



Medium Term Planning for Science-Materials YEAR 2

National Curriculum Objectives	Vocabulary for this unit	Resources needed	Key Concepts
<p><i>Uses of everyday materials</i> > Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, 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>K.S.U. breakdown for materials and their properties-Classifying & Grouping Materials +Can they distinguish between an object and the material it is made from? +Can they identify and name a range of everyday materials? +Can they describe the simple physical properties of a variety of everyday materials? +Can they compare and classify a variety of materials based on their simple physical properties? Challenging-+Can they describe the properties of different materials using words like transparent, opaque, flexible etc.? +Can they sort materials into groups and say why they have sorted them in that way? +Can they say which materials are natural and manmade?</p> <p>K.S.U. breakdown for materials and their properties-Changing materials +Can they explore how the shapes of solid objects can be changed? (squashing, bending, twisting, stretching) +Can they find out about people who developed useful new materials? (Dunlop, MacKintosh, MacAdam) +Can they identify and compare the uses of a range of everyday materials? (wood, metal,plastic, glass, brick/rock, paper/cardboard) +Can they explain how things move on different surfaces? Challenging-+Can they explain how materials are changed by heating and cooling? +Can they tell which materials cannot be changed back after being heated, cooled, bent, stretched or twisted? +Can they explain how materials are changed by bending, twisting and stretching?</p>	<p>Materials Fabric wood glass plastic card metal clay paper concrete rock rubber fur feathers rubber wool cotton carpet brick leather Properties bendy hard Strong Transparent Opaque Flexible Rigid Elastic Waterproof liquid rigid runny soft rough sharp shiny dull smooth slimy solid stretchy Attributes Communicate Natural Manmade Stretch Push Pull Twist Shape Altered Force Elastic Explanation</p>	<p>A large collection of commonly found materials and objects made of different materials. Materials – Fabric metal (e.g. aluminum foil, nails, paper clips), different papers, card, wood, dried rubber (e.g. bands, balloons), small pebbles or stones & plastic etc. Access to internet Umbrella, set of spoons made from wood, plastic & metal. Various objects made from different materials with a range of properties. An object you want kept dry, a wide range of materials to use as a waterproof cover droppers, water, plastic shot glasses trays, jam jars, rubber bands, scissors.</p>	<ul style="list-style-type: none"> ● Life ● Matter ● Habitation <p>Being Scientific</p>
<h3>Key questions</h3>	<h3>Weaving Knowledge and Skills</h3>		
<ol style="list-style-type: none"> 1. Can you name some different materials? 2. Can you say why tables are made out of wood? 3. What does waterproof mean and can you name a material that is waterproof? 4. What forces can you apply to an object to make it change shape? 5. Can you describe the difference between a Tudor and modern home? 6. Can you name a famous scientist who has made an impact of the science world with materials? 	<p>Observing Closely *Can they use see, touch, smell, hear or taste to help them answer questions? *Can they use some science words to describe what they have seen and measured? *Can they compare several things? Challenging-*Can they suggest ways of finding out through listening, hearing, smelling, touching and tasting? Identifying and Classifying *Can they organize things into groups? *Can they find simple patterns? (or associations)? *Can they identify something by a specific criteria? Challenging-*Can they suggest more than one way of grouping and explain their reasons? Recording Findings *Can they use text, diagrams, pictures, charts, labels to record their observations? Challenging-*Can they use information from books and on-line to find things out? Performing Tests</p>		

