

Knowledge Organiser for Year 4 Science: Light & vision

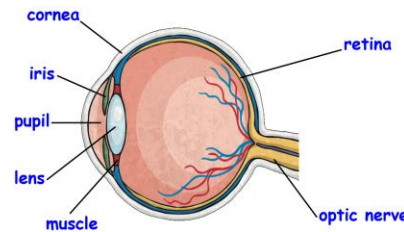
Tier 3 Vocabulary

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|------------------------|--|
| Light source | An object or device that produces light. |
| Reflection | The bouncing back of light when it hits a surface. |
| Refraction | The change in the direction of light as it passes through different materials. |
| Shadow | The dark area caused by an object blocking the path of light. |
| Colour spectrum | The range of colour visible to the human eye, which can be seen when light is refracted through a prism. |
| Visible light spectrum | The portion of the light spectrum that is visible to the human eye. |
| Prism | Glass object used to refract light. |

Key knowledge

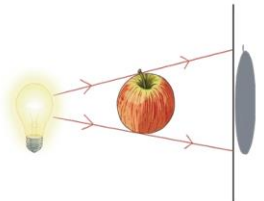
Light is a form of energy that makes vision possible. Light is needed for the eye to see things. It travels in straight lines from a light source and is reflected by objects in the environment. This reflected light enters the eye, enabling people to see. Light bounces off an object at the same angle that it hit the object.

The eye

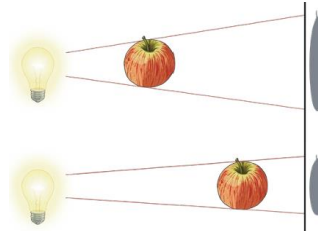


Once light enters the eye through the pupil, it is focused by the lens onto the retina at the back of the eye. The retina converts the light into electrical signals, which are carried by the optic nerve to the brain, where they are interpreted as visual images.

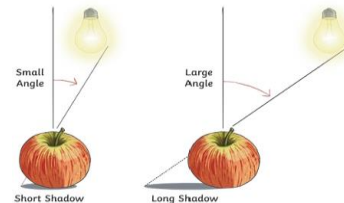
A shadow always takes on the shape of the object that casts it. Opaque objects block the path of light from a light source, creating a dark area behind the object.



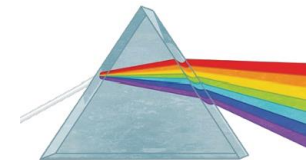
Changing the distance between the light source and the object can cause the shadow to appear larger or smaller.



Changing the angle of the light source in relation to the object can cause the shadow to appear larger or smaller.



Visible light is made up of all the colours in the visible spectrum. When light passes through a prism, it separates into these individual colours: red, orange, yellow, green, blue, indigo and violet.



Related prior knowledge:
Y1/2 – the senses



Related future learning:
KS3 – light waves