

Dispersion and Atmospheric Phenomena

Chapter 10: The Human Eye and the Colourful World · Topic 2

Key Concept

A rainbow forms when sunlight is refracted, dispersed, and internally reflected within water droplets suspended in the air after rain, splitting sunlight into its spectrum of colours. The sky appears blue because Earth's atmosphere scatters shorter-wavelength blue light more than longer-wavelength red light (a phenomenon called Rayleigh scattering), while sunsets appear reddish-orange because sunlight travels through more atmosphere at a low angle, scattering away most blue light and leaving mainly red/orange wavelengths to reach our eyes.

Quick Revision Notes

- Dispersion splits white light into VIBGYOR colours due to differing wavelengths bending differently.
- A rainbow forms through refraction, dispersion, and internal reflection in water droplets.
- The sky appears blue due to Rayleigh scattering of shorter blue wavelengths.
- Sunsets appear red/orange because most blue light scatters away over the longer atmospheric path.

Practice Questions

- 1 Explain why the sky appears blue during the day.
- 2 Describe how a rainbow forms after rainfall.
- 3 Why do sunsets often appear red or orange rather than blue?