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| **COMPETENCE** | **GENERAL OBJECTIVES** | **MONTH** | **WEEK** | **MAIN TOPIC** | **SUB-TOPIC** | **PERIODS** | **TEACHING ACTIVITIES** | **LEARNING ACTIVITIES** | **T/L MATERIAS** | **REFERENCES** | **ASSESSMENT** | **REMARKS** |
| By the end of Form Two course, students should be able to understand concepts and principles of magnetism and electricity. | By the end of the Form Two course, students should have develop competence in applying and magnetism knowledge in daily life.   * Electricity | **J A N U A R Y** | **3** | 1.0  STATIC ELECTRICITY | 1.1  Concept of static electricity. | **2** | i) Lead students on demonstration of picking up of tiny pieces of papers by plastic pens and other materials. | i) Demonstrate picking up tiny pieces of paper. | -Plastic pen  -Ebonite rod  -Glass rod  -Fur |  | Are the students able to explain the concept of statistic electricity**?** |  |
| ii) Organize for read-review on origin of charges. | -Discuss the origin of charges. |  |  | Is the student able to explain the origin of charged? |
| iii) Organize for discussion on charge movement when two bodies are rubbed each other. | iii) Students should identify two types of charges on a body. | -Ebonite rod  -Fur  -Polytheme rod  -Glass rod. |  | Is the student able to identify two types of charges. |
| iv) Demonstration of attraction and repulsion between the suspended rod and other bodies.  Guide students to state fundamental law of static electricity. | -Students to charge bodies by different methods. | Pieces of paper  -plastic pen  -Glass rod  -Ebonite rod  -Polytheme rod. | Physics Book 2  TIE | Is the student able to state the fundamental law of static electricity? |
| **COMPETENCE** | **GENERAL OBJECTIVES** | **MONTH** | **WEEK** | **MAIN TOPIC** | **SUB-TOPIC** | **PERIODS** | **TEACHING ACTIVITIES** | **LEARNING ACTIVITIES** | **T/L MATERIAS** | **REFERENCES** | **ASSESSMENT** | **REMARKS** |
|  |  |  | **3** |  | 1.2  Detection of charges | **2** | i) To describe the structure and function of gold leaf electroscope. | i) Students to draw and label gold leaf electroscope. | * Gold leafs   electroscope   * Diagram of g/l electroscope |  | Is the student able to describe the structure of the leaf electroscope? |  |
| ii) Lead the discussion of the modes of action of electroscope. | ii) charge the electrophorus by induction using charged polythene base.  -Charge a gold leaf by induction and contact method using positively charged electro phorus | * Charged   polythene base   * Electrophorus | Physics Book 2  TIE | Is the student able to charge leaf electroscope? |
| **4** |  | 1.3  Conductors and Insulators | **2** | i) Lead students to distinguish between Insulator and Conductor  ii)Lead the students to explain the difference between electrical conductivities of Conductors and Insulators. | i)Students to identify conductors and Insulators by passing electric current through them. | * Copper   wire   * Aluminium * Glass rod * Ebonite   rod   * Wood * Fur, Wax. |  | Is the student able to distinguish between a conductor and insulator? |
| **COMPETENCE** | **GENERAL OBJECTIVES** | **MONTH** | **WEEK** | **MAIN TOPIC** | **SUB-TOPIC** | **PERIODS** | **TEACHING ACTIVITIES** | **LEARNING ACTIVITIES** | **T/L MATERIAS** | **REFERENCES** | **ASSESSMENT** | **REMARKS** |
|  |  | **FEBRUARY** | **4**  **5** |  | 1.4  Capacitors. | **6** | i) Lead the students to define the capacitance of a body. | i) Students  In groups to give the meaning of capacitance. | -Source of charge  -Copper electrodes. | Physics for ZNZ sec school Basic  1 & 2  -Principle of physics 6th Edition | Is the student be able to  -define capacitance  -describe mode of action of a capacitor  -List different types of capacitors  Is the student be able to derive equivalent capacitors in series and in parallel. |  |
| 1. Describe the   Mode of action of capacitor.  ii) Lead students to identify difference types of capacitors. | i) Demonstrate charge and discharging of a capacitor. |  |
| iii) Explain the construction of air capacitor | ii) Carry out a project to construct an air capacitor. | Air filled capacitors.  -Two or more capacitors  -Connecting wire |
| **COMPETENCE** | **GENERAL OBJECTIVES** | **MONTH** | **WEEK** | **MAIN TOPIC** | **SUB-TOPIC** | **PERIODS** | **TEACHING ACTIVITIES** | **LEARNING ACTIVITIES** | **T/L MATERIAS** | **REFERENCES** | **ASSESSMENT** | **REMARKS** |
|  |  |  |  |  |  |  | iv) To guide students to determine the equivalent capacitance of two or more capacitors connected in series and in parallel by derivation. | iii) Students to derive equivalent capacitance of two or more capacitors connected in series and in parallel. |  |  | **‘’** |  |
