Light

- The objects emitting their own light are called **luminous object.** Example sun, stars etc.
- Emission of light by an organism is called **bioluminescence**.
- The objects that do not emit their own light are **non-luminous objects**. Example planets, chairs etc.
- The objects that are produced by the humans to emit light are called **artificial light emitting objects.** Example bulbs, LEDs
- The objects that give out or emit light of their own are called **luminous objects**. Example: Sun.
- Types of objects

Transparent objects	Translucent objects	Opaque objects
These objects allow light to pass through them.	These objects allow light to pass through them partially.	These objects do not allow light to pass through them.
One can see clearly through transparent objects.	One can see through translucent objects but not very clearly.	One cannot see through opaque objects.
Transparent objects do not cast a shadow because they do not block the light.	Translucent objects cast faint shadows as they block the light partially.	Opaque objects cast dark shadows as they block light completely.

• Classification of objects by sense of vision

Object/material	See-through	Shadow cast by it	Classification
Pencil	Not at all	Dark	Opaque
Paper	Not at all	Dark	Opaque

Ordinary Glass	Fully	No shadow	Transparent
Water	Fully	No shadow	Transparent
Smoke	Partially	Light	Translucent
Butter paper	Partially	Light	Translucent

- Light travels only in a straight line in all directions.
- This phenomenon is called the **rectilinear propagation of light**.
- Light emanating from a source (bulb) travels in all directions.
- The formation of image in a pinhole camera is a proof of **rectilinear propagation** of light.

•	Medium	Speed of light (in m/s)	
	Air/ Vacuum	3×10 ⁸	
	Water	2.25×10^{8}	
	Glass	2×10 ⁸	

- A **pinhole camera** is a simple optical device that forms an image without using a lens or a mirror.
- The image formed by a pinhole camera is **real**, **inverted**, and **diminished**.



- The formation of image in a pinhole camera is a proof of **rectilinear propagation** of light.
- Image form in the pinhole camera shows the colours of the object.
- A shadow is always dark and does not depend on the colour of the object. It is obtained only on a screen.
- We need a source of light and an opaque object to see a shadow on a screen.
- The formation of shadow shows that the light rays travel in a straight line.

- The size and nature of the shadow of an object depend upon its position from the source of light.
- Sundial is an instrument that measures the time of a day by the position of the shadow of an object cast by the sun.