

Year 8 Physics - Light

Knowledge

- Luminous objects (e.g. a torch) give off their own light. Non-luminous objects (e.g. the moon) only reflect light.
- Light travels in straight lines at a very high speed (300,000 km/s).
- Light can travel through a vacuum (empty space).
- In diagrams we can represent rays of light using lines. Ray diagrams should be drawn using a pencil and a ruler.
- A 'normal' is a dotted line drawn at 90° to a surface.
- Angles of rays are measured between the ray and the normal.
- When light is reflected the angle of incidence equals the angle of reflection.
- Smooth surfaces like glass give a regular (or 'specular') reflection. Rough surfaces like carpet give a diffuse reflection.
- Light changes speed and direction when it travels from one medium to another - this is called refraction.
- When light enters a denser medium (e.g. moving from air to glass) it refracts towards the normal.
- Light can 'totally internally reflect' inside a medium if the angle of incidence is above the 'critical angle'.
- Total internal reflection is used in optical fibres, and in some cameras and periscopes instead of using mirrors.
- A prism can be used to split white light into its spectrum.
- The colours of the spectrum (in order) are: red, orange, yellow, green, blue, indigo, violet.
- Objects appear coloured because they absorb and reflect different parts of the spectrum.

Understanding & Skills

- use a ray box and a pencil to trace the path of a ray
- draw ray diagrams showing reflection and refraction
- label the angle of incidence, reflection and refraction