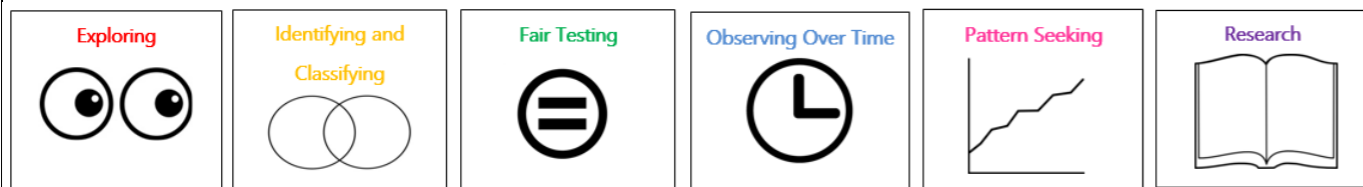


Working scientifically objectives which are covered in this unit



- 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
 - recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables
 - reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
 - using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
 - identifying differences, similarities or changes related to simple scientific ideas and processes
 - using straightforward scientific evidence to answer questions or to support their findings

National Curriculum Objectives for science unit

- 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

<p>Lesson sequence</p> <p>include WALTs/LOs and key concept:</p>	<p>To classify materials as solids or liquids by observing their properties</p> <p>Scientific enquiry type: Grouping and classifying</p> <p>Working scientifically links: Identifying differences, similarities or changes related to scientific ideas and processes</p> <p>Success criteria:</p> <ul style="list-style-type: none"> • I can compare materials using their properties. • I can describe the properties of solids and liquids. • I can use a material's properties to decide whether it is a solid or a liquid. <p>Children to explore a range of solids and liquids in small groups, making their own observations of their properties. Children encouraged to discuss the selection of solids and liquids</p>	<p>To plan a fair test investigation to test ideas about melting ice</p> <p>Scientific enquiry type: Observing over time leading to fair testing</p> <p>Working scientifically links: Setting up simple practical enquiries, comparative and fair tests</p> <p>Success criteria:</p> <ul style="list-style-type: none"> • I can make careful observations of melting ice. • I can make predictions based on my observations of melting ice. • I can plan a fair test to answer a question by: <ul style="list-style-type: none"> – deciding which variable to change – deciding which variable to measure and how to measure it – deciding which variables to keep the same – correctly heading a table to record results 	<p>To collect, present and interpret data about melting ice</p> <p>Scientific enquiry type: Fair test</p> <p>Working scientifically links: Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions</p> <p>Success criteria:</p> <ul style="list-style-type: none"> • I can make and record accurate measurements of melting ice to collect my results. • I can present my results on a correctly labelled bar chart. • I can describe the pattern in the data and use the data to answer a question. • I can explain that ice is a solid but when it melts it is a liquid. 	<p>To define melting and freezing</p> <p>Scientific enquiry type: Observing changes over time</p> <p>Working scientifically links: Identifying differences, similarities or changes related to simple scientific ideas and processes</p> <p>Success criteria:</p> <ul style="list-style-type: none"> • I can make careful observations of materials and take accurate measurements. • I can describe what happens when a solid melts. • I can describe what happens when a liquid freezes. • I can describe how to melt or freeze materials. <p>Children to explore what happens to solids when they are heated. Consider how the state changes. Children to measure the melting</p>	<p>To explain observations of air using scientific knowledge about materials</p> <p>Scientific enquiry type: Exploring</p> <p>Working scientifically links: Making systematic observations</p> <p>Success criteria:</p> <ul style="list-style-type: none"> • I can make careful observations of air • I can think about possible causes for what I have observed • I can use my observations and scientific knowledge to explain that spaces that appear to be empty are filled with air/gases <p>Children to explore the properties of air through a series of activities where they observe carefully.</p>	<p>To collect data to answer a question about drying washing and investigate evaporation</p> <p>Scientific enquiry type: Fair test</p> <p>Working scientifically links: Making systematic and careful observations and, where appropriate, measurements using standard units, using a range of equipment including thermometers and data loggers</p> <p>Success criteria:</p> <ul style="list-style-type: none"> • I can suggest variables to investigate that affect the length of time taken for washing to dry. • I can carry out a fair test, recognising what makes it fair. • I can collect accurate data. • I can explain what is happening when something dries. 	<p>To identify where condensation is happening</p> <p>Scientific enquiry type: Exploration</p> <p>Working scientifically links: Identifying differences, similarities or changes related to simple scientific ideas and processes</p> <p>Success criteria:</p> <ul style="list-style-type: none"> • I can describe what happens when water boils • I can describe the process of condensation. • I can make careful observations. • I can use my knowledge of changes of state to explain my observations. 	<p>To create a labelled model of the water cycle to answer the question: Where does rain comes from?</p> <p>Scientific enquiry type: Exploration and finding things out using secondary sources of information</p> <p>Working scientifically links: Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables</p> <p>Success criteria:</p> <ul style="list-style-type: none"> • I can describe my careful observations using my knowledge of changes of state. • I can explain where rain comes from. • I can make connections between a model and real life. • I can label where changes of state are
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	to establish what they already know. Children then challenged to classify and sort each thing as a solid or liquid based on their observations. Children to share their decisions about grouping. Focus on questions like, <i>how did you decide which group to put it in? Which properties did you use?</i> (Lesson 1 Snap Science)	Children to observe over the course of the day an ice hand melting and to record their observations. Compare how different ice hands are melting and discuss. Children to use observations to plan their own experiment in groups to investigate the different variables that effect how long ice takes to melt. (Lesson 2 Snap Science)	Children to carry out their own investigations in groups exploring what makes a difference to how fast ice melts that they planned in lesson 2 and to present and interpret the data collected. (Lesson 3 Snap Science)	temperature of different materials e.g. chocolate, butter, vegetable fat, wax etc. (Lesson 4 Snap Science)				happening
<u>Key vocabulary to be explicitly taught</u>	Properties, solid, liquid, hard, soft, pour, flow, pile, pool, surface, horizontal, runny, viscous, transparent, opaque, sticky, grain, powder, force	ice, water, melt, observe, measure, fair test, variable, shape, size, temperature	Melting Solidifying	ice, water, solid, liquid, melt, melting, freeze, freezing, solidify, solidifying, heating, cooling, states of matter, change of state, temperature, melting point, freezing point, process	Gas, air, carbon dioxide, helium, oxygen, bubbles, empty	dry, temperature, wind, variable, fair test, control, keep the same, evaporate, water vapour	Condensation Evaporation Boiling	Observation Evaporation Condensation Precipitation
<u>Cross – curricular links</u>			Maths – line graphs constructed of ice melting over time			Maths – statistics and construction of charts and graphs		Link to English – write an explanatory report of the water cycle