

Red chillies, yellow sunflowers, green parrots. What are colours? How do we see stark brown soil and shimmering blue sea? From philosophers Plato to scientist Newton — all have tried to understand the mystery of colours. Newton first unravelled the colour spectrum. Colour is light. That's right!

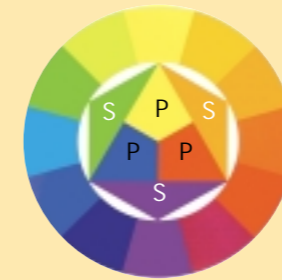
WHY IS THE WORLD IN COLOURS?

Colour is Light

All colours – those seen in nature or the ones applied by human beings with pigments – are caused by light and the way light affects the eyes. Light is a form of radiant energy and the eye captures the varying wavelengths of light as different hues.



A prism breaks down sunlight into its component



Primary colours (P), Secondary colours (S)

There is a theory of colour too...

Isaac Newton created the colour wheel. The colour wheel is nothing but a logically arranged sequence of pure hues. This traditional colour wheel uses the three **primary colours – red, yellow and blue**. There are three **secondary colours**

Do you know of colour harmony?

It is a term used everyday by painters. **Colour harmony** is a visual experience that is pleasing to the eye; that is a balanced use of colour. The visual experience can have two extremes. It can be a bland experience, which fails to hold the attention of the viewer. Or it may be harsh when there is chaotic use of colours.

In theory, colour schemes are based on

- Combination of analogous colours or
- Combination of complementary colours.



Pink Wings

Did you know that flamingos get their colour from their food? They love algae, which are rich in carotenoid pigments. This is deposited in the feathers, and creates the hue.



The colour of an object depends on two things

1. The kind of light that shines on it
2. The kind of light that bounces off and reaches the eye

An apple reflects red light but absorbs all other colours so it appears red.

wavelengths forming a range of coloured light. This is known as the visible spectrum.

Drops of water do the same, creating rainbows. The normal human eye can recognise six bands of colours in the spectrum – violet, blue, green, yellow, orange and red.

The eye recognises three characteristics of colour.

- **Hue** is the identity of the colour. It does not refer to a colour's lightness, darkness, or greyness.
- **Intensity or Chroma** refers to the purity of the colour, that is, how close it is to being only a single wavelength. Most common colours, however, are a mixture of many colour waves.
- **Value** is the lightness or darkness of a colour. It indicates the strength of the light making up a colour. By adding white and increasing the brightness of a hue will create a tint. Adding black will decrease the brightness and create a shade.

formed by mixing the primary colours.

- Red + Yellow = Orange
- Blue + Yellow = Green
- Red + Blue = Purple

Mixing primary and secondary colours produces **tertiary colours** like magenta and cyan.

Analogous colours are three colours, which are arranged side by side on the colour wheel.

Complementary colours are two colours arranged opposite each other on the colour wheel.

WAVELENGTHS OF DIFFERENT COLOURS

Colour	Wavelength (nm)*
Violet	430-390
Indigo	450-440
Blue	480-460
Green	530-490
Yellow	580-550
Orange	640-590
Red	750-650

*nanometre

Nature — the smartest painter of us all?

You will find many instances in nature where disparate colours combine but manage to achieve a harmonious effect.

