



3055 BA SANGAM COLLEGE

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WORKSHEET 24

School: Ba Sangam College

Name: _____

Subject: Basic Science

Year/Level: 9

Strand 3	ENERGY
Sub Strand 3.1	Energy source and transfer
Content Learning Outcome	Investigate and categorise different sources, types and forms of energy with their benefits and drawbacks and the significance of the sun as the main source of light and heat.

Lesson Notes

ENERGY SOURCE AND TRANSFER

Behavior of light on materials

- Light is a form of useful energy that supports life.
- It can be detected by our eye and transferred from one place to another.
- Light does not need a medium to travel in, therefore can travel in a vacuum.
- Light travels in different speeds in different medium.
- In the same medium, light travels in straight lines.

Light and materials

1. Transparent materials

- Allow all light to pass through it
- Allow us to see through these objects
- No shadow is formed
- E.g. water where the fish and coral live is transparent.

2. Translucent materials

- Allows some light to pass through it and scatter the rest
- Objects you see through are not clear or distinct
- E.g. looking into a room through a frosted glass door

3. Opaque materials

- does not allow any light to pass through
- either absorbs or reflects all of the light that strikes it
- e.g. shadow formed
- e.g. wood or metal

Interaction of light

- When light strikes a new medium, the light can be reflected, absorbed, or transmitted. When light is transmitted, it can be refracted, polarized, or scattered.
- The path along which light travels is **called a ray**. Light rays are indicated by straight lines with arrows showing the direction of motion. A beam of light is made up of a bundle of rays.

Reflection

- bouncing up of light rays of a surface where the **angle of incidence is equal to the angle of reflection (law of reflection)**

Refraction

- bending of light as it enters a new medium

Scattering

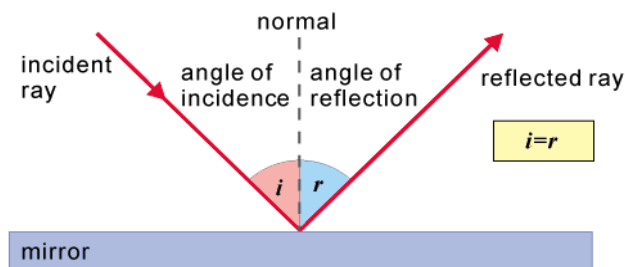
- light is redirected as it passes through a medium
- occurs when parallel light rays strike a rough, uneven surfaces and reflection in many different directions

Images

- a copy of an object formed by reflected or refracted waves of light

Type of Mirrors

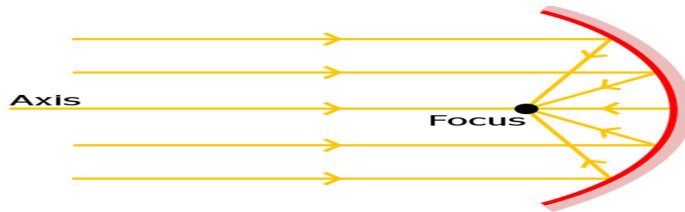
1. The plane mirror



Terms	Description
Incident rays	ray of light that strike the surface
Reflected rays	Rays that leave the surface
Normal	A line perpendicular to the surface at the part of reflection
Angle of incidence	Angle between the incident ray and normal
Angle of reflection	Angle between the normal and reflected ray

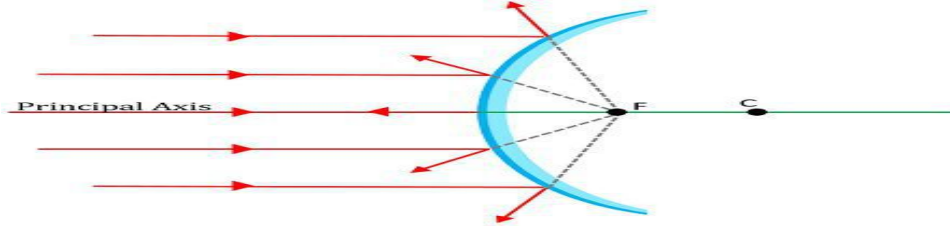
2. Concave mirror

- produces virtual images which are magnified if the object is near the mirror
- used as cosmetic mirrors, microscope, dentists mirror
- concave reflections are used in car headlights and search lights



3. Convex mirror

- image formed is always smaller than the object and always erect or upright and give a wide scope of views
- image is never real because the reflected rays diverge outwards and are not brought to focus
- used as security mirrors in shop and also in car rear vision mirrors



Absorbers and reflectors

Absorbers

- Material that absorbs light
- Materials that are painted black and acts as good conductors

Reflectors

- Materials that reflects light
- Materials that are colored white and acts as good reflectors

Uses of various forms of energy

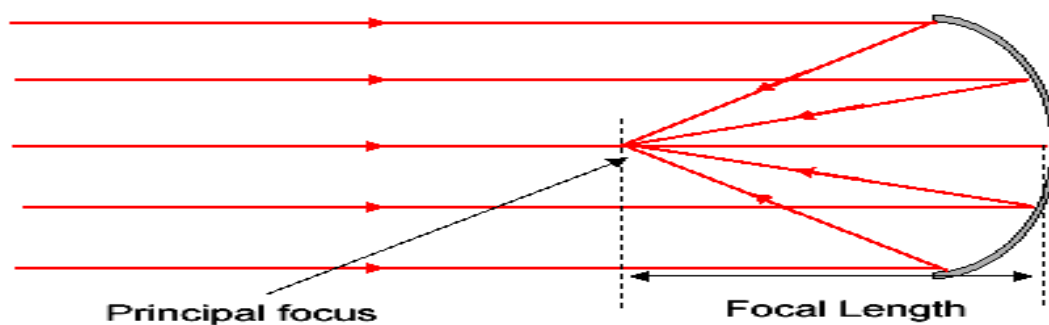
- Lighting ,Cooking, Ironing, Heating
- Transportation – motor vehicles, ships, planes, locomotion
- Operating machines-factories ,hospitals
- Electrical appliances

Exercise

1. Define the term translucent and give an example of it.

Example: _____
(2 marks)

2. Given below is a type of mirror showing the types of light rays reflected on it. Use it to answer questions that follow.



- i. What is the name of this mirror?
_____ (1 mark)
- ii. On the mirror label the
1. Incident ray and Reflected ray. (2 marks)
- iii. Give two use of this mirror.

(2 marks)
3. State the law of reflection

(2 marks)
4. Provide a reason why houses are painted with dark colours in cold countries

(1 mark)

