

UNIT 10

PROPERTIES OF LIGHT

The girl is looking at a mirror.

How is she able to see her parents who are sitting behind her?

Let's Find Out:

- How do we see objects around us?
- How does light travel from an object to our eyes?
- Why are we able to see through some objects but not others?
- How are shadows formed?

How Do We See Objects Around Us?

We use our eyes to see. We are able to see an object if light enters our eyes.



We can see a light bulb because the light it gives out goes directly into our eyes.

A burning candle, the Sun and other stars give out light directly. They are known as **light sources**.



Burning candle



The Sun



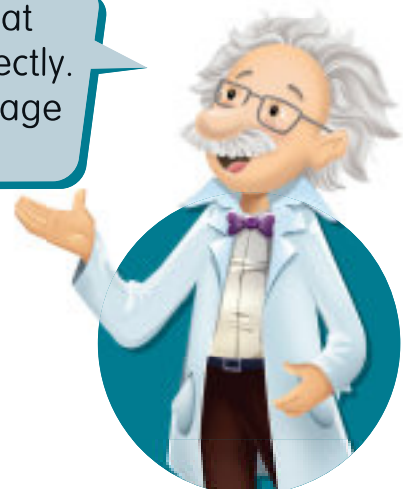
Stars



RESEARCH

Do you know that some living things can give out their own light? Find out more.

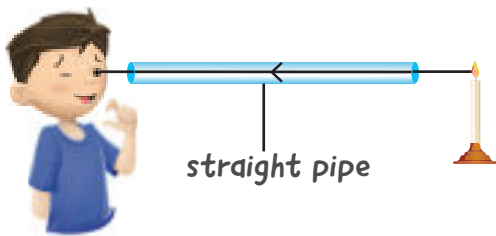
Never look at the Sun directly. It can damage your eyes.



How Does Light Travel from an Object to Our Eyes?

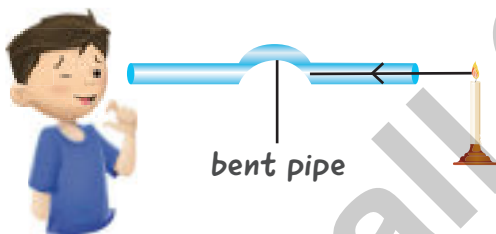
Light travels in a straight line

Light coming out of a light source travels in a straight line. How can we show that light travels in a straight line?



straight pipe

Light given out by the burning candle travels in a straight line through the pipe into our eyes. This allows us to see the flame.



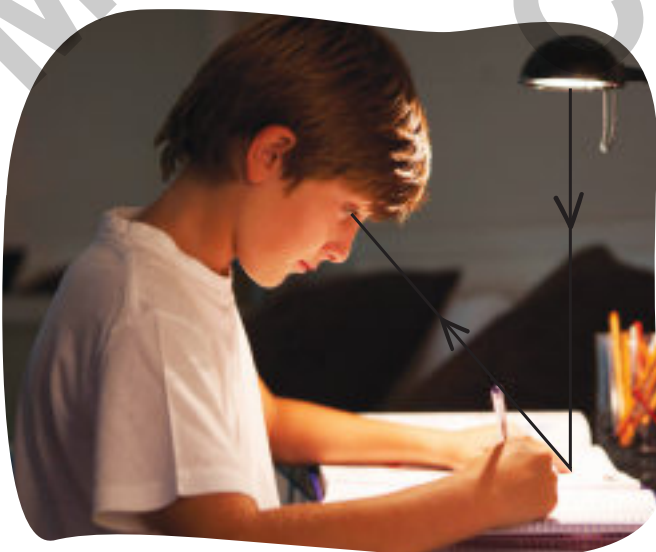
bent pipe

Light from the candle cannot bend and will not be able to reach our eyes. We will not be able to see the flame.

Light can be reflected

Not all objects give out light. However, we can still see these objects because light from light sources bounces off them and enters our eyes. When light bounces off the surface of an object, we say that the light is **reflected**.

Light is reflected from this page into your eyes.



Light bounces off the book into the boy's eyes.



Activity Book

▶ Activity 1, pages 91-92

10.3

Why Are We Able to See Through Some Objects but Not Others?




We can see through some objects clearly but not through others. This is because different objects are made of different types of materials, which allow different amounts of light to pass through them.

These materials can be grouped into three categories, depending on the amount of light that passes through them.



EXPLORE

Walk around your house and look for objects made of transparent, translucent and opaque materials. Group them into the three categories.

Type of material	Description	Examples
Transparent	We can see clearly through transparent materials as they allow almost all light to pass through them. 	<ul style="list-style-type: none"> Glass window Clear plastics
Translucent	We cannot see clearly through translucent materials as they allow only some light to pass through them. 	<ul style="list-style-type: none"> Frosted glass Tissue paper
Opaque	We cannot see through opaque materials at all as they do not allow any light to pass through them. 	<ul style="list-style-type: none"> Wood Metal



QUICK CHECK

What is the difference between transparent materials and opaque materials? Which type of material allows you to see through more clearly? Explain.



Activity Book

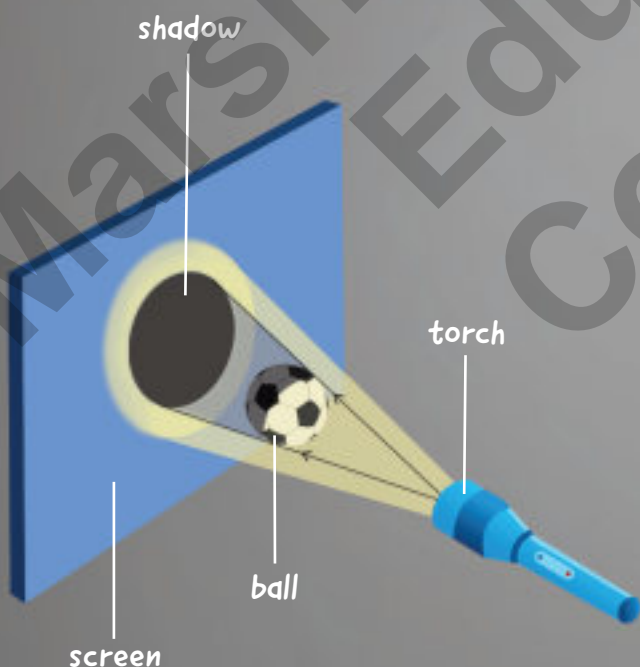
▶ Activity 3, pages 95–96

How Are Shadows Formed?

If you place an opaque or a translucent object between a light source and a wall, you can see a dark shape on the wall. This dark shape is the shadow of the object.



An opaque object like a ball forms a shadow when placed between a torch and a screen. No light can pass through the ball to reach that part of the screen and it appears dark.



CREATIVE SCIENCE

Tell a story through shadows!



Activity Book

► *Creative Science, pages 97-98*



QUICK CHECK

Which property of light explains why shadows have the same shapes as the objects that form them?