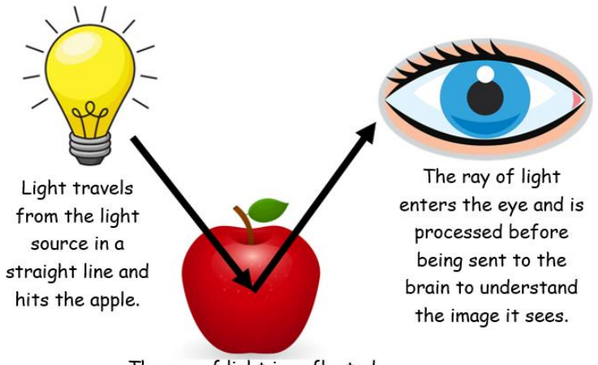
Cunningham Hill Junior School - Science Knowledge Organiser – Year 6 – Light

Key Vocabulary:

1	eyes	Organs of sight in the head of humans and vertebrate animals
2	light	The natural agent that stimulates sight and makes things visible
3	light source	Something that provides light, whether it be a natural or artificial source of light (e.g. the sun, a torch)
4	filter	Pass through a device to remove unwanted material (liquid, gas, light or sound).
5	shadow	A dark area or shape produced by a body coming between rays of light and a surface
6	rainbow	An arch of colours visible in the sky, caused by the refraction and dispersion of the sun's light by rain or other water droplets in the atmosphere
7	periscope	An apparatus consisting of a tube of attached to a set of mirrors or prisms through which an observer can see things that are otherwise out of sight
8	reflection	The throwing back by a body or surface of light, heat or sound without absorbing it.
9	refraction	The bending of light as it passes from one substance to another with the bending caused by the different in density between two substances.
10	spectrum	A band of colours, as seen in rainbows, produced by the separation of the components of light by their different degrees of refraction.

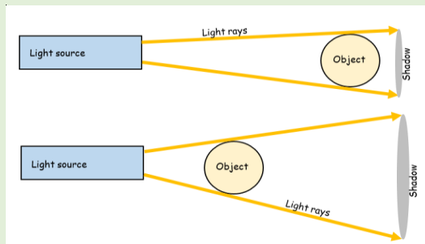
How we see objects:



Shadows:

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.

It is very important that light rays are represented as straight lines in diagrams.

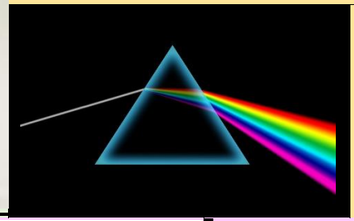


Refraction

Refraction is the bending of light when it passes through a clear object such as glass or water. It can make it look as though straight objects are bent or as though their position has changed.

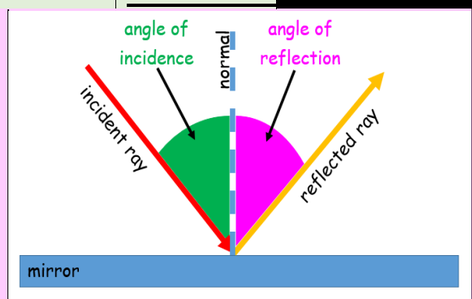
Dispersion:

Dispersion is the splitting of white light into the 7 colours of the visible spectrum.



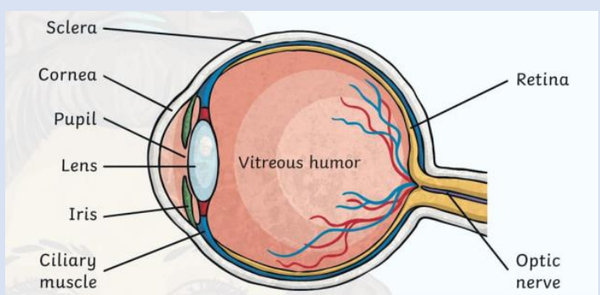
The 7 colours of the visible spectrum are red, orange, yellow, green, blue, violet and indigo.

The laws of reflection state that the angle of incidence is equal to the angle of reflection. Whenever light is reflected from a surface, it obeys this law.



The angle of incidence is the angle between the normal line and the incident ray of light. The angle of reflection is the angle between the normal line and the reflected ray of light.

The Eye



How the eye sees:

1: Light enters the eye through the cornea

2: The pupil adjusts in response to the light

3: The lens focuses the light onto the retina

4: The light is focused onto the retina

5: The optic nerve transmits visual information to the brain

Ibn Al Haytham:

Ibn Al Haytham is known as the father of optics. Born in Basra, Iraq in 965, he contributed huge leaps in our understanding of light and sight. It is his research that is the basis for our understanding on how the eye works, he also studied the effects of reflection, refraction and angles of incident. He died in 1040 in Cairo, Egypt.