Chapter Ten

Light And Sound Energy:

Light energy:

- This is the type of energy which enables us to see.
- We see objects because light energy from these objects travel in straight line to our eyes.

Luminous objects:

- Objects which can produce and give off their own light are called luminous objects.
- An example of such an object is the sun.

Non luminous objects:

- There are certain objects which cannot produce and give off their own light.
- These objects are called non luminous objects.

Opaque objects:

- An opaque object is an object through which light cannot pass.

Sources of light:

- There are two main sources of light and these are:
  (i) Natural sources.
  (ii) Artificial sources.

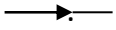
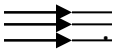
Natural sources of light:

- The sun is the main source of natural light.
- Another source of natural light is a star.

Artificial sources of light:

- These are those sources of light which enable us to see, when there is not any natural source of light.
- Examples of artificial sources of light are the electric bulb and the candle.

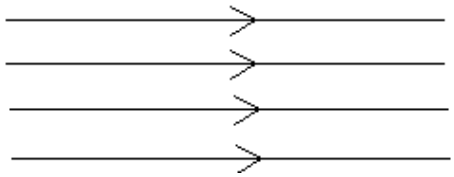
Rectilinear propagation of light:

- A ray is the path along which light travels.
- It is represented by an arrow.
- A ray can therefore be represented by 
- A beam is the name given to a group of rays.
- It is represented by a number of rays such as 
- Light always travels in a straight line, and the ability of light to travel in a straight line is known as the rectilinear propagation of light.

Types of beams:

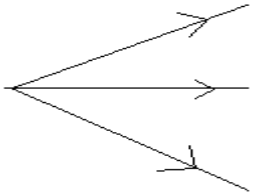
- There are three types of beams and these are:

(1) **Parallel beam**:



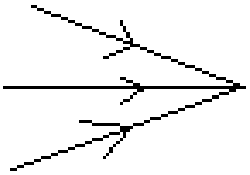
- This is the type of beam in which the rays move parallel to each other and never meet.

(2) Diverging beam:



- This is the type in which the rays spread out or diverge from a point.

(3) Converging beam:



- In this type, the rays of the beam seem to meet or converge at a point.

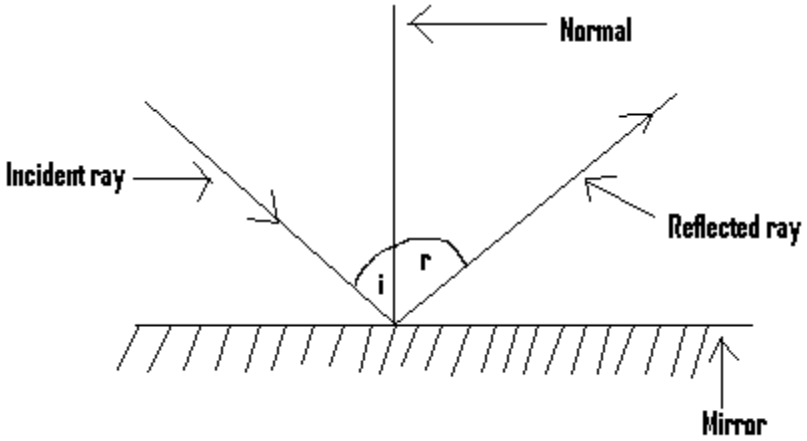
Shadows:

- A shadow is formed when an opaque object is placed in the path of light.
- There are two types of shadows which can be formed, and these are:
  (a) The umbra.
  (b) The penumbra.

Reflection of light:

- If we throw a ball towards a wall and it hits the wall, the direction in which the ball was moving will be reversed.
- This means that the ball will start moving in the opposite direction towards us.
- Reflection of a light ray occurs if a light ray moving towards a surface hits or strikes the surface, and its direction of movement is reversed.
-
-
-
-
-

- **Reflection of light by a mirror:**



r = the angle of reflection.
i =the angle of incidence

- The reflection of light by a mirror occurs when light rays moving towards the surface of the mirror strike the surface, and their direction of movement is reversed.
- The incident ray is the one which is directed or moves towards the surface of the mirror.
- The reflected ray is the one which is directed or moves away from the surface of the mirror.

Refraction of light:

- This refers to the bending of light rays when they move from one medium into a different one.
- Water, air and glass are examples of mediums.
- When light is moving in one particular medium such as water or air, it moves in a straight line.
- But if light travelling in a straight line in one particular medium such as water enters a different one such as air, then the bending of the light rays will occur.
- Refraction also occurs when light rays moving in air enters into glass.