



# 3055 BA SANGAM COLLEGE

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## Worksheet 16

School: Ba Sangam College

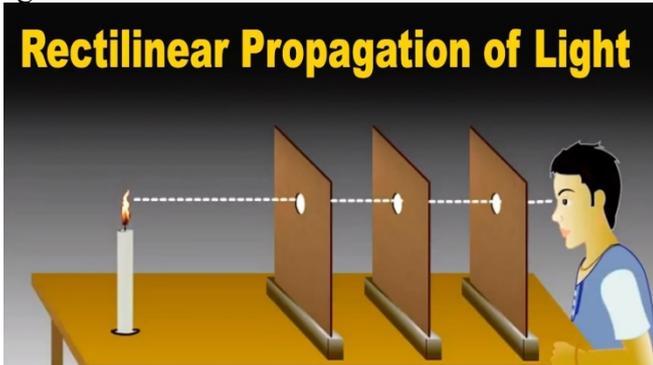
Year/Level: 11

Subject: Physics

Strand	4 -Light
Sub-strand	Rays and Reflection
Content Learning Outcome	Objective: <ul style="list-style-type: none"><li>Show an understanding of the fact that light travels in straight lines and that its path is reversible.</li><li>Illustrate with drawings understanding of the meaning of the term umbra, penumbra, binocular vision, opaque, translucent, and transparent.</li></ul>

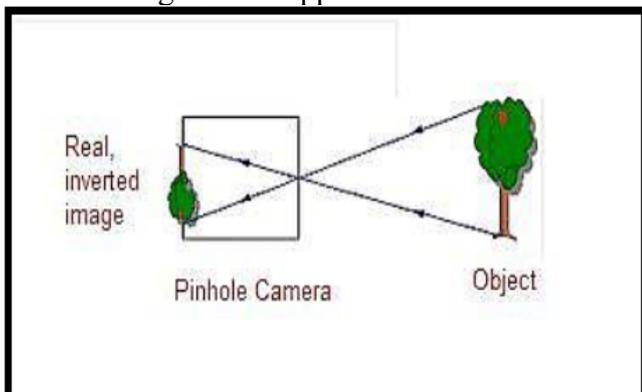
### RECTILINEAR PROPAGATION OF LIGHT

Light travels in a straight line and the velocity of light in air is  $3 \times 10^8$  m/s.



### PIN-HOLE CAMERA

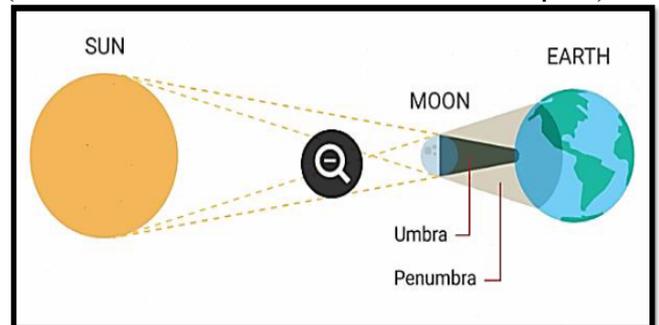
A pinhole camera is a simple camera without a lens with a small hole in one side. Light from a scene passes through the **hole** and projects an inverted image on the opposite side of the box.



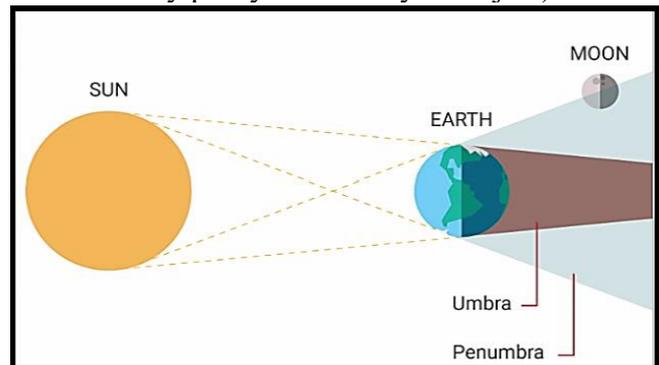
**Nature of image:** Real, inverted (upside down) and diminished (small)

### TERMS

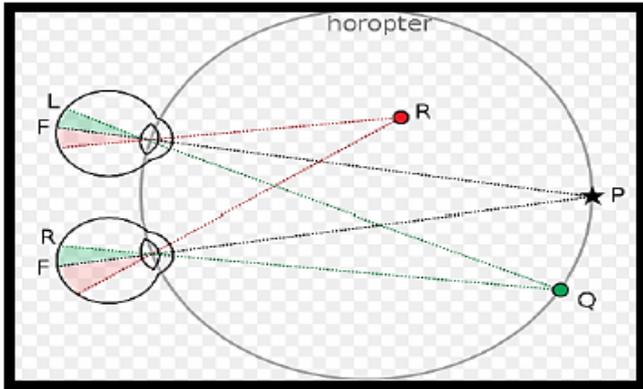
1. **Umbra** - is the dark centre portion of a shadow. (The Moon's umbra causes total solar eclipses).