			<ul style="list-style-type: none"> *Can they carry out a simple fair test? *Can they explain why it might not be fair to compare two things? *Can they say whether things happened as they expected? *Can they suggest how to find things out? *Can they use prompts to find things out? Challenging- *Can they say whether things happened as they expected and if not, why not? 	
Session	LO	Teaching input	Independent/Application	SLC opportunities
1	<p>Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, brick, rock, paper and cardboard for particular uses</p> <p>Observe closely Identify and classify</p>	<p><u>SESSION 1- Suitability of everyday materials (Y1 Recap)</u> Discuss: Write the terms 'material' and 'fabric' on f/c what is the difference? Share the powerpoint and play the game 'sorting toys and labelling materials on the internet, make sure the children know the difference between fabric and material.</p>	<p><u>Steps to Success:</u></p> <ul style="list-style-type: none"> ✓ Choose an object ✓ Decide which labels to attach and why ✓ Discuss the properties, what it could be used for and why with your group <p><u>Activity (in groups):</u> Sort a varied set of materials photos and put them into the correct material SEN- match the object to the material</p>	<p>listen and respond appropriately to adults and their peers >ask relevant questions to extend their understanding and knowledge >use spoken language to develop understanding through speculating, hypothesizing, imagining and exploring ideas</p>
2	<p>Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, brick, rock, paper and cardboard for particular uses</p> <p>Observe closely Identify and classify</p>	<p><u>SESSION 2- Suitability of everyday materials</u> Show children an umbrella <i>What is it made from? Why?</i> Have a look around the classroom. What objects can we see? What are they made out of? Why is it suitable? <i>Share the two powerpoints that teaches about the reasons for objects being made out of certain properties</i> Share with children the song about materials & their properties at</p>	<p><u>Steps to Success:</u></p> <ul style="list-style-type: none"> ✓ Look at the object ✓ Write what it is made from ✓ Write why it is made of that material <p><u>Activity</u> EXS Children look at the 4 pictures and describe the material its made from and why. Then they choose their own object and draw it, describe what its made from and why its suitable SEN- matching picture to word LA- completing the sentences with the correct word</p>	<p>listen and respond appropriately to adults and their peers >ask relevant questions to extend their understanding and knowledge >use spoken language to develop understanding through speculating, hypothesizing, imagining and exploring ideas</p>
3	<p>Identify and compare the suitability of a variety of everyday materials,</p>	<p><u>SESSION 3 - Waterproof experiment</u> Recap previous sessions – key points</p>	<p>WILF: Diff. by support/outcome LA/SEN can draw rather than write I am beginning to:</p>	<p>listen and respond appropriately to adults and their peers >ask relevant questions to extend their understanding and knowledge</p>

	<p>including wood, metal, plastic, brick, rock, paper and cardboard for particular uses</p> <p>Perform simple tests</p> <p>Use their observations to suggest answers to questions</p> <p>Gather and record data to help in answering questions</p>	<p>Tell the chn we are going to be like real scientists today! Show children something that you would like to keep dry when you go out in the rain, e.g. favourite toy. What materials could they use to keep the object dry? Write suggestions on f/c, e.g. plastic bag, aluminium foil, cling film, bubble wrap, bin liner, etc. Encourage the inclusion of some materials that are not obviously suitable, e.g. tissue paper, felt, cotton sheet, woollen jumper, newspaper, cardboard, etc. as a comparison.</p> <p>Discuss how they could carry out an enquiry to see which materials were best at keeping things dry.</p> <p>Show the children the resources we will be using (see resource list) Ask the chn to come up with ways of testing if the materials are waterproof (don't give them any suggestions)</p> <p>Plan the details of the enquiry as a class after watching the waterproof experiment video at http://bps.bp.com/primary-resources/science/ages-4-to-7/uses-of-everyday-materials/introducing-materials/ to see how a scientist carried out her enquiry (e-mail alisonorton@hotmail.com password butlershill27) but stop before the results are given – you can watch that part later.</p> <p>Discuss how that enquiry differs from the ideas the children suggested. Ask children to predict which materials will be waterproof and which will not.</p> <p>Plenary Share/discuss results and relate to predictions.</p>	<ol style="list-style-type: none"> 1. Appreciate that some people invented useful new materials. 2. Perform simple tests to find out which materials are waterproof <p>Steps to Success:</p> <ul style="list-style-type: none"> ✓ Fill out experiment sheet including predictions ✓ Carry out experiment ✓ Record results as work with each material <p>Activity Sort children into MIXED groups to carry out their enquiry, using the method you have chosen as a class. Each group chooses 4 materials to test. They can use the <i>session resource</i> to record their enquiry.</p>	<p>>use spoken language to develop understanding through speculating, hypothesizing, imagining and exploring ideas</p>
4	<p>Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching</p> <p>Perform simple tests</p> <p>Use their observations to suggest answers to questions</p>	<p>SESSION 4 – Changing the shape of materials</p> <p>Recap previous sessions – key points Show children a ball & push it away from you & then pull it towards you.</p> <p>K QUESTION <i>Discuss how am I making it move?</i></p> <p>Use a pull along toy to show how you can push or pull that to make it move too. Pushes and pulls are forces; forces can start or stop something moving, they can change the speed of movement & the direction that something is moving in.</p>	<p>WILF: Diff. by support/outcome LA/SEN can draw rather than write I am beginning to:</p> <ol style="list-style-type: none"> 1. Explain that some materials change shape when they are squashed, bent, twisted or stretched. 2. Understand that these are forms of pushes and/or pulls, i.e. forces. 3. List the properties of a range of materials. <p>Steps to Success:</p>	<p>listen and respond appropriately to adults and their peers</p> <p>>ask relevant questions to extend their understanding and knowledge</p> <p>>use spoken language to develop understanding through speculating, hypothesizing, imagining and exploring ideas</p>

