The Education People

Year 1 | Everyday materials

Primary Science Scheme of Work

v1

Everyday materials

Working scientifically

During years 1 and 2, pupils should be taught to use the following practical scientific methods, processes, and skills through the teaching of the programme of study content:

- 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.

Disciplinary knowledge

Big ideas

01 There is a relationship between how things are (structure) and the way things work (function).

02 Living and non-living things can be grouped in a variety of ways.

National curriculum objectives

Pupils should be taught to:

- 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.

Substantive knowledge

Links to prior learning

Early learning goal: People, culture and communities

- Describe their immediate environment using knowledge from observation, discussion, stories and non-fiction texts and maps.

Early learning goal: The natural world

- Explore the natural world around them, making observations and drawing pictures of plants and animals.
- Understand some processes and changes in the natural world around them, including the seasons and changing states of matter.
- Pupils should understand that we use materials to make things in the context of familiar stories, for example 'The Three Little Pigs'.

Vocabulary

Linked to familiar stories, for example, 'The Three Little Pigs' (straw, bricks, sticks, wood, rock).

Common misconceptions

- **Confusing object and material:** An object is what is formed from a material.
- **Lack of awareness of everyday materials:** Reinforce the identification of common materials such as wood, plastic, glass, metal, water, and rock, highlighting their prevalence in everyday life.
- **Limited understanding of physical properties:** Emphasise that materials possess various physical properties, including colour, texture, hardness, flexibility, and transparency. Encourage exploration and observation to identify these properties.
- **Overlooking common materials:** Stress the importance of understanding and appreciating the materials that surround us daily, as these are often the building blocks of our environment.
- **Assuming homogeneity:** Highlight that even materials of the same type can have variations in properties. For example, not all woods have the same hardness or colour.
- **Not recognising material groups:** Conduct activities that involve sorting and categorising materials based on shared characteristics. For instance, group materials based on whether they are natural or man-made.
- **Ignoring environmental impact:** Emphasise the importance of considering the environmental impact of materials. Discuss how some materials are sustainable, while others may have negative consequences for the environment.

Building component knowledge

Everyday materials

What materials are these objects made from?

What properties do materials have?

Which material is best at absorbing water?

Which material is best at keeping us dry - is waterproof?

Unit preparation

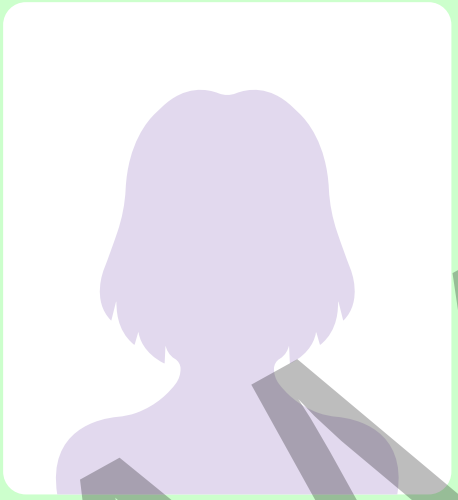
Suggested significant people

Beyond living memory...

Charles Macintosh
(1766-1843)

Scottish inventor of the first, modern waterproof raincoat.

Google Search



Within living memory...

Charlotte McCurdy
(Unknown-Present)

American designer and researcher who blends science and design to reframe existential threats.

Google Search

Possible enrichment opportunities

Inside the classroom

- STEM offers lots of freely available practical ideas for extending learning inside the classroom.
- Evaluate use of materials in packaging, link to environmental issues.
- Invite local resident to talk about how they use materials in their work.

Out and about – the local area

- Organise a materials walk, in and around the school grounds and local area; this could include a visit to the shops.

Out and about – further afield

- KS1 themed visits | Science Museum – identify, compare/contrast the materials used to make household appliances and gadgets.

Vocabulary

Tier 2

Object, wood, plastic, metal, rock, water; hard/soft; stretchy/stiff; shiny/dull; rough/smooth; bendy/not bendy; waterproof/ not waterproof.

Tier 3

Properties, material, opaque/transparent, absorbent/not absorbent.

