



Year 4 – Materials-Solids, liquids and Gases



Working Scientifically	Sticky Knowledge	Linked Texts	Key Scientists
- Recall and use specific scientific vocabulary accurately (year group key vocabulary) - Ask relevant questions and use different types of scientific enquiries to answer them, include making their own questions - Set up simple practical enquiries, comparative and fair tests, aiming to do so independently with their own decisions. - 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	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 evaporate into gases. d) Cooling causes gases to condense into liquids and liquids to freeze into solids. The temperature at which given substances change state are always the same.	<i>Once Upon a Raindrop: The Story of Water</i> (James Carter) <i>Sticks</i> (Diane Alber)	Anders Celcius (Celcius Temperature Scale) Daniel Fahrenheit (Fahrenheit Temperature Scale / Invention of the Thermometer) Joseph Priestley/Carl Wilhelm Scheele (Discovered oxygen)
Key Question(s):	Key Question(s):	WS vocabulary	
What is different between a solid and liquid? What are the three main states of matter? What happens to plastic when it is heated? How does wood change when it is heated? How does water change when it is cooled? Which unit of measure is used when recording temperature? How do measurements of volume change when water is in different states?	How does the amount of water added to flour affect its state? How does the amount of detergent added to water affect how slippery it is? How does the temperature affect how viscous a liquid is (use cooking oil)? How does the material sprinkled on ice and snow affect how quickly it melts? What chocolate would be best to smuggle? How does the type of chocolate affect its melting temperature? What is the melting temperature of ice and how does it compare with the freezing temperature of water? Is the melting temperature of wax the same as its freezing temperature?	Investigation, enquiry, prediction, variable, dependent variable, independent variable, constant, patterns, equipment, apparatus, method, results, conclusion, graph, patterns, distance, data, theory, fair test, reasoning	

Teaching suggestions in Enquiry types

<u>Comparative tests</u>	<u>Identify & Classify</u>	<u>Observation over time</u>	<u>Pattern Seeking</u>	<u>Research</u>	<u>BIG Question – Problem solving</u>
How does the mass of a block of ice affect how long it takes to melt? Does seawater evaporate faster than fresh water? 	Can you group these materials and objects into solids, liquids, and gases? How would you sort these objects/materials based on their temp? 	Which material is best for keeping our hot chocolate warm? How does the level of water in a glass change when left on the windowsill? 	Is there a pattern in how long it takes different sized ice lollies to melt? How does evaporation rate change as you add more salt to your water? 	What are hurricanes, and why do they happen? 	Where do ice cubes go when they disappear? Why does it rain and hail? (Also use EXPLORIFY) <u>Assessment Opportunity</u> 