

Phase: 5/6

Subject: Science

Focus: Light

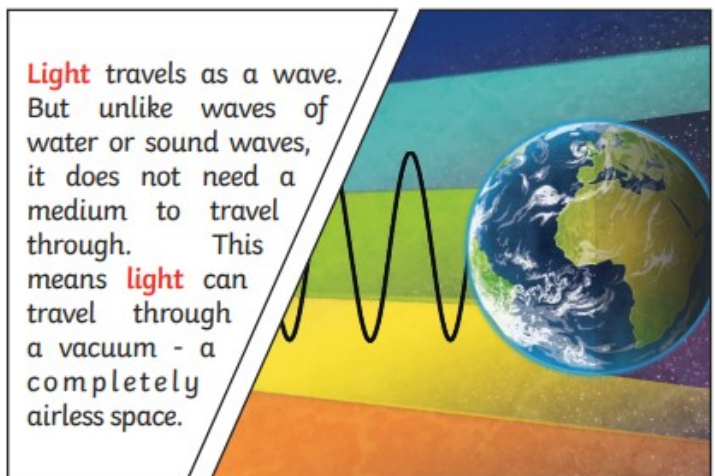
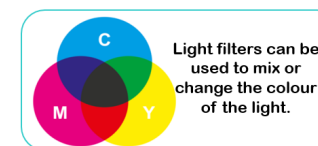
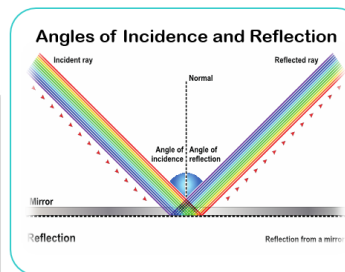
Term: Summer 1

Prior Learning

- Recognise that they need light in order to see things and that dark is the absence of light. (Y3 - Light)
- Notice that light is reflected from surfaces. (Y3 - Light)
- Recognise that light from the sun can be dangerous and that there are ways to protect their eyes. (Y3 - Light)
- Recognise that shadows are formed when the light from a light source is blocked by an opaque object. (Y3 - Light)
- Find patterns in the way that the size of shadows change. (Y3 - Light)
- Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets. (Y5 - Properties and changes of materials)

Knowledge

- Light appears to travel in straight lines, and we see objects when light from them goes into our eyes.
- The light may come directly from light sources, but for other objects some light must be reflected from the object into our eyes for the object to be seen.
- Objects that block light (are not fully transparent) will cause shadows.
- Because light travels in straight lines the shape of the shadow will be the same as the outline shape of the object.



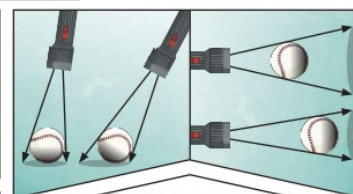
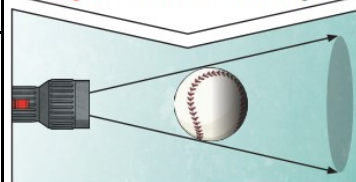
Vocabulary

opaque	An object or material which doesn't allow light through
translucent	An object or material which allows some light to pass and scatters light rays.
magnify	To make an image larger
Angle of incidence	The angle made by a light ray as it strikes a mirror
Angle of reflection	The angle made by a light ray as it reflects off a mirror.
lens	A transparent material which changes the direction or movement of light.
refraction	The action of distorting and image by viewing through a medium.

Isaac Newton shone a **light** through a transparent **prism**, separating out **light** into the colours of the rainbow (red, orange, yellow, green, blue, indigo and violet) - the colours of the **spectrum**. All the colours together merge and make visible **light**.



A **shadow** is always the same shape as the object that casts it. This is because when an **opaque** object is in the path of **light** travelling from a **light source**, it will block the **light** rays that hit it, while the rest of the **light** can continue travelling.



Shadows can also be elongated or shortened depending on the angle of the **light source**. A **shadow** is also larger when the object is closer to the **light source**. This is because it blocks more of the **light**.

By the end of the unit I should know...

- 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.

<u>Question 1 - what type of objects will cause shadows?</u>	<u>Start of Unit</u>	<u>End of Unit</u>
opaque		
transparent		
translucent		

<u>Question 2 - Which statement is true?</u>	<u>Start of Unit</u>	<u>End of Unit</u>
A shadow is smaller when the object is closer		
A shadow is larger when the object is closer to		

<u>Question 3 - Light travels in straight lines. True or false?</u>	<u>Start of Unit</u>	<u>End of Unit</u>
True		
False		

<u>Question 4— Which of these is a definition of reflection?</u>	<u>Start of Unit</u>	<u>End of Unit</u>
When light bounces off a surface and changes		
The area of darkness when light has been blocked out .		
When light bends as it passes from air into		

<u>Question 5— Which of these types of waves can travel through a vacuum?</u>	<u>Start of Unit</u>	<u>End of Unit</u>
Sound waves		
Light waves		
Water waves		

<u>Question 6— What is this picture of a bent spoon in water an example of?</u>	<u>Start of Unit</u>	<u>End of Unit</u>
Visible spectrum		
reflection		
refraction		

