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| **COMPETENCE** | | **GENERAL OBJECTIVE** | | **MON** | | **WK** | | **MAIN TOPIC** | | **SUB TOPIC** | | **No. PRD** | | **TEACHERS ACTIVITIES** | | **PUPILS ACTIVITIES** | | **TEACHING AIDS** | | **REF. BOOKS** | | **ASSESMENT** | | **REMARKS** | |
| Applying rules of friction in daily life | | Realize the importance of infraction in daily life | | JANUARY | | 1 | | APPLICATIONS OF VECTORS | | Scalar and Vector quantities | | 4 | | * Guide students to classify the physical quantities into scalars and vectors * To demonstrate on adding vectors by graphical method * Guide students to find the resultant and direction of a vector by using triangle and parallelogram laws * Lead students to state triangle and parallelogram laws of forces | | * To distinguish physical quantities into scalar and vectors * To add displacement, velocities and forces by graphical method. * To find the resultant and direction of vector * To state triangle and parallelogram laws. | | Graph paper, ruler, mathematical set. | | A.F. Abbott Pg53-55P.of Physics by M. Nelkon 8th Ed. Pg.28-30.  A.F Abbott Pg.58-61 | |  | |  |
|  | |  | | JANUARY | | 2 | |  | | Relative motion | |  | | * Lead students to explain the concept of relative motion * Guide students to find the relative velocities of two bodies by drawing or calculation * Lead students to discuss the applications of relative motion in daily life. | | * Students to discuss the relative velocity of two objects moving in the same direction and in the opposite directions      * Students to find the relative velocities of two bodies by drawing or calculations. * To discuss the applications of relative motion in daily life | | * Graph paper. * Ruler * Mathematic set   -do- | |  | |  | |  |

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| **COMPETENCE** | **GENERAL OBJECTIVE** | **MON** | **WK** | **MAIN TOPIC** | **SUB TOPIC** | **No. PRD** | **TEACHERS ACTIVITIES** | **PUPILS ACTIVITIES** | **TEACHING AIDS** | **REF. BOOKS** | **PROJECT TWORK** | **REMARKS** |
|  |  | JANUAR Y | 3 |  | Resolution of Vectors | 2 | * Guide students to explain the concept of resolution of vector * Help them to resolve a vector into two mutually perpendicular directions. * Assist students to solve problems of forces and velocities by resolving | * Student to explain the concept of components of a vector. * To resolve a vector into two mutual perpendicular directions. * To solve problems of forces and velocities by resolving | Charts of moving boat or air plane | A.F. Abbott Pg56-57Pg  A.F Abbott Pg.58-61 |  |  |
|  |  | FEBRUARY | 4 | FRICTION | Concept of friction | 2 | * To assist students to explain the concept of friction. * Guide students to discuss the advantages and disadvantages of friction in daily life * Group students and guide them to discuss the way of reducing friction. | * To explain the concept of friction      * To mention the disadvantages of friction such as wearing and tearing of clothes and tires * To discuss the methods of reducing friction like rollers, ball bearings and lubricants | Rollers, Grease, ball-bearing | A.F Abbott 5th ED. Pg.17-12  -do- |  |  |

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| **COMPETENCE** | | **GENERAL OBJECTIVE** | | **MON** | | **WK** | | **MAIN TOPIC** | | **SUB TOPIC** | | | **No. PRD** | **TEACHERS ACTIVITIES** | | **PUPILS ACTIVITIES** | | **TEACHING AIDS** | | **REF. BOOKS** | **PROJECT TWORK** | | **REMARKS** | |
|  | |  | | F  E  B  R  U  A  R  Y | | 5 | | FRICTION | | Type of Friction  Laws of friction | | | 2 | * Lead the students to discuss the types of friction forces * Guide them to determine the limiting friction by using a black of wood. * Guide students to stake laws of friction * Guide students to define the coefficient of static and dynamic friction. | | * To discuss the types of friction * To determine the limiting friction using a block of wood. * To listen and take notes. * Students to carryout an experiment to determine the coefficient of static friction. | | - Block of wood  - Rough surface  - Spring balance  - Pulley  - String | |  |  | |  | |
