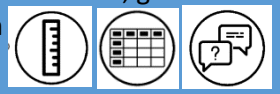
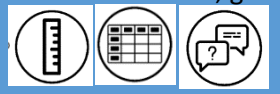
Springdale First School

Imagine, Believe, Achieve

Year 1 / Science / Materials – What are objects made from?

Children's prior learning in this area	Cultural Capital Opportunities	Key vocabulary and glossary
Understanding the World - Reception • Names of materials – plastic, wood, card, paper, and simple properties such as hard, soft, smooth, rough. Understanding that objects around us are made from different materials. • Can describe simple similarities and differences, e.g. observing objects are made from the same or different materials.	Find out how a material is made, e.g. paper or plastic. 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. Raise awareness in school / in their classroom. Discuss with school council. 	Object, material, property, properties, wood, plastic, glass, metal, water, rock, paper, fabric, card, hard, soft, stiff, bendy, rough, smooth, shiny, dull, transparent, fragile, tough, strong, weak, bouncy, breaks, tears gather, record, results, identify, compare, comparative and fair testing, interpret

Enquiry Question – What materials are used to make objects in school?	**Enquiry Question** – What are the properties of different materials?
Working scientifically skill: Gather and record results **Enquiry type:** Identify and classify	**Working scientifically skill:** Gather and record results **Enquiry type:** Comparative testing
Children will know: materials are what objects are made from. There are different materials. Everyday materials include wood, plastic, glass, metal, water, fabric and rock. (Try to show in raw form – not in an object). All objects are made of one or more materials. Some objects can be made from different materials e.g. plastic, metal or wooden spoons. Children will be able to distinguish between the object and the material from which it is made. ***Practise:*** *Complete oral and written stem sentences (fill the gap or scribed):* *This is a _____. It is made from _____.* *This is a _____. It is made from ____ and _____.* **Children will know how to:** gather and record results by recording videos so that they can answer a question. They will know recording information is helpful as otherwise we could forget the information. They will know which button to press to begin recording and what to press to stop recording. They will know that they must face the camera of the tablet towards the object that they want to record and use a clear voice so that the sound of their voice can also be recorded. ***Apply:*** *Go on a material hunt around the school and the grounds. Different groups should go to different rooms/areas. They should gather and record answers to the enquiry question by taking videos of objects and orally commenting on the video using the stem sentence from the 'practise'. These can then be viewed by the class to conclude that objects in school are made from a variety of materials. Stick a teacher/TA assessment slip in each child's book indicating whether the child could distinguish between object and material and name materials during the hunt.* ***Deepen:*** *Class discussion to interpret results from enquiry: What is a popular material used in school? Why do you think that material is used a lot? Why would you use that material for x object rather than x material? Stick a copy of notes from flipchart/screen in discussion in books.*	**Children will know:** different materials can have different properties. Materials can be described by their properties. Some materials e.g. plastic can be in different forms with very different properties. Children will know the meanings of hard, soft, shiny, dull, rough, smooth, bendy, rigid, tough, fragile, transparent, not transparent. ***Practise:*** *In groups, sort the objects on their table into sorting hoops by the materials' properties, rotating around tables. E.g. a table each for: hard/soft, shiny/dull, rough/smooth, bendy/stiff, tough/fragile, transparent/not transparent.* **Children will know how to:** gather and record results by using tick charts so that they can answer a question. They will know recording information in a chart can be a good way of helping us gather lots of information that we could otherwise forget. They will know how to read across the chart from left to right and that the boxes next to each other as you read across relate to each other. They will know that a tick means yes. ***Apply:*** *Following I do of using a tick chart to record observations of wood, (not an image – have the material in front of you), and we do for fabric, children complete you do for tick charts for metal and glass. (Mixed reading ability pairs if needed).*  ***Deepen:*** *Show a tick chart that has begun to be filled out with ticks. Sam says, "This is wrong. Plastic can't be both transparent and not transparent." Do you agree? Explain why. Deepen further with* ***discussion*** *about how plastic can have other opposite properties depending on how the plastic has been made.*

Enquiry Question – How do scientists find out answers to their questions?	**Enquiry Question** How do scientists find out answers to their questions?
Working scientifically skill: take measurements; gather and record results, interpret results – answer the question  **Enquiry type:** Comparative and fair testing 	**Working scientifically skill:** take measurements; gather and record results, interpret results – answer the question  **Enquiry type:** Comparative and fair testing 
Children will know: Strength is a property of materials. Some materials are very strong, some are quite strong and some are weak. A strong material can take a lot of force/pressure and hold heavy objects.  ***Check:*** *At tables, sort materials into piles: e.g. strong, quite strong and weak to check understanding of vocabulary. Children can apply force by stretching/trying to rip/break to observe how strong the materials are.* **Children will know:** that scientists carry out investigations to answer questions. They will know that to answer the question (Which paper will make the strongest party bag?) that they will need to compare the results that they have gathered. **Children will know how to:** take measurements to test for strength by adding and counting non-standard weights (e.g. pennies/marbles) until the paper breaks (or reaches maximum pennies given). They will know how to compare which is the strongest paper to make a party bag. They will know that the strongest party bag will hold the heaviest weight and the weakest party bag will hold the least weight. ***Practise:*** *I do, we do a counting pennies to measure strength of a material and to record on a pre-prepared table. Discuss with I do and we do example which is stronger and how you know.* ***Apply:*** *Children work in pairs/threes to test different paper bags and record in prepared table. Children will interpret the results and answer the enquiry question by filling in the gaps: The _____ is the strongest paper to make a party bag. I know because _____.* ***Deepen:*** *Ben says the tissue paper is stronger than the sugar paper because the tissue paper broke at 10 pennies and the sugar paper broke at only 5 pennies. Do you agree with Ben? Explain your reasoning - discussion.*	*Opportunity to assess working scientifically to inform teaching in future units.*  **Children will know:** Bounciness is a property of materials. Some materials are very bouncy, some are quite bouncy and some are not bouncy. When dropped, a bouncy material will land on the ground and jump back into the air whereas a non-bouncy material will land and stay where it landed. Show with a bouncy ball and a different object that won't bounce. **Children will know:** Scottish inventor, John Dunlop, created a new inflatable rubber tyre for his son's tricycle. He compared his new wheel and the old metal wheel by rolling them across the yard together and found that the metal wheel stopped but the new wheel continued until it hit the gatepost and bounced back. (Could potentially model this with a quoit or hula hoop). This led him to invent air-filled tyres in 1888. **Children will know:** that scientists carry out investigations to answer questions. They will know that to answer the question (Which is the bounciest ball?) that they will need to compare the results that they have gathered. **Children will know how to:** take measurements to test for bounciness by rolling each ball down the ramp so that the ball hits a wall and bounces back. They will know how to measure the distance the ball bounced back by using non-standard units (e.g. unifix cubes). They will know how to compare the balls for bounciness. ***Practise:*** *I do, we do rolling a ball down ramp and measuring the bounce back distance with cubes and recording on a table. Discuss which is bouncier and how we know.* ***Apply:*** *Children work in pairs/threes to test the bounciness of different balls and record in prepared table. Children will interpret the results and answer the question by filling in the gaps: The _____ is the bounciest ball. I know because _____.* ***Deepen:*** *Ravi pushed the tennis ball down the ramp and Becky let the basketball go at the top of the ramp. The tennis ball bounced back further than the basketball so the the tennis ball is the bounciest. Do you agree? Explain your reasoning - discussion.*