Extending vision and technology which uses light

Focusing

- In order for an image to be clear the light rays from one point must all converge in the right place (e.g. the retina in the human eye or a screen).

- In the human eye we focus by changing the shape of the lens. In other devices focusing is done by changing the distance from the screen to the lens.

Compound Light Microscopes

- Let us see really small things
- Use two convex lenses

Telescopes

- Distant objects are hard to see because very little light from them reaches our eyes
- A telescope collects more light from the object so it can be seen.
- A refracting telescope uses two convex lenses, much like a microscope.
- A reflecting telescope uses a concave mirror, plane mirror and convex lens.

Cameras

- Light enters a camera and is focused by a lens
- The amount of light which enters is controlled by making the aperture larger or smaller.
- For a very brief amount of time light is allowed past the shutter where it hits an electronic material which reacts to light.

Lasers

- Light from a laser all has the same wavelength and moves in the same direction.

Optical Fibers

- Light can be transported using optical fibers.
- This is useful for transmitting data.
- The light bounces off the walls of the cable reflecting until it reaches the end. This is called total internal reflection because none of the light leaves the cable.