

CHEMISTRY

YEAR 3 and 4: Spring 1

What are states of matter?

COVERAGE: What are states of matter?

Pupils who are secure will be able to:

- Identify solids, liquids and gases using their properties.
- Describe melting, freezing, condensing and evaporating.
- Describe the different stages of the water cycle.
- Describe how temperature affects the rate of evaporation and, therefore, the water cycle.

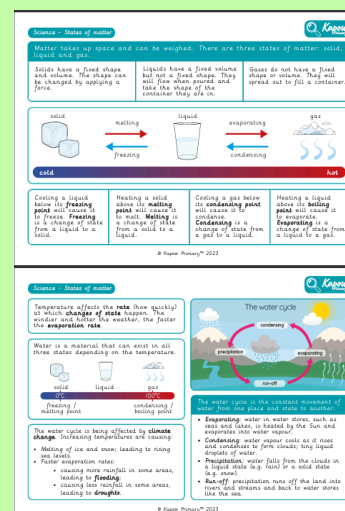
When working scientifically, pupils who are secure will be able to:

- Ask relevant questions.
- Use results to draw simple conclusions.
- Use thermometers to take accurate measurements.
- Make predictions for new values.
- Record findings using labelled diagrams.
- Research using more than one source.

KEY LANGUAGE AND VOCABULARY:

boiling
conclusion
condensing
degrees Celsius
diagram (KS1)
evaporating
evaporation rate
freezing
gas
liquid
measure (KS1)
melting
precipitation
predict (KS1)
rate
research (KS1)
solid
steam
stopwatch
temperature
thermometer
the water cycle

KNOWLEDGE AND FACT SHEET



KEY QUESTIONS:

1. What is a solid and what properties does a solid have?
2. What properties do liquids have and how can we find out?
3. Can you describe the scientific processes of melting and freezing?
4. Can you describe the scientific processes of condensing and evaporating?
5. Can you describe the different stages of the water cycle and how this supports life on our planet?
6. How does temperature affect the water cycle?
7. What effect is climate change having on the water cycle and our planet?
8. How can we stop the effects of climate change?

KEY SKILLS AND KNOWLEDGE

Knowledge

- All substances around us can exist as solids, liquids and gases.
- A property of a solid is that it keeps its shape unless a force is applied to it.
- A property of a liquid is that it can flow freely and take on the shape of a container.
- A property of a gas is that it does not have a fixed shape and can escape from an unsealed container.
- Heating causes solids to turn into liquids (melting) and liquids to turn into gases (evaporating).

- Cooling causes gases to turn into liquids (condensing) and liquids to turn into solids (freezing).
- Water can exist as a solid, a liquid or a gas.
- The melting point of water is zero degrees Celsius and the boiling point of water is 100 degrees Celsius.
- Water flows around the world in a continuous process called the water cycle.
- In the water cycle, evaporation is when bodies of water are heated and turn into water vapour.
- In the water cycle, condensation is the process of water vapour cooling to form water droplets in clouds, which can result in precipitation.
- The rate of evaporation increases as the temperature rises.

Skills

Posing questions

- Considering what makes a testable question.

Measuring

- Using standard units to measure and compare.
- Using measuring equipment with increasing accuracy.

Recording

- Drawing in 2D to produce simple line diagrams.
- Labelling diagrams with more scientific vocabulary.

Researching

- Gathering specific information from a variety of sources.

Analysing and drawing conclusions

- Beginning to use identified patterns to predict new values or trends.
- Writing a conclusion to summarise findings using simple scientific vocabulary.

ENRICHMENT:

- Children will be involved in the development of physical experiments to investigate all the change in matter that are investigated in this unit.

Previous Learning:

The children have investigated rocks and fossils and also looked at the classification of animals.

Future Learning:

The children will carry out a practical investigation into the correlation between hand span and grip strength.

School Drivers to Examine

Children will look at:

- **Care for the Environment** = how is climate change affecting the water cycle and what effect is this having on our own lives?
- **Economy and Power** = what impact is the economy having on climate change and our planet?