Light

ANGLE OF REFLECTION = ANGLE OF INCIDENCE

LIGHT SOURCE

30° 30°

White light

Prism
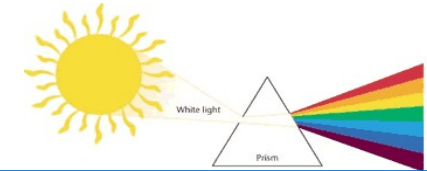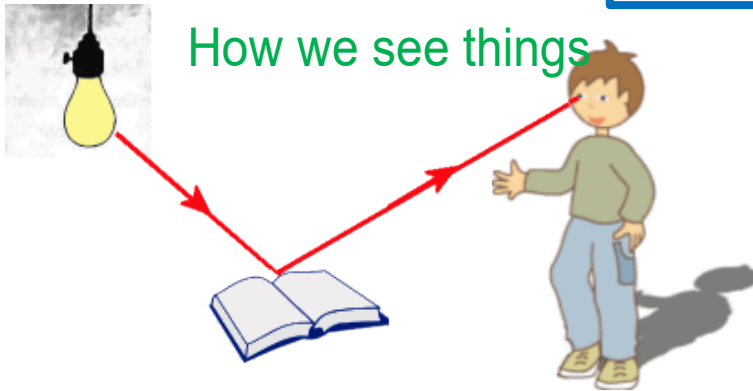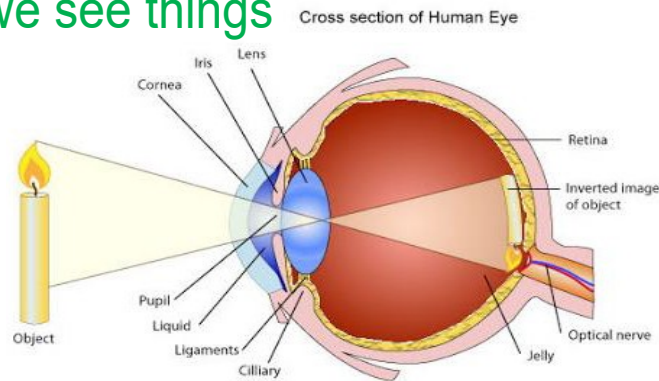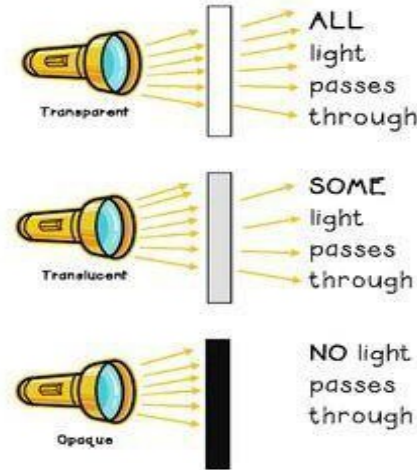
How we see things

We see things because light (coming from a light source like the sun or a light bulb) reflects off / bounces off objects like this book and enters our eyes. Most of the light from the bulb does not reach his eyes; it might reach other people's, which is why they would see the book in a different way from him. **REMEMBER: NO LIGHT COMES OUT OF OUR EYES; IT ENTERS THEM.** (We're not Superman!)

How we see things

Cross section of Human Eye

Iris
Lens
Cornea
Retina
Inverted image of object
Object
Pupil
Liquid
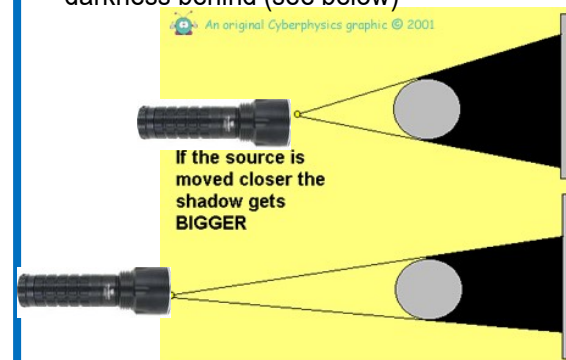Ligaments
Cilliary Muscle
Optical nerve
Jelly

Light from the object enters our eye through a hole called the **pupil**. Behind, the **lens** focuses the light on to the screen at the back of the eye, called the **retina**. However, the image flips because the light rays pass each other in the lens. The **optical nerve** sends the image information to the brain, which flips it back, and we see the object!

Translucent, Transparent & Opaque

Transparent — ALL light passes through

Translucent — SOME light passes through

Opaque — NO light passes through

OPAQUE objects are easiest to see because they reflect most of the light back to our eyes. They also cast the clearest shadows, by blocking the light and making a patch of darkness behind (see below)

An original Cyberphysics graphic © 2001

If the source is moved closer the shadow gets **BIGGER**

TRANSPARENT objects are hard to see because all the light passes through them, so they look as though they're not there!

Key Vocabulary

light	is a form of energy that travels in a wave from a source
light source	is an object that makes its own light
reflection	is is when light bounces offa surface, changing the direction of the rays of light
incident ray	is a ray of light that hits a surface. It hits the surfaceat the **angle of incidence**
reflected ray	is a ray of light theat has bounced back after hitting a surface. It leaves the surface at the **angle of reflection**
the law of reflection	states that the **angle of incidence** is equal to the **angle of reflection** (see diag. top left)
shadow	an area of darkness where light has been blocked
spectrum	is light that is visible to the human eye. It is made up of a colour spectrum (rainbow). You can use a transparent prism to breakup white light into all the colours of the spectrum (see pic. top right)