ST LAWRENCE C.E. PRIMARY SCHOOL LEARNING JOURNEY

SUBJECT: Science UNIT: Materials TERM: Autumn 1 YEAR GROUP: 1

THE BIG QUESTION	
Which material would be the best to make a new coat for Oak Bear?	
END OF UNIT OUTCOME	• Children investigate different materials to see if they absorb water or not. • Children can explain which material is best and explain why using simple statements that identify properties of chosen material.
OBJECTIVES	• 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 materials on the basis of their simple physical properties
Working Scientifically	• asking simple questions and recognising that they can be answered in different ways • observing closely, using simple equipment • performing simple tests • identifying and classifying • using their observations and ideas to suggest answers to questions gathering and recording data to help in answering questions
Safety in Science	CLEAPPS
CONCEPT: Transformation	How do materials change when they are exposed to water?
LESSON 1 QUESTION	**How can we group / sort different materials?**
KEY KNOWLEDGE	• Know the names of everyday materials including **wood, plastic, glass, metal, water**, and **rock**. • Know that materials have different **properties**. Know that some materials are **hard, soft, stiff, rough, smooth, flexible, waterproof, not waterproof, opaque,** and **transparent.**
RICH TASK	Have a large pile of objects in front of the children. Can anyone name the materials? Introduce the new key vocabulary and allow children to experience whether the objects are rough, smooth, heavy, light, soft or hard through touching and feeling the materials. They can test whether objects are shiny or dull by observing their reflection. Describe simple similarities and differences – create a word bank of key properties to refer back to. Use the same large pile of materials and sort them into two groups. Ask children to identify how the objects have been sorted. Put the objects back into one large pile and ask children if they can think of another way they can sort the objects into groups.

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SUPPORT AND CHALLENGE	S – use property cards to add labels to materials C – make own property labels to describe the materials			
KEY VOCABULARY	Material Wood Glass Metal Plastic Wood Fabric Paper Glass	Property Hard Soft Rough Smooth Transparent Opaque Shiny Dull Stretchy Bendy Rigid	**RESOURCES**	selection of objects made from different materials property label cards (resources) hoop to sort materials
LESSON 2 QUESTION	**How is rock used as a material?**			
KEY KNOWLEDGE	• Know that rock is from the **Earth's surface** and it can be hard or soft (chalk). • There are different types of rocks. • Rocks come in different shapes, sizes and textures. • Rocks can also be used to build things such as walls or buildings.			
RICH TASK	Complete a rock hunt with the children. Walk around the school grounds and ask children to collect rock samples. Use hand lenses to observe the different rocks closely. What can they see? What is similar? What is different? Have five large labels on the floor: hard heavy light rough smooth Ask children to sort the rocks they have found to match the labels. Use balance scales to compare the rocks.			
SUPPORT AND CHALLENGE	S – use property cards to add labels C - Discuss the examples that could be placed into more than one category.			
KEY VOCABULARY	Rock Heavy Light Rough Smooth Earth's surface		**RESOURCES**	Magnifying glasses Balancing scales Labels Sorting hoops
LESSON 3 QUESTION	**What materials are different objects made from?**			
KEY KNOWLEDGE	• Know the difference between the object and the **material** it is made from.			

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<table>
<tr><td></td><td colspan="4">

- Know that objects can be made from different materials e.g. a bottle can be made from glass or plastic.
- Know the difference between **natural** and **man-made** materials.
- Know that wood is a hard substance, it comes from trees, it is a natural substance and it can be used as a building materials.
- Know that plastic is a man-made substance, it can be shaped when soft and it has many uses.
- Know that glass is hard, transparent and it is used to make windows, bottles and other objects.
- Know that metal is hard and strong.

