

# SCIENCE







## Lesson 2

Prep

**Topic: Exploring materials and their properties**

### Exploring the outdoors

#### Lesson concepts

-  Objects are made of materials that have observable properties
-  Science involves exploring and observing the world using the senses
-  Questions can obtain responses
-  Observations can be made using the senses
-  Observations can be discussed
-  Observations and ideas can be shared

#### Learning alerts

Be aware of students who use every day or descriptive language rather than scientific language to describe properties of materials, for example: nice, pretty, tough.

#### Suggested next steps for learning

- Model science language to describe the material and explain that the describing words used are the properties of the materials. Explain that properties are actual observable features, not personal opinions.

Today students will:

- ▶ use their senses to identify and describe observable properties of materials.

## Resources

### Digital

Video — Glider Boy (2:55)

(<http://www.pbslearningmedia.org/resource/phy03.sci.phys.mfw.zglidboy/glider-boy>)

Slideshow — Bowerbird's very bad day

### Find and prepare

Sheet — Property word cards

Range of household objects (for example: ball, cup, doll)

Material word cards (from previous lesson)

[Senses poster](#)

Piece of paper

## Key terms

properties, materials

For definitions and explanations of terms, please see the [Glossary](#).

## Lesson

### Revise senses, objects and materials

#### Say to students

‘ In the last Science lesson, we learned about objects and materials. ’

#### Focus questions

Q: *What do you remember about objects?*

A: For example: Objects are the things we use in our lives but they are not living things. We can see and feel objects.

Q: *What do you remember about materials?*

A: For example: Materials are what objects are made from.

Q: *What are some examples of types of materials used to make objects?*

A: Student may list/name objects; or may state that some objects are made from just one material and some are made from two or more.

Q: *What is the word we use for the material that clothes, towels, sheets are made from?*

A: Fabric

Q: *What might scientists working with materials do or be interested in?*

A: For example: They might test materials to see how strong they are; they might try to invent a new material; they might use materials to invent a new object.

## Understand properties

1. Display a piece of paper.

### Say to students

Look at this piece of paper. When people, including scientists, choose a material to make a certain object, they think carefully about what the material is like.

If I wanted to make a toy plane that could glide when I throw it, I could choose a piece of paper like this.

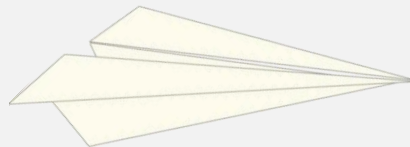
### Focus questions

**Q:** *Why is paper a good material to make a toy plane that can glide?*

**A:** For example: It is lightweight and you can easily fold it into a plane shape so it will glide through the air.

**Q:** *Could I use paper to make a real car to drive around in?*

**A:** For example: No, because paper is not strong enough and it would fall apart; you can't make a motor out of paper; it would go all soggy in the rain.



### Say to students

These descriptions of materials are known in science as **properties** of materials. When we choose a material to make an object, we think about what it can do. We call this 'thinking about its properties'. This is the word card saying 'properties'.

The properties of a material are all the things we can observe with our senses that make the material appear as it does. Properties include colour, shape, the ability to bend, stretch or change shape, and whether the material is rough or smooth or heavy or light. Properties can also include whether a material soaks up water or not, whether it feels hot or cold, looks shiny or dull, smells good, bad or has no smell at all.

When we choose a material to make an object, we need to consider its properties. We are going to watch a video about a boy who has put a lot of thought into the materials he chooses to make planes that will glide.

## 2. Watch the **Video — Glider Boy**

PBS LearningMedia, <http://www.pbslearningmedia.org>

<http://www.pbslearningmedia.org/resource/phy03.sci.phys.mfw.zglidboy/glider-boy/>

### Note

This video shows a 12-year-old boy named Jesse, showing his different gliders and the materials he uses to make them. Some of the materials he uses are paper, toothpicks, plastic, plastic bottles, tape, cardboard and wire.

## Explore materials in the outdoors

### Say to students

- You can see in the video that Jesse puts a lot of thought into the materials he uses to make his gliders. You may have also noticed that he didn't choose bricks, ceramic or glass to make his gliders. This is because he knows about the properties of materials.

In our last lesson, we looked at some photos of Ollie's ornaments and we talked about how we will be making our own wind ornament later in the unit. We will need to think about the properties of the materials we choose when we do our own construction.

Wind ornaments are most often placed outside, so we need to learn about materials that are most suitable for being outside.





- a. Place the piles of cards, cut from **Sheet — Material word cards** and **Sheet — Property word cards**.
- b. Show students a range of household objects and ask the following questions:
  - What material or materials is the object made from?
  - Is there a word card to match this material/s?
  - Is the material suitable or unsuitable for being left outside?
  - What properties could we say these materials have? (Use property word cards to help.)
- c. Repeat these questions with two or three other objects.

### Reflect on properties of materials

3. Gather the material and property word cards identified above.

#### Focus questions

*Q: What materials are found in a lot of materials used outdoors?*

*A: For example: metal, rubber, plastic.*

*Q: What happens in the outdoors that could affect materials?*

*A: For example: it can rain, the sun can get very hot, it can get very windy*

*Q: What properties are found in a lot of materials used outdoors?*

*A: For example: They are usually strong and waterproof.*

*Q: How might this science knowledge help you in making a wind ornament?*

*A: For example: It will help me to decide which materials I need to choose that will be good for use in the outdoors.*

#### Say to students

‘ We are going to read each card and decide if we think it is a suitable material or property for an object which stays outside. This will give us some clues about materials which may be good for our wind ornament. ’

- a. Read cards aloud and share ideas about suitability of each material or property.