Science Knowledge Organiser - Year 3

Unit: What is light and how does it behave?

Key Vocabulary:

dark	**Dark** is the absence of light.
light	**Light** is a form of energy that travels in a wave from a source.
light source	A **light source** is an object that makes its own light.
opaque	Objects that do not let any light pass through them are described as **opaque**.
pupil	The **pupil** is the black part of the eye which lets light in.
ray	Waves of light are called light **rays**. They can also be called beams.
reflect	To **reflect** means to bounce off.
reflection	The process where light hits the surface of an object and bounces back into our eyes is known as **reflection**.
reflective	**Reflective** describes something that reflects light well.
retina	The **retina** is a layer at the very back of the eye.
shadow	A **shadow** is an area of darkness where light has been blocked.
translucent	**Translucent** describes objects that let some light through, but scatter the light so we cannot see through them properly.
transparent	Objects that let light travel through them easily are described as **transparent**.

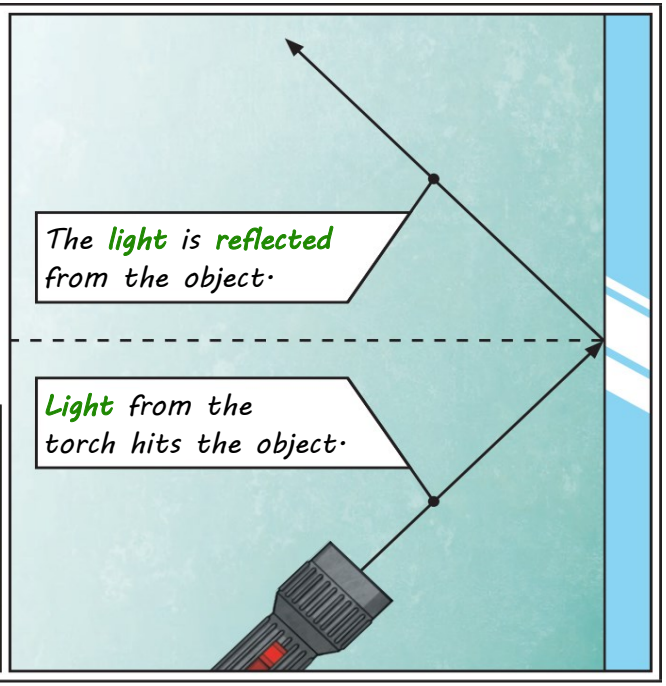
Science Skills:

- **Recognise that we 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 our eyes.**
- **Recognise that shadows are formed when the light from a light source is blocked by a solid object.**
- Use straightforward scientific evidence to answer questions or to support findings.
- Set up simple practical enquiries, comparative and fair tests.

Key Facts:

- When it is **dark**, it is important to wear clothes that **reflect light** well so you can be safe and be seen.
- Different colours and materials can affect how **light** is **reflected** and how well you can be seen.
- **Light** travels in straight lines.
- The visible spectrum is the name for the **light** that we can see, and is made up of the colours of the **rainbow**.
- The **retina** takes the **light** the eye receives. It then changes it into nerve signals to send to the brain.

We need **light** to be able to see things. **Light** travels in a straight line. When **light** hits an object, it is **reflected** (it bounces off). If the **reflected light** hits our eyes, the object is visible to us. Some surfaces and materials **reflect light** well; other materials do not **reflect** light well. **Reflective** surfaces and materials can be very useful...



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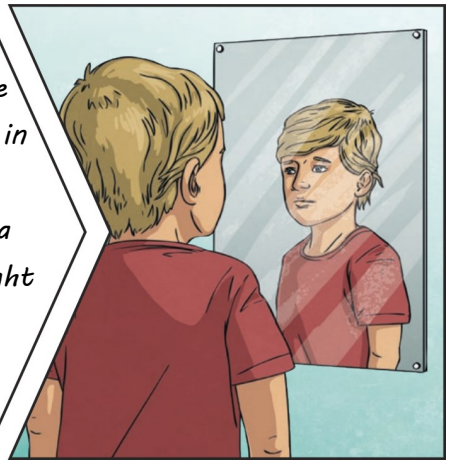
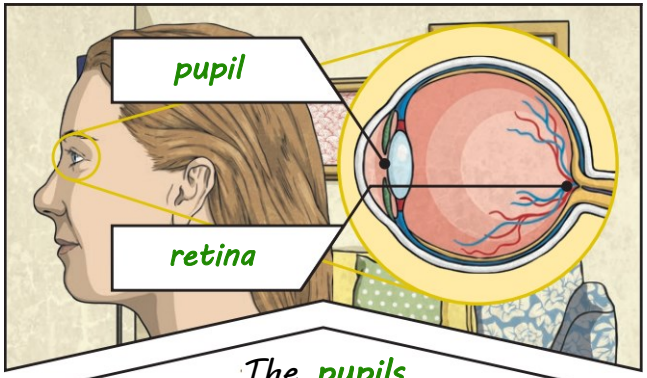
When a **light source** is directly above an object, the **shadow** will be directly underneath it. The **shadow** will also be short.

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.

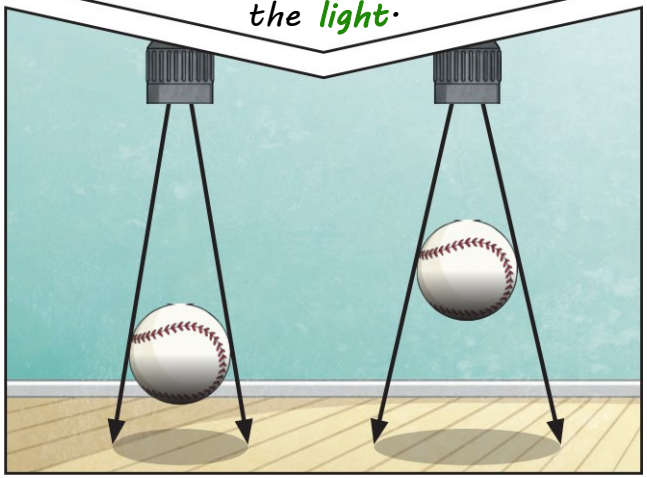
Mirrors **reflect light** very well, so they create a clear image. An image in a mirror appears to be reversed. If you look in a mirror and raise your right hand, the mirror image appears to raise its left hand.





The **pupils** control the amount of **light** entering the eyes. If too much **light** enters, then it can damage the **retina**. To help protect the eyes, you can wear a hat with a wide brim and sunglasses with a UV rating.

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



The surfaces that **reflect light** best are smooth, shiny and flat.