| **6**  **6** | 1.5  Charge distribution along the surface of a conductor | **2** | The teacher to guide students on experiment to demonstrate charges reside on outer surface of a conductor. | Students to verify experimentally that charges resides on outer surface of a conductor. | * Electrophorus * Spherical conductor * Pear shaped conductor. |  | Is the student be able to recognize on a conductor reside on its outer surface. |
|  | **4** | The teacher to lead students to carry out an experiment to find out the distribution of charges on various shapes of conductor. | Students to discuss in groups the result of their observations. | * Cylindrical and pear shaped conductor. |  |
| **COMPETENCE** | **GENERAL OBJECTIVES** | **MONTH** | **WEEK** | **MAIN TOPIC** | **SUB-TOPIC** | **PERIODS** | **TEACHING ACTIVITIES** | **LEARNING ACTIVITIES** | **T/L MATERIAS** | **REFERENCES** | **ASSESSMENT** | **REMARKS** |
| . |  |  |  |  |  |  | To organize jigsaw presentation on the phenomena of lightning conductor. | Students to participate in presentations on phenomena of lightning. | * Chart   showing light. |  | * Is the student   be able to explain the phenomenon of lightning**?**   * Is the student   be able to explain the mode of action of lightning conductor? |  |
|  | Use questions and answers to high light the structure and mode of action of lightning conductor. | Students to discuss in groups the structure and mode of action of lightning conductor. | -Lightning conductor mode.   * Copper rod * Copper plate * Copper wire * Sharp pointed conductor |  |
| **FEBRUARY** | **6** | 2.0  CURRENT ELECTRICITY | 2.1  Concept of current Electricity | **3** | i) The teacher to lead the students to define current electricity.   1. The teacher to lead   students through question and answer to identify the sources of electricity. | i) Students in groups to define current electricity.  ii) Students to discuss in groups the different sources of electricity. | * Charged capacitor * Uncharged capacitor * Dry cell * Dynamo * Solar panel | Physics Book 2 TIE | - Is the student be able to identify basic circuit components.  - State the SI unit s of current, voltage and resistance. |
| **COMPETENCE** | **GENERAL OBJECTIVES** | **MONTH** | **WEEK** | **MAIN TOPIC** | **SUB-TOPIC** | **PERIODS** | **TEACHING ACTIVITIES** | **LEARNING ACTIVITIES** | **T/L MATERIAS** | **REFERENCES** | **ASSESSMENT** | **REMARKS** |
|  |  | F  E  B  RUAR  Y | **7**  **-**  **7**  **8**  **8**  **9** |  | 2.2  SIMPLE ELECTRIC CIRCUIT | 8 | i)The Teacher to lead students to discuss different circuit components. | i) Students in groups to list down circuit components. | * Battery * Cell * Resistor * Switch * Connecting wire. |  |  |  |
| ii)The teacher to guide students to identify basic electric symbol. | ii) Students through information searching is to identify basic electric symbols. | * Ammeter * Volt meter * Circuit   components |  |  |
| 1. To guide students to   state the SI units of current, voltage and resistance. | iii) Students to discuss and present units of current, voltage and resistance. | * Reference books |  |  |
| **COMPETENCE** | **GENERAL OBJECTIVES** | **MONTH** | **WEEK** | **MAIN TOPIC** | **SUB-TOPIC** | **PERIODS** | **TEACHING ACTIVITIES** | **LEARNING ACTIVITIES** | **T/L MATERIAS** | **REFERENCES** | **ASSESSMENT** | **REMARKS** |
|  |  |  |  |  | Series and parallel connections. |  | iv) To give the guidelines on how to connect series and parallel circuits | iv) To connect circuit in series and parallel | * Bulb * Bulb holders * Battery * Switch * Resistor * Ammeter * Voltmeter * Connecting wires |  | Is the student able to connect simple electric circuit?  Is the student able to:-  -Measure electric current and voltage?  -To analyse simple electric circuits. |  |
| v) To guide the students on how to connect an ammeter and voltmeter | v) In groups take reading of current and voltage. |  |
| Ohm’s law |  | vi) Perform an experiment to Verify Ohm’s Law | vi) To Verify Ohm’s law |  |  |
| vii) Through inquiry deductive to guide students to deduce the equivalent resistance for both parallel and series connections. | vii)To deduce equivalent resistance.  viii)To deduce the amount of current flowing in a given circuit and voltage drop across. | * Circuit diagrams. |  |
| **COMPETENCE** | **GENERAL OBJECTIVES** | **MONTH** | **WEEK** | **MAIN TOPIC** | **SUB-TOPIC** | **PERIODS** | **TEACHING ACTIVITIES** | **LEARNING ACTIVITIES** | **T/L MATERIAS** | **REFERENCES** | **ASSESSMENT** | **REMARKS** |
