

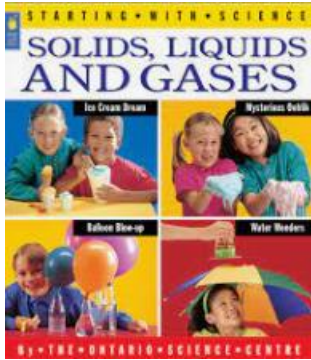
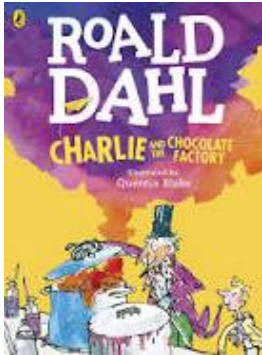

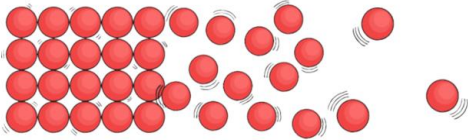
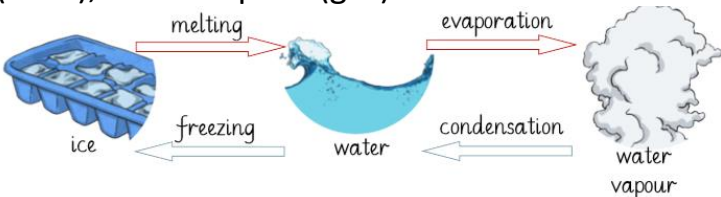


MEDIUM TERM PLANNING

Subject	Topic/Key Question	Year Group	Term	Time Allocation
Science	In a state – States of matter	4	Summer 1	12 hours
 <p>Library</p>	 <p>Library</p>	 <p>Library</p>	 <p>Author set</p>	 <p>Author set</p>
<p>End of lower Key stage 2 Outcomes</p>	<p>Asking relevant questions and using different types of scientific enquiries to answer them. ?</p> <p>Setting up simple practical enquiries, comparative and fair tests.</p> <p>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.</p> <p>Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.</p> <p>Reporting on findings from enquiries, including oral and written explanations, displays</p>			

	<p>or presentations of results and conclusions.</p> <p>Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.</p> <p>Identifying differences, similarities or changes related to simple scientific ideas and processes.</p> <p>Using straightforward scientific evidence to answer questions or to support their findings.</p>
End of Unit Outcomes	<p>I can compare and group materials together, according to whether they are solids, liquids or gases.</p> <p>I can 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).</p> <p>I can identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.</p>
Vocabulary	<p>Solid, melt, freeze, liquid, evaporate, condense, gas, container, changing state, chocolate, butter, cream, heated, heat, cooled, cool, degrees, thermometer, water cycle, evaporate, condense, evaporation.</p>

Lesson Sequence	Time Allocation	Key Question/WALT	Teaching Activities	Resources
Lesson 1 What are my properties?	2 hours	<b>WALT:</b> classify materials as solids or liquids by	<p><b>Working Scientifically:</b> Identifying differences, similarities or changes related to scientific ideas and processes.</p> <p>To classify materials as solids, liquids or gases</p> <ul style="list-style-type: none"> <li>Introduce the terms solid, liquid and gas.</li> </ul>	Collins connect lesson 1. Twinkl

		<p>observing their properties.</p> <p><b>WILF:</b> 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>	<ul style="list-style-type: none"> <li>• Give the children sorting cards and ask them to sort pictures into the 3 categories.</li> <li>• Look at the properties of the 3 states of matter and their characteristics.</li> <li>• Look at the particle science explanations - We can explain the differences between solids, liquids and gases by knowing what they are made of. Scientists have found out that all materials are made of very tiny particles. These particles are so small that we cannot see them with our eyes, or even with a microscope! The position and behaviour of the particles is different in solids, liquids and gases.</li> </ul>  <ul style="list-style-type: none"> <li>• Children then complete the particle properties activity sheet.</li> </ul>	
<p>Lesson 2</p> <p>What happens to the ice hands?</p>	<p>2 hours</p>	<p><b>WALT:</b> plan a fair test investigation to test ideas about melting ice.</p> <p><b>WILF:</b> I can make careful observations of melting ice. I can make predictions based</p>	<p><b>Working Scientifically:</b> Setting up simple practical enquiries, comparative and fair tests.</p> <p>Investigating the different states of water.</p> <ul style="list-style-type: none"> <li>• Identify the 3 states of water; water (liquid), ice (solid), water vapour (gas)</li> </ul>  <ul style="list-style-type: none"> <li>•</li> </ul>	<p>Collins connect lesson 2 links</p> <p>Bowl, hot water, salt, ice cubes, thermometer, cling film, kettle, baking</p>

on my observations of melting ice.  
I can plan a fair test to answer a question by: – 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

- Then carry out 3 investigations and the children rotate.
- Activity 1: you will place two or three ice cubes on some cling film stretched over a container of warm water. What do you see in the container? What can you observe on the cling film? What processes are occurring?




- Activity 2: Work with an adult for this activity. Your teacher will boil a kettle. Watch the water vapour form as it boils. How can this gas be turned back into a liquid? Can you reverse the change? Watch your teacher demonstrate this process. What can you see? Which processes have you observed? How has the temperature caused these processes?




- Activity 3: Put two ice cubes in two beakers. Put a teaspoon of salt on one ice cube, and observe what happens over a few minutes. Use a thermometer to observe how the temperature in the beakers changes. What do you notice

sheet,  
beakers.  
Twinkl.

