


 Children's prior learning in this area	 Cultural Capital Opportunities	 Key vocabulary and glossary
<p>Reception:</p> <p>Objects around us are made from different materials.</p> <p>Can compare simple similarities and differences, e.g. observing objects are made from the same or different material; can name basic properties such as hard and soft, see-through, bendy.</p> <p>Spr1 Yr 1:</p> <p>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</p> <p>compare and group together a variety of everyday materials on the basis of their simple physical properties.</p>	<p>Find out how a material is made, e.g. paper or plastic.</p> <p>Understand the importance of recycling the material they have learnt about and raise awareness to others – e.g. make posters for the school recycling bins, invite parents to bring in boxes for reuse – junk modelling, make recycled paper.</p>	<p>Object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, card, cardboard rubber, wool, clay, ceramic, hard, soft, stretchy, stiff, bendy, floppy, breaks/tears, rough, smooth, shiny, dull, see through, not see through, strong, weak, breakable</p> <p>Properties, transparent, opaque, rigid, flexible, fragile, brittle</p>

<p>Enquiry Question – What are the properties of different materials?</p>	<p>Enquiry Question – What do you wonder about materials?</p>	<p>Enquiry Question – How do scientists find out answers to their questions? How do they find out if they cannot carry out an investigation?</p>
<p>Concept Interpret results – answer the question</p> <p>Enquiry type: Identify, group and classify</p>	<p>Concept: ask scientific questions</p>	<p>Concept Interpret results – answer the question</p> <p>Enquiry type: Research using secondary sources</p>
<p>Children will recall: sticky knowledge of Materials Spr 1 – materials are what objects are made from; materials can be described by their properties e.g. shiny, stretchy, rough etc. Some materials e.g. plastic can be in different forms with very different properties.</p> <p><i>Remember/ check: Scavenger style hunt....find an object that is made from...plastic/glass/wood etc.</i></p> <p><i>Find a material that is smooth/hard/soft etc. The children be in pairs/threes with a scavenger hunt sheet on a clipboard and go around the classroom/playground and record or it could all be oral and discussion with an adult who notes down misconceptions that can be used to inform teaching.</i></p> <p>Children will know: appropriate scientific language to communicate ideas (from Interim Teacher Assessment Framework).</p> <p>Children will know how to: classify by comparing and grouping together everyday materials on the basis of their physical properties.</p> <p><i>Apply: Sorting hoops and physical objects/materials. Assign the task – e.g. classify by soft/hard and then shiny/dull.</i></p> <p><i>Deepen: Can the groups come up with their own ways of sorting the materials by their properties using appropriate scientific language?</i></p>	<p>Children will recall: appropriate scientific language to communicate ideas (from Interim Teacher Assessment Framework). (Use any misconceptions/weaknesses spotted in last lesson to reteach and check)</p> <p><i>Remember/Check: Feely box – what material is in the box? Invite children to feel the material without looking and describe for others to guess.</i></p> <p>Children will know: scientists are inquisitive. They wonder about things they don't know. Their wonderings lead them to asking questions. (The development of this skill should be based on the theme of materials).</p> <p><i>Practise: I do/we do/you do: 'Thinking out loud' using 'I see... I know... I wonder...' Have these as sentence stems. You could have further stems – e.g. I wonder why... I wonder how....</i></p> <p><i>e.g. Look at a material – e.g. cardboard. I see a piece of cardboard. I know it is brown. I know it can be bent but I know that it is strong so it would be hard to rip. I wonder why it won't easily rip. I wonder how it was made. I wonder how strong it is. I wonder if you can cut it....</i></p> <p>Apply: Children fill out a template for book or post its for working wall about a material of their choice: I see, I know, I wonder and question.</p>	<p>Children will recall: that scientists find out answers in different ways. Review enquiry types: Children will recall that they did comparative and fair testing when doing investigating the best material for a party bag and for finding the bounciest ball. They may recall observing over time carried out in their Seasonal Change work.</p> <p>Children will know: that if you cannot carry out an investigation you can research the answer. This means finding out the answer by reading information in books or on websites or by watching videos. In this session, the children will do supported research to find out the answer to one or more of the questions that was generated as part of last session's work. Ensure an I do/we do/you do approach to research an answer.</p> <p><i>Practise and apply: If some children asked how a particular material was made, watch a video that shows this and then fill out a scaffolded sheet to use this information to answer the question. E.g. writing a series of simple steps or labelling images showing the process. Alternatively, create a simple fact sheet that children can read and answer a few simpler questions that were generated last session. The children do not have to record in writing or drawings, they could orally answer. This could be carried out as a Guided Reading session – or group game – e.g. each child takes a turn to read aloud a question card – can the others find the answer in the text and share it with them?</i></p>

