

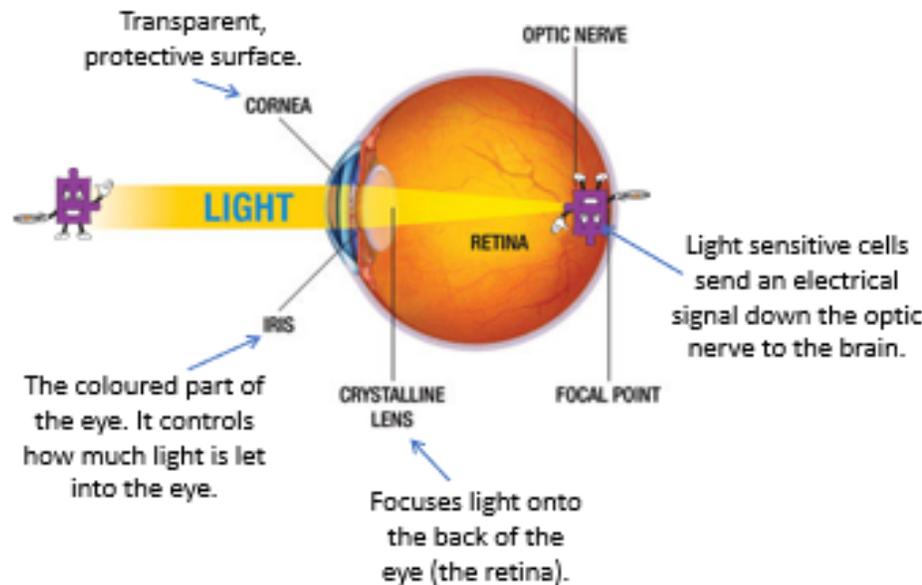
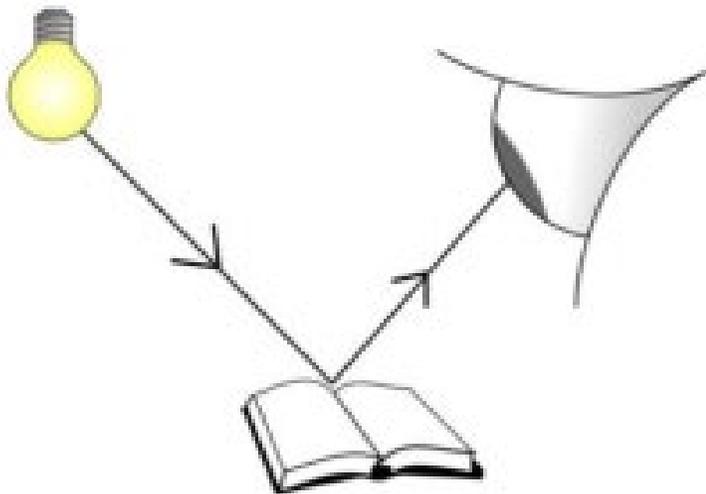
Year 6: Light

What should I already know?

Science - Asking questions about how the world works and finding the answers.

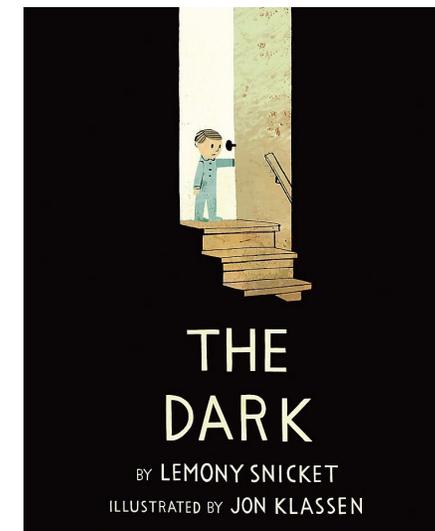
Recognise that they need light in order to see things and that dark is the absence of light. Notice that light is reflected from surfaces. Recognise that light from the sun can be dangerous. Recognise that shadows are formed when the light from a light source is blocked by a solid object. Find patterns in the way that the sizes of shadows change.

N/C - Recognise that light appears to travel in straight lines. 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. 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. Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them..



Significant information

Abu Ali Al-Hasan
An Iranian scientist who carried out experiments with pinhole cameras and candles and explained how the image is formed by rays of light travelling in straight lines.

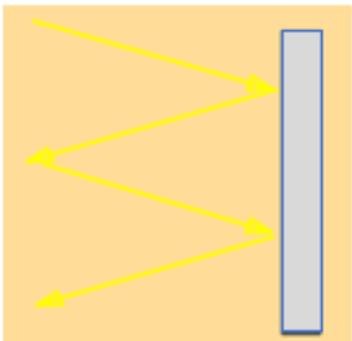


Interesting fact - A mirror is not a light source. It reflects light so doesn't create it.

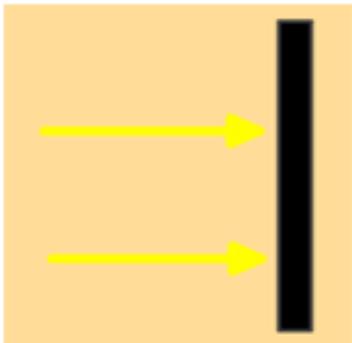
Glossary/Key Learning

Light source	A natural or artificial source of light.
Light ray	Each line of light travelling in a straight line from its place of origin.
Reflect	To throw back light from a surface.
How do we see?	For objects that are not a light source, light must be reflected from the object into our eye for us to see the object
How does light travel?	light can only travel in a straight line.
How can a mirror help us see?	Light reflects off a mirror like a ball hitting a hard surface. The angle it hits the mirror at is the same that it is reflected at.
Why can we still see at night?	If there is no light at all (pitch-black), then there is no light to reflect and we can't see anything at all. At night you can still see a bit in the dark because the moon is reflecting light.

