

Light and Optics

Plane mirror



Characteristics of image formed:

- Virtual
- Upright
- Laterally inverted
- Same size as object
- Same distance as object from the mirror

Light dispersion

1. Dispersion of light is the separation of white light into spectrum when passes through a prism or raindrops.

2. Spectrum consists of seven colours:

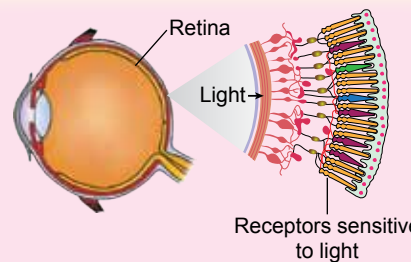
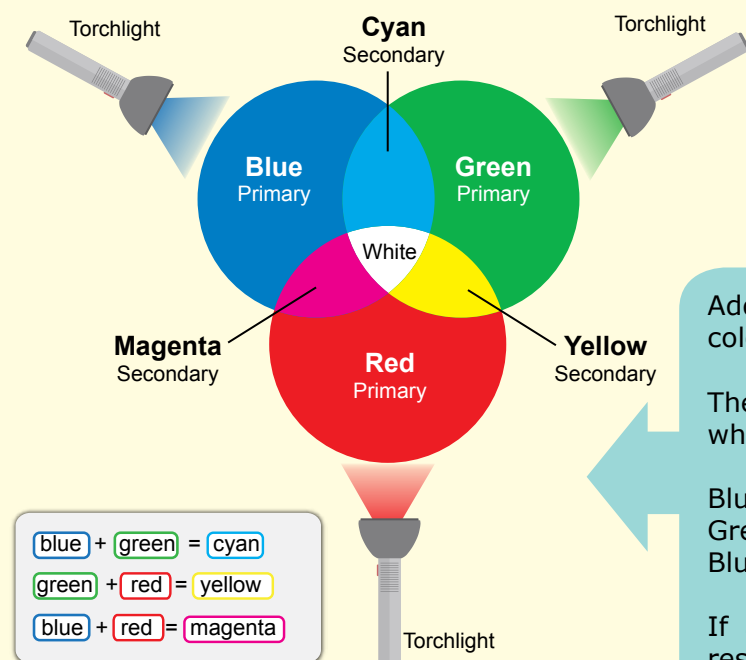


3. Violet light is refracted the most because it travels at the lowest speed. However, red light is refracted the least because it travels at the highest speed.

Addition and Subtraction of Light

Identifying primary colours

Red, green and blue are known as primary colours. The light of primary colours cannot be produced through the combination of colours of light.



Retina of the human eye contains millions of receptors sensitive to light of primary colours which are blue, red and green

Addition of primary colours to produce secondary colours

The overlapping light of primary colour on a white screen produces a secondary colour.

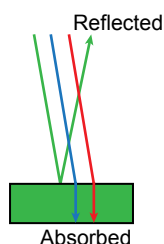
Blue + Green → Cyan
Green + Red → Yellow
Blue + Red → Magenta

If all primary colours are merged equally, the result is:
Red + Green + Blue → White

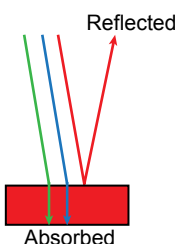
Subtraction of light

Opaque objects do not produce light but reflect light of the same colour and absorb light of other colours.

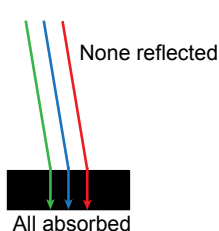
Example:



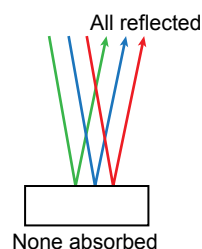
A green surface reflects green colour, absorbs blue and red colour.



A red surface reflects red colour, absorbs blue and green colour.



A black surface absorbs all colours. No light is reflected.



A white surface reflects all colours. No light is absorbed.