



NCERT – GRADE 10 CHEAT SHEET

THE HUMAN EYE AND THE COLOURFUL WORLD

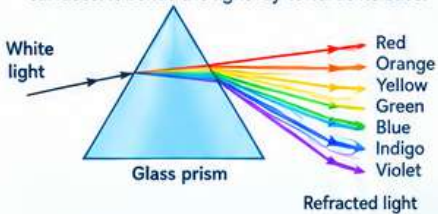


Part B – Phenomena of Light

Based on NCERT (Curiosity) Grade 10 Science | Chapter 8 | Reprint 2026–27 | Pages 139 – 148

1 REFRACTION OF LIGHT THROUGH A PRISM

- When light passes from one medium to another (e.g., air to glass), its direction changes. This is called refraction.
- A prism is a transparent medium with two slanting surfaces. It bends the light ray towards its base.

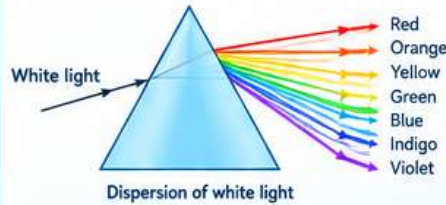


Key Point:

Refraction occurs because the speed of light changes when it enters a new medium.

2 DISPERSION OF WHITE LIGHT BY A GLASS PRISM

- White light is a mixture of seven colours (VIBGYOR).
- A glass prism splits white light into its constituent colours. This is called **dispersion**.

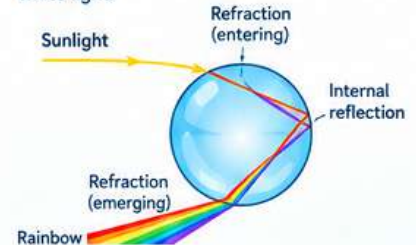


Key Point:

Dispersion happens because each colour is refracted by a different amount.

3 RAINBOW FORMATION

- Occurs when sunlight is refracted, dispersed and reflected inside raindrops, and then refracted again on emerging.
- The colours we see are due to dispersion of white light.

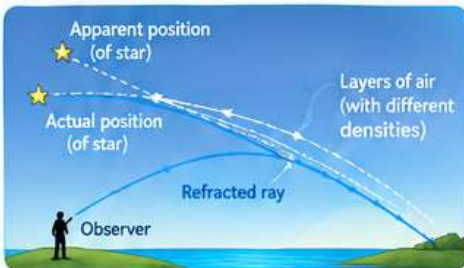


Key Point:

A rainbow is seen opposite to the Sun in the sky.

4 ATMOSPHERIC REFRACTION

- Light from distant objects bends when it passes through layers of air with different densities.
- This makes the object appear higher than its actual position.



Key Point:

Atmospheric refraction affects the position and appearance of distant objects.

5 TWINKLING OF STARS

- Stars appear to twinkle due to atmospheric refraction.
- The light from stars is bent by varying layers of air, causing rapid changes in brightness and position.



Key Point:

Twinkling is caused by the Earth's atmosphere, not by the stars.

6 WHY DON'T PLANETS TWINKLE?

- Planets have a larger apparent size than stars.
- The light from planets is a combination of light from many points, so fluctuations are averaged out.
- Hence, planets appear steady and do not twinkle.



Key Point:

Twinkling is less noticeable for larger and extended sources like planets.

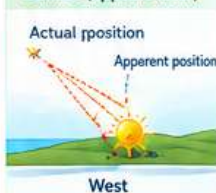
7 ADVANCE SUNRISE AND DELAYED SUNSET

- Atmospheric refraction makes the Sun appear slightly above the actual position.
- So, we see the Sun a little earlier than the real time of sunrise and a little later than the real time of sunset.

Sunrise (appears earlier)



Sunset (appears later)

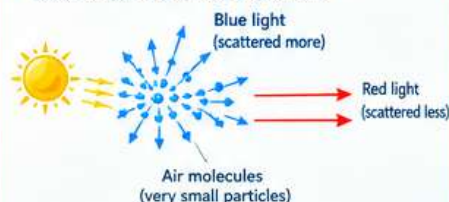


Key Point:

The effect is small (about 2 minutes) but noticeable.

8 SCATTERING OF LIGHT

- Shorter wavelengths (violet and blue) are scattered more than longer wavelengths (red) by air molecules and tiny particles.
- This is why the sky appears blue and the Sun looks reddish at sunrise and sunset.



Key Point:

Scattering depends on the wavelength of light and the size of the particles.

9 TYNDALL EFFECT

- The Tyndall effect is the scattering of light by colloidal particles.
- The path of the light beam becomes visible in a medium like a colloid or a dusty atmosphere.



Key Point:

It shows that colloids are not true solutions (but mixtures of very small particles).

10 WHY IS THE COLOUR OF THE CLEAR SKY BLUE?

- Sunlight contains all seven colours.
- Air molecules scatter blue light more than other colours.
- Our eyes see the scattered blue light from all directions, so the sky appears blue.



We see the sky as blue



Key Point:

The sky looks blue because of Rayleigh scattering (of shorter wavelengths).



Pumpa

Look up, notice, explore — the world is full of light!

