

## LIGHT – THE BASIC IDEA OF SHADOW

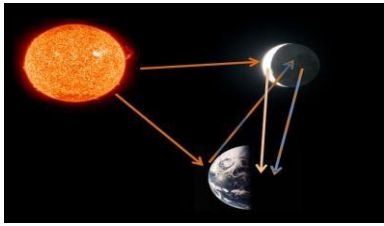
### LIGHT :

- The external physical cause that affects our eye to produce the sensation of vision.
- Do not require a medium to travel
- Always travels in straight line

#### Scattering of Light

Light scatters in all directions. Due to this scattering of light we are able to see all the objects around, even if not directly lighted.

#### Moon – non luminous body



**Hot sources :** emits light and heat – ex. glowing bulb

**Cold sources:** emits only light – ex. firefly, tubelight

#### Luminous Objects

– emit light from within

#### non Luminous Objects

– reflect externally supplied light

The sun



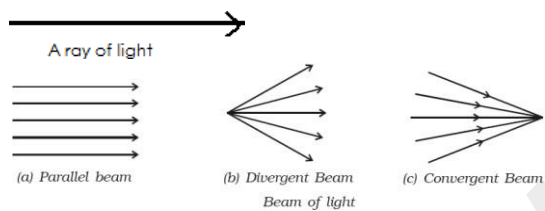
The moon



The stars

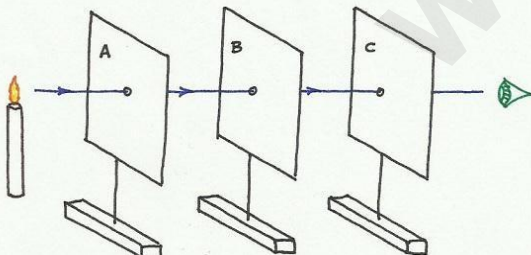


#### Light travels in straight line :

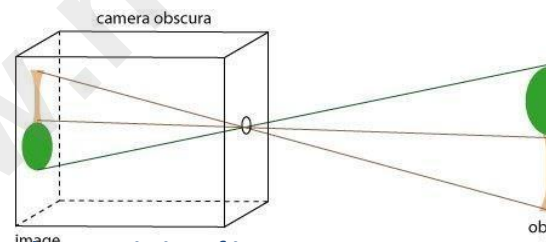


#### Rectilinear Propagation of Light :

2.



#### Pinhole Camera :



#### Characteristics of image :

- Real, inverted and smaller than size of object

#### Advantage :

- No focusing needed, - no lens needed

#### Disadvantage:

- Image gives no details of object
- Faint image
- No permanent record of image
- Not be used for moving objects

#### Sources of Light :

##### Natural Sources

Sun  
Stars  
Lightning  
Moon (reflected sunlight)

Bioluminescence – jughu & firefly

##### Artificial sources

Candles  
Lamps  
Bulbs  
Torch light

**Bioluminescence** – emission of light by a living organism as a result of some chemical energy getting converted to light energy .

1. **Transparent Medium** – light can pass through completely. Example :



**Translucent Medium** – light can pass partially Example :



3. **Opaque Medium** – light cannot pass through Example :

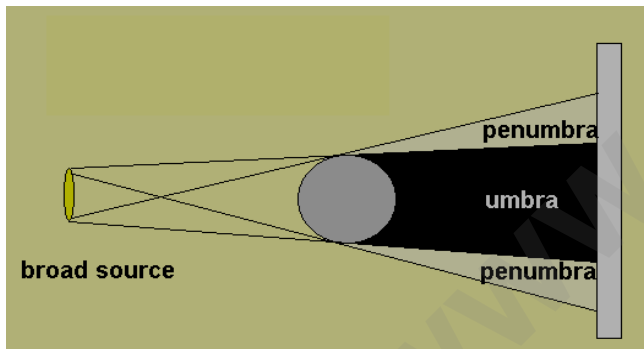
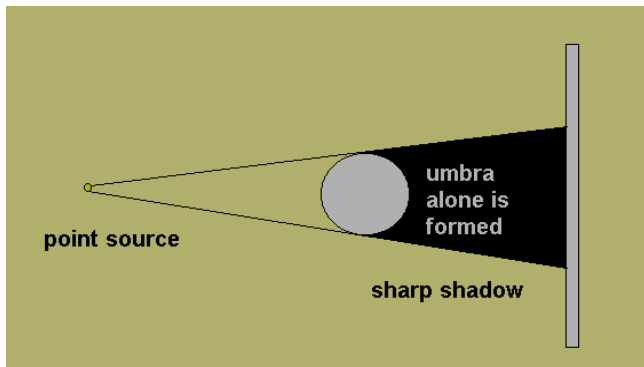


### Shadows :

When an opaque object is placed between a light source and a screen, it blocks the passage of light and produces a dark patch on the screen called the shadow of the object.

### Conditions for shadow formation :

1. Source of light to be present
2. Opaque object to be present
3. Screen to be present
4. Opaque object placed between light source and screen



### Natural Shadows – Eclipse :

