








 Children’s prior learning in this area	 Cultural Capital Opportunities	 Key vocabulary and glossary
<p>Understanding the World – Reception</p> <ul style="list-style-type: none"> • Talk about the different forces they can feel • Language of force – push, pull, float, sink • Language of materials – plastic, wood, card, paper, waterproof. Objects around us are made from different materials. • Can compare simple similarities and differences, e.g. observing objects are made from the same or different materials. <p>Prior learning – Year One Distinguish between an object and the material from which it is made identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock describe the simple physical properties of a variety of everyday materials Compare and group together a variety of everyday</p> <p>Prior learning – Year Two Identify materials on the basis of their simple physical properties. Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</p> <p>Prior learning – Year Three Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties Describe in simple terms how fossils are formed when things that have lived are trapped within rock recognise that soils are made from rocks and organic matter.</p>	<p>Wessex Water Education Officer to visit and provide a workshop on The Water Cycle and the human impact on the Water System.</p> <div data-bbox="958 703 1476 1070" data-label="Image"> </div>	<p>material properties matter solid / liquid / gas state / particles change temperature / degrees Celsius heat / cool melt / freeze melting point / boiling point ice / water / steam / vapour water cycle evaporation condensation process precipitation / rain / snow / sleet / hail</p>

<p>Enquiry Question What are states of matter?</p>	<p>Enquiry Question What are the properties of solids, liquids and gases?</p>	<p>Enquiry Question How do we plan, set up and perform a scientific enquiry?</p>
<p>Concept Record results</p> <p>Enquiry Type: Identify and classify</p>	<p>Concept Interpret results – answer the question</p> <p>Enquiry Type: Identify and classify</p>	<p>Concept – Plan, set up and perform an enquiry</p> <p>Enquiry Type: Comparative and fair testing and observing over time</p>
<p>Children will know how to:  classify materials by their state of matter</p> <p>Children will know how to: record observations in a table</p> <p>Children will know: Matter is the stuff things are made of. Matter is any physical substance that has mass and volume.</p> <p>There are three states of matter: Solids, liquids and gases.</p> <p>State means the form the matter is in. Materials can change states. A key example is water. Water is a liquid but it can change state to a solid (ice) or a gas (steam).</p> <p>Students will know that to identify and classify objects by linking them to the characteristics of known objects. Students will discuss their own understanding of the characteristics of solids, liquids and gases.</p> <p><i>Practise: In groups, sort pictures of objects in a table with headings: solids, liquids, gases.</i></p> <p><i>Practise: Draw a table using I do/we do approach, considering the amount of columns, the size of columns and the amount of rows.</i></p> <p><i>Apply: Write own examples of solids, liquids and gases under headings.</i></p> <p><i>Deepen: Discussion of own understanding of solids, liquids and gases.</i></p>	<p>Children will know: the characteristics of a solid, liquid and a gas and use this for supporting identification. </p> <p>Solids stay in one place and can be held. They keep their shape unless a force is applied. E.g. they can be cut or shaped. They always take up the same amount of space. (Same volume). Liquids can flow or be poured easily. They are not easy to hold. They keep a level horizontal surface once poured. They can change their shape depending on the container they are in but they always take up the same amount of space. (The volume stays the same). Gases do not have a fixed shape. They spread out and change their shape and volume to fill up whatever container they are in. They are often invisible and can be squashed.</p> <p>Children will know how to: interpret results by using some scientific vocabulary and referring to simple scientific facts when describing processes and observation;. Explaining which characteristics have caused them to identify or classify objects, living things processes or events by indicating similarities or differences in components or properties.</p> <p><i>Group knowledge check: sorting properties.</i></p> <p><i>Individual knowledge check: True/false statements.</i></p> <p><i>Practise: ‘We do’ – identify the state of matter from a picture of an object and explain how we know this by referring to its properties.</i></p> <p><i>Apply: Have pictures of two more objects. Identify the state of matter and explain how they know this by referring to the properties.</i></p> <p><i>Deepen: Jared says that sand must be a liquid because it can be poured. Do you agree? Explain your reasoning, referring to the properties of some of the states of matter. Oral or written.</i></p>	<p>Children will know: gas has weight. </p> <p>Children will know how to: plan, set up and perform an enquiry</p> <p><i>Enquiry: Which drink is the fizziest? Scaffolded approach for children planning and performing a whole-class enquiry.</i></p> <p>Children will know: to answer a scientific question, they will be carrying out one of the five types of enquiry. Through discussion, children will generate appropriate methods for carrying out an enquiry and identify the enquiry type.</p> <p>Children will know that this session’s enquiry type is both comparative and fair testing and observing over time.</p> <p><i>Practise: Through guided discussion, children will be able to identify the variable that is being kept the same, what is being measured and the variable that changes.</i></p> <p><i>Apply: the knowledge that gas has weight to make predictions about how they will know which drink is the fizziest.</i></p> <p><i>Deepen: Interpret results.</i></p>