| By the end of the Form Two course, students should have develop competence on applying electricity and magnetic knowledge in daily life. | By the end of Form Two course, students should be able understand concepts and principle of Magnetism. |  | **9**  **9**  **10** | 3.0  MAGNETISM | 3.1  Concept of magnetism. | **5** | The teacher to assign students library and or internet search to find out the origin of magnetism. | Students in groups using gallery walk to discuss the origin of magnetism. | - Reference books  -Internet |  | Is the student able to explain the origin of magnetism. |  |
| The teacher to display different types of magnetic and non-magnetic materials and organise for their testing on magnetic behaviour. | Students to identify magnetic and non magnetic materials. | * Magnets * Iron rod * Cobalt plate * Neckel rod * Copper rod * Piece of wood | Complete Junior Physics | Is the student be able to identify magnetic and non magnetic materials/substances? |
| **COMPETENCE** | **GENERAL OBJECTIVES** | **MONTH** | **WEEK** | **MAIN TOPIC** | **SUB-TOPIC** | **PERIODS** | **TEACHING ACTIVITIES** | **LEARNING ACTIVITIES** | **T/L MATERIAS** | **REFERENCES** | **ASSESSMENT** | **REMARKS** |
|  |  | **MARCH** | **10** |  | 3.2  Magnetisation and demagnetisation | **5** | The teacher to display various types of magnets and direct students to name them. | Students to identify the types of magnets. | * U- shaped magnets. * Bar magnet * Horse-shoe magnet. |  | Is the student able to identify types of magnets? |  |
| The teacher to lead students to investigate the properties of a magnet. | The students to suspend a bar magnet to find its direction at rest. | * String * Support * Iron filling * Various types of magnets. | Is the students be able to tell the properties of a magnet? |
| Teacher assign students through library search to explain the concept of magnetisation and demagnetisation. | Students to present their findings. | * Chart * Internet * Bar magnet * Iron nails | Is the student able to explain the concept of magnetization and demagnetization? |
|  |  |  | **11 – 12 M I D T E R M E X A M / M I D T E R M B R E A K** | | | | | | | | |  |
|  |  | **MARCH** | **13** |  |  |  | The teacher to assign students to do library or internet search on applications of the earth’s magnetic field. | Students in groups discuss their finding on application of the earth’s magnetic field. | * Library * internet |  |  |  |
| **COMPETENCE** | **GENERAL OBJECTIVES** | **MONTH** | **WEEK** | **MAIN TOPIC** | **SUB-TOPIC** | **PERIODS** | **TEACHING ACTIVITIES** | **LEARNING ACTIVITIES** | **T/L MATERIALS** | **REFERENCES** | **ASSESSMENT** | **REMARKS** |
|  |  | **MARCH** | **13** |  | 3.3  Magnetic fields of magnet | **4** | - The teacher to stimulate discussion on how a magnet can lose its magnetisation.  -Teacher to guide students to mention methods of storing magnetism. | -Students to identify ways in which a magnet lose its magnetism.  To explain the methods of storing magnets. |  |  | Is the students able to design methods of storing magnets? |  |
| The teacher to lead students to perform an experiment to study the pattern of the lines of force around a bar magnet.  -The teacher , by using question and answer technique, to lead students to identify lines of force. | Students to plot the pattern of lines of forces around a bar magnets.  -Students to demonstrate that the lines of force are closer together where the field is stronger.  Students to explain the concept of magnetic fields. | * Bar magnet * Iron filling * Plain paper * Pencil * Compass needle. |  | Is the student table to illustrate the magnetic lines of forces around a magnet using iron fillings or compass needle? |
| **COMPETENCE** | **GENERAL OBJECTIVES** | **MONTH** | **WEEK** | **MAIN TOPIC** | **SUB-TOPIC** | **PERIODS** | **TEACHING ACTIVITIES** | **LEARNING ACTIVITIES** | **T/L MATERIALS** | **REFERENCES** | **ASSESSMENT** | **REMARKS** |
|  |  |  |  |  | 3.4  Earth’s magnetic field |  | The teacher to lead students to explain the existence of the earth’s magnetic field. | Students in groups to explain the phenomenon of earth’s magnetism | * Compass needle * Thread   Retort stand   * World globe |  | Is the student be able to  -Explain the existence of earth’s magnetism  -Determine the direction of earths magnetic field.  -Locate the lines of a force about a magnet. |  |
|  |  |  |  |  |  |  | The teacher to lead students to determine the direction of the earth’s magnetic field. | Students to suspend bar magnetic freely to determine the direction of the earth’s magnetic field. | * Bar magnetic * Iron fillings |  |
|  |  |  |  |  |  |  | The teacher to assist students to locate the earth’s magnetic lines of force about a bar magnet. | Students to use iron filling to locate the earth’s magnetic lines of force about a bar magnet. | * Compass needle * Protector * Scale * support |  |
|  |  |  |  |  |  |  | To guide students to determine the angle of declanation and inclination. | Students to measure the angle made by the settled needed with respect to the horizontal plane. |  |  |
