KPNS Science Unit Planning

Year Group: 2 **Term:** Spring 1 **Topic:** Everyday Materials

Big Idea: Which material and why?

Enquiry question and BGS	Retrieval Activity	Teacher Input (direct teaching)	Activities (modelling and scaffolding)	Key Vocab	Evidence in books and resources	Working Scientifically focus
What are materials? Can we name them?	Naming materials from Year 1	Plastic, paper, cardboard, metal, wood, brick, glass. Rubber. Look at some of the properties that we can identify by looking at them. Eg. You can see through glass. Wood, metal and brick look very strong, and paper and cardboard look much weaker.	***Practise: Quick sorting activity – pictures of items made from various materials, work in pairs to put the item in the correct circle for the material it is made of.*** ***Apply: Class walk around the school to find items made from materials: investigation sheet with space to write name of object, material it is made of and some of the propertiesthey can identify about that material (these do not have to be in 'scientific' terms, simply what they observe eg. Hard, colourful, tall etc.)***	Properties Strong Weak See-through (building on this next lesson)	Evidence in books – Completed investigation sheets Piccollage of investigation walk Resources – 1. Picture cards and material circles 2. Investigation sheet 3. Clipboards	Identifying and classifying
Can you see through materials?	Name some of the properties of materials we learnt about on our investigation lesson	Direct teach Vocabulary of opaque, translucent and transparent	***Practise: Children are given 3 labels each (post it notes)*** ***Opaque, translucent and transparent. They then try to find something in the classroom that they***	Opaque Translucent Transparent	Evidence in books – Investigation design sheets Resources – Investigation design sheets	Asking simple questions and recognising that they can be answered in different ways.

	(discussion). Reference back to things which were 'see through'		***can label as such. Followed by brief discussion about what they have labelled.*** ***Apply: Working in pairs to design an experiment to test if a material is opaque, translucent or transparent. Encourage children to be creative (they won't be carrying out the experiment) Then as a class discuss some of the different ideas and highlight how there are many ways to find the answer to a scientific question.***			
Which materials are the most absorbent?	Opaque Translucent Transparent	Direct teaching of how some materials absorb water – tiny holes draw in the water and spread it across the material. Discussion after experiment about why some materials need to be absorbent and why it might be bad for some other materials to be absorbent.	***Practise: Different materials laid out for experiment, children make their predictions about which will be the most absorbent and then order the materials from most to least on their desks (take picture for books)*** ***Apply: Absorbent experiment – children work on their tables to test the materials by placing them into trays of water and seeing if they absorb or not.***	Absorbent Prediction Experiment	Evidence in books – Piccollage of experiment Results table Resources – Results table ***Various materials – brick, rock, paper, sponge, paper towel, cardboard*** Trays for water	Performing simple tests Gathering and recording data to help answer questions Observing closely using simple equipment
Which materials are waterproof?	Absorbent materials	Direct teaching, why some materials are	***Practise: suitable or not? Quick game on board –***	Waterproof Liquid	Evidence in books –	Performing simple tests

	and how they work	waterproof – They do not have the same tiny holes that absorbent materials have.	***children vote thumbs up or down to show if the material would be suitable for the use suggested.*** ***Apply: Waterproof experiment – range of materials, similar experiment to last week but looking to see which are not absorbent. Important: include a material which would be effective to be used to make an umbrella.***	Suitability	Recollage of experiment Results table Resources – Results table A waterproof material eg. Plastic bag, pieces of plastic cut from an umbrella or rain mac. ***Various other materials – brick, rock, paper, sponge, paper towel, cardboard*** Trays for water	Gathering and recording data to help answer questions Observing closely using simple equipment
Which materials are flexible?	Waterproof materials and how they work	Misconception – does flexible mean that it is not strong? Teach which materials are flexible vs which are rigid.	***Practise: suitable or not? Quick game on board – children vote thumbs up or down to show if the material would be suitable for the use suggested.*** ***Apply: Which materials are flexible or rigid – worksheet.***	Flexible Rigid Stretch Twist	Evidence in books – Flexible materials worksheet Resources – Flexible materials worksheet	Using their observations and ideas to suggest answers to questions. Identifying and classifying.
What materials would you make a castle out of?	Properties of materials so far: opaque,		***Practise: Quick sorting activity in pairs with some pictures of items***		Evidence in books –	Using their observations and ideas to

Why?	translucent, transparent, absorbent, waterproof, flexible, rigid		***and some names of materials – sort into which have each property. Discussion: did some fit in more than one?*** ***Apply:*** ***Design a castle – it must have a flag, walls, windows, turrets***		Castle worksheet Resources – Castle worksheet Sorting activity sheet	suggest answers to questions.