Light – Reflection and Refraction: Chapter Introduction

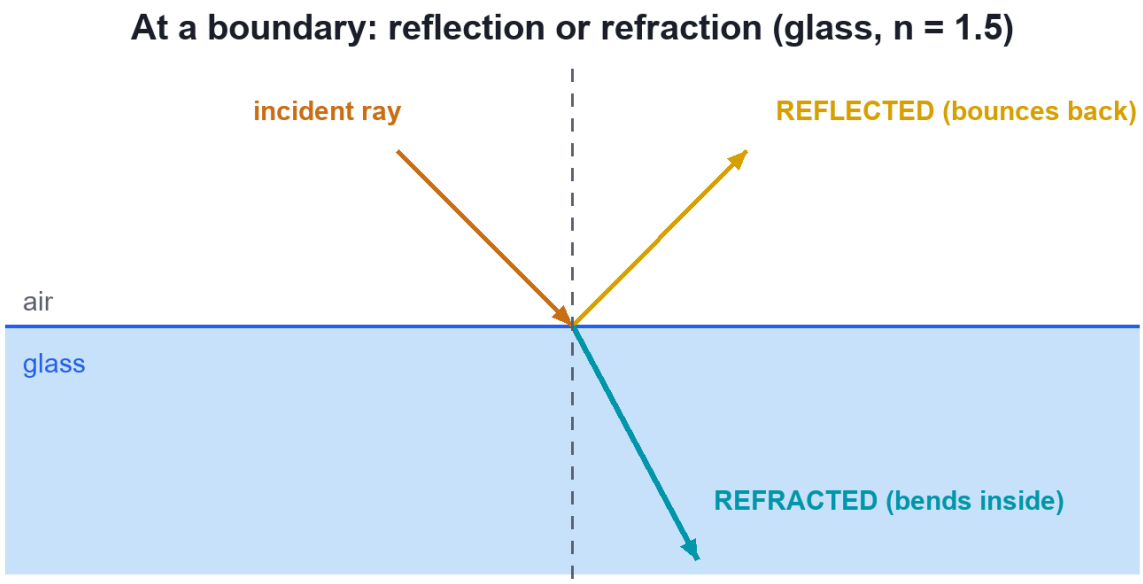
Class 10 Physics · Chapter: Light – Reflection and Refraction
🎬 **Video explanation (PrayogX reel):** https://www.instagram.com/reel/DfGnbNukT6V/

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1. How do we see?

Light leaves a source (the Sun, a bulb), falls on objects and bounces into our eyes. We see non-luminous objects only because of this light. In complete darkness nothing is visible.

2. Two things light can do at a surface



Behaviour	What happens	Example
Reflection	Light bounces back into the same medium	Your face in a mirror; an upside-down image in a shiny spoon
Refraction	Light enters another medium and bends, because its speed changes	A pencil in water looks broken; lenses

3. What the chapter covers

- **Part 1: Reflection** - laws of reflection, plane and spherical (concave, convex) mirrors, image formation, mirror formula.
- **Part 2: Refraction** - laws of refraction, refractive index, glass slab, convex and concave lenses, lens formula, power of a lens.

4. Key takeaways

- We see objects because light reflected from them enters our eyes.
- At a surface light reflects (bounces back) or refracts (bends while entering).
- Mirrors work by reflection; lenses (including the eye lens) work by refraction.

Practice questions (CBSE style)

1. Why can we not see objects in a completely dark room? (1 mark)
2. Distinguish between reflection and refraction of light with one example each. (2 marks)
3. Why does a pencil partly dipped in water appear bent at the surface? (2 marks)
4. Name the phenomenon on which the working of (a) a plane mirror (b) a magnifying glass is based. (1 mark)
5. Light travels at about 3×10^8 m/s in air and 2.25×10^8 m/s in water. What happens to its path when it enters water obliquely, and why? (2 marks)

Answer key with worked solutions

1. No light falls on the objects, so no light is reflected into our eyes.
2. Reflection: light returns into the same medium (image in a mirror). Refraction: light bends on entering another medium (pencil in water looks bent).
3. Light from the part under water bends away from the normal as it leaves water, so it seems to come from a raised point: the pencil looks bent.
4. (a) Reflection (b) Refraction.
5. It bends (refracts) towards the normal, because its speed decreases in water.