| **COMPETENCE** | **GENERAL OBJECTIVES** | **MONTH** | **WEEK** | **MAIN TOPIC** | **SUB-TOPIC** | **PERIODS** | **TEACHING ACTIVITIES** | **LEARNING ACTIVITIES** | **T/L MATERIAS** | **REFERENCES** | **ASSESSMENT** | **REMARKS** |
|  |  | **A**  **P**  **R**  **I**  **L** | **13**  **&**  **14**  **14**  **15** |  |  | **5** | Demonstration how to shied a magnetic material from magnetic line of force. | Demonstrate practically how to shield a magnetic material from magnetic lines of force.  -Discuss the importance shielding equipment. | * Soft irony magnet. | Principle of Physics |  |  |
| 4.0  FORCE IN EQUILBRIUM | 4.1  Movements of a force | **5** | Lead students to explain the existence of the earth’s magnetic fields. | In group to explain the phenomenon of the earth’s magnetic field. |  |  |
|  | **MID – TERM BREAK** | | | | | | | |
| **COMPETENCE** | **GENERAL OBJECTIVES** | **MONTH** | **WEEK** | **MAIN TOPIC** | **SUB-TOPIC** | **PERIODS** | **TEACHING ACTIVITIES** | **LEARNING ACTIVITIES** | **T/L MATERIAS** | **REFERENCES** | **ASSESSMENT** | **REMARKS** |
|  |  | **APRI**  **L** | **16** |  | 4.2  Centre of gravity. | **4** | The teacher to guide students to perform activities of pulling or pushing objects and observe the results. | Students to apply simultaneously parallel and opposite force on difference objects. | * Hinged   window   * Hinged door * Suspended   piece of wood   * Students’   desk |  | Is the student be able to explain the effects of turning force |  |
| Lead students to determine the moment of force. | Determine the moment of force. | * Metre ruler * Strings * Two   different masses. |  | Is the student able to determine the moment of a force? |
|  | Guide students to determine the centre of gravity of a regular shaped body. | Determine the centre of gravity of regular shaped body. |  |  | Is the student able to explain the centre of gravity and to determine the centre of gravity of regular shaped body? |
|  | Guide students to conduct experiment to verify the principle of moments. | To state the principle of moments. | * Variety masses. |  | Is the student able to state the principle of moment? |
|  | Lead the students to apply the principle of moments. | Explain how the principle of moments is applied in different situations. | * Seesaw * Bean balance * Door |  | Is the student able to apply the principle of moments in daily life? |
| **COMPETENCE** | **GENERAL OBJECTIVES** | **MONTH** | **WEEK** | **MAIN TOPIC** | **SUB-TOPIC** | **PERIODS** | **TEACHING ACTIVITIES** | **LEARNING ACTIVITIES** | **T/L MATERIAS** | **REFERENCES** | **ASSESSMENT** | **REMARKS** |
|  |  | **APRI**  **LY**  **M**  **A**  **Y** | **17** |  |  | **4** | Organise students gallery walk presentation on the meaning of centre of gravity. | Explain the meaning of centre of gravity. |  | Physics for 2N2 sec School Book  1 & 2 | Is the student able to determine the centre of gravity of an irregular body? |  |
|  | Assign students to determine the centre of gravity of an irregular shaped body. | Determine the centre of gravity of an irregular body. | * A piece of irregular shaped * Plumb line * Support nail |
| **18** |  | 4.3  Types of equilibrium | **4** | Lead students to brain storm on the condition for equilibrium. | Explain the conditions for equilibrium. | * Solid objectives * various shaped * model of a bus or lorry. | Is the student able to explain the conditions for equilibrium? |
| Lead students to identify three states of equilibrium. | Explain stable, unstable and neutral equilibrium. | Is the student able to explain and apply stable, unstable and neutral equilibrium? |
| Lead students to apply conditions of stable unstable and input equilibrium in daily life. | Identify application of the three states of stability in daily life. |
| **COMPETENCE** | **GENERAL OBJECTIVES** | **MONTH** | **WEEK** | **MAIN TOPIC** | **SUB-TOPIC** | **PERIODS** | **TEACHING ACTIVITIES** | **LEARNING ACTIVITIES** | **T/L MATERIAS** | **REFERENCES** | **ASSESSMENT** | **REMARKS** |
|  |  | **MAY** | **19** | 5.0  SIMPLE MACHINES | 5.1  Concept of simple machine | 4 | Lead students to deduce the meaning of simple machine. | To explain the concept of a simple machine. |  |  | Is the student able to identify different kinds of simple machines? |  |
| - Facilitate the students to deduce the meaning of the term. Load, Effort mechanical advantage velocity ratio and efficiency as applied to simple machine.  -To stimulate students to identify different kinds of simple machine. | Students in groups to mention different types of simple machines. | * Bolts and nuts * Spanners * Single fixed pulley. * Masses * Stapler * Rope. |
|  |  |  | **(20 – 21) TERMINAL EXAM & ONE WEEK BREAK** | | | | | | | | |  |