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<tr><td>RICH TASK</td><td colspan="4">Children to have the opportunity to sort a range of objects made from the same material and the same object made from different materials, e.g. a wooden spoon and a metal spoon.
Discuss which materials are found naturally and which are man made – sort materials accordingly.
Go on a material hunt around the school. Can children name objects and identify the material it is made from?
Draw pictures and add labels</td></tr>
<tr><td>SUPPORT AND CHALLENGE</td><td colspan="4">S – material prompt sheet
C – describe property of material / object</td></tr>
<tr><td>KEY VOCABULARY</td><td>Material
Wood
Glass
Metal
Plastic
Wood
Fabric
Paper
Glass</td><td>Property
Hard
Soft
Rough
Smooth
Transparent
Opaque
Shiny
Dull
Stretchy
Bendy
Rigid</td><td>RESOURCES</td><td>Material hunt checklist (resources)

selection of objects made from different materials</td></tr>
<tr><td colspan="5"></td></tr>
<tr><td>LESSON 4 QUESTION</td><td colspan="4">How are water and ice similar / different?</td></tr>
<tr><td>KEY KNOWLEDGE</td><td colspan="4">

- A material can be solid (wood, plastic, glass, metal and rock) or liquid (water).
- Water is a clear liquid.
- When water freezes, it turns to ice.
- When ice melts, it turns to water.

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<tr><td>RICH TASK</td><td colspan="4">Collect some water.
Children should pour water into an ice cube tray and freeze it.
Check the ice cube tray at regular intervals so children can observe the water turning to ice.
Take some ice cubes and place them onto</td></tr>
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	each child's hand. Children should observe the ice as it is melting. What is happening? Why do you think this is happening? Freeze a toy in water. Ask children to suggest ways the toy could be released from the ice. Have a selection of tools such as a hairdryer, a blanket and a pair of gloves. Children should work with an adult to find a way to release the toy. Which method melted the ice the quickest? Why?		
SUPPORT AND CHALLENGE	S – observe changes and adult model talking through what is happening C- make predictions about how ice will melt the fastest / why		
KEY VOCABULARY	Water Liquid Ice Solid Freeze Melt	**RESOURCES**	Ice Toys to freeze in ice Hairdryer Gloves Blanket
LESSON 5 QUESTION	**What makes a material float or sink?**		
KEY KNOWLEDGE	• Some materials float in water. This means they stay at the top. • Some materials sink in water. This means they fall to the bottom. • Know that some materials are better for some **purposes** than others e.g. waterproof materials would be used for a boat.		
RICH TASK	What does float / sink mean? Show children a range of objects – make predictions about whether they will float or sink. Have a selection of objects made from different materials. Include objects of different sizes and masses. Allow children to hold and feel the objects. Ask children to predict which objects will sink and which will float. Sort the objects into groups according to their predictions. Ask children to explain their reasoning. Place the objects in a bucket filled with water and ask children to identify whether the object floats or sinks. Encourage children to compare their findings to their predictions**.**		
SUPPORT AND CHALLENGE	S – Can children sort the materials into float / sink? use picture prompt to aid understanding. C – Can children spot any patterns between the materials that float / sink?		
KEY VOCABULARY	Material Float Sink Heavy Light	**RESOURCES**	Selection of objects made from different materials / different sizes and masses

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LESSON 6 QUESTION	**Which materials absorb water?**		
KEY KNOWLEDGE	• Water is absorbed when liquid is taken in by a material Children may think that if the water is absorbed by the material, then it has disappeared. Include materials that do not absorb water at all so children can see that the water remains if it is not absorbed.		
END OF UNIT OUTCOME	What does absorb mean? Introduce a range of materials – which would be best to clean up a water spillage? Why? Model what absorb means using a sponge and water Which material would be best to make a new coat for Oak Bear? 1. Cut 8 cm × 8 cm squares from each material. 2. Mark the amount of water to be added each time on the pipette. 3. Ask children to feel the materials and predict which will absorb the most water and which will absorb the least. 4. Put one material into the tray. 5. Slowly add the water on top of the material and start the timer. 6. After one minute, ask children to see whether the material has absorbed the water. 7. Repeat the test using the other materials. 8. Ensure the dish is dry before testing the next material. 9. Sort the materials based on whether they absorbed water or not. Rank the materials from absorbed the most water to absorbed the least water. Use knowledge from investigation to design a coat for Oak Bear.		
SUPPORT AND CHALLENGE	S – table to help complete findings C – children to choose how to record their findings		
KEY VOCABULARY	Absorb Waterproof Measure Record	Absorb Waterproof Measure Record	Absorb Waterproof Measure Record