NCERT – GRADE 7 CHEAT SHEET

LIGHT: SHADOWS AND REFLECTIONS

Pumpa

See the science. Understand the light!

Based on NCERT (Curiosity) – Textbook of Science for Grade 7 | Chapter 11 | Reprint 2026-27 | Pages 133–168

1. Sources of Light

Luminous objects emit their own light.
Examples: Sun, stars, flame, firefly, lit bulb.

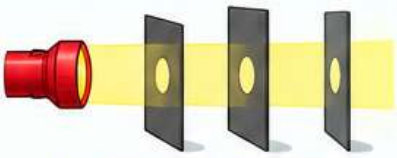
Non-luminous objects do not emit light and are seen by reflected light.
Examples: Moon, mirror, planets.

The **Moon reflects sunlight.**



2. Light Travels in Straight Lines

- Light travels in straight lines. This is called **rectilinear propagation.**
- You can see this when light passes through aligned holes.



Light travels in a straight line

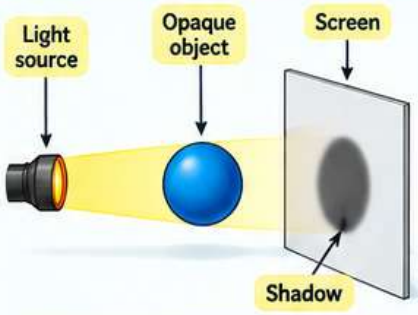
This is why we can see objects clearly in a line.

3. Materials and Light

Transparent	Translucent	Opaque
Light passes almost completely.	Light passes partially.	Light does not pass.
		
Clear glass	Tracing paper	Wood / Cardboard

4. Formation of Shadows

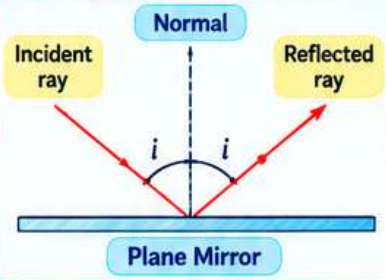
- A shadow is formed when light is blocked by an opaque object.
- It needs a light source, an object and a screen.
- The size, shape and sharpness depend on their positions.
- Opaque objects make dark shadows, while translucent objects make lighter shadows.
- Changing the colour of the object does not change the shadow colour.



A larger shadow is formed when the object is nearer to the light.

5. Reflection and Plane Mirrors

- Reflection is the change in direction of light when it falls on a mirror or shiny surface.
- Angle of incidence equals angle of reflection.

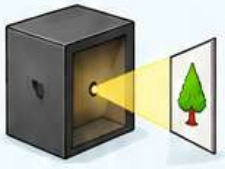


A plane-mirror image is erect, same size, laterally inverted, and appears behind the mirror at the same distance. It cannot be obtained on a screen.

6. Simple Optical Devices

Pinhole Camera

Forms an inverted image on a screen.



Inverted image

Periscope

Uses plane mirrors to see over or around obstacles.



Kaleidoscope

Uses multiple reflections in mirrors to create patterns.



Beautiful patterns

Quick Facts

- ✓ Light travels in straight lines.
- ✓ Moon is non-luminous.
- ✓ A shadow forms where light is blocked.
- ✓ Plane mirrors produce virtual, erect images.
- ✓ Pinhole camera image is inverted.

Common Mistakes

- ✗ Moon is not a source of its own light.
- ✗ Transparent materials do not always produce absolutely no shadow.
- ✗ Shadow colour does not copy object colour.
- ✗ Plane-mirror image is not formed on a screen.
- ✗ Do not confuse reflection with refraction.

Key Takeaway

Light travels in straight lines, forms shadows when blocked, and changes direction by reflection.

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