



### Preparation

- Print/ copy the task sheet QR
- Create a copy on A4 paper or in a scrapbook

### Purpose

- Explore the relationship between properties of materials and their uses

### Description

1. Students examine a collection of bags made of different materials, for example plastic, fabric, rubber, paper.
2. Using the 'Bags at home' task sheet, students record a labelled diagram of the bag, when the bag is used, what the bag is made of, and why they think that material was chosen for that bag.

**OPTIONAL:** Take photographs of each bag to include on your task sheet.

#### Introduction to materials

In this unit, the term 'material' refers to what objects are made of, such as plastic, rubber, glass or paper. The properties of an object depend on what materials are used to make it. For example, a raincoat made from plastic (material) is strong and waterproof (properties of plastic). Some properties of the object, however, do not depend on the materials chosen, such as the style and size of a raincoat.

Materials have properties that can be used to describe and classify them. The properties of materials come from the chemical and physical nature of the substances that are used to make them. Some of the physical properties used by scientists to describe materials include absorbency, strength, flexibility, elasticity, malleability, transparency, viscosity, porosity, density, opacity, hardness and brittleness.

#### EXAMPLE:

An introduction to materials and properties for *parent use*.

### Before the task

- **(Optional)** Watch or read a narrative about clothes and how the materials they're made from affects their suitability for different purposes, such as:  
[Animals should definitely not wear clothing](https://www.youtube.com/watch?v=F3owFHiCjg) by Judy Barrett  
[Mr Tuggle's trouble](https://www.youtube.com/watch?v=-T8UJfAloXQ) by LeeAnne Blankenship
- Introduce the terms 'object', 'material' and 'properties' and ask students what they think they mean.
- Show students some objects (for example a raincoat, a belt, a hat) and ask questions such as:
  - What is this? Is it an object?
  - What material(s) is it made of?
  - Is the material natural or processed? Why do you think that?
  - Why do you think this material was chosen?Highlight the terms used to discuss the last question (for example light, waterproof, flexible, strong) and explain that this is what scientists refer to as properties.
- Discuss the differences between the terms 'material' and 'fabric'. (In this instance, material is used to refer to what things are made of and may include glass, metal, plastic and fabric).

### After the task

- Discuss students' findings about bags and the materials used to make them. Ask questions such as:
  - What are the bags made of?
  - Are the bags made of more than one type of material?
  - Are there any bags made of the same type of material(s)?
  - Why do you think those materials were chosen to make the bags?
  - What items would you carry in each of the bags and why?
- Discuss what bags were made of before plastic became readily available (perhaps make contact with an older relative to add to this discussion).
- You may wish to share your investigations about bags with bags with others (classmates, teacher, family members).

### Explore some more

- Find out more about different types of plastics and what they're used for in these interactive games.  
<https://education.abc.net.au/home#!/media/1499649/plastics-helmet>  
<https://education.abc.net.au/home#!/media/1499671/plastics-shoe-soles>
- Hear about boats made from different materials by watching [this video](https://education.abc.net.au/home#!/media/1662238/boats-made-from-different-materials).
- Draw a design of your ultimate bag! What properties do you want it to have? Which materials could it be made of so that your bag had particular properties?

### Bags at home

Search around your home for bags. Draw pictures or upload photos of the bags found, and write when they are used and what materials they are made of.

<b>Bag</b>
When is the bag used?
What materials is the bag made of?
Why do you think the bag is made of that material?

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