



Year 6 Science

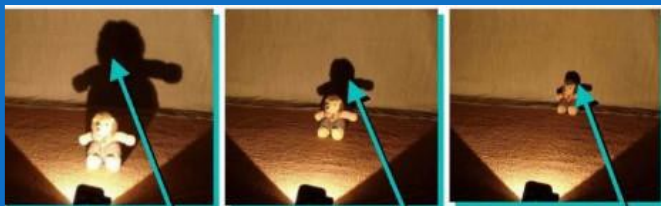
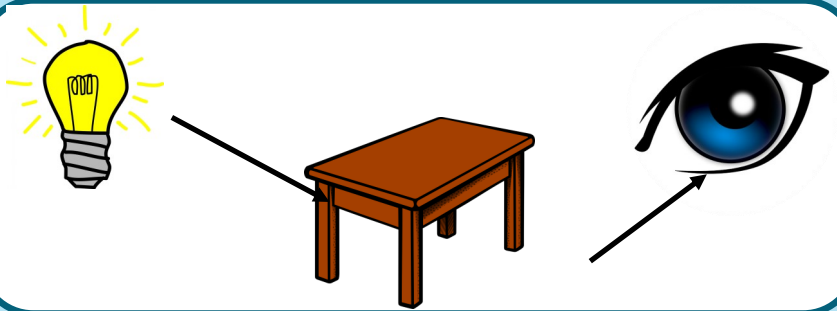
Light

Things you should already know:

That we need light in order to see things and that dark is the absence of light
 That light is reflected from surfaces
 That light from the sun can be dangerous and that there are ways to protect their eyes
 That shadows are formed when the light from a light source is blocked by an opaque object
 find patterns in the way that the size of shadows change.

Key Knowledge

We need light to be able to see things. Light waves travel out from the sources of light in straight lines. These are called rays of light. Light travels from the light source in a straight line and hits the object. The light ray is then reflected off the object and travels in a straight line to the eye enabling the object to be seen.



LARGE SHADOW
when the toy is close to the light

SMALLER SHADOW
when the toy is further from the light

TINY SHADOW
when the toy is a long way from the light

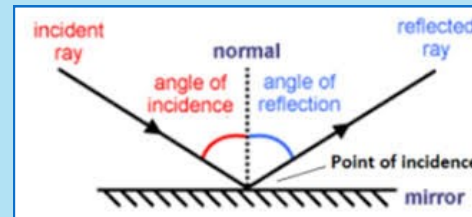
The size of the shadow changes as the light source moves.

Amazing Facts

Light travels at 300,000 km per second. It takes 8 minutes and 20 seconds for light from the Sun to reach Earth.
 A source that gives out their own light are classed as luminous. Examples are The Sun, TVs, Candles, Light bulbs, Fireworks.

New Learning for Year 6.

- To recognise that light appears to travel in straight lines
- To use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye
- To explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes
- To use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.



The Law of Reflection states that the angle of incidence is equal to the angle of reflection. Whenever light is reflected from a surface, it obeys this rule.

The angle of reflection is the angle between the normal line and the reflected ray light.

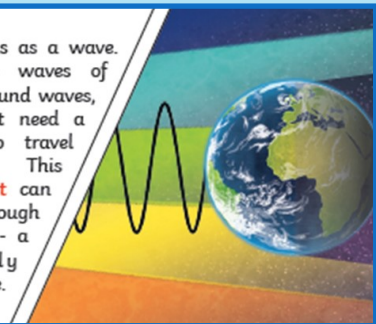


The straw in this glass looks as if it is bent. This is because light bends when it moves from air to water. When light bends it is called refraction.



Isaac Newton shone a light through a transparent prism, separating out light into the colours of the rainbow—the colours of the spectrum.

Light travels as a wave. But unlike waves of water or sound waves, it does not need a medium to travel through. This means **light** can travel through a vacuum - a completely airless space.





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Light

Key Vocabulary

Light	A form of energy that travels in a wave from a source.
Light source	An object that makes its own light.
Transparent	Light can completely pass through an object and you can see clearly through it.
Translucent	Some light can pass through an object, but the light is scattered, so you can't see clearly through it.
Opaque	No light can be seen through the object and no light can pass through it.
Reflection	Reflection is when light bounces off a surface changing the direction of a ray of light.
Refraction	This is when light bends as it passes from one medium to another
Shadow	An area of darkness where light has been blocked.
Prism	A solid 3D shape with flat sides. A transparent prism can separate light into all the colours of the spectrum.

Fancy a challenge? How much Science can you remember? Scan the code and pick a quiz about any of your topics from Years 3 to 6!



Concept Cartoons Shadow Screen



What do you think?

Sticky Learning.

Can you answer any of these questions in your book?

What do non-shiny surfaces do with light?

Explore different contexts in which light travels including rainbows, colours on soap bubbles and coloured filters.

Pick a key word and put it in a sentence.

Scan this and have a go at a Light quiz!



Can you research how animals see light?



Name two precautions people can take to protect themselves from the harmful rays of the sun.