

# Science Knowledge Organiser

## Year 6 Autumn 2

### Light

### Year 6

### Main Foci: Physics

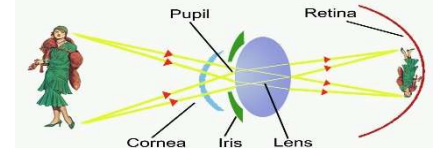
#### What should I already know?

- Certain things produce light, usually by burning (e.g. the Sun) or electricity (e.g. street lights)
- Shiny materials do not make light but do reflect it.
- Shadows are caused when certain materials block light.
- Light travels in straight lines. When light is blocked by an opaque object, a dark shadow is formed.
- The further away the light source is, the smaller the shadow is. The closer the source of the light, the bigger the shadow.

#### What will I know by the end of the unit?

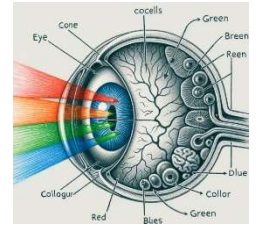
##### How do we see?

- The image appears upside down because light rays cross each other in the eye. The brain interprets the image so that we see it the right way up.



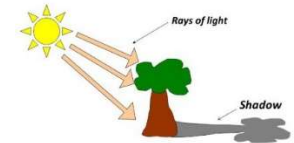
##### Why do we see in colour?

- Light from sources like the **Sun** appears white. This white light is actually made of many different colours combined.
- Our eyes have special cells called **cones**. There are three types of cones, each sensitive to a range of colours: **red**, **blue**, and **green**.
- The **cones** work together to detect combinations of these colours. When cones sense different amounts of **red**, **blue**, and **green** light, our brain sees a mixture of these colours.
- Objects **absorb** some colours of light and **reflect** others.
- The colour we see is the colour the object reflects.



##### What are shadows and how are they formed?

- Because **light** travels in straight lines, when there is an **opaque** object blocking the **light**, a **shadow** is formed.
- These **shadows** have the same shape as the objects that cast them.
- The size of a **shadow** changes as the **light source** moves.

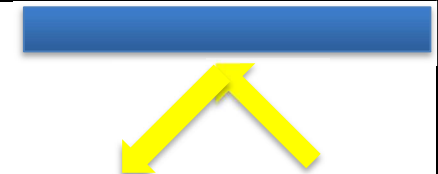


##### What happens to light when it is refracted?

- **Refraction** is the bending of light as it passes from one material into another.
- Light travels at different speeds in different materials.
- When light moves from air into water or glass (or vice versa), its speed changes.
- Because of this change in speed, the light bends.

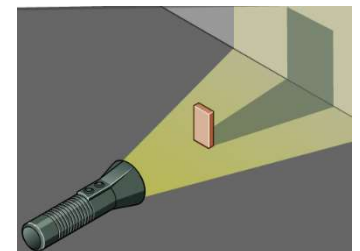
##### What happens when light is reflected?

- 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.



##### How does light travel?

- **Light** travels in a straight line.
- When you place a torch on a table in a **dark** room, the beam travels in a straight line.
- **Reflection** is when **light** bounces off a surface – this changes the direction in which the **light** travels.



light	a <b>brightness</b> that lets you see things.
mirror	a flat piece of glass which <b>reflects light</b> , so that when you look at it you can see yourself <b>reflected</b> in it
opaque	if an object or substance is <b>opaque</b> , you cannot see through it
reflects	sent back from the <b>surface</b> and not pass through it
shadows	a dark shape on a <b>surface</b> that is made when something stands between a <b>light</b> and the <b>surface</b>
source	where something comes from
surface	the flat top part of something or the outside of it
torches	a small <b>electric light</b> which is powered by batteries and which you can carry
translucent	if a material is <b>translucent</b> , some <b>light</b> can pass through it
transparent	If an object or substance is <b>transparent</b> , you can see through it
emits	to <b>emit</b> a sound or <b>light</b> means to produce it