<p>Enquiry Question How do we plan, set up and perform a scientific enquiry?</p>	<p>Enquiry Question How do we present findings?</p>	<p>Enquiry Question What is the water cycle?</p>
<p>Concept – Plan, set up and perform an enquiry; take measurements Enquiry Type: Comparative and fair testing and observing over time</p>	<p>Concept – present findings Enquiry Type: Comparative and fair testing and observing over time</p>	<p>Concept – present findings</p>
<p>Children will know how to: take accurate measurements of time using a stopwatch to measure seconds.</p> <p>They will learn to measure millilitres using a pipette and distance in millimetres.</p> <p>Children will know that viscosity is the measure of a fluid’s resistance to flow.</p> <p><i>Enquiry: Which liquid has the highest viscosity?</i></p> <p><i>Practise:</i> Practise measuring time with a stopwatch app on a tablet, using a ruler to measure in mm and a pipette to measure half a ml.</p> <p><i>Apply:</i> Group task: each child will have a turn at measuring a liquid and dropping onto a ramp; each child will take a turn to time this for 20 seconds, each child will take a turn to measure the distance the liquid travelled and each child will take a turn to record the data in a table.</p> <p><i>Deepen:</i> interpret results.</p>	<p>Children will know how to: present simple scientific data in a variety of ways including tables and bar charts where intervals and ranges agreed through discussion, to help in answering questions.</p> <p>With increasing independence, select the most useful ways of presenting information given a range of choices.</p> <p><i>Practise:</i> Our turn presenting data in a graph following a guided discussion on which type of graph to use for the data – which is the fizziest drink?</p> <p><i>Apply:</i> Your turn presenting data in a graph given a range of choices for the question: which liquid has the highest viscosity?</p> <p><i>Deepen:</i> Our turn/your turn Interpret results by referring to the results to answer the question.</p>	<p>Children will know and describe the stages of the water cycle:</p> <p>Evaporation: Evaporation is when water in oceans, lakes, or other bodies of water is warmed up by the Sun. (even on cloudy or cold days). Heat makes the water evaporate and change state from a liquid to a gas – water vapour.</p> <p>Condensation; The water vapour in the air rises, and as it does so, it cools down. Eventually, it cools enough for the water vapour to condense and form small droplets of water. The droplets of water clump together to form clouds.</p> <p>Precipitation: As more water vapour condenses, more water droplets are formed in the clouds. Eventually, the water droplets are large enough and heavy enough to fall back to the surface of the Earth. These droplets of water fall from the clouds in the form of rain, sleet, hail or snow.</p> <p>Collection: When water falls back to Earth as precipitation, the water may fall on oceans, lakes, rivers or on the ground. Water that falls on the ground is either absorbed into the soil, and is used as drinking water for animals and plants, or it runs over the ground and collects in the oceans, lakes and rivers.</p> <p>This water is then evaporated and the cycle starts all over again.</p> <p><i>Practise:</i> Learn and sing along to the water cycle song. Watch the water cycle in a tub demo and discuss the stages of the water cycle.</p> <p><i>Check:</i> Label a diagram with the correct stages of the water cycle. Matching statements, identifying different states of water.</p> <p><i>Apply:</i> Explain how the water cycle in a tub represents the water cycle of the Earth.</p> <p><i>Deepen:</i> Concept cartoon – three people with differing opinions on the water cycle – who do you agree with and why?</p>

<p>Enquiry Question: What causes matter to change state?</p>	<p>Enquiry Question How do we plan, set up and perform a scientific enquiry?</p>
<p>Concept – Record findings Enquiry Type: research using secondary sources</p>	<p>Concept – Plan, set up and perform an enquiry; take measurements Enquiry Type: Comparative and fair testing and observing over time</p>
<p>Children will know: some materials change state when they are heated or cooled.</p> <p>Children will know how to research the temperature at which this happens in degrees Celsius (°C).</p> <p>States of Matter - Boiling Points (youtube.com)</p> <p><i>Practise:</i> match definitions to vocabulary – evaporation, condensation, melting, boiling, heating, cooling</p> <p><i>Apply:</i> Use laptops/written text to research the temperature that different materials change state and record in a table.</p> <p><i>Deepen:</i> Which state would these materials be in at room temperature (21 degrees C)?</p> 	<p>WALT: plan, set up and perform an enquiry</p>  <p>Children will know that to answer a scientific question, they will be carrying out one of the five types of enquiry. Through discussion, children will generate appropriate methods for carrying out an enquiry and identify the enquiry type.</p> <p>They will be able to identify the variable that is being kept the same, what is being measured and the variable that changes.</p> <p>Children will learn to take accurate measurements of temperature using a thermometer. They will learn to take accurate measurements of time using a stopwatch to measure minutes, seconds and milliseconds.</p> <p>Children will know that evaporation is when heat makes water change state from a liquid to a gas.</p> <p><i>Enquiry:</i> Does temperature affect how fast water will evaporate from a wet paper towel?</p> <p><i>Practise:</i> How to measure temperature.</p> <p><i>Apply:</i> Discuss in groups how to set up enquiry and write down on own planning sheet. Carry it out and record.</p> <p><i>Deepen:</i> Conclusion.</p>