|  | |  | | F  E  B  R  U  A  R  Y | | 6 | | FRICTION  LIGHT | | Laws of friction  Reflection of light from curved mirrors. | | | 2  2 | * Guide students to solve problems on friction     -Display concave and convex mirrors to students. Ask them to describe the features of concave and convex mirrors and distinguish them  -Guide students to describe principal axis, pole, focus, and radius of curvature as applied to mirrors. | | * To solve questions as class work and home work on friction. * To describe, while in groups the features of concave and convex mirrors. * To define the principal axis, focus, pole, radius of curvature and distinguish them. | | -   * Concave and convex mirrors. * spoons | | -do-  -do- | Principal of physics by Nelkon 8th Ed Pg. 268-269 | |  | |
| **COMPETENCE** | | **GENERAL OBJECTIVE** | | **MON** | | **WK** | | **MAIN TOPIC** | | **SUB TOPIC** | | **No. PRD** | **TEACHERS ACTIVITIES** | | | **PUPILS ACTIVITIES** | | **TEACHING AIDS** | | **REF. BOOKS** | | | **PROJECT TWORK** | | **REMARKS** | |
| Using the knowledge of light in the constructions of optical instruments | | Understand principles of construction of optical instruments | | F  E  B  R  U  A  R  Y | | 7 | | LIGHT | | Reflection of light from curved mirrors | | 4 | * Guide students to locate images formed by a curved mirror. * Define the nature, position and size of image formed by curved mirror. * Lead students to carryout an experiment to determine the focal length of a concave mirror by non-parallax method or illuminated object. | | | * To listen and take notes. * To locate images formed by curved mirrors * To carryout an experiment to determine the focal length of a concave mirror | | * Graph paper * Curved mirrors * Plain paper * Object * Screen * Optical pins * Torch | | Principal of Physics by M. Nelkon Pg 271-273  A.F. Abbott Pg. 236-243 | | |  | |  | |
|  | |  | | M  A  R  C  H | | 8 | | LIGHT | | Mirror formula | | 6 | * Guide student to compute the position, magnification of an image formed in a curved mirror using mirror formula   1 = 1 + 1  ƒ ų ű  - Lead students to describe the daily life application of curved mirrors | | | * To do several calculation on the application of the mirror formula. * To list down the applications of curved mirrors in daily life. | |  | | A.F ABBOTT 5TH Ed Pg.244 -247  Principals of Physics by M. Nelkon 8th Ed. Pg 277-279 | | |  | |  | |
|  | | | | | | 9/  10 | | **10TH – 15TH MARCH - MIDTERM TEST**  **16TH – 23RD MARCH - MIDTERM BREAK** | | | | | | | | | | | | | | | | | | |

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| **COMPETENCE** | | **GENERAL OBJECTIVE** | | **MON** | | **WK** | | **MAIN TOPIC** | | | **SUB TOPIC** | | **No. PRD** | **TEACHERS ACTIVITIES** | | **PUPILS ACTIVITIES** | | **TEACHING AIDS** | | **REF. BOOKS** | **PROJECT TWORK** | **REMARKS** | |
|  | |  | | M  A  R  C  H | | 11 | | LIGHT | | | Refraction of light  Laws of Refraction of light. | | 4 | -Lead students of define refraction of light using a stick immersed in a glass of water.  - Demonstrate to students on finding the angle of incidents and angle of refraction.  - Lead students to state laws of refraction of light.  -Help students to carryout an experiment to determine the refractive index of a material. | | - to define the refraction of light.  -to use glass block and optical pins to find angle I and angel r.  - to state laws of refraction of light  -to perform the experiment to determine the refractive index. | | - Rectangular  Glass block  -Optical pins  -Protractor  -Drawing board.  -Ruler.  -White paper  - do- | | A.F ABBOTT  5th ED. Pg 248-Pg 256 |  |  | |
|  | |  | | M  A  R  C  H  /  A  P  R  I  L | | 12 | |  | | | Critical angle and total internal reflection | | 2 | * Lead students to define critical angle and total internal refraction * Help students to determine critical angle and total internal reflection using semicircular glass block. * Discuss with students on refraction through triangular prism. * Demonstrate dispersion of white light. * Discuss on angle of deviation. | | -to define critical angle and total internal reflection  -to perform an experiment to determine critical angle and total internal reflection  -to listen and take notes  -to use triangular glass block to disperse white light. | | -Semicircular glass block  -Optical pins  -Plane paper   * Triangular prism | | -do-  -do- |  |  | |