<p>Enquiry Question How do scientists create questions and set up investigations?</p>	<p>Enquiry Question How do scientists create questions and set up investigations?</p>
<p>Concept ask scientific questions Enquiry type: comparative and fair testing</p>	<p>Concept ask scientific questions; plan set up and perform an enquiry Enquiry type: comparative and fair testing</p>
<p><i>Opportunity to assess children’s ability to ask questions and recognise they can be answered in different ways.</i></p> <p>Children will know: scientists are inquisitive. They wonder about the things they don’t know. Their wonderings lead them to asking questions. Children will know how to: ask scientific questions on a stimulus where they have to consider which property is needed for a particular item and turn this into a question. They should have a sentence stem to scaffold their learning. E.g. I see, I know x needs to bebecause. I wonder which material is..... Which material is...?</p> <p>They will consider ways in which they could answer the question which compares materials according to the chosen property. <i>Suggested activity: Show photo of a pet dog. Pretend we need to make him some items – a dog blanket a lead, a food bowl, a pull toy, a shelf for all his things. (Clipart pictures so the material isn’t obvious). To decide which material to use, scientists would create a question and then investigate which is best. Discuss that the best material for one item will be different from another item because how they are used will be different and will need different properties.</i></p> <p>Practise and apply: <i>I do/ we do/ you do: I see, I know, I wonder to generate questions.</i></p> <p><i>E..g I see a lead. I know a lead needs to be strong because you don’t want the dog to break the lead and run away. I wonder which material is strongest. My scientific question is: Which material is strongest?</i></p> <p>Deepen: I do/we do/ you do: <i>Now look at the questions generated and discuss how we could answer them. Model first with own example and show how there is more than one way, e.g. To test which material is strongest for making a dog lead, I could tie each material around a pole and then pull it to see which didn’t break. Or, I could hang a basket from each material and fill the basket with heavy weights and see which ones could hold the most weight. The you do could be small group discussion that an adult scribes or could be written.</i></p> <p><i>If time, you could perform one simple test for one of the items as a class.</i></p> 	<p>Children will know: opaque is a property that means the material can block light.</p> <p>Children will know how to: ask a scientific question on a stimulus where they have to consider which property is needed for a particular item and turn this into a question. They will consider ways in which they could answer the question. With teacher modelling and support, they will perform a simple test to answer the class generated question.</p> <p>(N.B: Children who didn’t achieve the last session’s assessment opportunity should be supported in a small group discussion with adult scaffolding the discussion to support their skill in asking questions and suggesting ways to answer the question).</p> <p><i>Pose the scenario: I am finding it hard to sleep at night because the street light outside shines through my curtains and it isn’t dark enough in the room for me to sleep. I want to make some new curtains to solve the problem.</i></p> <p>Practise or apply depending on AFL from last lesson: <i>Children work through I see, I know, I wonder to create a question such as, ‘Which material blocks the most light?’ (N.B: Children who didn’t achieve the last session’s assessment opportunity should be supported in a small group discussion with adult scaffolding the discussion to support their skill in asking questions and suggesting ways to answer the question).</i></p> <p>Deepen: <i>Discuss ways to answer the question before teacher sets up a simple test and models how to carry it out with a material before children work in groups to test other materials and order the materials from most opaque (blocks the most light) to least opaque (blocks the least light). Possible materials to use: cotton, lycra felt, velvet, fleece. Don’t use transparent or translucent materials so as not to create a misconception that anything that lets some light through will be translucent).</i></p> 