



# Science

## Light

A cartoon illustration of a rocky coastline. In the background, a large, grey rock formation rises from the water, featuring a tall, thin spire with a small bird perched on top. The sky is light blue with a few white clouds. The water is a deep blue, reflecting the sky and the rocks. In the foreground, a rocky shore is covered with numerous grey stones of various sizes, with patches of green grass visible at the bottom. The title 'Reflective Surfaces' is written in large, bold, yellow letters with a black outline, centered over the water and rocks.

# Reflective Surfaces



# Aim

- I can investigate which surfaces reflect light.

# Success Criteria

- I can explain reflection.
- I can identify reflective materials.
- I can select the most reflective material for a purpose.

# Reflective Materials



Click the light bulb to watch this  
**'The use of reflective materials  
for safety'** short film.

It is all about materials that  
reflect light.



While you are watching, think  
about:

What does it look like if a  
material reflects light well?

Which colours do you think  
reflect most light?

What are reflective materials  
useful for?

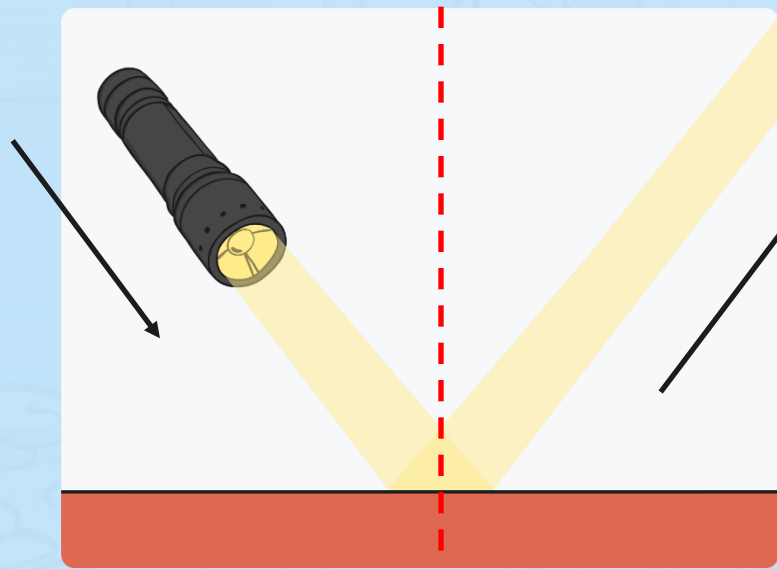
# Reflective Light

Light travels in a straight line.

When light hits an object, it is reflected (bounces off).

If the reflected light hits our eyes, we can see the object.

Light from the torch hits the object.



The light is reflected from the object.

# Reflective Light

Some surfaces and materials reflect light well. Other materials do not reflect light well.

Reflective surfaces and materials can be very useful:

- Reflective strips on coats or bags mean you can be seen at night. They are also useful for fire-fighters or builders who may work in a dark and dangerous environment.
- 'Cat's Eyes' help drivers see the road by reflecting light from headlamps.
- Mirrors let us see ourselves, and are also useful in cars, to allow drivers to see behind them.
- Retro-reflectors are used for road signs so that drivers can see the signs from their car.

**Can you think of any other uses?**

# Design a Reflective Book Bag

The Brilliant Bags Company want to make a new book bag for children to use to carry their things to and from school.

They want to make sure the bag helps children stay safe while walking near roads on dark mornings or evenings.

They have decided to put a reflective strip on the book bag, so that drivers can see the book bag easily when their car headlights shine on it.




# Design a Reflective Book Bag

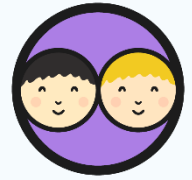
The Brilliant Bags Company want you to help them choose the best material for the reflective strip.

Look at the different materials. Which material do you think will be best for the bag? Write your prediction on your Testing Reflective Materials Activity Sheet.

