

Science Project Overview Year 2 Materials

<p>Subject Knowledge (PoS)</p> <p>Substantive knowledge</p> <ul style="list-style-type: none"> • Wood, brick and metal are suitable for structures as they are rigid and strong. • Glass is suitable for windows as it is transparent. • Plastic is suitable for many things as it can be soft or hard, flexible or rigid. • Paper and cardboard are suitable for making recyclable items. They are not suitable for outdoor items due to weathering. • The shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.(Yr2) 	<p>Working Scientifically (PoS+Overview)</p> <p>Disciplinary Knowledge</p> <ul style="list-style-type: none"> • Be curious and ask questions • Using different types of scientific enquiry to answer their own questions, including: observing changes over a period of time, noticing patterns, grouping and classifying things, carrying out simple comparative tests, and finding things out using secondary sources • 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 • Begin to use simple scientific language to talk about what they have found out and communicate their ideas to a range of audiences in a variety of ways. 	<p>Working Scientifically Methods (Must be done)</p> <p>Using different types of scientific enquiry to answer their own questions, including:</p> <ul style="list-style-type: none"> • observing changes over a period of time, • noticing patterns, • grouping and classifying things, • carrying out simple comparative tests, • and finding things out using secondary sources
<p>Previous learning:</p> <ul style="list-style-type: none"> • Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes. (Early Learning Goal) • Distinguish between an object and the material from which it is made. (Y1 - 	<p>Preparing for:</p> <ul style="list-style-type: none"> • Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. (Y2 - Uses of everyday materials) • Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. (Y2 - Uses of everyday materials) • Compare and group together different kinds of rocks on the basis of their appearance and 	<p><u>Bespoke to our school</u></p> <p>The children at our school have limited vocabulary so a great deal of emphasis has been put on learning the tier 2 and tier3 vocabulary.</p>

<p>Everyday materials)</p> <ul style="list-style-type: none"> Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. (Y1 - Everyday materials) Describe the simple physical properties of a variety of everyday materials. (Y1 - Everyday materials) Compare and group together a variety of everyday materials on the basis of their simple physical properties. (Y1 - Everyday materials) 	<p>simple physical properties. (Y3 - Rocks) • Notice that some forces need contact between two objects, but magnetic forces can act at a distance. (Y3 - Forces and magnets)</p> <ul style="list-style-type: none"> Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets. (Y5 - Properties and changes of materials) Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic. (Y5 - Properties and changes of materials) 	
<p>Vocabulary: Object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, card/cardboard, rubber, wool, clay, hard, soft, stretchy, stiff, bendy, floppy, waterproof, absorbent, breaks/tears, rough, smooth, shiny, dull, see-through, not see-through, opaque, transparent and translucent, reflective, non-reflective, flexible, rigid Shape, push/pushing, pull/pulling, twist/twisting, squash/squashing, bend/bending, stretch/stretching</p>		
<p>Misconceptions:</p> <ul style="list-style-type: none"> 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. 		
<p>Cross curricular links Link to narrative – three little pigs Descriptive writing – describing materials used Explanation texts – why were certain materials used for specific purposes?</p> <p>Books: Billy Goat's Gruff Mrs Armitage on Wheels</p>		

- Supertato

Maths links:

Measurement:

Be able to use appropriate standard units to estimate and measure to the nearest appropriate unit; including length (m/cm), mass (kg/g), temperature (°C), capacity (litres/ml) Use >, < and = to compare and order length, mass, volume/capacity

Statistics:

- Understand and know how to construct simple pictograms, tally charts, block diagrams and simple tables
- Begin to answer questions by counting/sorting, and about totalling/comparing categorical data

Explorify links:

[Bonkers Bubbles](#)

[Liquid densities](#)

[Burly bridges](#)

[Functional footwear](#)

[Protective measures](#)

[Unusual houses](#)

[Wonderful wheels](#)

[Maritime medley](#)

[Synthetic selection](#)

[Which is the bendiest?](#)

[Unusual plant pots](#)

What if every material was [rigid](#), or [stretchy](#), or [transparent](#)?

[What if your school banned paper?](#)

Possible careers/jobs:

Materials scientist (researches structures and properties of materials)

Builder (builds structures)

Architect (designs buildings)

Mechanical engineer (designs, analyses and manufactures mechanical systems)