Science

Uses of Everyday Materials Year 2

Remember when
Objects are made from materials. (Y1)
Identified materials that objects are made from (e.g. glass, wood, plastic) (Y1)
Used words to describe materials (e,g, soft, shiny, rough, absorbent, bendy, stretchy, hard, smooth, dull, bright, waterproof, stiff, transparent, opaque). (Y1)
Materials can be natural or man-made. (Y1)

Sticky knowledge

- Materials are used for different purposes based on their properties.
- Wood is used to make furniture because it is a hard and a strong material.
- Glass is used to make windows because it is transparent.
- Some objects can be made from a range of different materials for example a spoon could be made from metal or plastic.
- Some materials are not suitable due to their properties, for example paper would not make a good window.
- The shape of some materials can be changed when they are stretched, twisted, bent and squashed.

Key vocabulary

absorbent
bending
bendy
fabric
hard
material
metal
natural
opaque
plastic
properties
rough
shiny
smooth
soft
squashing
stiff
stretching
suitable
suitability
transparent
twisting
waterproof
wood

National Curriculum
Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, 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.

Common Misconceptions
Some children may think:
• only fabrics are materials
• only building materials are materials
• only writing materials are materials
• the word rock describes an object rather than a material
• solid is another word for hard.

LO	Knowledge and Skills	Lesson outline
Lesson 1 **LO:** To be able to group materials based on their properties **Enquiry type:** Grouping and Classifying	**Sticky Knowledge:** Objects can be sorted according to their materials and their properties **Skill**: Identify and classify	Discuss different materials and key vocabulary. How many materials can you name? Explain that different materials have different properties. What properties can you name? Look at every day objects and discuss the material used. Why is that material used? AI pupils - Sort objects into different materials and describe them using their properties.
Lesson 2 **LO:** To know that objects can change shape by bending twisting and squashing **Enquiry Type:** Observation	**Sticky Knowledge:** The shape of some materials can be changed when they are stretched, twisted, bent and squashed. **Skill:** gathering and recording data to help in answering questions	Recap different materials and their properties. Introduce key vocabulary squash, bend, twist and stretch and help children to develop an understanding of what these words means. Can they demonstrate how to squash something? Bend something? ARE - Name the properties of a range of toys (playdough, bouncy ball, teddy bear, slap band). Carry out a test to see whether these objects change shape when they are stretched, twisted, bent and squashed. Record results in a table. LA – Complete table as above. Evaluating results table – Identify two materials that twist and two materials that stretch. GD – Complete table as above. Explain why it is important that the playdough can change shape? Explain why it is important that some objects do not change shape.
Lesson 3 **LO:** To understand the suitability of	**Sticky Knowledge**: Wood is used to make furniture because it is a hard and a strong material.	Recap materials and their properties. Look at everyday objects made from unusual materials (e.g., a dress made from paper, a chair made from cardboard) Why are these materials not suitable? What material would be suitable and why? Discuss SK facts. ARE/GDS - Pupils label pictures of different objects such as a window and explain why it is made from that material using properties vocabulary.

materials for different purposes **Enquiry types:** Grouping and Classifying	Metal can be used to make coins, cans, cars and cutlery. Glass is used to make windows because it is transparent. Some materials are not suitable due to their properties, for example paper would not make a good window. **Skill:** Identify and classify	LA – Word mat provided. Adult support. What would be the most ridiculous material to make these objects from?
Lesson 4 **LO:** To know that different materials can be used for the same object. **Enquiry Type:** Comparative testing	**Sticky Knowledge:** Different materials can be used to make the same object and this may change the purpose of the object **Skill:** identifying and classifying	Recap materials and their properties. Look at straws made from different materials (include hollow pasta tube). Why are they made from different materials? What would each straw be used for? What would the straws be unsuitable for? Give straws made from different materials to the children. Allow them to drink iced water using different straws and compare how it feels. Which straw gets the coldest? Are any of the straws not nice to drink through? Why? Allow children to order the straws from best to worst to drink through. Add some key words to describe how they feel. .
Lesson 5 **LO:** To know which material would make the best mop **Enquiry Type:** Comparative testing	**Sticky Knowledge:** Materials are used for different purposes based on their properties. Fabric is good for a mop because it is absorbent. **Skill:** Perform simple tests	How could we find out which of these materials would make the best mop (Link to Cinderella). Children help design an investigation to test the different materials. How will they know which is best? What does best mean? Highlight that a mop needs to be absorbent. Mixed ability groups – Pupils provided with 4 different materials (foil, tissue paper, sponge and fabric), a tray and some water. Pupils must test the materials on their ability to mop up the water in the tray. What did they find? Discuss observations. In books – complete a table to show results of each material (absorbent/waterproof). Were there any absorbent materials that are still not suitable? Why? (paper ripped). Which material is the most suitable? Why?
Lesson 6 **LO:** To know which material would make the best curtains **Enquiry Type:** Comparative testing	**Sticky Knowledge:** Materials are used for different purposes based of their properties. Thick, dark materials are good for making a blind because they stop the light coming through. **Skill:** performing simple test	How could we find out which of these materials would make the best curtain (Link to Sleeping Beauty). Children help design an investigation to test the different materials. How will they know which is best? What does best mean? Highlight that a curtain needs to be opaque. Mixed ability groups – Pupils provided with 4 different materials and a torch. Pupils must test the materials on their ability to block out light. What did they find? Discuss observations. In books – complete a table to show results of each material (transparent or opaque). Were there any opaque materials that are still not suitable? Why? (foil, would be hard to open and close curtains). Which material is the most suitable? Why?

Working towards	**End of unit assessment** Working at Age related expectations	Working at a greater depth