| **COMPETENCE** | **GENERAL OBJECTIVES** | **MONTH** | **WEEK** | **MAIN TOPIC** | **SUB-TOPIC** | **PERIODS** | **TEACHING ACTIVITIES** | **LEARNING ACTIVITIES** | **T/L MATERIAS** | **REFERENCES** | **ASSESSMENT** | **REMARKS** |
|  |  | **MAY** | **22** |  | 5.2  Levers | **5** | To facilitate students to identify three classes of levers. | Students in groups to identify the three classes of levers. | * Beam balance * Crow bar * Wheel barrow * Scissors * See-saw * Coal tong. |  | Is the student able to identify three classes of levers? |  |
| Guide students to determine the M.A, V.R and efficiently of a levers. | Students in group to perform experiment to determine the M.A, V.R and efficiency of a lever. | Is the student able to determine the M.A, V.R and efficiency of a lever?  Is the student able to use levers in daily life? |
| To organize students to discuss application of levers in daily life. | Students to discuss applications of levers in daily life. |
| **23** |  | 5.3  Pulleys | **3** | To guide students to identify different pulley system. | To identify the different pulley systems. | * Single fixed pulley * Movable and tactics pulley * Ropes * Flip charts * Marker pens. | Is the student able to determine M.A, V.R and efficiency of pulleys and apply in daily life? |
| Guide students to determine the M.A , V.R and efficiency of a pulley systems. | Calculate the M.A, V.R and efficiency of the pulley system. |
| Organize for a field visit by students to observe application of pulley system. | Discuss results of the field visit and identify other possible application of pulley system. |
| **COMPETENCE** | **GENERAL OBJECTIVES** | **MONTH** | **WEEK** | **MAIN TOPIC** | **SUB-TOPIC** | **PERIODS** | **TEACHING ACTIVITIES** | **LEARNING ACTIVITIES** | **T/L MATERIAS** | **REFERENCES** | **ASSESSMENT** | **REMARKS** |
|  |  | **JUNE** | **24** |  | 5.4  Inclined Plane | **3** | Lead students to discuss why it is easier to push a heavy load up an inclined plane than to lift it vertically.  To facilitate students to determine M.A, V.R and efficiency. | To determine the M.A, V.R and efficiency of the inclined plane. | * Ladder * Building slopes * Screw jack * Car jack   - Heavy load | Physics Book 2  TIE | Is the student able to state the concept of inclined plane?  -Are they able to determine M.A, V.R and efficiency of inclined plane. |  |
|  |  |  |  | - Lead students to discuss the applications of inclined plane in daily life. | In groups student to discuss situation where the inclined plane is applied in everyday life. | * Screw jack * Car jack |  | Is the student able to use inclined plane in daily life? |
| **25** | 5.5  Screw Jack | **3** | To organize students the main features of the screw Jack and the way it functions. | Practice lifting a heavy load using a screw jack. | * Car * Screw jack * Wheel and axle * bicycle | Is the student able to describe the structure of a screw jack? |
| To facilitate students to discuss the applications of the screw jack in daily life. | Discuss in groups the various situations where the screw jack in used. | Is the student able to determine M.A, V.R and efficiency of screw jack?  -Can student use screw jack on daily life? |
| Display a wheel and axle of a bicycle. | * In groups students to   discuss the main features of a wheel and axle system.  -Use screw jack in daily life. |
| **COMPETENCE** | **GENERAL OBJECTIVES** | **MONTH** | **WEEK** | **MAIN TOPIC** | **SUB-TOPIC** | **PERIODS** | **TEACHING ACTIVITIES** | **LEARNING ACTIVITIES** | **T/L MATERIAS** | **REFERENCES** | **ASSESSMENT** | **REMARKS** |
|  |  | **JUNE** | **25** |  | 5.6  Wheel and axle | **3** | To guide students to determine M.A, V.R and efficiency of a wheel and axle.  -To organize for group discussion on the application of wheel and axle in daily life. | To determine the M.A, V.R and efficiency of the wheel and axle.  -In groups to site explain of devices which utilize the principle of the wheel and axle. | * Heavy load.   - Windlass  machine  - Bicycle. |  | Can the student able to describe and determine the M.A, V.R and efficiency of wheel and axle? |  |
| **26** |  | 5.7  Hydraulic Press | **3** | Display model of the hydraulic press and guide students to discuss its working mechanism.  To guide students to determine the M.A, V.R and efficiency of a hydraulic press.  Lead students to discuss on applications of the hydraulic press. | To discuss in groups structure of a hydraulic press.  To determine the M.A, V.R and efficiency of the hydraulic press.  Discuss in groups of hydraulic press and identify example of devices. | Model of hydraulic press. |  | Is the students able to describe the structure of hydraulic press?  -Is the student able to determine M.A, V.R and efficient of hydraulic press?  -Can students apply hydraulic press in daily life? |
