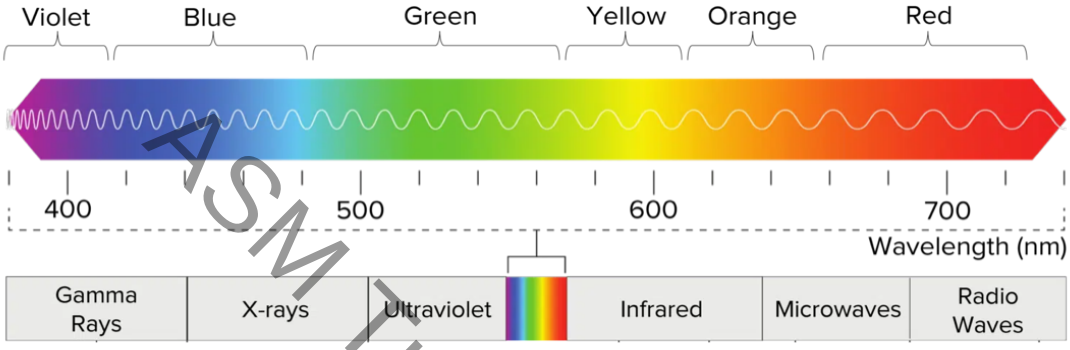
Visible light and Filters

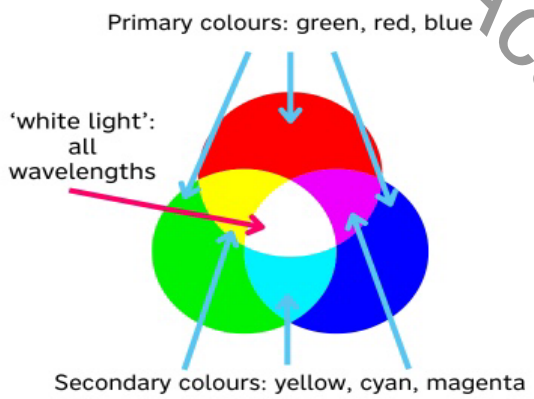
- The **visible light spectrum** is a section of the **electromagnetic spectrum**. Each colour has its own narrow band of **wavelength** and **frequency**. The visible light spectrum covers the wavelength range of 380 - 700 nm**380 - 700 nm**.

- **White light** occurs when all of the colours of light are **combined**.



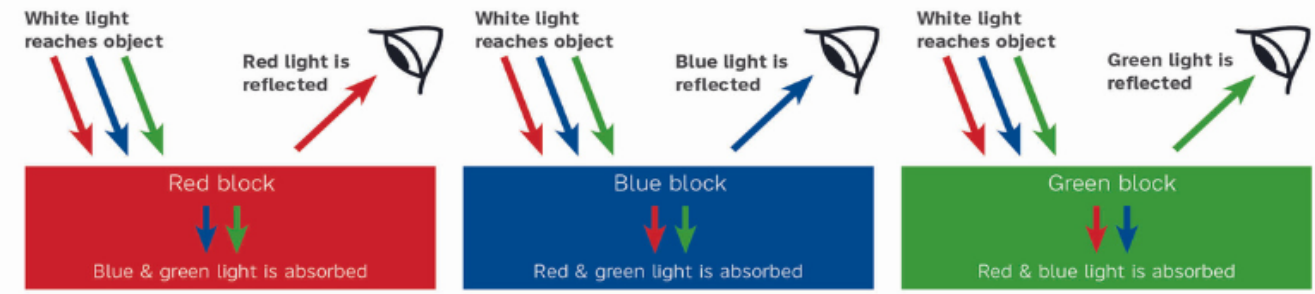
- There are 2 colour palettes that we can see: primary and secondary colours.

I. Primary colours are those that cannot be split any further and these are red, green, and blue.



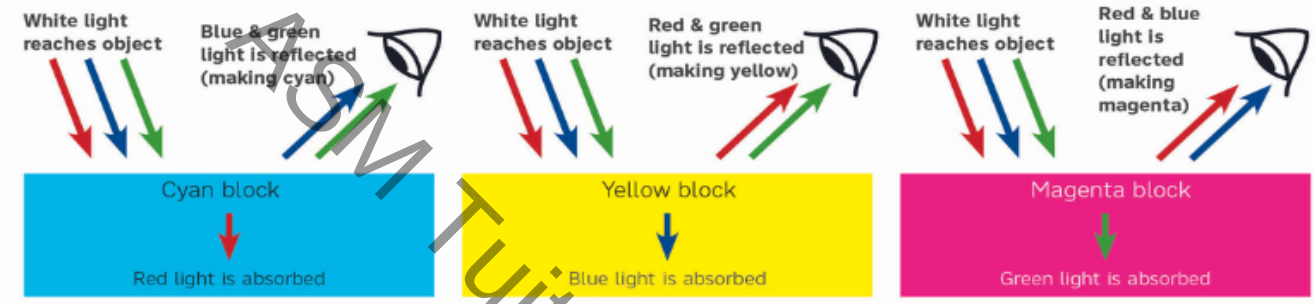
- Mixing these colours of light will give white light (the presence of all the wavelengths of light).

- When (white) light reaches an object, the object will absorb some wavelengths of light and reflect others. The reflected light is what our eyes perceive.



Secondary colours

- ✓ Secondary colours: cyan, yellow, and magenta are made from mixing primary ones.
- ✓ Blue and green make cyan; red and green make yellow and red and blue make magenta.

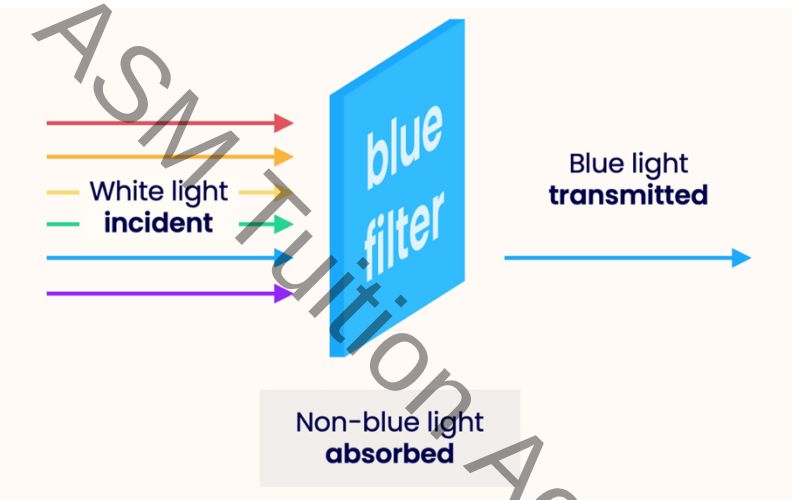


Filters

- **Colour filters** work by filtering out specific wavelengths, allowing only certain colours to pass through. Therefore, colour filters absorb all colours except for the filter's colour, which is transmitted.

- A **primary colour** filter only allows one of the three primary colours (red, green or blue) to be transmitted.

- For example, if we pass white light through a blue filter



- **White light** contains all different wavelengths of visible light. When white light passes through a blue filter, only the blue light is transmitted, while other colours are absorbed. This results in blue light emerging from the other side and reflecting into our eyes.

- when blue light from a blue filter hits a red object, the blue will be absorbed and no light will be reflected, giving the object an appearance of being black.