shape or volume
Liquid	A substance which flows freely but has constant volume
Melting	To change from a sold to liquid through heat or pressure
Particles	A tiny amount
Precipitation	Rain, snow, sleet etc formed by condensation of water vapour
Properties	Ways which an object behaves
Solid	Has a fixed shape that can be measured
Temperature	A measure of how hot or cold something is
Vibrations	When something shakes repeatedly with small, quick movements
Water Cycle	The process where water evaporates condenses in atmosphere and then returns to the Earth as precipitation