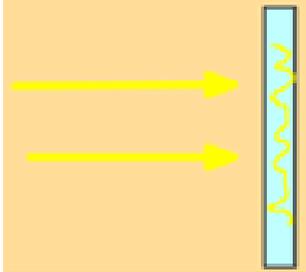
Shiny and light objects reflect light.



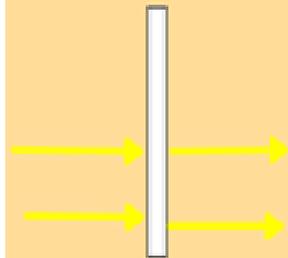
Dark objects absorb the light. They look black.



Translucent objects let some light through. For example, tracing paper.



Transparent objects let most of the light through. For example, glass.



Science Year 6 - Light

National Curriculum Objectives:

- Recognise that light appears to travel in straight lines
- 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
- 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
- Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.

Prior Objectives:

- Recognise that they need light in order to see things and that dark is the absence of light.
- Notice that light is reflected from surfaces.
- Recognise that light from the sun can be dangerous and that there are ways to protect their eyes.
- Recognise that shadows are formed when the light from a light source is blocked by a solid object.
- Find patterns in the way that the sizes of shadows change.

Lesson 1	Lesson 2	Lesson 3	Lesson 4	Lesson 5	Lesson 6
 Skill - Group/classify  Knowledge - We need light to be able to see.	 Skill - Explain  Knowledge - Light travels in straight lines.	 Skill - Follow instructions  Knowledge - Objects reflect light into the eye.	 Skill - Make observations  Knowledge - Refraction is the bending of a light as it passes from substances.	 Skill - Make observations  Knowledge - We need light to be able to see.	 Skill - Record results  Knowledge - Shadows have same shape as the objects that cast them.
<p><u>WALT: Understand how we see.</u></p> <p>WILF: -Name light sources. -Identify man made light sources. -Identify natural Light sources</p> <p>Quick recap on what the children remember about light. Mind map in groups.</p> <p>How do you think we see? Light hits an object and reflect into the eye. Close eyes to see pupils change in size.</p> <p>Recording: Sort pictures into natural/ man-made sources of light & not a source of light.</p>	<p><u>WALT: Explain how light travels.</u></p> <p>WILF: -Show light travels in straight lines. -Model how light travels. -Order the steps</p> <p>Shine a torch and ask chn to describe the ray of light. Does this change if the light is blocked?</p> <p>Have a look at parts of the eye.</p> <p>Recording: Chn model how light travels using wool to mimic the ray of light. Pictures. Order the steps on how we see.</p>	<p><u>WALT: Explore how mirrors reflect light.</u></p> <p>WILF: -Explain how light is reflected. -Use a mirror to reflect light -Follow instructions to make a periscope.</p> <p>Chn Learn that light travels in straight lines and can be made to follow a path by placing mirrors.</p> <p>Chn use mirrors to make light travel through a maze.</p> <p>Make a periscope.</p> <p>Recording: Chn draw a diagram. Take pictures.</p>	<p><u>WALT: Investigate refraction.</u></p> <p>WILF: -Understand how light is refracted -Observe the effects of refraction. -Make observation.</p> <p>Draw a horizontal arrow on a small piece of paper. Then hold the paper behind a glass filled with water. Chn try writing their name.</p> <p>Shine a light at different angles through a glass blocks. Use a protractor to measure the angles.</p> <p>Recording: Draw the observations.</p>	<p><u>WALT: Describe how we see different colours.</u></p> <p>WILF: -Describe how we see things -Understand how light enables us to see colours.</p> <p>Divide polystyrene cup in 4. Colour green, red and blue (one white). A hole in the bottom of the cup and put in bulb. Cover bulb with red, blue or green translucent wrappers. Look at the red, blue, and green sections in the cup.</p> <p>Recording: Note down each time the colour of the wrapper and what colours can be seen.</p>	<p><u>WALT: Investigate changes in shadows.</u></p> <p>WILF: -Make a shadow -Experiment fairly -Draw a line graph</p> <p>Chn use various objects to create a shadow (Play with torches). In pairs, chn to move a torch further and further away from an object that blocks the light and casts a shadow (use a rectangular object) Repeat to find average times</p> <p>Recording: Present results in a line graph.</p>

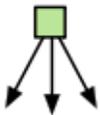
Assessment: Use the vocabulary mat to assess the children's prior knowledge and use the mats again to assess what the children have learnt.

Key Vocabulary:

Light source, dark, reflect, ray, mirror, bounce, visible, beam, sun, glare, travel, straight, opaque, shadow, block, transparent, translucent. Absorb, Emitted, Scattered, Refraction



light source



emit

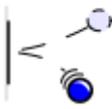


reflect

ray



mirror



bounce

visible



beam



sun

glare



travel



straight



opaque



shadow



block



scattered



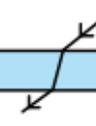
transparent



translucent



absorb



refraction