| **COMPETENCE** | **GENERAL OBJECTIVE** | | **MON** | | **WK** | | **MAIN TOPIC** | | **SUB TOPIC** | **No. PRD** | | **TEACHERS ACTIVITIES** | | | **PUPILS ACTIVITIES** | | **TEACHING AIDS** | | **REF. BOOKS** | | **PROJECT TWORK** | | **REMARS** | |
|  |  | | APRIL | | 13 | | LIGHT | | Colours of Light | 2 | | * Guide students to determine angle of deviation and minimum deviation. * Explain the components of white light. * Discuss on the methods of recombination of colours of white light. * Demonstrate the appearance of coloured objects in white light. | | | * To do the practical to determine angle of minimum deviation * To name the components of white light * To listen and take notes * To observe the coloured object through white light | | * Triangular glass block. * Optical pins. * White paper   Coloured objects  Coloured filters  White objects | | -do-  Principle of Physics by M. Nelkon 8th Ed. Pg 328 –Pg 337 | | Students in group to cons tract a simple prism binocular. | |  | |
|  |  | | APRILH 22TH – FEB 22ND | | 14 | | LIGHT | | LENSES | 2  2 | | * Guide student to identity primary, secondary and complementary colour of light. * Discuss with students about additive and subtractive colour mixing * Display the concave and convex lenses to students. * Explain the terms focal length, principle focus, principle axis and optical centre as applied to lenses. | | | * To identify primary, secondary and complementary colours. * To describe the additive and subtractive colour mixing * To identify the concave and convex lenses. * To listen and take notes | | -Blue, Green and Red filters.  -White screen.  -Concave and convex mirrors | | -do-  A.F. ABBOTT Pg. 261-Pg268 | |  | |  | |

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| APRIL  APRILH 22TH – FEB 22ND | 15 |  | Lenses | 4 | * Lead students to determine the focal length of a convex lens. * Discuss using ray diagrams how to locate the image formation by a lens.   Guide the students to determine the position, sixe and nature of the image formed by using lens formula 1 = 1 + 1  ƒ ų ű   * Do more calculations as example | * To determine the focal length of a convex mirror * To follow discussion * To use the thin lens formula to calculate the image position sixe and state the nature of the image formed | Convex lens Meter rule. | -do- |  |  |
|  | 16 | OPTICAL INSTRUMENTS | Lens  Simple microscope | 2  2 | * Lead students to place a small object between the optical centre and F and a convex the image. * To solve more problems as an application of a lens formula. * Guide students to describe the structure and mode of action of a simple microscope | * To make observations on magnification of an image. * To do calculation as application of the lens formula * To describe and explain how the device works. | - Convex lens  - Candle  - Match box | Students in groups of 6 to construct simple microscope | -do-  A.F. ABBOTT Pg. 269-Pg 272 M. Nelkcon 8th Ed. Pg 313-Pg 325 |  |

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| MAY | 17 | | OPTICAL INSTRUMENTS | Compound microscope | 2 | * Guide the students to discuss the structure and mode of action of a compound microscope. * Help students to highlight the common uses of a compound microscope in daily life. | * Using ray diagram to show image formation and magnification of a compound microscope. * To discuss the uses of compound microscope in daily life. | * Chart of compound microscope * Lenses screen, objects. | -do- | Students in a group of 5-6 to construct a simple compound microscope. |  |
|  | 18  /  19 | 12TH – 17 MAY - TERMINAL EXAMINATIONS  18TH – 25TH MAY - 1 WEEK HOLIDAY | | | | | | | | |  |
| MAY | 20 | |  | Astronomical telescope | 2  2 | * Guide students to describe the structure and mode of action of an astronomical telescope. * Highlight the uses of an astronomical telescope. | * To describe the structure and mode of action of a telescope * To list down the application of a telescope. | -Lenses.  - Chart of an astronomical telescope | -do- | To construct a simple telescope. |  |

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| JUNE | | 21 | | | OPTICAL INSTRUMENTS | | Projection lantern | | | 2 | * Lead students to discuss on the structure and mode of action of a projection lantern * Discuss, by demonstration, the uses of a projection lantern | | * To participate in the discuss * To observe the function of the machine * To take notes | | -Projection lantern  - Slides  -Chart of projection lantern | | -do- | | Students a group of 5-6 to construct a simple projection lantern | |  |
