

## VOCABULARY

**Light-** Light is a type of energy that makes it possible for us to see.

**Source of light-** The sun and other stars, fires, torches and lamps all make light are examples of light sources.

**Reflection-** Reflection occurs when a light ray hits a surface and bounces off.

**Visible spectrum-** The range of colours we can see with our eyes.

**Prism-** A prism is a 3d shape with identical ends, called bases and flat sides called faces. A prism allows us to see the visible spectrum.

**Shadow-** A dark area of shape produced by an object coming between rays of light and a surface.

**Opaque-** An opaque material does not let light through. It does not reflect light.

**Translucent-** A translucent material lets light pass through, but objects on the other side cant be seen clearly.

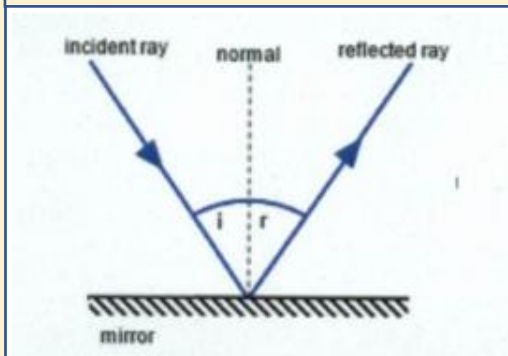
**Transparent-** Transparent materials allow you to see clearly through them.

**Refraction-** Light changes direction when passing through two different mediums.

## Light

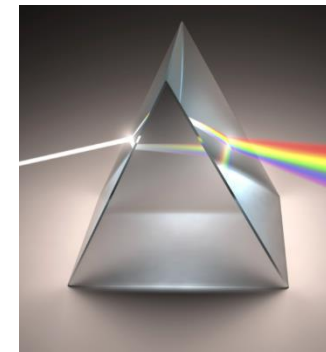
Light is a form of energy that enables us to see.

## Reflection



Light travels in straight lines. It reflects off mirrors according to the law of reflection which states that the angle of incidence ( $i$ ) = angle of reflection ( $r$ ).

## Prism

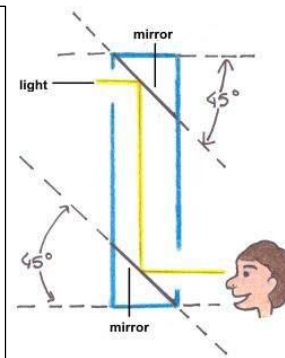


Light appears colourless (or white), when produced by natural light sources such as the sun or artificial light sources such as light bulbs or torches. White light is made up of a spectrum of colours with different wavelengths: red, orange, yellow, green, blue, indigo and violet.

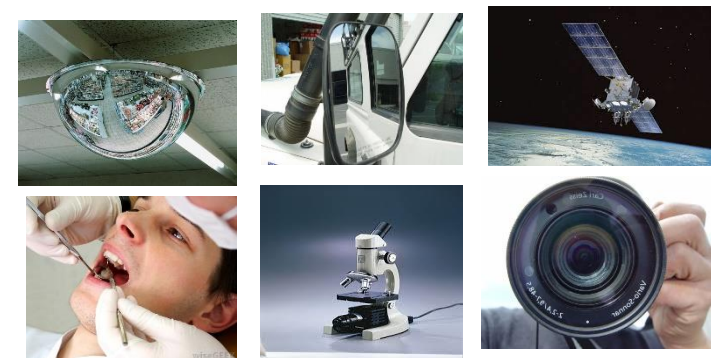
## Periscopes



Light from an object strikes the top mirror at  $45^\circ$  and bounces off at the same angle. This sends light directly down the tube and onto the lower mirror. This mirror is also at  $45^\circ$  which reflects light into your eye.



## Mirrors in real life.

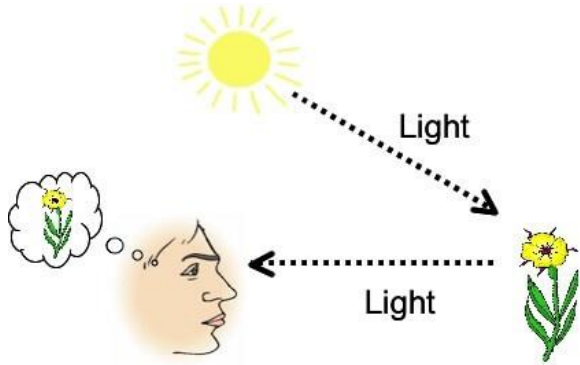
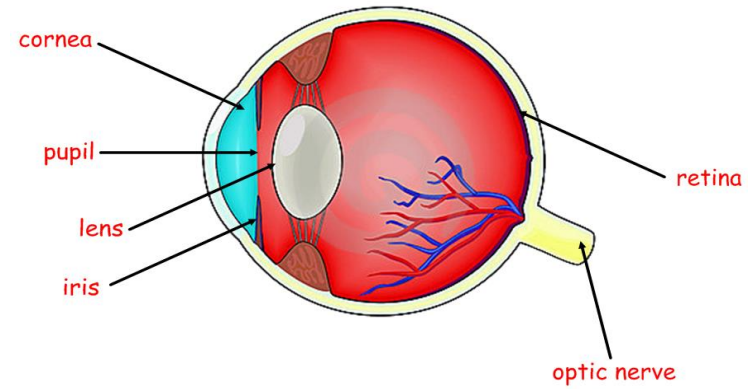


## The Eye



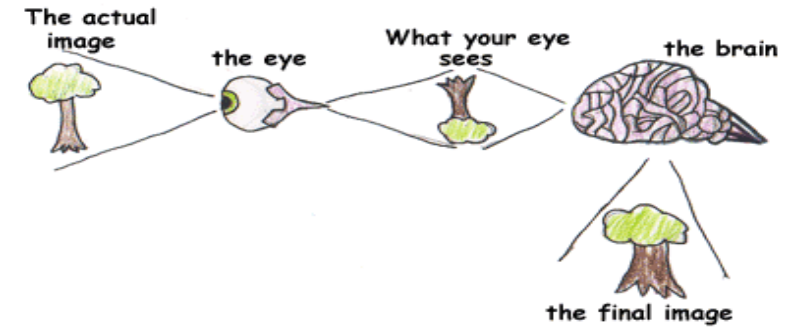
The little dark circle in the centre of each eye lets light in. It is called the pupil.

When you turn the light on from a dark room your pupil will dilate (get smaller)



How do we see?

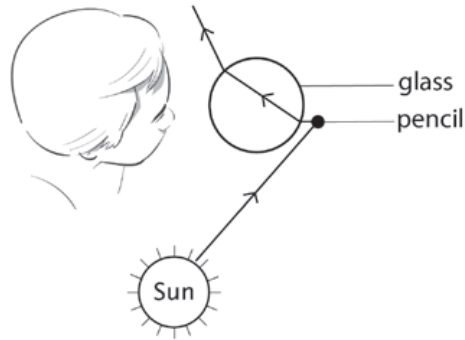
Light travels in straight lines. When light hits an object, it is reflected (bounces off) and enters our eye. This is how we see the object.



## Refraction

Refraction is the change in the direction of a wave passing from one medium to another.

Refraction makes it possible for us to have optical instruments such as magnifying glasses, lenses and prisms.



## Shadow

When an object passes in front of a beam of light, the light can be blocked making a shadow. Opaque objects let no light through. Translucent objects let some light through, and transparent objects let all the light through. The closer an object is to the light source the bigger the shadow.



Shadows are the same shape as the objects which cast them because light travels in straight lines