| **COMPETENCE** | **GENERAL OBJECTIVES** | **MONTH** | **WEEK** | **MAIN TOPIC** | **SUB-TOPIC** | **PERIODS** | **TEACHING ACTIVITIES** | **LEARNING ACTIVITIES** | **T/L MATERIAS** | **REFERENCES** | **ASSESSMENT** | **REMARKS** |
|  |  |  | **27** | 6.0  MOTION  IN  STRAIGHT  LINE | 6.1  Distance & displacement | **1** | Guide students to distinguish between distance and displacement  Displayed various flash cards with SI Units, one of which has the correct SI unit of distance and displacement. | -Give the difference between distance & displacement.  -State SI units of distance & displacement.  -Identify SI unit of distance & displacement. | * Tape measure * Marker * Reference books * Flash card. |  | Is the student able to distinguish between distance and displacement?  -Is the student able to state the SI Unit of distance and displacement? |  |
|  |  | JUNE/  JULY | **27** |  | 6.2  Speed and velocity | **3** | Assist students to distinguish between speed and velocity. | Distinguish between speed and velocity | * Timer * Measuring   tape   * Internet * Reference   Books. |  | Is the student able to distinguish between speed and velocity? |
|  | Organize think pair share on the SI units of speed and velocity. | To state the SI unit of speed and velocity. |  |
|  | Stimulate students to determine average velocity of a body. | To determine average velocity of the body. | * Speed metre * Timer * Measuring tape |
| **COMPETENCE** | **GENERAL OBJECTIVES** | **MONTH** | **WEEK** | **MAIN TOPIC** | **SUB-TOPIC** | **PERIODS** | **TEACHING ACTIVITIES** | **LEARNING ACTIVITIES** | **T/L MATERIAS** | **REFERENCES** | **ASSESSMENT** | **REMARKS** |
|  |  | **J**  **U**  **LY** | **28** |  | 6.3  Acceleration | **2** | Display different velocity time graphs for students to interpret.  Through reciprocal – teaching and question and answer techniques students to interpret velocity time graphs for increasing velocity, constant velocity and decreasing velocity. | Students to determine the rate of change of the velocity with time. |  |  | Can the students interpret velocity time graph? |  |
|  |  | To guide students to discuss the velocity time graph.  Lead student to explain the concept of retardation. | Students to determine acceleration of the body.  Students to explain the concept of retardation. | * Trolley * Ticker tape * Timer * Velocity –time graph. | Abort and Principles of Physics. | Can student determine the acceleration of a body?  -Is the student able to explain the concept of retardation? |
| **COMPETENCE** | **GENERAL OBJECTIVES** | **MONTH** | **WEEK** | **MAIN TOPIC** | **SUB-TOPIC** | **PERIODS** | **TEACHING ACTIVITIES** | **LEARNING ACTIVITIES** | **T/L MATERIAS** | **REFERENCES** | **ASSESSMENT** | **REMARKS** |
|  |  | **JULY/ OCTOBER** | **28**  **29** |  | 6.4  Equations of  uniformly Accelerated Motion | 3 | The teacher to facilitate students to apply deductive thinking to derive equations of uniformly accelerated motion. | Students to derive equations of uniformly accelerated motion. | * Kinematic   reference books.   * Velocity   time graphs for uniformely accelerated motion   * Bank of   Kinematics equations |  | -Is the student able to derive equations of uniformely accelerated motion?  -Is the student able to apply equations of motion in daily life? |  |
|  | To motivate students to share their ideas on a body thrown vertically upwards and a falling body. | Students to solve problem related to equations of uniformly acceleration motion. |
| 6.5  Motion under gravity | **3** | To encourage students to share their ideas on a body thrown vertically upwards and a falling body. | Students in groups to explain the concept of gravitational force. | * Pendulum bob * Metre rule * Retort stand * Graph paper * Internet * Flip charts * Marker pens | -Is the student able to explain the concept of gravitational force? |
|  | To organize students to determine acceleration due to gravity by simple pendulum. | To perform an experiment on determination of acceleration due to gravity by simple pendulum | -Is the student able to explain the concept of gravitational force? |
|  | To direct the students to search and discuss application of gravitational force. | Students to present their findings on application of gravitational force. | -Is the student able to explain the applications of gravitational force? |
|  |  |  |  | **30 – MIDTERM EXAMS** | | | | | | | |  |
|  |  |  |  | **31-35 (5 WEEKS HOLIDAY)** | | | |  | | | |  |
|  |  |  |  |  |
| **COMPETENCE** | **GENERAL OBJECTIVES** | **MONTH** | **WEEK** | **MAIN TOPIC** | **SUB-TOPIC** | **PERIODS** | **TEACHING ACTIVITIES** | **LEARNING ACTIVITIES** | **T/L MATERIAS** | **REFERENCES** | **ASSESSMENT** | **REMARKS** |
