Year 4

States of Matter

Statutory Requirements:

- 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

Working Scientifically:

- Talk about criteria for grouping, sorting and classifying (non-statutory)
- Identifying differences, similarities or changes related to simple scientific ideas
- Asking relevant questions and using different types of scientific enquiries to answer them
- Setting up simple practical enquiries, comparative and fair tests
- Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
- Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions
- Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.

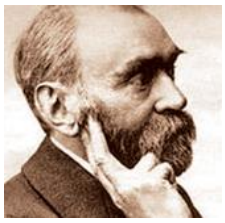
Key Learning Steps:

1. Explore solids, liquids and gases
2. Think differently - solids, liquids and gases
3. Change states
4. Use equipment
5. Plan - melting experiment
6. Investigate - melting experiment
7. The water cycle
8. Plan - evaporation experiment
9. Investigate - evaporation experiment
10. Evaluate - evaporation experiment

Key Vocabulary:

- states of matter
- solid
- liquid
- gas
- volume
- pouring
- solid
- oobleck
- flow
- freezing
- melting
- boiling
- condensation
- evaporation
- condensation
- thermometer
- stopwatch
- beaker
- temperature
- independent variable
- dependent variable
- controlled variable
- melting point
- the water cycle
- precipitation
- atmosphere
- global warming
- water vapour
- petri dish
- observations
- data
- conclusion

Key Scientists:



Classic

Alfred Bernhard Nobel (1833-1896)

Swedish chemist, engineer and inventor of dynamite

Contemporary

Spencer Silver (1941 - 2021)

Inventor of non-drying glue used on post it notes.

Contemporary

Jeffrey Karp

Inventor of medical glue used instead of stitches.