

L.O: I can explain how light travels and categorise different materials according to whether they are opaque, transparent or translucent.



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

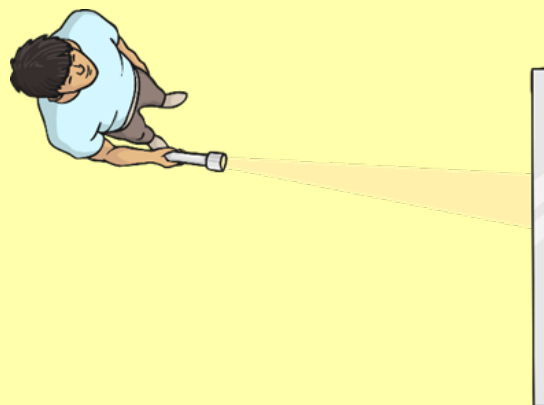
A wave of light can only travel in a straight line.

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.
- Hold the pieces of card so that the holes line up.
- Shine a torch so that the beam of light can travel straight through the holes.

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



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 classroom for ideas!

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

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.



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.



Materials Investigation

As a class we are going to investigate which materials are opaque and would be good for curtains in a bedroom.

Materials:

cotton, cling film, denim, tracing paper, upholstery fabric, mesh, white paper

Complete the investigation sheet as we go along.

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 was best?

Explain why.