|  |  | **SEPTEMBER** | **36** | 7.0  NEWTON’S 1ST LAW OF MOTION | 7.1  Law of Motion | **3** | The teacher to stimulate discussion on the behaviour of an object when there is a sudden change of its state of Motion. | Students to brainstorm, the tendency of applied force on a body when is at rest or in motion. | * Heavy load * Bottle * Cards * Cons * Tea cups * Trolley * Table, cloth on a table. |  | **-**Is the student able to explain the concept of inertia?  -Is the student able to state Newton’s 1st Law of motion?  -Is the student able to verify Newton’s 1st Law of motion? |  |
|  | To lead students to state Newton’s first Law of motion. | State Newton’s 1st Law of motion. |
|  | Facilitate for demonstrations of Newton’s first law of motion on an object at rest. | Students to perform an experiment to verify Newton’s first law of motion. |
| **37** |  | 7.2  2nd Law of Motion | 6 | Facilitate students to investigate the relationship between the velocity and mass of a body moving in a straight line. | Students to explain the concept of linear momentum. | * Trolley   -Various masses. | -Is the student able to explain the concept of linear momentum?  -Is the student able to state the S.I Units of linear momentum? |
|  | To encourage students to deduce the SI unit of linear momentum from the product of mass & velocity. | Students to deduce and state the SI unit of linear momentum. |
|  | To guide students to determine experimentally the linear momentum of a body | Students to perform an experiment to measure the velocity of a trolley, loaded with a known mass.  To compute the product of mass & velocity. |
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|  |  | **SEPTEMBER** |  |  |  |  | Teacher to guide students to determine experimentally the linear momentum of a body. | Students to perform an experiment to measure the velocity of a loaded with a known mass. |  |  | Is the student able to determine linear momentum?  -Is the student able to state Newton’s 2nd Law of motion? |  |
|  | Facilitate students to carry out an experiment to verify Newton’s second law of motion. | To perform experiment to find relationship of force and acceleration.  To investigate experiment by the relationship between mass and acceleration. |
| **2**  **&**  **2** |  | 7.3  Conservation of Linear momentum |  | The teacher to organize for students to investigate types o f collision. | Students to organize for conduct experiment to distinguish between elastic and inelastic collision. | * Tennis ball * Spongy floor * Hard floor * Muddy surface. |  | Is the student able to distinguish btn elastic and Inelastic collisions? |
|  |  | To deduce the relationship btn linear momentum before and after a collision. | To determine experimentally the linear momentum of two bodies moving towards each other before and after collision.  -Compare total momentum before and after collision. |  |  | Is the student able to state the principle of conservation of linear momentum? |
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|  |  | **SEPTEMBER** | **38** |  |  |  | To organize students group discussion to see application of the principle of conservation of linear momentum. | -To discuss the principle  -To copy the principle. |  |  | Is the students able to apply the principle and solve question? |  |
| 7.4  Third law of motion |  | To organize the students to demonstrate that action and reaction force are related. | Students to deduce that each action force there is equal and opposite reaction force.  -To state Newton’s 3rd law of motion. |  | Is the student able to distinguish btn action and reaction forces?  -Is the student able to state Newton’s 3rd Law of motion. |
| Teacher to lead students to give the meaning of action and reaction forces. | To identify the action force and reaction forces in bodies. | * Balloons * Air * Bicycle pump |
| Organize students in groups to discuss application of Newton law of motion. | In group discuss the application of 3rd law of motion.  -Solve problem. |  |
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|  |  | **SEPTEMBE**  **R**  **/**  **OCTOBE**  **R** | **39** | 8.0  TEMPERATURE | 8.1  Concept of temperature | **1** | The teacher lead students using think pair –shore to define the temperature. | -Define the temperature. | * Water * Ice * Heater * Deep freezer |  | Is the student able to define the term temperature? |  |
|  | Lead students to state SI unit of temperature. | Students state the SI unit of temperature. |  |  | is the student able to state the S.I unit of temperature? |