| Lens camera | | | 2 | * Lead students to discuss on the structure and mode of action of a lens camera * Ask students to mention uses of a camera | | * To participate in the discuss * To list down the daily life practical application of the lens camera | | * Lens camera * Chart of lens * Camera | |  | |  | |  |
| JUNE | | 22 | | | The human eye | | | 4 | -Describe the structure and mode of action of a human eye.  - Guide students to identify the defects of the human eye and how they can be connected  - Ask students to write down the similarities of human eye and lens camera as a home work.  -Do calculations on optical instruments. | | -To list down the structure of a human eye.  -To identify the defects of the eye and the  Connections.  - To write down the similarities of the eye and the eye and the lens camera.  - To do calculations given by the teacher. | | * Model of human eye. * Optical diagram of lens camera | | -do- | |  | |  |
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| JUNE | 23 | | | THERMAL EXPANSION | | Thermal energy  Thermal expansion of solids | | 2  2  4 | * Lead students to   brainstorm on  the concept of  heat.   * Highlight the sources of thermal energy in everyday life. * Guide students of differentiate between heat and temperature. * Lead students to demonstrate the expansion of solids using ball and ring experiment. | | | * To explain the concept of heat. * To name some source of heat they know. * To differentiate heat from temperature. * To follow the demonstration. * To perform various activities to demonstrate expansion and construction of solids | | .Ball and ring  Source of heart | | AF. ABBOTT Pg 159-Pg 165  M. Nelkon 8TH ed Pg 175 –Pg 187 | |  | |  | |
| JUNE | 24 | | |  | | Expansion of solids | | * Guide students to discuss in groups the expansion and contraction of solids interns of the kinetic theory of matter. * Lead students to develop the formula of linear expansion of solids * Highlight on applications of the expansion of solids. | | | * To follow the discuss * To determine the coefficient of linear expansibility. * To do calculations on the applications of the formula | |  | |  | |  | |  | |
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| JUNE / JULY | | | 25 | | THERMAL EXPANSION | | Thermal expansion of liquid | | | 4 | * Guide students to explain the apparent expansion of a liquid. * Demonstrate the volume expansion of liquids (different) * Lead students to define volume expansivity of liquid * Guide students, through question, how hear affect the density of liquids. * Verify the anomalous expansion of water, and explain the application of liquids in everyday life. | | * To follow the discuss and participate on demonstration of expansion of different liquids. * To define the volume expansivity of a liquid * To state the effect of heat to the density of liquids. * To explain the anomalous expansion of water. * List the applications of expansion of liquid in everyday life. | | .Ball and ring   * Source of heart. | | AF. ABBOTT Pg 159-Pg 165  M. Nelkon 8TH ed Pg 175 –Pg 187 | |  | |  |
| AUGUST | | | 26 | | Thermal Expansion of gases | | | 4 | * Guide students to discuss the concept of the thermal expansion of gases. * Lead students to the statement of Charles’s law and Boyle’s law. * Lead students to derive the general gas law *pv =* constant *r* * Use the equation to solve problems. | | * To explain the concept of thermal expansion of gases. * To state Charles’s law. * To derive the relation *pv* = constant *r* and solve the problems using the general gas law relation | |  | | Principal of Physics by M. Nelkon Pg 188-Pg 198.  AF. ABBOT Pg 170-Pg 181 | |  | |  |

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| AUGUST | 27 | THERMAL ENERGY | **Absolute scale of temperature** | 4 | * Lead students by questions and answer technique to explain the concept of the absolute zero temperature and the absolute scale of temperature (Kelvin) * Guide students to convert in degree centigrade to Kelvin. * Lead students to convert in degree centigrade to Kelvin. * Lead students to discuss the value of standard temperature and pressure. * Guide students to explain the applications of expansion of gas in daily life | * To explain the concept of the absolute zero temperature and the absolute scale of temperature. * To do calculations on converting degree Celsius to Kelvin. * To discuss the values of standard temperature and pressure. * To explain the application of expansion of gas in daily life. | -Graph paper  -Model of a position engine | Principals of Physics by M. Nelkon 8th Ed. Pg 190-192 |  |  |
