

PENANG SANGAM HIGH SCHOOL  
YEAR 11 PHYSICS  
WEEK 16

<b>Strand</b>	LIGHT
<b>Sub Strand</b>	RAYS AND REFLECTION
<b>Content Learning Outcome</b>	At the end of the lesson students should be able to <ul style="list-style-type: none"><li>• recognize that light is a form of energy</li><li>• show an understanding of the fact that light travels in straight lines and that its path is reversible.</li></ul>

## LIGHT

Light can be seen both as a particle and a wave. This is called the dual nature of light. Light can be seen as fast moving particles called photons.

Light travels in straight lines (rectilinear property) and its velocity is  $3 \times 10^8 \text{m/s}$ .

An object appears to be that color because it reflects that color and absorbs all the other colors. Eg an object that appears to be red, reflects red and absorbs all the other colors.

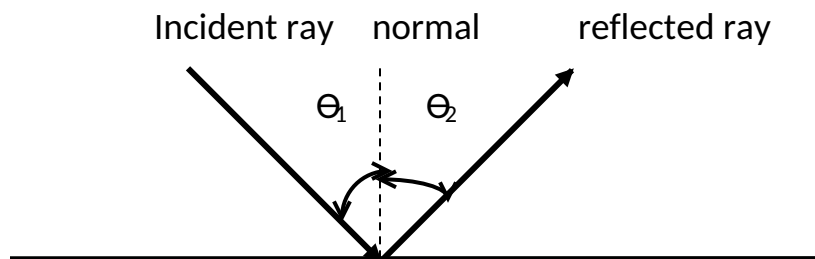
Opaque substance cannot be seen through and does not allow light to enter eg brick wall.

Translucent object cannot be seen through but allows light to enter eg stained glass window.

Transparent object is an object that can be seen through eg normal window.

## Reflection

Reflection is the bouncing back of light in the same medium.



$\theta_1$  is the angle of incidence,  $\theta_2$  is the angle of reflection and always measured from the normal.

Law of reflection $\theta_1 = \theta_2$
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Image is where an object appears to be after reflection or refraction. There are two types of images that is REAL IMAGE and VIRTUAL image

A real image can be put onto a screen whereas a virtual image cannot be put on to a screen.

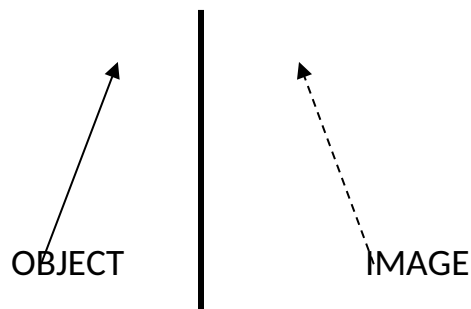
## MIRRORS

- i. For mirrors a real image forms in front of the mirror
- ii. For mirrors a virtual image forms behind the mirror

