

Making Shadows



twinkl

Light



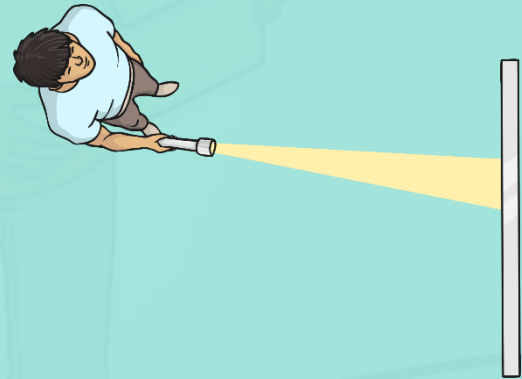
Light is a beam of energy that travels in a wave from a source.

A wave of light can only travel in a straight line.

Waves of light are called light rays.

Try this activity to demonstrate how light travels:

- Punch holes in the centre of three equal-sized pieces of card or paper.
- Hold the pieces of card so that the holes line up.
- Shine a torch (you could use the torch on a phone!) so that the beam of light can travel straight through the holes.



What happens if you move one of the pieces of card/paper so the holes don't line up?

Blocking Light



When you moved one of your pieces of card so the holes did not line up, the card blocked the ray of light. This is because light can only travel in a straight line, so it can not travel around the card.

Some objects, like the card, block light well and don't let any get through. These objects are called **opaque**.

Other things let some light through, but scatter the light so we can't see through them properly. These things are called **translucent**.

Transparent objects let light travel through them easily.

Can you think of some items that are opaque, translucent and transparent?

Look around your house for ideas!

What's the Use?



Opaque, translucent and transparent materials are all useful for different things. Look at the items below and decide which type of material would be best for each one:

bathroom window

living room curtains

car windscreen

sun hat

window with a
lovely view

shower curtain

Making Shadows

Opaque objects do not let any light through.

They completely block the light and stop it travelling any further.

These objects create shadows.

Shadows are areas of darkness where light has been blocked.



Choosing Materials

This is Isaac.

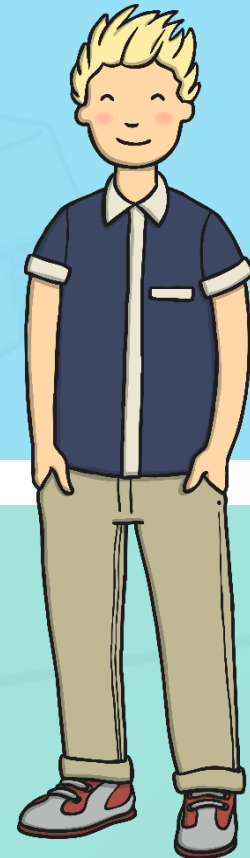
He has a new baby sister.

She is a very good baby, but she keeps crying early in the morning because too much light is getting into her bedroom and waking her up.

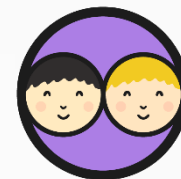
Isaac wants to choose the best material to make some new curtains for her bedroom.

He wants to make sure that her new curtains block as much light as possible.

Can you help him?



Choosing Materials



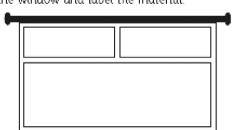
Look around your house to find some different materials to test.

You will test how well each one blocks light by shining a torch onto it and seeing if it makes a dark shadow. If it does, it is opaque and may be a good choice for the new curtains.



Decide whether each material you test is opaque, translucent or transparent.

Record this on your Choosing Materials Activity Sheet.

What materials are you testing? Draw or list them below. 			Which material have you chosen for the new curtains? Draw the curtains on the window and label the material. 
Shine the torch on each material to see what sort of shadow it makes. Put each material in the correct column below.			
Opaque Blocks all light and makes a dark shadow.	Translucent Lets some light through and makes a faint shadow.	Transparent Lets all the light through and does not make a shadow.	Write a message to Isaac to explain why you think he should use this material. I chose _____ for the new curtains. When I tested it, this material _____ The shadow it made was _____ I think it will be good for the new curtains because _____

Which Material Is Best?



Now you have tested all the materials, you need to choose which material is best for Isaac to make the curtains out of.

Draw curtains on the window on your Activity Sheet, and label them to show which material they are made out of. Write a message to Isaac to explain to him why you chose this material. Think about how you could tell it blocked light and why this would be useful.



What materials are you testing? Draw or list them below.		
Shine the torch on each material to see what sort of shadow it makes. Put each material in the correct column below.		
Opaque Blocks all light and makes a dark shadow	Translucent Lets some light through and makes a faint shadow	Transparent Lets all the light through and does not make a shadow

Which material have you chosen for the new curtains? Draw the curtains on the window and label the material.

Write a message to Isaac to explain why you think he should use this material.

I chose _____ for the new curtains.

When I tested it, this material _____

The shadow it made was _____

I think it will be good for the new curtains because _____