			<p>happening to the two ice cubes? What process is occurring? What happened to the temperature in the different glasses?</p> 	
<p>Lesson 3</p> <p>What are melting and freezing?</p>	<p>3 hour</p>	<p><b>WALT:</b> define melting and freezing.</p> <p><b>WILF:</b>  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>	<p><b>Working scientifically:</b> Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.</p> <p>To compare the melting points of different types of chocolate to determine the best chocolate for a particular purpose.</p> <ul style="list-style-type: none"> <li>• Identify what makes materials change state. Cooling or heating.</li> <li>• Engage in a survey to see what happens when a material changes state (This can be set up on a Padlet)</li> <li>• Look at and discuss the freezing and melting point of water/ice.</li> <li>• Set a challenge for an investigation: This is Maya. She is getting the food ready for her birthday party, and wants to make some chocolate crispy cakes. Her party is only a few hours away, so she needs to make them fast! She needs to know which chocolate to use that melts quickly and at</li> </ul>	<p>Collins connect lesson 4 links</p> <p>White chocolate, milk chocolate, dark chocolate.</p> <p>Warm water, bowls, thermometers</p>

			<p>what temperature it melts. Use digital thermometers here for data logging.</p> <ul style="list-style-type: none"> <li>• Devise a question, identify the possible variables (what can be changed/measured), devise a hypothesis and method.</li> <li>• Children to carry out their test, collect results and draw conclusions.</li> </ul>	
<p>Lesson 4</p> <p>What is evaporation?</p>	2 hours	<p><b>WALT:</b> describe and explain findings from an evaporation investigation.</p> <p><b>WILF:</b>  I can describe patterns in data.  I can use data to answer a question.  I can use what I know about evaporation to explain my findings.  I can write an email giving advice based on my findings.</p>	<p><b>Working Scientifically:</b> Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables.</p> <p>To use a labelled diagram to answer the question: Where does rain come from?</p> <p>Look at the different stages of the water cycle.</p> <p>Break it down and look at the individual concepts: Evaporation, condensation, precipitation and collection.</p> <p>Model to the children how to create a mini water cycle using a food bag and some permanent marker pens, children can draw the cycle on the bag and fill with coloured water. Place on a warm window to watch the cycle. Children to make observations over time.</p> <p>How to make the bag</p> <ol style="list-style-type: none"> <li>1. Warm the water until steam begins to rise but do not boil.</li> <li>2. Add the blue food dye into the water to represent the seawater.</li> <li>3. Pour water into a Plastic Bag zipper</li> <li>4. Hang the bag over the door window using ribbon or yarn.</li> <li>5. As the water evaporates, the steam rises and condenses</li> </ol>	<p>Collins connect lesson 8 links</p> <p>Plastic Bag Bending (zip)  Permanent colour markers  Water  Blue food dye  Label  Twinkl ppt on the water cycle.</p>

			<p>at the top of the plastic bag. white clumps can be seen resembling clouds in the upper atmosphere.</p>  <p>As an additional task the children can create a water wheel to explain the stages of the water cycle. (Twinkl)</p>	
<p>Lesson 5</p> <p>How is ice-cream made?</p>	<p>3 hours</p>	<p><b>WALT:</b> compare and group materials together according to whether they are solids, liquids or gases.  <b>WILF:</b>  I can follow instructions for a practical activity.</p>	<p><b>Working Scientifically:</b> Identifying differences, similarities or changes related to scientific ideas and processes.</p> <p>Make ice-cream, discussing how the liquids change state during the ice-cream making process.</p> <p><b>Instructions.</b></p> <ol style="list-style-type: none"> <li>1. Put the cream into a large bowl.</li> <li>2. Beat with an electric whisk until thick and quite stiff, a bit like clotted cream.</li> <li>3. Then beat in the condensed milk and vanilla extract.</li> <li>4. Scrape into a freezer container and freeze until solid.</li> </ol>	<p><b>Ingredients</b></p> <p>A 397g can sweetened condensed milk  600ml pot double cream  1 tsp vanilla extract</p>



		<p>I can make careful observations and measurements to compare freezing points.</p> <p>I can explain how what I have found out is useful.</p>	<ul style="list-style-type: none"> <li>• Each table is going to make a different flavor ice-cream.</li> <li>• Banana (mash 5 bananas and add to mixture)</li> <li>• Chocolate (grate a bar of chocolate and add to mixture)</li> <li>• Vanilla (add a teaspoon of extract to the mixture)</li> <li>• Strawberry (chop into small chunks and add to the mixture)</li> <li>• As the children are preparing the ingredients and whisking the cream – ask them to observe what they notices – the changes that are taking place.</li> <li>• (NB) When the children whisk the cream they must ensure that it doesn't split, this will effect the texture of the ice-cream.</li> <li>• Once the mixtures are complete place in Tupperware and freeze for 24 hours.</li> <li>• Children to record the process and the changes that they observed. Discuss how the cream changed, debate whether it was a liquid or solid in the whipped state. Can the children predict what it will be like after freezing.</li> <li>• 24 hours later... follow up with the ice-cream what can they visually observe? What is the texture like? Children to evaluate the outcome and draw conclusions.</li> <li>• Children could film the process and they could commentate the changes that they are observing.</li> </ul>	<p>Bowls, whisks, spoons.</p> <p>Chocolate</p> <p>Strawberries</p> <p>Bananas</p> <p>Vanilla extract</p> <p>Tupperware freezer</p>
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