SCIENCE

Lesson 1

Year 1

Topic: Investigating everyday materials

Exploring materials and their properties

Lesson concepts

- NA Everyday materials
- O Science involves asking questions
- O People use science in their daily lives
- OA Questions can be responded to, posed and predictions made
- OA Investigations can explore and answer questions
- O Observations can be collected and recorded
- O Information can be sorted
- OA Observations and ideas can be represented and communicated

Today students will:

- ► use scientific language to describe materials and observable properties
- ► recognise that the use of a material is related to its properties.

Resources

Digital

Video — Identifying materials and their properties (2:03)

Sheet

Sheet 1 — Material word cards (cut out)

Sheet 2 — Property word cards

Sheet 3 — Materials investigation

Find and prepare

Three of each material type (for example, metal: coin, chain, can; wood: pencil, broom handle, pen holder; wool: knitted toy, yarn, glove; plastic: bottle, ruler, lid; paper: book, box, tissue; rubber: rubber band, rubber ball, eraser; leather: shoe, wallet, belt; fabric: shirt, tea towel, rag doll)

Two sets of everyday materials: aluminium foil, paper, wood (for example, iceblock stick or ruler), fabric and waterproof modelling clay (for example, Plasticine).

Poster paper

Key terms

flexible, material, property

For definitions and explanations of terms, please see the Glossary.

Learning alerts

Be aware of students confusing names of materials with their properties.

Suggested next steps for learning

- Ask students to name the material, and then describe that material.
- Explain that the describing words are the properties of the material.

Note

You will need two sets of everyday materials for this lesson. One set of samples is for students to manipulate and one set of the same materials is to paste on the investigation sheet (approximately 3 cm × 3 cm per sample). It is important to choose waterproof modelling clay because many alternative clays or doughs will disintegrate in water.

Lesson

Examine familiar objects and materials

Say to students

> In this unit you are going to be learning about the materials that objects are made from and what you can do to physically change them.

1. Display everyday objects, arranged randomly, for students to view.

2. Invite students to pick an object and observe it.

Focus questions

Q. *What is this object?*

A. For example: pencil, coin, book, ball

Q. *What words would you use to describe the object?*

A. For example: words relating to shape, size, colour, purpose and possibly what it is made from

Q. *What is the object made from?*

A. For example: wood, metal, paper, rubber

3. Find and cut out cards from **Sheet 1 —** Material word cards.
   a. Display the material word card that matches the object.
   b. Ask students to select another object and repeat the question sequence above.
   c. Display the word card for this material.

Say to students

"These words describe what the objects are made from. They are describing '**materials**'. An object is a thing; a material is what an object is made from.

A lot of different materials are used to make objects. I would like you to try and name some of the other materials you can see and we will find the matching word card together.

Scientists examine materials to learn about them. When you examine the materials, you are thinking and working like a scientist."

Note

If students confuse the term 'material' with 'fabric' due to common usage of the term, explain that in science the term 'material' refers to a broad range of materials that objects are made from. Request that students refer to the material clothes are made from as 'fabric'.

Explore properties of materials

Say to students

“Let’s work like a scientist and sort the objects into different groups according to the material they are made from. When you have done that, I want you to explain how you have sorted them.”

4. Tell students to choose a group of objects and to:
   a. name the material used in the objects
   b. describe the material.

Focus questions

Q. *What material are these objects made from?*

A. For example: wood, metal, paper

Q. *What can you tell me about the material?*

A. For example: hard, soft, shiny, flat, smooth

Note

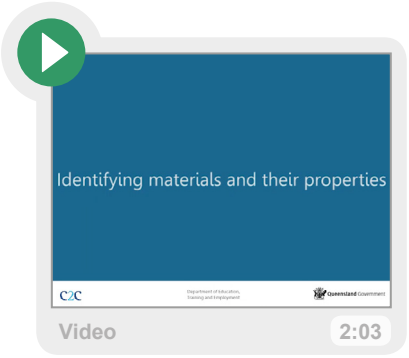
If you need to provide hints for the students, use words cut from **Sheet 2 —** Property word cards to assist. Cut out and save the word cards for use in future lessons.

Say to students

"The words you use to describe materials are known in science as 'properties' of materials.

You will now watch a video that explains what an object is, what a material is, and what properties are."

5. Watch the **Video — Identifying materials and their properties**.



Investigate materials

Say to students

"Now you are going to examine some materials so that you can identify the properties of those materials."

6. Give students a sample of the materials: aluminium foil, paper, wood, fabric and waterproof modelling clay (for example: Plasticine).

Say to students

"Examine each material to find out what its properties are. Remember that the properties tell us something about the material, for example: is it hard, is it soft, is it shiny?"

7. Display **Sheet 3 —** Materials investigation, and ask students to list the property words for each material in the appropriate column on the sheet as they discover them.
   a. Instruct students to glue the small sample (approximately 3 cm square) of each material onto the top of each column on **Sheet 3** and draw the waterproof modelling clay.
   b. Invite students to share their observations of each material and its properties.
   c. Ask students to consider what these materials could be used for.

Focus questions

Q. *What could the aluminium foil be used for?*
A. For example: You use it to cover food and keep it hot.

Q. *What could the paper be used for?*
A. For example: It is used in books and newspapers.

Q. *What could the Plasticine be used for?*
A. For example: It's a bit like clay for making bowls.

Apply science knowledge

Say to students

"Scientists observe materials and their properties to learn more about the materials and to decide what type of objects the materials can be used to make."

8. Ask students:
   - What would happen if a car was made of glass?
   - What would happen if a cup was made of paper?

   a. Ask students to predict what might happen and explain their predictions using their knowledge of the materials' properties. For example: If cars were made out of glass, they might break when they go over a bumpy road.

Say to students

"Scientists use their knowledge of the properties of materials to decide which material to use for a purpose."

9. Display the additional larger sample materials, for example: paper, aluminium foil, fabric and Plasticine. Provide time for students to make an object from each of the materials using their knowledge of its properties.

   a. Ask students to explain what they have made from each material and why they chose each material for that purpose.

10. Ask students to record new understandings about materials and their properties, for example:
    - objects are made out of materials
    - paper, wood, fabric and clay are materials
    - materials have properties
    - properties may be smooth, hard, soft, shiny.