| SEPTEMBERH 22TH – FEB 22ND | 28/33 | **21ST – 25TH JULY – MIDTERM EXAMS & 26TH JULY – 1ST SEPTEMBER, LONG VACATION** | | | | | | | |  |
|  | 34 | TRANSFER OF THERMAL ENERGY | Conduction | 2 | - Guide students to brainstorm the concept of heat transfer  - Lead students to identify good and bad conductors of heat.  - Help students to explain how heat losses due to conduction can be minimized.  - Discuss with students the selective uses of good and bad conductors of heat in everyday life. | * To explain the concept of heat transfer.      * To identify good and bad conductors of heat. * To lest down the mans of minimizing heat lost in a conductor. * To describe the uses of good and bad conductors of heat. | -Brass rods  -Wood a bar  -Foam insulation.  -Thick carpet  -Curtains. | Principles of Physics by M. Nelkon Pg. 175-231  . |  |  |

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|  | | 34 | TRANSFER OF THERMAL ENERGY | Convection | 2 | * Guide students to demonstrate convection currents in water using crystals of potassium permanganate. * Lead students to discuss heat transfer in liquids and gases using the kinetic theory of mater. * Guide students to minimize heat losses due to convection. * Guide students to minimize heat losses due to convection. * Guide students to discuss the mode of action of domestic hot water supply system. | * To follow the demonstration and describe their observation. * To discuss the formation of sea and land breezes during day and night. * To identify the methods of minimizing heat loss due to convection. * To visit house with the hot water system. | -Smoke  -Potassium permanganate  -Water  -Diagram of sea and land breezes | | -do- |  |  |
| SEPTEMBER H 22TH – FEB 22ND | | 35 | Radiations | 4 | - Guide students to brainstorm how heat from the sun reaches the earth’s surface  - Lead students to discuss on how thermal radiation can be detected  - Guide students to demonstrate that black surfaces are good absorbers and emitters of radiant heat.  - Guide students to discuss the way heat loss by radiation can be minimized by using thermos flask. | * Student to discuss on how heat from the sun reaches the earth’s surface. * To detect thermal radiation using lens and concave reflector. * To expose two objects of black surface and white surface and observe which is a good absorbers and good emitters of radiant heat. * To discuss method of minimizing heat loss by using thermos flask. | -Thermometer  -Concave reflector  -Lens  -Thermos flask | | -do-  . |  |  |
| **MON** | **WK** | | **MAIN TOPIC** | **SUB TOPIC** | **No. PRD** | **TEACHERS ACTIVITIES** | **PUPILS ACTIVITIES** | **TEACHING AIDS** | **REF. BOOKS** | | **PROJECT TWORK** | **REMARKS** |
|  | 33/34 | | 13th SEPT – 18th SEPT: MID-TERM TEST  18th SEPT – 26th SEPT: MID-TERM TEST | | | | | | | | | |
| SEPTEMBER | 36 | | MEASUREMENT OF THERMAL ENERGY | Heart Capacity | 4 | * Discuss with the students on the factors which determine heat quantity of a substance. * Guide students to the definition of the heat capacity of s substance. * Highlight the concept of specific heat capacity of a substance. | * The name the factors which determine heat quantity of a substance. * To define capacity of a substance. * To find the S.I. Unit of heart capacity. * To do calculation on heat capacity and specific heat capacity of a substance | * Heat * Thermometer * Beaker | | -do- |  |  |
| SEPTEMBER H 22TH – FEB 22ND | 37 | |  | Change of State | 4 | * Lead students to demonstrate the behavior of particles in a solid, liquid and gases. * Lead students to discuss the concept of melting/freezing points of a substance. * Lead students to demonstrate the effect of the impurities of freezing point and boiling point of water. | * To explain the behavior of particles in a matter in terms of kinetic theory of gases. * To perform an experiment to determine the melting point of naphthalene, plot and interpret a cooling curve of naphthalene. * To find out the effect of impurities on the boiling and freezing point of substance. | -Naphthalene  -thermometer  -Test tube  -Graph paper  -ice  -Salt  -Water  - Beaker | | -do- |  |  |

