# Year 4– States of Matter (Chemistry)

## Factual Knowledge




- Solids have a fixed shape and a fixed volume. They don't change shape when moved.
- Liquids don't have a fixed shape. They take the shape of their container.
- Liquids keep the same volume even when poured into different containers.
- Gases have no fixed shape and no fixed volume. They spread out to fill any space.
- Some solids, like sand, salt, flour and rice, can be poured, but they are still solids.
- Some liquids flow easily (like water), while others flow slowly (like treacle).
- Some materials can change state between solid, liquid and gas.
- Water can be a solid (ice), a liquid (water) or a gas (water vapour).
- Heating changes ice - water - water vapour, and cooling changes it back again.
- A thermometer measures temperature, and a stopwatch measures time.
- Nearly three-quarters of Earth is covered in water, which is always moving in the water cycle.
- During the water cycle, water changes between different states of matter – solid, liquid and gas.
- Evaporation is when a liquid turns into a gas and condensation is when a gas turns back into a liquid.

## Important vocabulary I will know

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|---|---|---|
| **solid** |  | a state of matter with a fixed shape and a fixed volume |
| **liquid** |  | a state of matter with no fixed shape but a fixed volume |
| **gas** |  | a state of matter with no fixed shape and no fixed volume |
| **volume** |  | the amount of space a solid, liquid or a gas takes up |
| **condensation** |  | the change of state from a gas to a liquid |
| **The water cycle** |  | the processes which recycle and move water around Earth |
| **atmosphere** |  | the layer of gases that surrounds the Earth |
| **states of matter** | | the different forms that materials can take |
| **evaporation** | | the change of state from a liquid to a gas, which happens slowly from the surface of the liquid |

**Scientific Enquiry– Fair test**

**Enquiry question:** How does the temperature of the water affect the time it takes for ice to melt?

**Working Scientifically**

- Gather, record and classify data
- Ask questions
- Make observations
- Plan
- Answer questions and make conclusions





