ROSES Year 3/4 Science: LIGHT

AUTUMN 1st half

Morda CE Primary School

Key Learning

Year 3

Recognise that light is needed to see things and that dark is the absence of light.

Recognise that shadows are formed when light from a light source is blocked by a solid object.

Notice that light is reflected from surfaces.

Recognise that light from the sun is dangerous and that there are ways to protect the eyes.

Year 4

Describe what happens to a light source in the dark.

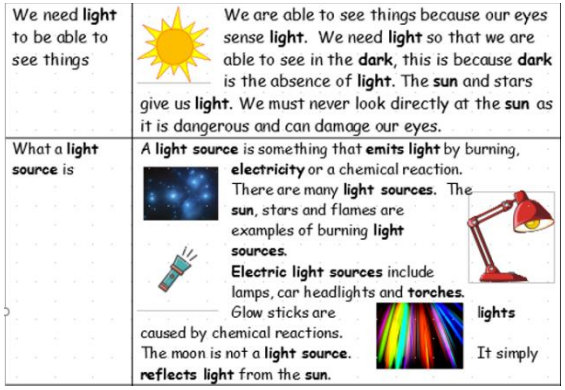
Find patterns that determine the size of shadows.

Describe the way in which light is reflected from surfaces.

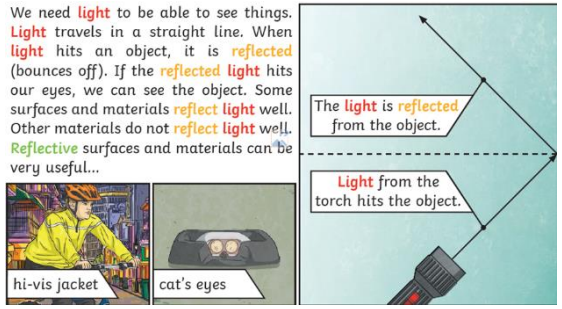
Describe in simple terms how light travels and what happens.

Key Knowledge

What is light?
What is dark?



What is reflective light? What are reflective materials?



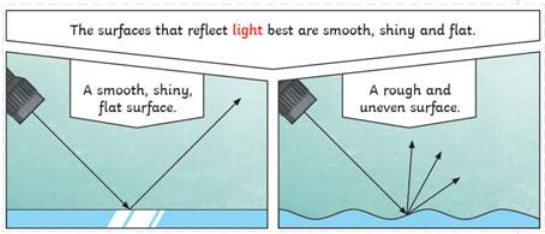
What are reflective surfaces? How does a mirror work?

Key Scientific Vocabulary

Key Vocabulary	
light	A form of energy that travels in a wave from a source.
light source	An object that makes its own light.
dark	Dark is the absence of light.
reflection	The process where light hits the surface of an object and bounces back into our eyes.
reflect	To bounce off.
reflective	A word to describe something which reflects light well.
ray	Waves of light are called light rays. They can also be called beams.

Key Vocabulary	
pupil	The black part of the eye which lets light in.
retina	A layer at the very back of the eye. The retina takes the light the eye receives. It then changes it into nerve signals to send to the brain.
shadow	An area of darkness where light has been blocked.
opaque	Describes objects that do not let any light pass through them.
translucent	Describes objects that let some light through, but scatter the light so we can't see through them properly.
transparent	Describes objects that let light travel through them easily, meaning that you can see through the object.

Mirrors reflect light very well, so they create a clear image. An image in a mirror appears to be reversed. For example, if you look in a mirror and raise your right hand, the mirror image appears to raise its left hand.

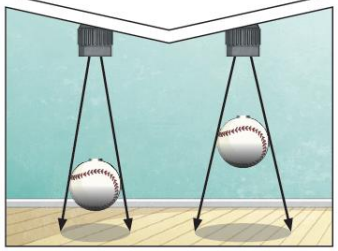


What is a shadow? What do you know about their shape and size?

When the light source is directly above the object, the shadow will be directly underneath.

When a light source is to one side of an object, the shadow will appear on the opposite side. The shadow will also be longer.

A shadow is caused when light is blocked by an opaque object. A shadow is larger when an object is closer to the light source. This is because it blocks more of the light.



Enquiry types

To recognise that we need light in order to see things and that dark is the absence of light.

To notice that light is reflected from surfaces.

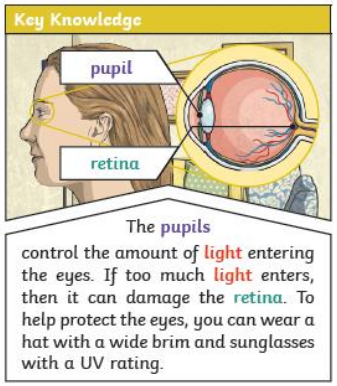
To investigate which surfaces reflect light.

To recognise that light from the sun can be dangerous and that there are ways to protect our eyes.

To recognise that shadows are formed when the light from a light source is blocked by a

Which materials are the best for blocking light?

How does an eye work?



Common Misconceptions

Some children may think:

- we can still see even where there is an absence of any light
- our eyes 'get used to' the dark
- the moon and reflective surfaces are light sources
- a transparent object is a light source
- shadows contain details of the object, such as facial features on their own shadow
- shadows result from objects giving off darkness.

solid object by investigating the best material for curtains for a baby's bedroom. To find patterns in the way that the size of shadows change by investigating what happens when you change the distance between the object and the light source.		