There are three types of mirrors

- a. Plane mirror
- b. Concave mirror
- c. Convex mirror

### A. PLANE MIRROR



The image is

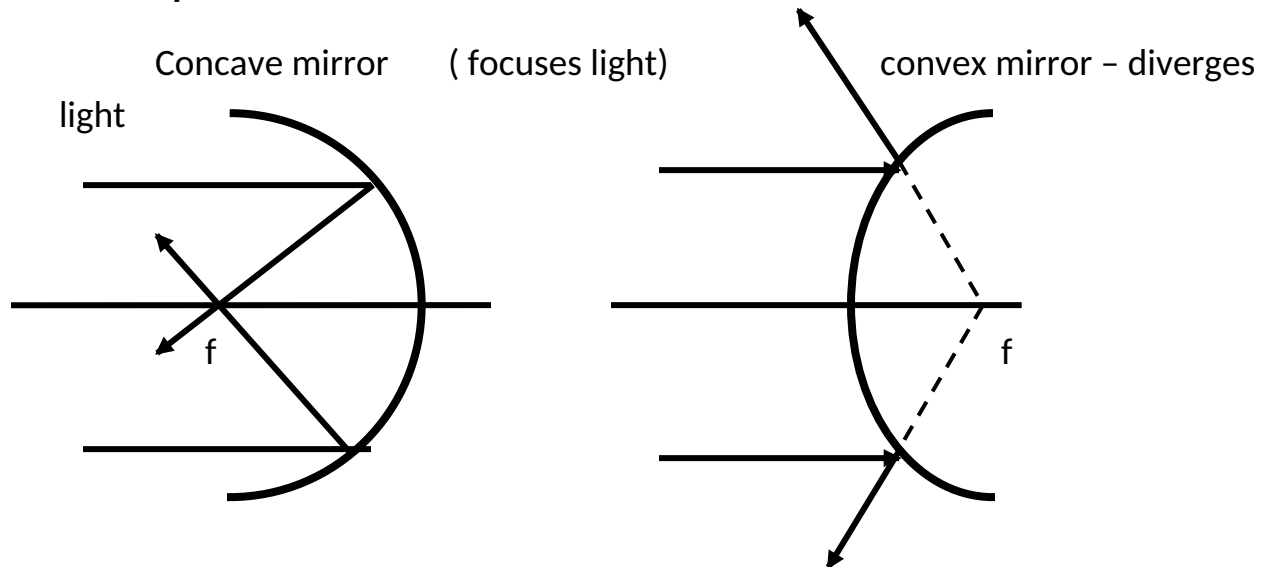
- i. Virtual
- ii. Same size
- iii. Erect
- iv. Laterally inverted

### Nature of image

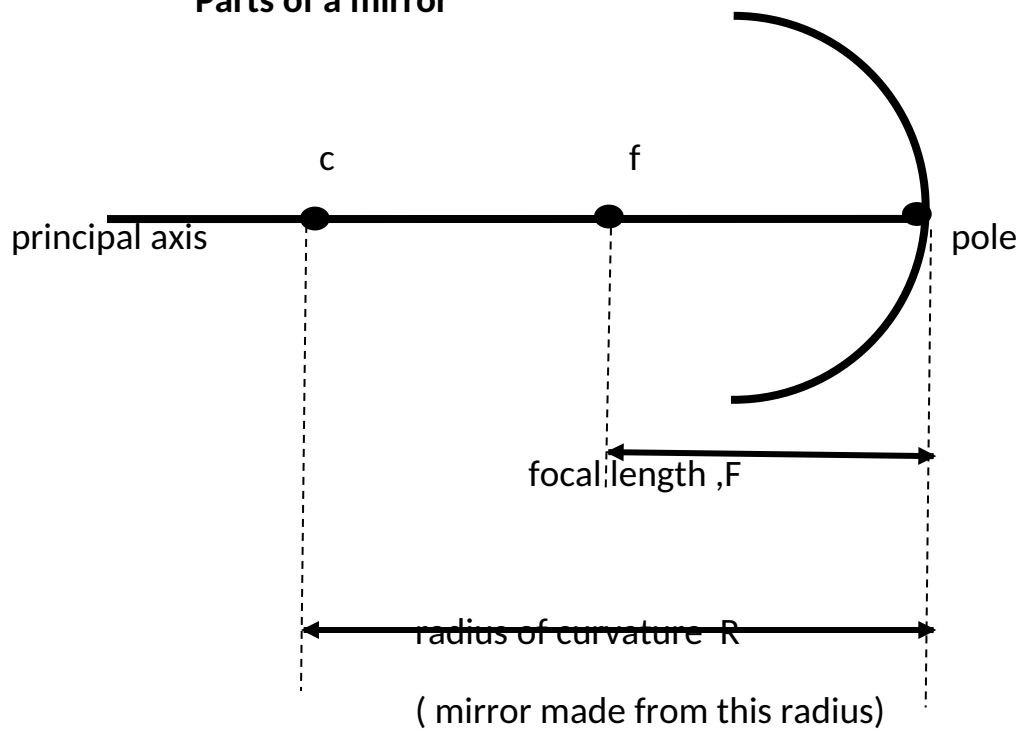
To describe an image or to find the nature of the image we can state three things

- i. Real or virtual
- ii. Enlarged, diminished or same size
- iii. Inverted or erect

## Spherical mirrors



## Parts of a mirror



Concave mirrors are used for shaving or for cosmetics because it gives a magnified view of persons face

Convex mirrors are used as rear vision mirrors for cars and in shops to prevent shop lifting because it always gives an erect image and gives a wide field of view.