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| Science Learning Journey   |  | Year 2<br>Autumn 1  |    |   |
| <b>Theme Overview</b>  |  | <b>Project Outcomes</b>   |  |   |
| To identify and compare the suitability of a variety of everyday materials. wood, metal, plastic, glass, brick, rock, paper and cardboard  |  | I can name materials and can talk about their properties.<br>I can name suitable materials for a job and say why, and why others would not be suitable.<br>To change paper to make it stronger by folding and twisting it.  |  |   |
|  |  | <b>Longitudinal study: To visit their class area (Rowan garden by cabin, Hazel - pond area)</b><br><b>Take photos, observational drawings of area. Make predictions of things that they think will change over the year.</b>  |  |   |
| <b>Skills Focus</b>  |  | <b>Sequence of Learning</b>   |  |   |
| <b>Main Skills Focus:</b><br>To make predictions.<br>To record results in a table<br>To draw conclusions from their testing.<br>To take part in a fair test<br><br><b>Linked Skills Focus:</b><br>Geography/ History/ DT - structures of bridges.<br><br><b>Teaching science skills and techniques at Mrs Bland's Infant School.</b> <ul style="list-style-type: none"> <li>we encourage the children to think that we can all be scientists.</li> </ul> |  | <b>Lesson 1</b><br><b>LI To identify different materials and begin to say their properties</b><br>Look at the 3 pictures of the different shopping bags and discuss. What is the same? Different? (MATERIALS) Which one do you think is the most suitable? No wrong answer! This half term we are going to be recapping what we have already learnt about materials and thinking about the suitability of them.<br><br><b>Main input:</b> What do chn already know about materials? Talk together as a class about this and make a brainstorm. Sort the box of materials on the carpet in different ways (by material, then could go onto properties- opaque/transparent; rigid/flexible; shiny/dull<br><br><b>Activity:</b> Scavenger hunt- shout a material or property and chn to find | <b>Lesson 2</b><br><b>LI: To say how materials are suitable for different purposes.</b><br><br><b>Mental/Oral Starter:</b> What if all materials were transparent? Discuss.<br><br><b>Main input:</b> Discuss the <b>suitability</b> of materials- they are chosen to do the correct job! Show a range of spoons and ask chn to identify what material they are made from. Talk through the slide, showing the pros of using those materials. <b>What material would NOT be suitable for making a spoon from?</b> Why?<br><br><b>Activity:</b> Go through the activity on the slide- they will need to decide which material is best to match the description. Have some words written on the board which they might need. Chn then to go off and complete their own sheets. | <b>Lesson 3</b><br><b>LI: To investigate which material is the strongest.</b><br><br>Today we are going to investigate which paper is the strongest. Have chn in a circle and show the paper or pass it around. How are we going to test which one will be the strongest? We will hang weights from each one. Which one do you <b>predict</b> will be the strongest? Make sure they answer in a full sentence- I think the strongest will be the ... because... (TA take pupil voice here)<br><br>Talk briefly about it being a fair test (all paper has been cut to the same size, we will use the same bag etc.) Talk about what is changing- the paper.<br><br>Do the activity as a class (and tell them that next week they will be doing the investigations themselves in groups.) Hang weights from each one and record as a class how much weight they can hold.<br><br>Then discuss the conclusion – which one was the strongest and how do you know? |

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| <ul style="list-style-type: none"> <li><b>We are curious, we share ideas, explore our environment and ask questions to find out the answers to things we don't not know yet.</b></li> </ul> | <p>an object with their partner with that property. Have to show someone else to make sure it fits the description.</p> <p><b>Plenary:</b> Guess the materials quiz (PPT- need to watch it in slide show mode)</p>   | <p><b>Plenary:</b> Discuss the pros and cons of having door handles made out of chocolate</p>   |   |
|   | <p><b>Lesson 4</b><br/><b>LI: To investigate how to make paper stronger.</b></p> <p>Think about bridges- what are they for? What obstacles are beneath them?<br/>-Look at famous bridges around the world (Geog link)<br/>-Look at photos of the 4 main types of bridges- arch, beam, cantilever and suspension.<br/>Discuss what shapes the chn can see and what the bridges are made from</p> <p>Tell chn we are going to make a bridge from a piece of paper. Discuss the properties of paper using scientific vocab (flexible)</p> <p>Activity:<br/>Work in pairs to change the shape of the paper to make it stronger. Give chn around 10 mins and encourage them to find different ways to do this. Allow them access to a small</p> | <p><b>Lesson 5</b><br/><b>LI - To take part in an investigation.</b></p> <p>Have a recap of last week's lesson by whizzing through the slides again. <b>Can you remember what we did to paper to make it stronger?</b> (We changed it's shape e.g. twisting, making a tube, concertina, layering)</p> <p>Read the story of The Three Billy Goats Gruff. Put a piece of paper between two desks which are slightly apart (about 25cm?) and show them what happens when you put a compare bear (pretending to be the goat!) on top. Key question – why do you think the paper makes a bad bridge? Challenge the children to think about how they could change the paper to make it strong enough to hold one or more bears.</p> <p>Tell chn how we are going to make this a fair test- no one is allowed to stick their bridge to</p> | <p><b>Lesson 6</b><br/><b>LI -to say which materials are suitable for a purpose.</b></p> <p>Recap what we have learnt this half term- we have been thinking about materials and their suitability. Watch the video here: <a href="https://www.bbc.co.uk/bitesize/topics/zrsgk7/articles/zvpysk7">https://www.bbc.co.uk/bitesize/topics/zrsgk7/articles/zvpysk7</a> as a slight recap. So when we choose materials it has to be right for the job! Go through some key vocabulary we have been learning about this half term using the slides- transparent/opaque; flexible/rigid; hard/soft; shiny/dull.</p> <p>Activity:<br/>Children to answer the quiz questions in their books (ideally by themselves!) They will need help to read the questions.<br/>Challenge: Can they think of their own quiz questions for class to answer linked to learning this term</p> <p>Plenary: choose some children to present their quiz questions to the class to see if anyone can answer them!</p> |

amount of tape - take photos/pupil voice as exploring.

After 10 mins come together and chn to present their findings to each other. Encourage the speakers to speak clearly and the audience to listen carefully and respectfully

Plenary- discuss the different shapes, including concertinas. If there is time give chn the opportunity to make a concertina shape

the table, everyone will get the same type of paper and the same amount of paper, the desk will be the same width apart for everyone. Everyone will be given access to the same amount of tape.

Activity:

Work in pairs or threes (mixed ability) to make a bridge from 4 sheets of paper and tape. (Allow chn to replace their paper if needed) Give them a set amount of time to make their bridge. Allow access to compare bears so that they can test out their design and amend if needed.

**At the end come together and test everyone's bridge. Record the results in the table .**

Plenary- look at the winning design. What about the design of this made it so strong?

In the second part of the lesson (may be on a different day) have a few photos stuck in books which shows their bridge and a bridge with compare bears on (this one could be generic) Use the slides to talk about the AIM of the investigation (to build the strongest paper bridge) and do a shared write of the method, sentence by sentence. For the LA support by writing on a whiteboard and asking them to copy.

For the HA chn, ask them to write *what they found out?* We are looking for them to use what they have learnt to answer their question i.e. what they have learnt about the shape of bridges and also how to make paper stronger by changing its shape.

Plenary – could we make a real bridge from paper? Is it the most suitable material for this?