# SBSP PROGRESSION OF COMPONENT KNOWLEDGE THROUGH SCIENCE UNITS

## CHEMISTRY – STATES OF MATTER

**Year 4 NC 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 evaporation with temperature

**Year 4 Component Knowledge**

- Identify the 3 states of matter
- Describe the properties of the 3 states of matter
- Classify substances based on their state of matter
- Describe how particles behave in each state of matter
- Explain how substances change state
- State the temperature at which water changes state
- Understand melting points
- Observe and accurately record the temperature at which food changes state
- Predict the melting point of different foods
- Describe freezing and boiling points
- Create an accurate bar chart
- Research freezing and boiling points
- Define evaporation and condensation
- Investigate the effect of temperature on the rate of evaporation
- Raise further questions to be investigated
- Order the stages of the water cycle
- Identify the importance of evaporation and condensation within the water cycle
- Describe the water cycle in detail

**Working Scientifically Component Knowledge**

- Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions
- Using straightforward scientific evidence to answer questions or to support their findings
- Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units
- Using a range of equipment, including thermometers and data loggers
- Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables
- Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions

**Key Vocabulary**

- gas, matter, liquid, volume, solid
- particle, arranged, bond, heated, cooled
- melting, melting point, temperature, thermometer
- reverse, sublimation, deposition, freezing, boiling
- condensation, water vapour, process, absorb, evaporation
- water cycle, precipitation, transpiration, surface run off, groundwater

**KS3 NC links:**

Chemical reactions as the rearrangement of atoms. Representing chemical reactions using formulae and using equations. Combustion, thermal decomposition, oxidation and displacement reactions. Defining acids and alkalis in terms of neutralisation reactions. The pH scale for measuring acidity/alkalinity; and indicators.