You will need to test the different materials to see how reflective they are.

| Testing Reflective Materials  |             |             |             |             |             |              |
|---|-------------|-------------|-------------|-------------|-------------|--------------|
| <div></div>   |             |             |             |             |             |              |
| <small>You have been asked to help choose the best material for a reflective strip to make the Brilliant Bag Company's new book bag safer for children walking in the dark.</small> |             |             |             |             |             |              |
| What materials will you test?   |             |             |             |             |             |              |
| <div></div>   |             |             |             |             |             |              |
| Which material do you think will be most reflective? Why?   |             |             |             |             |             |              |
| <div></div>   |             |             |             |             |             |              |
| <small>Put the materials you are testing in order:</small>  |             |             |             |             |             |              |
| <b>Most</b>   |             |             |             |             |             | <b>Least</b> |
| <div></div>   | <div></div> | <div></div> | <div></div> | <div></div> | <div></div> | <div></div>  |
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| <small>Science Year 5   Light: Reflect vs Surface   Lesson 2</small>  |             |             |             |             |             |              |

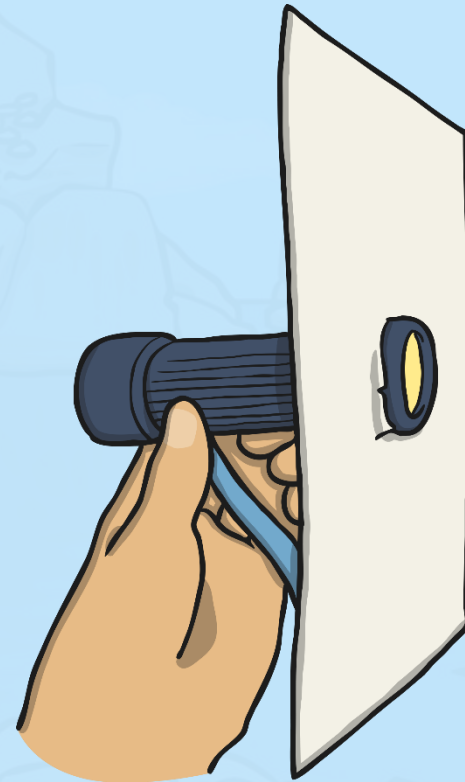
# Testing Reflective Materials



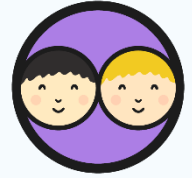
In order to test the materials, you will need to make a reflection tester.

Attach a piece of white card to a torch:

1. Cut a hole in the centre of the card and push the torch through so that the card fits snugly around the torch without you having to hold it.
2. Shine the torch at the material you are testing.
3. If the material reflects light well, you will see the reflected light shine through the white card and light it up.

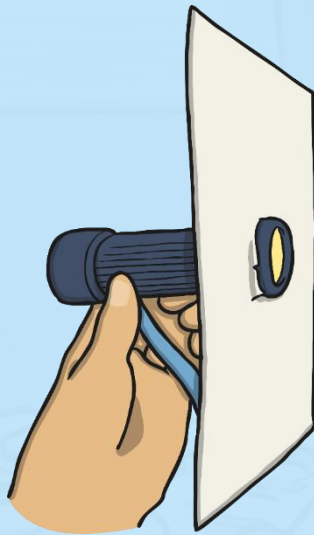


# Testing Reflective Materials



Once you have made your reflection tester, use it to test the different materials you have been given.

Order the materials from most reflective to least reflective on your Testing Reflective Materials Activity Sheet.



**Testing Reflective Materials**

You have been asked to help choose the best material for a reflective strip to make the Brilliant Bag Company's new book bag safer for children walking in the dark.

What materials will you test?

Which material do you think will be most reflective? Why?

Put the materials you are testing in order:

| Most reflective |  |  |  |  |  | Least reflective |
|-----------------|--|--|--|--|--|------------------|
|                 |  |  |  |  |  |                  |

Science Year 5: Light (The Science of Light) Lesson 1

# Which Material Is Most Reflective?

You need to decide which material is best for the Brilliant Bag Company to use on their book bag.

**Choose the most reflective material from the ones you tested.**

Use your Choosing a Material Activity Sheet to draw your chosen material on the book bag in the place you think it should go, and label it.

Write an explanation to the Brilliant Bag Company so they know why you have chosen this material.

# How Are All Reflective Surfaces Similar?

Some of you have been thinking about the ways in which all reflective materials are similar.

How do they look similar?

How do they feel similar?

Share your thoughts with the class.



# Aim



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# Success Criteria

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