- 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	These objects allow light	These objects do not
light to pass through	to pass through them	allow light to pass
them.	partially.	through them.
One can see clearly	One can see through	One cannot see
through transparent	translucent objects but not	through opaque
objects.	very clearly.	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 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.
- A mirror forms images by the reflection of light.
- The images formed by mirrors are virtual, erect, and of same size as the object.
- Left-Right Inversion: The left of an image formed by a plane mirror appears as right and its right appears as left.
- A mirror changes the direction of light that fall on it.
- Reflection of light makes things visible.
- Laws of reflection:



- i(Angle of incidence) = r (Angle of reflection)
- AO, OP, and OB lie on the same plane.
- Regular and irregular reflection



- 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.