

In this unit: Pupils will learn about how light travels and how shadows are cast. They will investigate what happens to a shadow when the object that casts it is moved closer or further away from the light source. They will apply their learning to create Chinese shadow puppets and retell a story from the Shang Dynasty.

Children should already know:

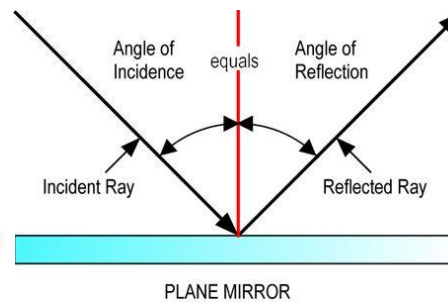
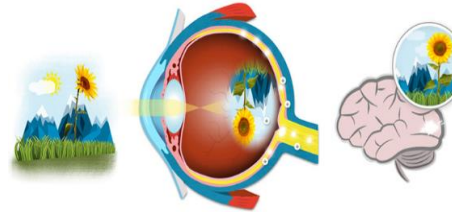
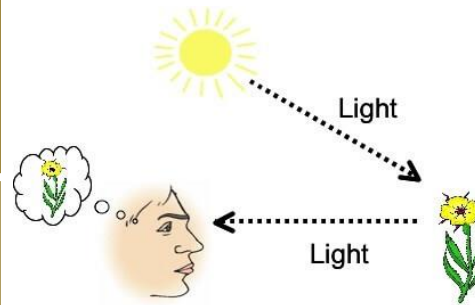
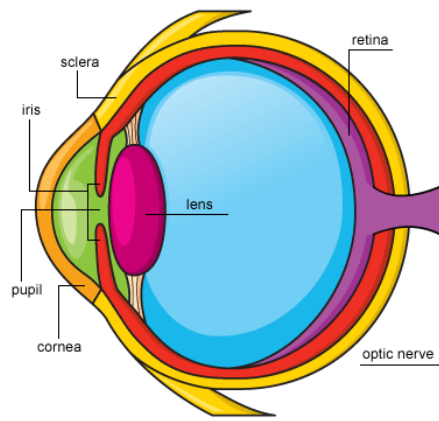
- that certain things produce light, usually by burning, or by electricity.
- that shiny materials do not make light but do reflect it.
- that shadows are caused when materials block light.
- that light travels in straight lines.
- that when light is blocked by an opaque object, a dark shadow is formed.
- that the further away the light source is, the smaller the shadow formed will be and vice-versa.

At the end of this unit, children will know:

- that light appears to travel in straight lines.
- that objects are seen because they give out or reflect light into the eye.
- that light travels from a light source to our eyes or from light sources to objects and then into our eyes.
- that shadows have the same shape as the objects that cast them.

Pupils could investigate:

- what happens when an object is moved closer or further away from light source.
- how light travels from a source to the human eye.
- angles of incidence and how the direction of light can be changed.
- which objects reflect light



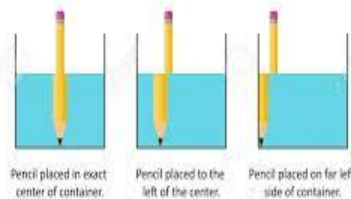
Key Vocabulary

angle	the direction from which you look at something
angle of incidence	the angle at which light hits a surface
angle of reflection	the angle at which light reflects off a surface
beam	a ray or shaft of light
cast	cause to appear on a surface
cornea	a transparent layer covering the front of the eye
iris	the flat coloured ring around our pupil in the eye
lens	the transparent, elastic structure behind the iris which focuses light on the retina so we can see clearly
optic nerve	transmits messages to the brain from the eye
phenomena	a remarkable thing that is observed to happen
pupil	the dark circular opening or hole in the centre of the iris of the eye
ray	a line of light from a source
refraction	light changing direction and being deflected as it passes through a substance
retina	a layer at the back of the eyeball that contains cells which are sensitive to light
sclera	the white, outer layer of the eyeball
vision	the state of being able to see

Key Questions:

- why did the shadows size change?
- what materials cast shadows?
- how do we see objects?
- how does light travel?
- how could see an object around a corner?
- what objects reflect light?
- why do shadows have the same shape as the objects that cast them?

Refraction and Sight



Pencil placed in exact center of container. Pencil placed to the left of the center. Pencil placed on far left side of container.

