PHYSICS   2023-24   CLASS X

MONTH /	NAME OF THE UNIT / CHAPTER/TOPIC	LEARNING OUTCOMES	SUGGESTED ACTIVITIES/ PROJECTS UNDER INTERNAL ASSESSMENT/PRACTICALS	ASSIGNMENT	ASSESSMENT
APRIL + JUNE	Reflection of light by curved surfaces; Images formed by spherical mirrors, centre of curvature, principal axis, principal focus, focal length, mirror formula (Derivation not required),magnification.	Students will be able to--- *Differentiates between reflection and refraction. *Plans and conducts investigations/ experiments to arrive at and verify the facts/ principles/ phenomenon that light seems to be travelling in a straight line. *Use Cartesian sign convention for spherical mirrors *use mirror formula to find object/ image distance	Activities: 1) Make the list of five five things which shows concave mirror and convex mirror. 2) Students will do the activity in small groups to find the image distances for various object distances in case of concave mirror. EXP. 1)Determination of the focal length of i) Concave mirror ii) Convex lens by obtaining the image of a distant object.	Draws ray diagrams for different types of mirrors. Interprets the drawn ray diagram. Uses Cartesian sign convention for spherical mirrors. Numericals based on mirror formula and magnification.	MCQs, Peer assessment, quizzes, debates, project work, group discussions, portfolio ,Survey
JULY	Refraction; Laws of refraction, refractive index. Refraction of light by spherical lens; Image formed by spherical lenses; Lens formula(Derivation not required); Magnification. Power of a lens. Functioning of a lens in human eye, defects of vision and their corrections, applications of spherical mirrors and lenses.	Students will be able to--- *Explain processes and phenomena, such as the type of images formed for different lenses, *understand the role of medium/density in refraction *understand the uses of mirrors and lenses	EXP.: 2)Tracing the path of a ray of light passing through a rectangular glass slab for different angles of incidence. Measure the angle of incidence, angle of refraction, angle of emergence and interpret the result. Activity:1) Students will demonstrate activities to exhibit the concept of refraction of light. 2) Students will make the	Draws labelled diagram of refraction across a media interface. Draws labelled diagram of dispersion of light through a prism. Draws and labels the structure of the human eye. Classifies myopia, hypermetropia and presbyopia as defects of human eye vision . Draws and labels the ray diagram of a) white light passing through a prism, b) its recombination on passing through an identical, inverted prism, and c) the formation of a rainbow. Uses the law of refraction to	PT1

	Refraction of light through a prism, dispersion of light, scattering of light, applications in daily life (excluding colour of the sun at sunrise and sunset).	Draws ray diagrams of different kinds of lenses. Calculates the focal length, centre of curvature, magnification or refractive index etc., from the given data. Uses law of refraction for various calculations. Classifies the defects of human eye vision	convex lens from simple household things and will observe refraction of light. 3) Individually students will observe the formation of rainbow with the help of garden pipe. 4) Students will observe the dispersion of light with the help of glass prism and sunrays.

EXP.: 3)Tracing the path of the rays of light through a glass prism | calculate the angle of incidence and angle of refraction and refractive index. (Using glass, slab and prism etc.) | |
| AUGU ST | Electric current, potential difference and electric current. Ohm's law; Resistance, Resistivity, Factors on which the resistance of a conductor depends. Series combination of resistors, parallel combination of resistors and its applications in daily life. Heating effect of electric current and its applications in daily life. Electric power, Interrelation between P, V, I and R. | Students will be able to--- *Use the convention that the direction of electric current is opposite to the direction of flow of electrons. : *Use the SI units and symbols for current, charge, potential difference, resistance, resistivity . *Plans and conducts experiments to verify Ohm's law, *understand effect on resistance when the resistors are connected in series and in parallel., *understand heating effect of current. * Explains the process of electric conduction., electric circuit, Ohm's law. *Analyse and interprets V-I | Activity: 1)With the help of small experimental set up students will learn dependence of resistance on length and area of cross section of wire

EXP.:4) Studying the dependence of potential difference (V) across a resistor on the current (I) passing through it and determine its resistance. Also plotting a graph between V and I. EXP.:5)Determination of the equivalent resistance of two resistors when connected in series and parallel. | Explains the relationship between charge, current and time. Explains the need for a stream of electrons and a conductor. Explains Ohm's law in text, through a formula and through a graph. Explains how an electric circuit functions, both in text and through a diagram. Determines effective resistance of a given circuit, finds the current in each branch and potential difference across each element of a simple circuit Measures the physical quantities and records them with proper units. (using voltmeter and ammeter etc.) Derives equation for resistivity. Derives equation for series and parallel connection of resistor. Derives equation for Joule's law of heating. Applies concepts from | |

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		graphs. *Derives equation for resistivity, for series and parallel connection of resistors, for Joule's law of heating		electricity to decrease/increase resistance.	

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SEPTEMBER	Heating effect of electric current and its applications in daily life. Electric power, Interrelation between P, V, I and R.	.			TERM1(PT2)
OCTOBER	Magnetic effects of current : Magnetic field, field lines, field due to a current carrying conductor, field due to current carrying coil or solenoid	Students will be able to--- *Relate processes and phenomena with causes/effects such as deflection of compass needle due to magnetic effect of electric current. * Use scientific conventions to represent the direction of magnetic field lines both inside and outside a magnet. *Apply scientific concepts in daily life and solving problems, such as uses appropriate electrical plugs (5/15A) for different electrical devices. * Plans and conducts experiments to verify the path of magnetic field lines.	Activities: 1) Students will demonstrate magnetic effect of electric current with the help of battery, conducting wire and magnetic compass 2)With the help of magnet and small magnetic compass students will draw magnetic field lines.	Verifies the claim that magnetic field lines are not planar. Verifies the claim that no two field lines found to cross each other. Verifies the claim that field lines are more crowded when the magnetic field is stronger. Relates the effect of electric current on a compass needle. Relates the effect on magnetic field due to a current through a straight conductor, and through a solenoid. Relates processes and phenomena with causes/effects of how polarity changes when a magnet is broken midway Uses scientific conventions to represent the direction of magnetic field lines both inside and outside a magnet. Explains different ways to induce current. Explains how an electric	

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			circuit functions, both in text and through a diagram. Explains the precautions that are to be taken to avoid overloading of electric circuits.	
NOVEMBER	Force on current carrying conductor, Fleming's Left Hand Rule, Direct current. Alternating current: frequency of AC. Advantage of AC over DC. Domestic electric circuits.	Students will be able to-- *Differentiate between the process of direct and alternating current conduction. * Describe the contributions of Fleming, Faraday, Oersted in the field of electricity and magnetism.		Describes the contributions of Fleming, Faraday, Oersted in the field of electricity and magnetism. Discusses the safety measures used in electric circuits. Differentiates between the process of direct and alternating current conduction Discusses the three-wire domestic circuits and their advantage.	
DECEMBER	FULL SYLLABUS				TERM2(PT 3)
JANUARY	FULL SYLLABUS				PREBOARD