Disciplinary (non-statutory)

Answer, classify, communicate, compare, data, enquiry, equipment, gather, group, identify, measure, observe, pattern, practical activity, question, record, relationship, secondary source, sort, test.

Resources

Enquiry 1+2

Range of objects made from one and more than one type of material.

Enquiry 2

As left.

Enquiry 3

Sets of absorbent materials, 5ml measuring spoons.

Enquiry 4

Objects for 'I spy', egg timers, cups, elastic bands.

Enquiry 5

A made-up catalogue, real objects, collection of images with items made of odd materials.

Reading list

'Disciplinary literacy'

Everyday Materials - Peter Riley

Everyday Materials (FUNdamental Science) - Ruth Owen

Everyday Materials - Nichola Tyrrell

Materials (Engage Literacy) - Anne Giulieri

Let's Build a House: A book about buildings and materials - Mick Manning

Enquiry
01

What materials are these objects made from?

Why this? Why now?

This enquiry introduces pupils to the concept that different objects are made from different materials. Pupils will deepen their understanding of the term 'material' and learn how this can be used to describe and sort a wide range of objects.

Substantive knowledge

An **object** is something that you can touch.
A **material** is what the object is made from.

Disciplinary knowledge

Know how to **sort objects (classify)** according to the material they are made from.

Vocabulary

- material
- object
- wood
- plastic
- metal
- rock
- water

Resources

A collection of objects made solely of one material, including the same object made of different materials. Include rock (often left out) which is used in buildings as an example.

Pictures of objects for individual/paired sort.

A couple of objects made of more than one material eg wooden box with metal hinge.

Lesson outline

Assessment for learning

Display this units' **big ideas** as statements for discussion:

- There is a relationship between how things are (structure) and the way things work (function).
- Living and non-living things can be grouped in a variety of ways.

As this is the first unit in Year 1, draw together learning which leads into this unit from your school's early years curriculum. For example, briefly remind pupils of the story of the Three Little Pigs.

What **materials** did they make their houses from? Ensure pupils understand the word material – that all things are made of materials. Ensure pupils can name some common materials.

If used in the early years, share the '**Our Class Science Book of Big ideas**' to reinforce previously taught content.

Use a wide collection of **objects** made of a single **material** (to start with). Include objects made **solely** of wood, plastic, metal, rock etc. As a class, sort into objects made of the same material. This could be done using hoops (not overlapping at this stage) labelled with each material.

Ensure that pupils are secure with the following concepts by sharing the following **little ideas**:

An **object** is something that you can touch. A **material** is what the object is made from.

Ask pupils to put these into worked examples such as: *'This* **object** *is a watering can. The* **material** *it is made from is metal.'*

Choose some objects that have the same use but are made from different materials, for example, a watering can (can be made of metal or plastic). Ensure pupils can **name** the materials wood, plastic, metal, and rock correctly.

In pairs or individually, pupils to **sort** trays of materials/photographs of objects into wood, plastic, metal, rock. Encourage them to reinforce STEM sentences in pairs.

Individually in 'drawn hoops', or in a whole class book for later retrieval.

Reinforce learning from this lesson so that pupils **distinguish between an object and the material from which it is made –**

Pupils should independently answer the enquiry question – What materials are these objects made from? Consider what method would be most appropriate to record this based on your knowledge of the cohort. This could include simple written sentences (to demonstrate emergent disciplinary writing), a labelled picture or even a sound or video recording.

Finish the lesson by revisiting and discussing the **little ideas** below – encourage pupils to share some examples that prove this idea to be true:

An **object** is something that you can touch.
A **material** is what the object is made from.

Take time to ensure that all pupils have a secure understanding of this by encouraging them to link their explanations to the objects they have sorted.

If time allows, allow pupils (as a class or individually) to complete a short quiz such as 'Activity 2: Objects and materials quiz' (**Objects and materials - BBC Bitesize**).

Ready to progress?

Do pupils know and understand the following

- Do pupils understand an object is something that you can touch, and a material is what the object is made from?
- Can pupils name a variety of everyday materials and sort objects according to the material/s they are made from?