	Gather and record data to help in answering questions	<p>Introduce vocabulary about changing the shape of materials. Mime the actions and collect the words on the f/c – bend, twist, stretch, squash. These are also forces acting on objects – they are pushes or pulls or both.</p>	<ul style="list-style-type: none"> ✓ Choose a material and use the different forces on it ✓ Record your findings in the table ✓ Discuss with your partner what the properties of that material are <p>Activity In pairs children tackle the activity for exploring properties/characteristics of materials and fill in the table.</p>	
5	<p>Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, brick, rock, paper and cardboard for particular uses Find out how the shapes of solid objects made from some materials can be changed</p>	<p>SESSION 5 Recap previous sessions – key points http://www.bbc.co.uk/programmes/p0117wvs. The fact that plastic comes in many forms is emphasised again in the video. As pointed out in the video Discuss- Why is plastic is a good material to make lots of things out of?</p> <p>Show children the Plastic detective sheet (<i>session resources</i>) & challenge them to find each of the objects in the classroom & fill in the table to show the properties of the plastic used. Bring children back together.</p>	<p>WILF: .1. List useful properties of plastics. 2. Appreciate that different types of plastic have different properties. 4. Understand that plastic is sometimes made to look like another material. Steps to Success:</p> <ul style="list-style-type: none"> ✓ Choose and draw a plastic object from the classroom ✓ Talk with a partner about the properties of the plastic object ✓ Write a sentence about its properties using because <p>Activity Look at the plastic objects and complete the table</p>	<p>listen and respond appropriately to adults and their peers >ask relevant questions to extend their understanding and knowledge >use spoken language to develop understanding through speculating, hypothesizing, imagining and exploring ideas</p>
6	<p>Identify and compare the suitability of a variety of everyday materials,</p>	<p>Session 6- comparing the use of materials in a Tudor and modern house What were tudor houses made out of? Why? What are modern houses made out of? Why? Are they the same or different? Why? Go through the website on tudor houses to learn about the properties of tudor houses and the materials used. Compare this to the homes they live in today. Can they sort the pictures? Look at the labelled houses together and discuss the differences and similarities</p>	<p>WILF: I am learning what materials a Tudor house and modern house are made out of and why Activity To draw and label both a tudor and modern house</p>	<p>listen and respond appropriately to adults and their peers >ask relevant questions to extend their understanding and knowledge >use spoken language to develop understanding through speculating, hypothesizing, imagining and exploring ideas</p>

7	<p>Identify different inventors that have had an impact of modern life and describe what they invented</p>	<p><u>Session 7 Inventors and their impact of modern life</u> Teach the children all about John McAdams the inventor of the roads, discuss his life and the impact his roads made on modern life. Teach the children about Charles McIntosh and John Dunlop</p>	<p>Wilf: I can tell you about the inventor John McAdam I can tell you the new process that he invented I can explain how it has impacted life today Activity Children to complete fact file on the inventor LA- fill in gaps EXS- write sentences</p>	<p>listen and respond appropriately to adults and their peers >ask relevant questions to extend their understanding and knowledge >use spoken language to develop understanding through speculating, hypothesizing, imagining and exploring ideas</p>
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