| **39**  **40** | 8.2  Measure ment of temperature | 4 | Assist students to seek information from difference sources on measureable physical properties that change with temperature. | Students to work in group to collect information on physical properties that change with temperature. |  | Physics for Zanzibar Sec. School Book 2. | Is the students able to measure accurately the temperature of a body? |
|  | By using question and answer to guide students to define fundamental interval of a thermometer. | Students to define the upper and lower fixed points of a thermometer. | * Alcohol * Melting ice * Hot water |
|  | Organize students to study how alcohol in glass thermometer works. | Students to record the reading of the thermometer in ice and hot water.  Describe mode of action of liquid in glass thermometer. | * Hot water * Ice * Alcohol * One-sided * Closed narrow glass cylinder |
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|  |  | **OCTOBER** | **40** |  |  |  | Lead the students to measure temperature of different bodies. | In groups to record the temperature different bodies. | * Thermometer   Hot water |  |  |  |
| 9.0  SUSTAINABLE ENERGY SOURCES | 9.1  Water energy | **3** | The teacher should lead the students to discuss the generation of electricity. | Students describe energy change in the generation of hydro electricity. | * Diagram of   hydroelectric power plant city. |  | Is the student able to explain the generation of electricity from water? |
| To lead the student to discuss the importance and advantage of hydroelectricity | To describe common application of water energy. | * Reference books. |  |  |
| To guide students to construct a model of an hydroelectric Power Plant. | To draw a diagram of a model of an hydroelectric Power Plant. | Manila sheet  Styrofoam  Razor blades wood. |  |  |
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|  |  | **OCTOBER** | **42** | SUSTAINABLE SOURCE OF ENERGY | 9.2  Solar Energy | **3** | Lead students to discuss the sun as the primary source of energy on earth. | To list down the main application of solar energy | Solar panel photoroltonic cells |  | Is the student able to explain the conversion of solar energy to electricity? |  |
| To guide students to discuss how solar energy can be converted to electricity. | Make group discussion conversation mechanisms to electricity.  To draw a circuit diagram showing the conversation of solar energy into electricity by a solar cell. | **-** |
| To guide students to discuss the construction of a model of a solar panel. | To design and construct a model of a solar panel. | **-** Model of a solar panel  - Solar cells |  | Is the student able to construct a model of solar panel |
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|  |  | **OCTOBER / NOVEMBER** | **43** |  | 9.3  WIND ENERGY | **3** | The teacher to stimulate the students to identify evidence which proves that wind has energy. | Students to show that wind can cause objects to move. | * Wind * Feathers * Cotton wool. |  | Is the student able to explain wind as a source of energy? |  |
|  |  | To organize for educational visit to a place where wind mill is used. | To construct a model of a wind mill. | * Wind mill * Wood * Nails * glue |  | * Is the student   able to construct a model of a wind mill?   * Is the student   able to use wind mill in daily life? |
|  | Lead the students to discuss the applications of wind mill in daily life. | In groups to discuss the application of the wind mill. |  |  |
| **44** |  | 9.4  SEA WAVE ENERGY | **2** | The teacher to lead students to discuss the sea waves as a source of energy. | Students in their group to discuss the energy from the sea water. | * Internet |  | Is the student able to explain sea wave as source of energy? |
|  | The teacher to guide students to discuss on how sea water can be converted to electricity. | To brainstorm on how sea wave energy can be converted to electricity.  In groups construct the model system of convert Sea wave energy into electricity. | * Car board * Scissors * Nails * Tape/glue * Reference books * Internet |  | Is the student able to explain the conversion of sea wave energy to electric energy  ? |
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|  |  | **N O V E MB E R** | **45** |  | 9.5  GEOTHERMAL ENERGY | **2** | To guide students in groups as the source of energy. | Students in their group to discuss the source of geothermal energy. |  |  | Is the student able to explain geothermal as a source of energy? |  |
| The teacher to lead students to discuss how geothermal energy can be converted into electricity. | Students to discuss the ways of converting geothermal energy to electricity.  Students to draw a diagram of a steam turbine and explain how it works to convert steam to electricity. | * Manila paper * Scissors * Glue * Marker pen * Reference books. |  | Is the student able to explain the conversion of geothermal energy to electric energy? |