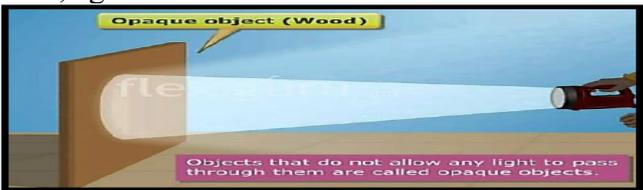
2. **Penumbra** - is the lighter outer part of a shadow. (half-shadow that occurs when a light source is only partly covered by an object)



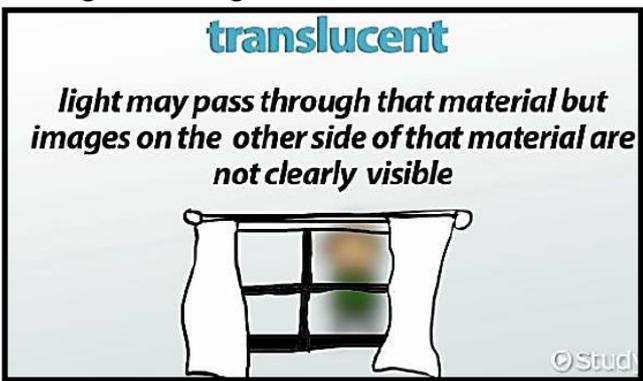
3. **Binocular vision** - the ability to maintain visual focus on an object with both eyes, creating a single visual image.



4. **Opaque Substance**- a substance that cannot be seen through and which does not allow light to enter, eg. brick wall.



5. **Translucent Substance** – a substance that cannot be seen through, but allows light to enter, eg a stained-glass window.



6. **Transparent Substance** – a substance that can be seen through, eg normal window.



## ECLIPSES

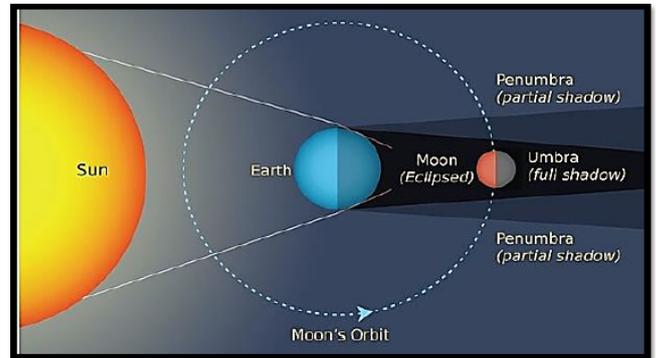
When the Sun, Moon and the Earth come into a straight line an **eclipse** occurs.

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- A **total eclipse** occurs when the Moon or Sun is blotted out.
- A **partial eclipse** is when only part of the Sun or Moon is covered.

## LUNAR ECLIPSE

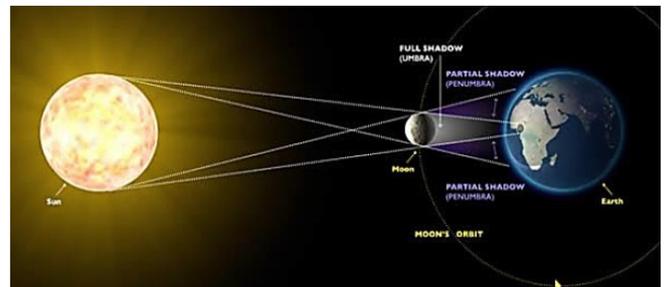
A lunar Eclipse occurs when the Sun, Earth and the Moon are in straight line.



The Earth comes between the Sun and the Moon. The moon passes into the shadow of the Earth, it never completely disappears because a small amount of Sun's light is refracted by the Earth's atmosphere and falls on the Moon during the eclipse. This light gives the Moon a **reddish** appearance.

## SOLAR ECLIPSE

Solar eclipse is formed when the **Moon comes between the Sun and the Earth.**



A solar eclipse can only take place at the phase of new moon, when the moon passes directly between the sun and Earth and its shadows fall upon Earth's surface.

## ACTIVITY

(10 marks)

1. Give 3 examples each for the following:

a) Transparent Object

(3 marks)

b) Translucent Substance

(3 marks)

c) Opaque Substance

(3 marks)

2. Define the term **Shadow**

(1 mark)