



Science Topic: States of Matter

Year: 4 **Term:** Spring 1

Key Knowledge/Content:

- Solids, liquids and gases are described by observable properties.
- Materials can be divided into solids, liquids and gases.
- Heating causes solids to melt into liquids and liquids to evaporate into gases.
- Cooling causes gases to condense into liquids and liquids to freeze into solids.
- The temperature at which given substances change state is always the same.

Scientist Focus:

Anders Celsius (Astronomist)

Known for creating a temperature scale using Celsius, which people use today.

Links to:

Prior learning:

To explain the properties that make up different everyday materials and look in more detail at the properties of different rocks.

Future learning:

To learn about reversible and irreversible changes between materials and the difference between solutions and mixtures.

Key vocabulary with definition:

Prior vocabulary:

- Material- The substance used to make something.
- Temperature- The measure of how hot or cold something is, referring to the amount of energy.
- Energy- Changes how things change and move.
- Process- A series of stages in time.
- Properties- A quality of something like strength, stretchiness or hardness.

New vocabulary:

- Solid- A state which is a fixed volume. The shape of a solid does not move on its own.
- Liquid- A material which has particles that have gaps between them.
- Gas- Gases have no shape and fill any space they are put into.
- Particle- An extremely tiny piece of matter that makes up everything in the Universe.
- Evaporation- The process when water changes into a gas when it is heated.
- Condensation- When water vapour is cooled down, it changes into a liquid.
- Precipitation- The liquid and solid particles that fall from clouds (rain, hail or snow).
- Degrees Celsius- The unit of measurements used to measure temperature.

By the end of this unit

All children can: understand the difference between solids, liquids and gases and **describe** some of the common changes between states of matter.

Most children can: explain how different processes between state of matter occur and **draw conclusions** about the rate of process in different materials.

Some children can: explain how states of matter can change, referring to the movement of energy and particles, and can **make predictions** about different investigations.

Background understanding for teachers and parents:

This unit will look at the difference between solids, liquids and gases, referring to the movement of particles. They will investigate different processes between each state such as cooling, melting, freezing, evaporating and condensing.

Curriculum Driver (one):

Communication

Evidence outcome:

Make observations in different investigations about the physical changes between the different states of matter.