

# Year 6 Light (Physics)



## Prior and future learning

Prior Knowledge	What's next?
<ul style="list-style-type: none"> <li>I can recognise that they need light in order to see things, and that dark is the absence of light</li> <li>I notice that light is reflected from surfaces.</li> <li>I recognise that light from the sun can be dangerous and that there are ways to protect their eyes.</li> <li>I recognise that shadows are formed when the light from a light source is blocked by an opaque object.</li> <li>I can find patterns in the way that the size of shadows change. (Y3 – Light)</li> </ul> <p><b>Link to Y5 Materials</b></p>	<ul style="list-style-type: none"> <li>The similarities and differences between light waves and waves in matter.</li> <li>Light waves travelling through a vacuum; speed of light.</li> <li>The transmission of light through materials: absorption, diffuse scattering and specular reflection at a surface.</li> <li>Use of ray model to explain imaging in mirrors, the pinhole camera, the refraction of light and action of convex lens in focusing (qualitative); the human eye.</li> <li>Light transferring energy from source to absorber leading to chemical and electrical effects; photo-sensitive material in the retina and in cameras.</li> <li>Colours and the different frequencies of light, white light and prisms (qualitative only); differential colour effects in absorption and diffuse reflection.</li> </ul>

## Track your learning

How I will show what I have learned			
I can recognise that light appears to travel in straight lines.			
I can 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.			
I can 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.			
I use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.			

## Key knowledge I need to understand

- 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.

### Possible texts to read:

Letters from the lighthouse– *Emma Carroll*

### Working scientifically assessment:

Light questions, investigating shadows.

**Scientist:** Ibn al-Haytham (Alhazen)  
(Physicist and mathematician who developed a theory that light travels in a straight line and proved it by carrying out the first scientific experiment).



### Link to maths curriculum:

Statistics:

- Presenting data gathered when exploring how the size of a shadow can be varied to make predictions (*Interpret and construct pie charts and line graphs*).

**Key vocabulary I need to know**

<b>Angle</b>	The direction from which you look at something.
<b>Dark</b>	The absence of light.
<b>Emits</b>	To emit a sound or light means to produce it
<b>Reflects</b>	Sent back from the surface and not pass through it
<b>Source</b>	Where something comes from
<b>Surface</b>	The flat top part of it or the outside of it.
<b>Straight lines</b>	An infinitely long line with $180^\circ$
<b>Light rays</b>	A straight narrow beam of light