



## LOOKING AT STATES

### Vocabulary

**boiling point:** the temperature at which a liquid turns into a gas.

**boiling:** when a material reaches a temperature when it bubbles and turns into a gas rapidly.

**condensing:** the process when a gas turns into a liquid.

**evaporation:** when a liquid turns into a gas, below its boiling point.

**freezing:** when a liquid turns into a solid.

**freezing point:** the same temperature as a material's melting point. This is the temperature at which a liquid turns into a solid.

**gas:** a state of a material when it fills the entire space available.

**liquid:** a state of a material when it can flow from one place to another, and can be poured.

**matter:** another name for 'material'.

**material:** what an object is made of (not just fabric).

**melting:** when a solid turns into a liquid.

**melting point:** the temperature at which a solid melts.

**solid:** a state of a material when it cannot change shape, but holds the shape of whatever container it was frozen in.

**temperature:** a measurement of how hot or cold something is.

**thermometer:** a device or instrument used to measure temperature.

**water cycle:** how water moves around to create clouds, rain and the weather.

Not all solids are hard.  
Can you find examples that aren't hard?

### We are learning to:

- 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 ( $^{\circ}\text{C}$ ).
- Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.

### OVERVIEW

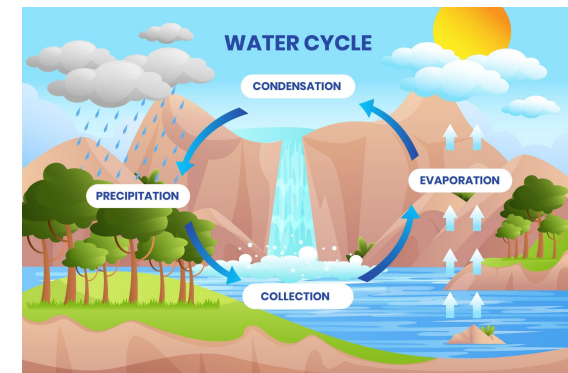
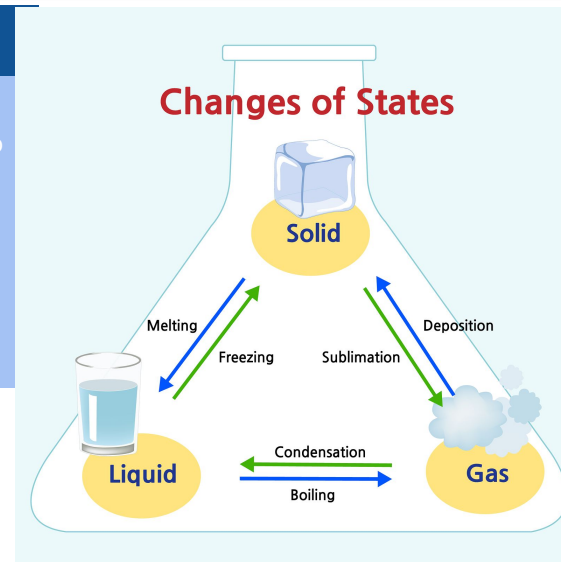
- Children will learn about states of matter. They will compare and group materials together, according to whether they are solids, liquids or gases. They will observe that some materials change state when heated or cooled, and they will identify the part played by evaporation and condensation in the water cycle.

### WORKING SCIENTIFICALLY

- Ask relevant questions and use different types of scientific enquiries to answer them.
- Set up simple practical enquiries, comparative and fair tests.
- Make systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.
- Gather, record, classify and present data in a variety of ways to help in answering questions.
- Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.
- Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.
- Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.
- Identify differences, similarities or changes related to simple scientific ideas and processes.
- Use straightforward scientific evidence to answer questions or to support their findings.

### PRIOR LEARNING

- How to describe simple physical properties of everyday materials.
- How to compare and group together a variety of everyday materials.
- How to compare using observations.
- That materials are either solid, liquid or gas.
- That ice melts at  $0^{\circ}\text{C}$ .
- That ice and water can be present at the same time.



### LET'S THINK LIKE SCIENTISTS

- Air is a gas. It is made of lots of different materials. Can you find out what they are? Try presenting it as a graph.
- Are all liquids the same? Do they have the same appearance? Carry out a survey around your home and compare them all.

| solid              | liquid             | gas               |
|--------------------|--------------------|-------------------|
|                    |                    |                   |
| • rigid            | • not rigid        | • not rigid       |
| • fixed shape      | • no fixed shape   | • no fixed shape  |
| • fixed volume     | • fixed volume     | • no fixed volume |
| cannot be squashed | cannot be squashed | can be squashed   |