

PHYSICS (GRADE-7)

LIGHT Lesson 26: Light Rays



Mrs. Ruksana & Mrs. Farhana

1. Differentiate between luminous and non-luminous objects.

Ans.

Luminous objects: The objects which make their own light are called luminous objects. For example, sun, candle, lamp, etc.

Non-luminous objects: The objects that do not make their own light, but reflect it from luminous objects, are non-luminous objects. For example, moon, page of a book, chair, etc.

2. How do luminous objects work?

Ans.

Luminous sources radiate light when their atoms become “excited” as a result of receiving energy. For example, in a light bulb the “excited” atoms give off light as they get energy from electricity.

3. What is laser? Mention its use.

Ans.

Laser is light source that work differently. In laser, the excited atoms act together and emit a narrow and very bright beam of light.

It is used in many important applications. It is used in industries to cut through metal plates, in scanners to read the barcodes, in players for reading the data and in delicate medical operations of the eye and inner ear.

4. What is a ray?

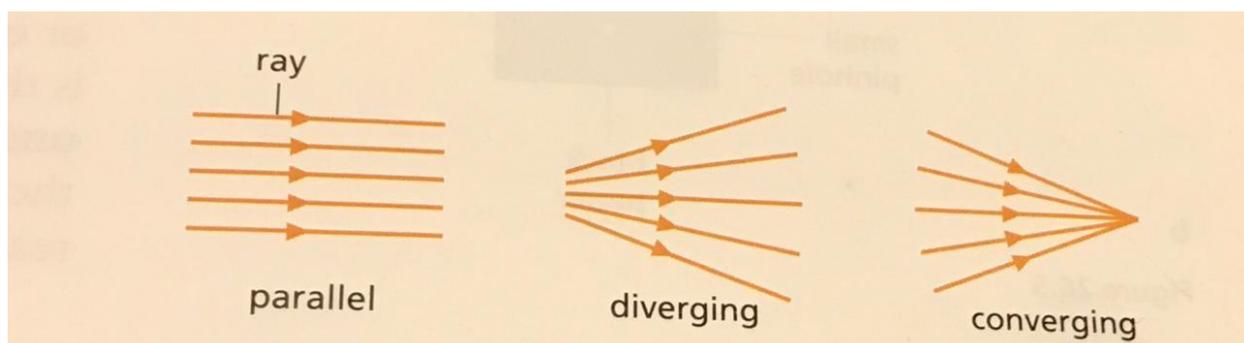
Ans.

The direction of the path in which light is travelling is called a ray and is represented in diagrams by a straight line with an arrow on it.

5. What is beam?

Ans.

A stream of light rays is called a beam. It may be converging (getting narrower), diverging (spreading out) or parallel.



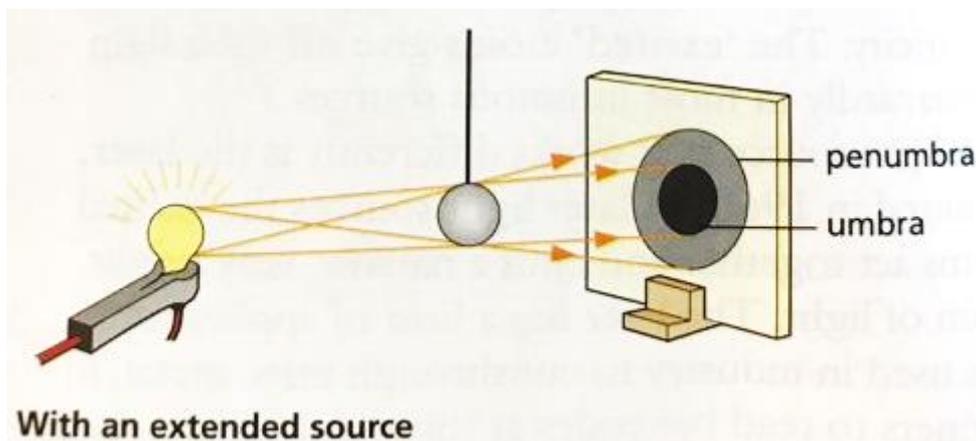
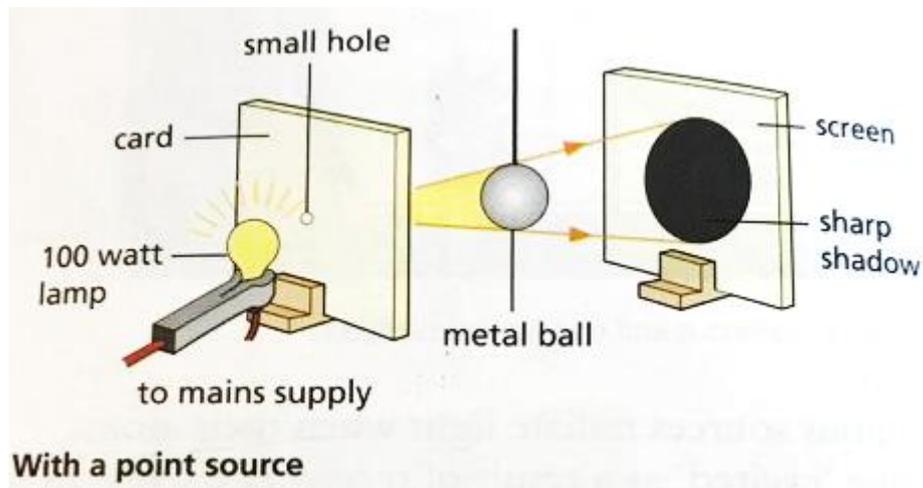
6. How is shadow formed?

Ans.

A shadow is formed because of two reasons:

- i) Opaque objects
- ii) Light travels in a straight line.

The sharpness of a shadow depends on the size of the light source. A point (small) source creates a dark shadow which is equally dark all over while an extended (large) source creates a central dark shadow, the umbra, surrounded by a ring of partial shadow, the penumbra.



7. Define speed. What is the speed of light?

Ans.

Speed: The distance travelled by a body in a unit time is called speed.

$$S = \frac{d}{t}$$

The unit of speed is m/s.

Speed of light: Light does not travel instantly from one place to another, but takes a certain, very short time.

The speed of light is 300 000 000 m/s or 3×10^8 m/s.

8. Differentiate between umbra and penumbra.

Ans.

Umbra: The completely dark shadow is called umbra.

Penumbra: The partially dark shadow surrounding umbra is called penumbra.

