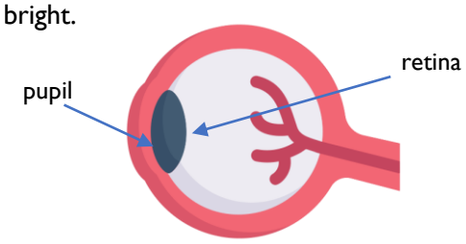
Light and Shadow knowledge organiser

By the end of the topic, I will know:

ESSENTIAL LIGHT AND SHADOW VOCABULARY	
light	A form of energy that travels from its source in a wave.
light source	An object that creates light.
reflect	When light bounces off a surface and changes the direction of a ray of light
refract	To make a ray of light change direction when it hits at an angle.
prism	A solid 3D shape. A transparent prism separates visible light into the spectrum of colours
ray	A wave of light.
shadow	An area of darkness where light is blocked.
reflective	A material which reflects light well.
pupil	The black part of the eye which lets light in.
retina	The layer at the back of the eye that takes in light and sends nerve signals to the brain.
spectrum	A band of colours made by separating the components of light.
pioneer	Someone who is among the first to explore somewhere or apply something.
opaque	Objects that do not allow any light to travel through them,
transparent	Objects that allow light to easily travel through them,
translucent	Objects that allow some light to travel through, but it is scattered.

Parts of the Eye

The pupil controls the amount of light that enters the eye, in order to protect the retina. It is an opening at the front of the eye that dilates (gets bigger) when it's dark and constricts (gets smaller) when it is bright.



Facts about Light

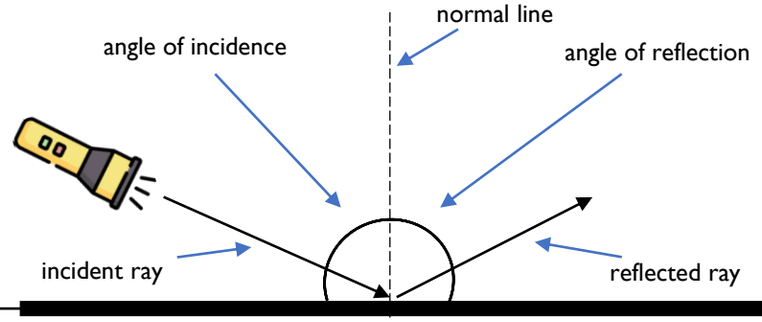
- It travels faster than sound.
- Darkness is caused by the absence of light.
- It travels in a straight line.
- The moon is not a light source as it reflects light from the Sun.
- Light can travel through the airless vacuum of space.

Refraction

Objects in water (like a pencil in a glass of water) can appear as if they are bent. This is because when light moves from air to water, it bends. The light beam reflected from the underwater pencil part come out of the water in a different direction.

The Law of Reflection

The angle of incidence is always equal to the angle of reflection. The angle of incidence is between the incident ray and the normal line. The angle of reflection is between the reflected ray and the normal line.

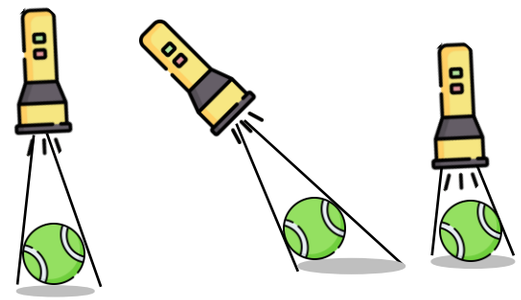


Colour

When white light passes through a clear glass prism. This means that it changes direction and is spread out as it exits the prism. Often, a spectrum of colours can be seen. Isaac Newton was a pioneer who discovered that the colours merge together to make visible light.

Shadows

Shadows are always the same shape as the object that has cast them because they are formed when an opaque object blocks the light travelling from the light source. They can be stretched or shortened depending on the angle of the light source. A shadow is larger when the object is closer to the light source as more of the light is blocked.



I should already know that:

Explorers	Neil Armstrong was a **pioneer** as the first man to step onto the moon.
Materials	wood is an example of an **opaque** material.
Materials	glass is an example of a **transparent** material.
Materials	frosted glass is an example of a **translucent** material.