

SUBJECT MEDIUM TERM PLANNING - SCIENCE

Year Group: 2	TERM: Autumn 2	Theme: Everyday materials
National Curriculum: <ul style="list-style-type: none"> Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses 		
Context: - Children will be able to investigate different materials properties and their suitability for a purpose.	Concepts: Materials	Vocabulary: Everyday materials: Names of materials – wood, metal, plastic, glass, brick, rock, paper, cardboard Properties of materials – as for Year 1 plus opaque, transparent and translucent, reflective, non-reflective, flexible, rigid Shape, push/pushing, pull/pulling, twist/twisting, squash/squashing, bend/bending, stretch/stretching Working scientifically – investigate Identifying, classifying and grouping, simple tests
Prior Knowledge: <ul style="list-style-type: none"> Distinguish between an object and the material from which it is made. (Y1 - Everyday materials) 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) 	Future Knowledge: <ul style="list-style-type: none"> Compare and group together different kinds of rocks on the basis of their appearance and 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) 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) 	

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| | <ul style="list-style-type: none">• 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) |
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End points /by the end of this unit pupils will...

- Be able to name at least 5 different types of material and name 3 things that material makes
- Be able to identify the properties of these materials and use key vocabulary
- Be able to identify an appropriate material for a given purpose and explain **WHY** they have chosen that material using its properties

Lesson Number 1

Key learning: Find out how the shapes of solid objects made from certain materials can be changed by squashing, bending, twisting and stretching.

Concepts:
Everyday materials

Lesson structure: Introduction, direct teaching, activities, key questions

Concept map at the beginning of the topic. This will assess how much prior learning has been retained.

Use Explorify to find a what if question about materials to get the children thinking about different properties

Success Criteria:
This should what the children should be able to do by the end of the lesson

I can predict what I think will happen to materials when squashed, bent, twisted and stretched.

I can participate in an investigation to test my predictions.

I can record the results of what did happen.

Deepening: I can name some other solid objects that can be squashed, bent, twisted and stretched.

Working Scientifically:
Identifying, classifying and grouping

Suggested resources:

Flipchart

A variety of different materials for children to investigate

(Year 1 materials: wood, plastic, metal, water, rock, paper, fabric, foil)

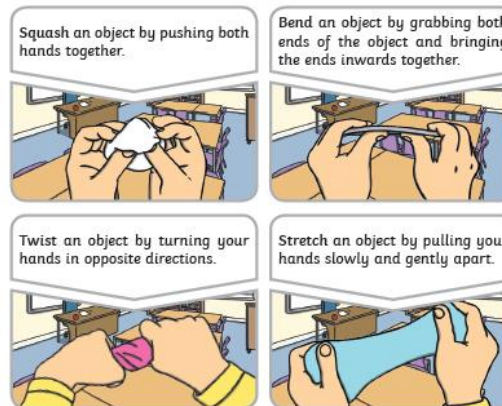


Give the children different objects and ask them how they would group them. Assess how they group the objects.

Recap Year 1 knowledge of what a material is and what properties are.

Play materials and their properties video
https://www.youtube.com/watch?v=340MmuY_osY

Explain what how to bend, twist, squash and stretch materials – demonstrate that some materials do this.



Children to carry out an investigation to explore different properties to the materials. Can the materials bend, twist, be squashed or stretched. Children to first predict whether the materials can bend, twist, squash and be stretched, children then carry out the test and record their findings in a table.

Did any of the material surprise the children? Ask children to regroup the materials – have they done it a different way to what they did at the beginning of the lesson.

Challenge: through discussions and questioning

Adaptive teaching for SEND: word mats, pre learning, discussions with other children, concrete materials

Vocabulary:

Materials, twist, bend, squash, stretch

Lesson Number 2

Key learning:

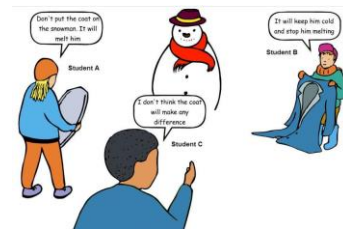
Use my science knowledge of materials to compare appropriate material for a particular use
Context: Christmas stocking.

Concepts:

Everyday materials

Lesson structure: Introduction, direct teaching, activities, key questions

Concept cartoon to understand children’s material knowledge. Encourage children to use key vocabulary of material properties in their discussion.



Success Criteria:

This should what the children should be able to do by the end of the lesson

I can explain the properties of different materials
I know that the same material can be used for different purposes.
Using my prior material knowledge I can decide what

Suggested resources:


A variety of different materials for children to investigate, must include felt

(Year 1 materials: wood, plastic, metal, water, rock, paper, fabric, foil)

Recap what a material is.

Recap the properties of different materials.

Discussion that the same material can be used for different purposes (for example metal can be used for coins, cars and cans) or the same item can be made from different materials (for example a spoon can be made from metal, plastic, wood)

<p>properties the material for my stocking needs to be. I can carry out an investigation to decide which material I will chose to make a Christmas stocking. I can explain why I have chosen to use that material</p> <p>Working Scientifically: performing simple tests</p> 		<p>Ask children what properties they would like a Christmas stocking to have, using key the vocab (soft, opaque (so you can't see the presents), strong (to carry the presents). Children must explain their choice in the properties.</p> <p>Children to investigate different materials to decide which the best material for a Christmas stocking is. Key sentences I think Would make a suitable material for a stocking because..... I don't think .. would make a suitable material because</p> <p>Children then decide on a suitable material and explain their reasoning behind using the properties of the material. Linked with DT – children will later sew their Christmas stocking with the chosen material</p> <p>Challenge: challenge through questioning, outcome and their explanation of the different materials Adaptive teaching for SEND: fewer materials to select from, word mat</p>
<p>Vocabulary: Properties materials purpose</p>		

Lesson Number 3 and 4		
<p>Key learning: Comparing the suitability of everyday materials. Context: The great egg drop (Link to The Dinosaurous book</p>	<p>Concepts: Everyday materials</p>	<p>Lesson structure: Introduction, direct teaching, activities, key questions</p> <p>Remind children of different properties. The children could play a game to match the words to the definitions.</p> <p>Children explore different materials, label the properties with a post it note. How many properties can they think of?</p>
<p>Success Criteria: This should what the children should be able to do by the end of the lesson</p>	<p>Suggested resources: <u>Check egg allergies in class!</u> Eggs</p>	<p>Introduce experiment: Which material will protect the egg the most when dropped at height</p> <p>Children to predict which material will protect the egg.</p>

I can identify uses of everyday materials.
I can identify the conditions for a fair test.
I can make a prediction.
I can carry out a scientific investigation.
I can record the findings of a scientific investigation.
Deepening - I can evaluate my findings.

Working scientifically performing simple tests and gathering and recording data to help in answering questions.



Different materials (paper, tin foil, cotton wool, plastic cubes)
Plastic bags

Discuss independent and dependent variables in a test. What will you change and What will you keep the same.

One at a time, wrap the egg up with the different materials and drop from a 2metre height. Watch to see if the egg breaks. Carry out the same experiment with all the different materials, also try one without any materials in the bag. Record the data from the experiment.

Evaluate the investigation. Which was the best material to protect the egg

Challenge: through questioning (for example, why do you think that materials resulted in a cracked egg?)

Adaptive teaching for SEND: Support with prediction and reording results

Vocabulary:
Fair test, prediction, results, conclusion