


Dereham Church Infant and Nursery School- Science

	Year group: 2	Area/topic: Everyday materials, Autumn 2
<p><i>(Objectives from NC/ELG/Development matters)</i></p> <p>Working scientifically:</p> <ul style="list-style-type: none"> * 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. <p>Everyday materials:</p> <ul style="list-style-type: none"> * Distinguish between an object and the material from which it is made. (Year 1, D1) * Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. (Year 1, D2) * Describe the simple physical properties of a variety of everyday materials. (Year 1, D3) * Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. (Year 2, D5) * Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. (Year 2, D6) 		

Prior learning	Future learning
<ul style="list-style-type: none"> * Distinguish between an object and the material from which it is made (Year 1, D1) * Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock (Year 1, D2) * Describe the simple physical properties of a variety of everyday materials (Year 1, D3) * Compare and group together a variety of everyday materials on the basis of their simple physical properties. (Year 1, D4) 	<ul style="list-style-type: none"> * Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. (Year 3, 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) * 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)

Working scientifically & encouraging scientific enquiry

Identifying and classifying

*Children to correctly identify and name materials.

*children to sort and group materials that are the same.

*Children to identify different objects that are made from the same material recognising how the same material can be used for multiple purposes.

*Children to identify the properties of materials and how they can be changed through squeezing, bending, squashing or twisting. Children to group objects/materials based on similarities in properties.

Comparative and fair testing

*Children to make predictions before performing simple comparative tests.

*Children to complete a comparative test to find the most waterproof material for a given purpose and record their findings in a simple way.

*Children to work within a group to complete a comparative test to identify the strength of materials. Children to record their results in a table.

Research using secondary resources

*Children to learn about Charles Macintosh and why he is important with Science. Children to understand new materials are always being invented.

What pupils need to know or do to be secure

Key knowledge and skills

*I can identify and name a range of materials including wood, glass, metal, plastic, water, rock, brick, paper, fabric and foil. (D2)

*I can identify how a material can be used in different ways for multiple purposes and objects.

E.g. Metal can be used for coins, spoons, cars, table legs, cans etc. (D1 & D5)

*I recognise that some objects can be made from different materials and can discuss the suitability of each material for different purposes. E.g. Spoons can be made from metal, plastic or wood. (D1 & D5)

*I can explore and discuss why some materials would be unsuitable for a given purpose. (D5)

*I understand and can explain what the terms 'waterproof' and 'absorbent' mean. (D3)

Possible evidence

There will be evidence of children meeting the 'I can' statements through:

*Quotes taken from discussions.

*Children can correctly use the key vocabulary during lessons.

*Children recording through drawing.

*Children recording data from an experiment.

*Photographs of children's learning.

- *I can work within a group to carry out a simple test to find the strongest material and record the results. (D3 & D5)*
- *I can make a prediction, using my prior knowledge, as to which material would be the most waterproof and explain why I predict this.(D3 & D5)*
- *I can work with a partner to conduct a comparative test to find the most waterproof material for a given purpose. (D5)*
- *I can work with a partner to record the results of the experiment and decide the most suitable material to then make and test a product. (D5)*
- *I can explore how materials can be changed to create a desired shape for a product and can verbally explain what I notice whilst trying to change the shape of materials. (D6)*
- *I can experiment with objects and the material they are made from to recognise how the shape can be changed by bending, twisting, squeezing or squashing. (D6)*
- *I can sort and record which materials are able to be bent, twisted, squashed or squeezed. (D6)*
- *I understand that all objects made of the same material may not be able to change shape in the same way. E.g. all objects made from plastic cannot necessarily bend or twist in the same way as one another. (D6)*
- *I understand that new materials are always being invented. (D2 & D5)*
- *I understand who Charles Macintosh is and can explain his invention of a new material. (D2 & D5)*

**Written explanations of understanding or adult scribing a child's understanding depending on individual needs.*

Key vocabulary

Material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, card, rubber, wool, clay, copper, gold, silver, iron, cotton, silk, wool, polyester, leather, pine, oak, man-made, natural, elasticity, strength, squashing, twisting, bending, stretching, pulling, rough, smooth, shiny, reflective, dull, transparent, translucent, opaque, rigid, flexible, floating, sinking, liquid, gas, solid.

Common misconceptions	Books linking to this area
<ul style="list-style-type: none"> *Children may think of materials as being only fabrics. *Children may think materials are only things you build with. *Children may think that the word rock describes an object rather than a material. *Children may think solid is another word for hard. 	<ul style="list-style-type: none"> *The great paper caper by Oliver Jeffers *The blue balloon by Mick Inkpen (Material properties) *Aliens love underpants by Claire Freedman (Which underpants would have the best pingy elastic for cataoulting aliens?) *What a waste by Jess French *A planet full of plastic by Neal Layton *Somebody Swallowed Stanley by Sarah Roberts and Hannah Peck
Memorable first hand experiences	Opportunities for communication
<ul style="list-style-type: none"> *Conducting experiments to find waterproof and absorbent materials. *Exploring materials to find their properties and how their shape can or cannot be changed. 	<ul style="list-style-type: none"> *Children to be given opportunities for communication with partners, groups and whole class to discuss as completing practical activities and also to share findings. *Children to compare with one another their results from experiments. *Through the use of Explorify.

DCINS Reasonable adjustments for pupils with SEND

Communication and Interaction

- *Visual aids, pictures of equipment with words labelled, word mats with pictures for key words in that lesson.
- *Freedom to explore scientific equipment and investigate in own way.
- *Hands on experiences to encourage communication and interaction with others.
- *Pre teaching any new vocabulary.

Cognition and Learning

- *Opportunity for lots of hands on exploration and verbally sharing thoughts and ideas.
- *Freedom to explore scientific equipment and processes.
 - *Pre teaching new vocabulary or concepts.
 - *Activities adapted if needed for safety and ease.
- *Visual aids, pictures of equipment, mats with key words and pictures
- *Learning recorded through photos and adult quotes, children not expected to write for recording their understanding.
- *Using working walls to aid learning and remind of previous learning.

Social, Emotional and Mental health

- *Awareness of individual needs, any potential triggers within the curriculum and the child's background.*
- *Pre prepare children for any activity they could find triggering or difficult in some way.*
- *Practical activities or experiments to be completed within a smaller group or 1:1 if needed.*
- *If the class are sharing their learning within a large group, take the child in a smaller focus group if they struggle with social situations.*
- *Adjustments made where needed to suit individual.*

Sensory and Physical

- *Adult support with any practical activities.*
- *Awareness of the individual's likes or dislikes and their own reactions to sensory activities.*
- *If a child enjoys sensory activities, then plan for this wherever possible within the lesson.*