ALLEN IntelliBrain®

Experiential Experimental Edutaining

PHYSICS

SAMPLE BOOK

8 GRADE

PHYSICS

I'm the

Intelli Kid

and

I'm becoming the

Best Version

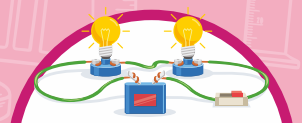
of myself with

ALLEN Intelli Brain®

Experiential Experimental Edutaining

INDEX

GRADE-8



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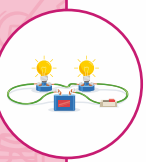
I AM PROGRESSING

(Tick mark the columns after achieving the Learning Milestones)

TOPIC	1st Learning	Exercise Solving	1st Revision	2nd Revision
 Current Electricity				
 Chemical Effects of Current				
 Light				

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PHYSICS

SAMPLE THEORY

CHAPTER 3

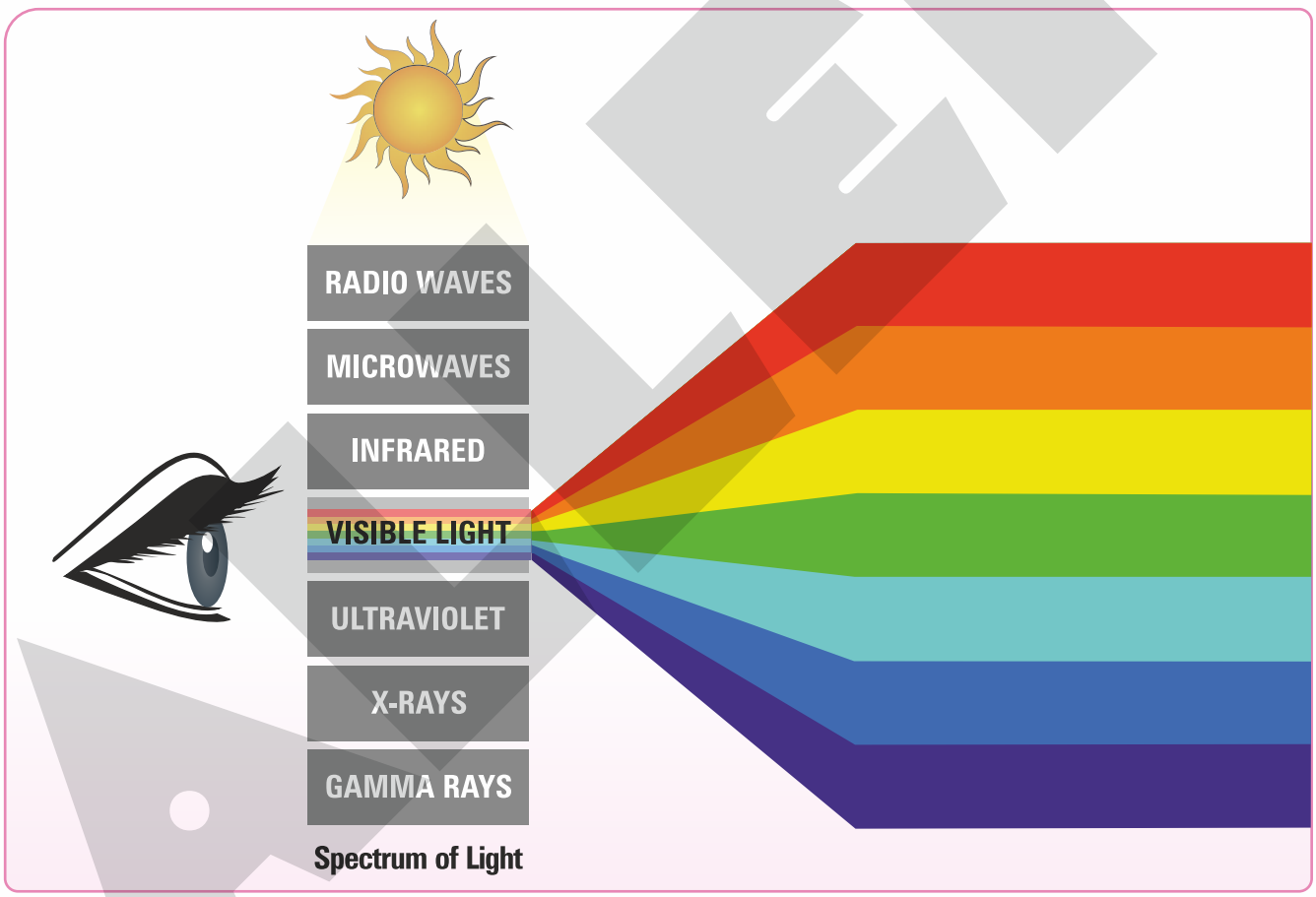
LIGHT

INTRODUCTION

- Light is a form of energy that helps us to see objects around us.
- Any object is visible to us when light from the source strikes on it and gets reflected in our eyes.
- Light is an electromagnetic wave.

