



Subject: Science Topic: Then and now Year group: 1 Term: Summer 2 Materials

National Curriculum Objectives

distinguish between an object and the material from which it is made

identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock

describe the simple physical properties of a variety of everyday materials

compare and group together a variety of everyday materials on the basis of their simple physical properties

Prior Learning In EYFS:

Know about similarities and differences

Uses everyday, natural materials

Explores the natural world around them

Makes objects from different materials

Observes, measures and records how materials change over time and in different conditions (EYFS)

Future Learning

In Year two:

To observe materials over time

Become more aware of different materials and what makes them good for a particular purpose

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Key Questions

What are objects made from?

Can you name everyday materials?

What are the properties of materials?

Can you compare properties of materials?

What material is best for a certain use?

Substantive Knowledge (key facts and concepts)

-Things are not just made of one material, some can be made from multiple such as a knife with a plastic handle. A paper birthday bag with rope handles.

-Classify means to arrange (a group of people or things) in classes or categories according to shared qualities or characteristics.

-Property is how the material is described. For example glass- transparent, brittle, waterproof.

-Know a wide range of materials

-Use comparative language hard/soft opaque/transparent

-To be able to choose materials to use for a task by their properties- what makes them suitable

- What is waterproof/not waterproof.

Disciplinary Knowledge (Working scientifically)

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

gathering and recording data to help in answering questions

Sequence of lessons

1. What are objects made from?

Sticky Knowledge

Name that parts of a plant.
What clothes do we wear in the winter?
What month comes after January?

Intent

- Explore a wide range of objects made out of different materials.
- Use pupils own words to develop correct materials words
- Know a range of every day materials
- Can identify that some objects contain a mixture of materials- Eg a knife might have a plastic handle

Sorting game, sorting hoops

2. Can you name everyday materials?

Sticky Knowledge

Show a material (from previous lesson) pupils to describe it.
Name the days of the week.
What is a rain gauge?

Intent

- Know a wider range of materials and ones that are less familiar. Eg- cotton, nylon, brick, concrete, ceramic
- Pupils describe how they are different to each other.

Sorting hoops, Materials walk, separate objects into materials

3. What are the properties of materials?

Sticky Knowledge

Name 3 materials.
Are all objects made from just one material?
What is a mammal?

Intent

- Can describe a range of properties of materials and use comparative language hard/soft opaque/transparent
- Can link materials to their properties
- Can begin to choose materials to use for a task by their properties.

Feely bag, How are the materials the same/different? Test using simple methods (eg looking through it) Which material is best for..

4. Can you compare properties of materials?

Sticky Knowledge

What season is it now?
Name an object that is made from two materials?
Why is wood a good material for a table?

Intent

- Classify materials by their properties
- Know that some materials have a range of properties
- Can begin to test materials to show their properties.
- Look at waterproof/not waterproof. Cover an object in a material, put it underwater and see if it comes out dry.

Sorting hoops, demo/discuss simple ways to test for a property, Test a range of objects/materials for a range of properties discuss why they are needed for each

5. Which material would be best?

Sticky Knowledge

Are the days longer in the summer or winter?
Summer
What does waterproof mean?
What are the properties of wood?

Intent

Design an experiment testing a material. For example a raincoat for a teddy? How to fix a broken umbrella etc.. Use a pipette for raindrops?

As a class discuss how you can carry out the experiment and record the results.

6. Which material would be best?

Sticky Knowledge

What do we do to stay safe in the sun?
Name your 5 senses
Is glass a good material for a window? Why?

Intent

Complete the experiment (discussed in lesson 5) and record results.

Knowledge organiser

Common everyday materials and their properties

Material is the 'thing' the property is how you would describe it.

Wood: Hard, strong, stiff, and opaque. It comes from trees and is used for furniture, flooring, and pencils.

Metal (e.g., steel, aluminum, copper): Hard, strong, shiny, malleable, and often conductive. Used for cars, coins, cans, and cutlery.

Glass: Transparent, waterproof, and brittle (can break), but can be rigid. Used for windows, bottles, and eyeglasses.

Plastic: Highly versatile, lightweight, and waterproof. It can be rigid or flexible (bendable), such as PVC, polythene, or bottles.

Fabric/Textiles (e.g., cotton, wool): Flexible, soft, and often absorbent (towel) or insulating (wool).

Paper/Cardboard: Absorbent, lightweight, and easy to tear or fold. Made from wood pulp.

Rubber: Flexible, stretchy, waterproof, and non-slip (e.g., elastic bands, tires).

Rock/Stone: Rigid, hard, and durable. Often used in building construction

Key vocabulary and explanations

Waterproof: Keeps water out (e.g., plastic, metal).

Absorbent: Soaks up water (e.g., paper towels, cotton).

Transparent: See-through (e.g., glass).

Opaque: Light cannot pass through (e.g., wood).

Malleable: Can be shaped without breaking (e.g., metal).

Flexible/Bendy: Easy to bend (e.g., rubber, some plastics).

Rigid/Stiff: Difficult to bend (e.g., wood, metal).

Important Scientists



Wallace Carothers (1896-1937) American scientist that invented synthetic rubber, neoprene, in 1930 and nylon in 1935 when working for DuPont. Nylon is used in toothbrush bristles to clothes because it is strong and easily coloured.



Stephanie Kwolek (1923-2014) Polish-American scientist who invented Lycra in 1958 and Kevlar in 1966 whilst also working at DuPont. Kevlar is 5 times stronger than steel and is used in tennis rackets, parachute lines and bullet-proof vests.

Common misconceptions

Only fabrics are materials.

'Rock' describes an object, not the material

If you break a material up, it loses its properties

Materials that are different shapes and colours can not be the same

Objects with different uses must be made from different materials