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| SEPTEMBER / OCTOBER | 37  /  39 |  | Change of state Effect of pressure on boiling point and freezing point | 4 | * Lead students to demonstrate the effect of pressure on the boiling point and freezing point of water. * Guide students to demonstrate the effect of phenomenon of regulation. * Highlight the concept of boiling and evaporation in respect to the kinetic theory of matter | * To find the effect of pressure on boiling point and freezing point of liquids. * To sit in group to discuss the concept of regulation. * To sit in group to discuss the concept of boiling and evaporation in terms of kinetic theory of matter | -Conical flask  -Rubber band  -Thermometer  -Water  -Ice block  -Weight  -Thin wire  -Beaker | -do- |  |  |
| 0CTOBER | 40 |  | Latent heat of fusion and vaporization |  | * Guide students to discuss in groups the concept of the specific latent heat of fusion and vaporization of substance and its S.I. Units. * Lead students to discuss the heating of water into vapour and plot the temperature time graph to deduce the latent heat of vaporization. | * To discuss the concept of the specific latent heat of fusion and vaporization. * To find its S.I. Units. * To plot the graph of temperature-time to deduce latent heat of vaporization. * To use the cooling curve of naphthalene to deduce latent heat of fusion of a substance | -Beaker  -Thermometer  -Water | -do- |  |  |

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| OCTOBER | 41 | VAPOUR  AND  HUMIDITY | Refrigerator  Vapour | 2 | | * Display a chart of a diagram of a refrigerator and lead students to discuss the parts of it. * Describe the mechanism of the refrigeration. * Lead students to discuss the concept of evaporation of liquids. * Lead students to the factors affecting evaporation of liquid. * Help students to distinguish between saturated and unsaturated vapours. | | * To discuss the parts of a refrigerator. * To listen * Follow the discussion and take notes * To explain the concept of evaporation * Students to discuss the effect of temperature pressure, surface area of the liquid, nature of the liquid and atmospheric conditions on evaporation. * To listen and take notes | | -Chart of diagram of refrigerator  -Refrigerator  -Ether spirit  -Conical flask | -do- |  |  |
| OCTOBER | 41 |  | Saturated vapour pressure (S.V.P)  Humidity | 2 | | * Lead students to discuss the increase of S.V.P of a volatile liquid due to temperature rise. * Guide students to discuss the concept of humidity. * Lead students to explain the process of dew formation and the factors that influence the formation of dew. | | * To explain the effect of temperature on S.V.P of a liquid. * To take notes * To discuss, in group, the concept of humidity. * To demonstrate dew point in lab. And explain factors which influence the formation of dew. | |  | -do- |  |  |
|  | 40 | 8th November -12th 2010 – REGIONAL EXAMINATION | | | | | | | | | | | |
| **MON** | **WK** | **MAIN TOPIC** | **SUB TOPIC** | | **No. PRD** | | **TEACHERS ACTIVITIES** | | **PUPILS ACTIVITIES** | **TEACHING AIDS** | **REF. BOOKS** | **PROJECT TWORK** | **REMARKS** |
| OCTOBER | 42 |  | Relative humidity | | 2  2 | | * Lead students in determination of Relative Humidity of air using wet and dry bulb hydrometer. * Guide students to discuss the effect of R.H. in everyday life. | | * To find R.H. from the dew point using Reginault’s hygrometer.      * To discuss the effects of R.H. in everyday life. * To take notes. | * Wet and dry bulb hygrometer. | -do- |  |  |
| NOVEMBER | 43 | CURRENT ELECTRICITY | Emf and P.D | |  | | * Guide students to discuss the concept of emf and p.d.      * Lead students to state the units of emf and p.d. * Guide students to measure the emf and p.d across a conductor * Lead students to connect and analyse simple electric circuits | | * To discuss the concept of emf and p.d. * To take notes to state the unit of emf and p.d. * To measure emf and p.d. across a conductor. * To connect and analyse simple electric circuits |  | A.F ABBOTT 5th Ed. Pg. 404-409 |  |  |