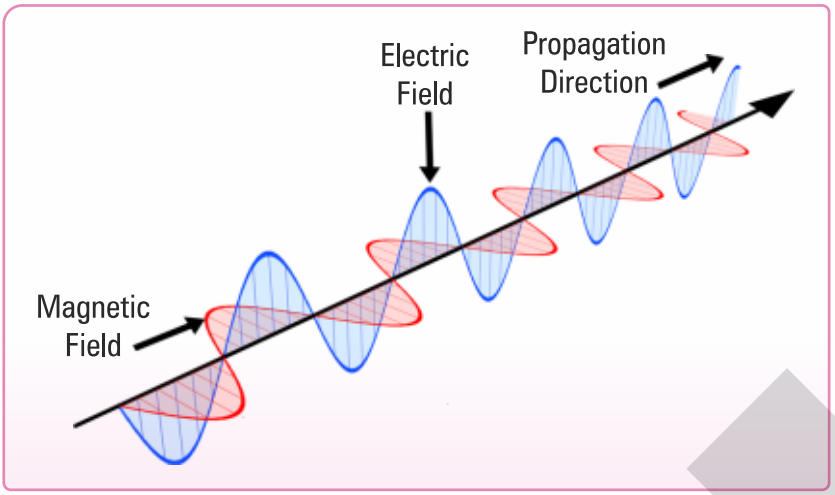
ELECTROMAGNETIC WAVE

The Sun is the primary source of electromagnetic radiation. It is a broad spectrum from gamma waves to radio waves, out of which visible light is a small segment.



The electromagnetic spectrum

Electromagnetic wave is generated when an electric charge oscillates, due to which oscillating electric field and magnetic field are produced mutually perpendicular to each other. The combination of **electric field wave** and **magnetic field wave** is known as **electromagnetic wave** and its direction of propagation is perpendicular to both electric field and magnetic field. Hence, it is transverse in nature.



An electromagnetic wave

OBJECTS

BASED ON THE ABILITY TO PRODUCE LIGHT

Luminous

Objects which produce their own light are called **luminous objects**.

E.g. Stars, Bulb, Firefly, Torch, Mobile flashlight, etc.

Non-Luminous

Objects which do not produce light by themselves are called **Non-luminous objects**.

E.g. Book, Table, Chair, Moon, etc.

BASED ON THE ABILITY TO PASS LIGHT THROUGH THEM

Transparent

Objects which completely transmit light through them are called **transparent objects**.

E.g. Clear glass, Pure water, Clean air, etc.

Translucent

Objects which allow only some light to transmit through them are called **translucent objects**.

E.g. Frosted glass, Butter paper, Inflated balloon, etc.

Opaque

Objects which do not allow any light to transmit through them are called **opaque objects**.

E.g. Wood, Stone, Metals, etc.

PROPERTIES OF LIGHT

- Light travels in the form of transverse waves (just like ripples in water when a stone is dropped in it) and the waves travel in a straight line, this is known as **rectilinear propagation of light**.

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PHYSICS

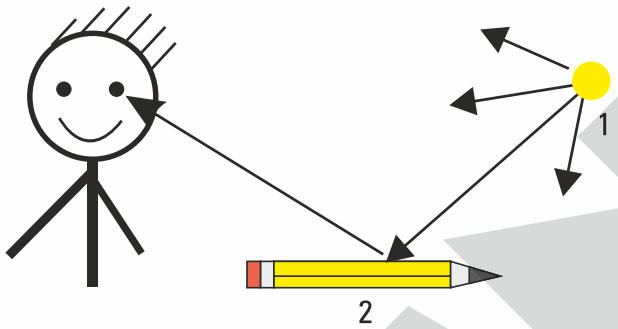
SAMPLE EXERCISE

EXERCISE

GRADE-8
Light

Directions: Solve each of the following multiple choice questions by choosing the most appropriate option.

1. Identify the nature of objects 1 and 2 in the given image.



(1) 1 – Non-luminous, 2 – Luminous
(2) 1 – Luminous, 2 – Non-luminous
(3) 1 – Luminous, 2 – Luminous
(4) 1 – Non-luminous, 2 – Non-luminous

2. Read the following statements and select the correct option.
Statement 1: The splitting of white light into 7 different colours is known as dispersion of light.
Statement 2: White light is the mixture of all of the wavelengths of the visible spectrum.
(1) Both the statements are true and statement 2 is the correct explanation of statement 1.
(2) Both the statements are true and statement 2 is not the correct explanation of statement 1.
(3) Statement 1 is true and statement 2 is false.
(4) Statement 1 is false and statement 2 is true.

3. Which of the following statements is true ?
(1) A plane mirror sometimes forms an erect image.
(2) A concave mirror always forms a real, inverted and diminished image.
(3) A convex mirror always forms a virtual, erect and diminished image.
(4) None of these

4. Light is _____.
(1) an electromagnetic radiation
(2) transverse wave
(3) non-mechanical wave
(4) All of these

5. The speed of light is _____.
(1) 330 m/s
(2) 300,000 m/s
(3) 300,000,000 m/s
(4) 300,000,000 km/s

6. The speed of light remains same during _____.

(1) reflection (2) refraction (3) absorption (4) All of these

7. How many images will be formed of the object O as it is placed between plane mirrors M_1 and M_2 ?

(1) 3 (2) 12 (3) 5 (4) 11

8. The refractive index of crown glass is 1.50. Ice has a refractive index of 1.31, while diamond has a refractive index of 2.42. Based on these facts, which of the following statements is true?

(1) All three mediums bend light to the same extent.

(2) Ice bends light more than crown glass.

(3) Crown glass bends more than ice.

(4) Both crown glass and ice bend light more than diamond

9. A concave mirror of focal length 20 cm gives an image of the same size as that of an object. At what distance from the mirror is the object placed?

(1) 10 cm (2) 20 cm (3) 40 cm (4) 50 cm

10. A plane mirror is inclined at 60° to the horizontal and a horizontal ray is incident on it. What is the angle between the incident ray and the reflected ray ?

(1) 30° (2) 60° (3) 90° (4) 0°

11. Light travelling in a medium of refraction index μ_1 is incident on another medium with a refraction index μ_2. If the refracted ray is bent away from the normal, then what is the relation between the refraction indices of both mediums ?

(1) $\mu_1 = \mu_2$ (2) $\mu_1 < \mu_2$ (3) $\mu_1 > \mu_2$ (4) None of these