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| **Competence** | **General objective** | **Month** | **Week** | **Main Topic** | **Sub-topic** | **Periods** | **Teaching Activities** | **Learning Activities** | **T/L Materials** | **References** | **Assessment** | **Remarks** |
| Demonstrating effects and application of waves | Understand and the laws and principles of waves | JANUARY | 3 | WAVES | Introduction to waves | 2 | * Guide students to brainstorm the concept of waves while they are in groups.
* Lead students to demonstrate the production of waves using rope, ripple tank and tuning fork.
 | * to sit in group and discuss the concept of waves.
 | * Rope, ripple tank, tuning fork.
 |  | * Through quiz ask students to explain the concept of waves, wavelength, frequency and velocity of wave.
* Ask students to explain mechanical waves and electromagnetic waves.
 |  |
| * Using questions and answers technique to assist students to explain the terms wavelength (λ), frequency (f) and velocity (v) of the wave.
* Guide students to identify the types of waves.
 | * to explain the terms wave length, frequency, and velocity of the wave .
* to take notes.
* students in groups to identify mechanical waves and electromagnetic waves.
 | * Charts showing graph of displacement against time.
* C.R.O.
* Helical spring
* Drum
* Light
 |
| **Competence** | **General objective** | **Month** | **Week** | **Main Topic** | **Sub-topic** | **Periods** | **Teaching Activities** | **Learning Activities** | **T/L Materials** | **References** | **Assessment** | **Remarks** |
| -do- | -do- | JANUARY/FEB | 3 to 4 | WAVES | Behavior of waves | 42 | * using demonstration in class, guide students to explain the behavior of waves, reflection, diffraction and interference.
* guide students to brainstorm on the applications of reflection, refraction, diffraction and interference of waves.
* guide students to present the applications of behavior of waves.
* assist students to sit in groups to demonstrate behavior of waves.
 | * to explain reflection, refraction and interference.
* using think- pair – shave technique, students to mention the application of reflection, refraction, diffraction and interference of waves.
* while in group students to demonstrate reflection, refraction, diffraction and interference of waves
 | * Ripple tank, rectangular prism, and vibrator.
* Radio
* TV
* Mobile phone.
* Ripple tank
* Rectangular prisms.
* Vibrator.
 |  | * Group students and give quiz to explain the behavior of waves.
* Move around the groups and assess students performance on demonstrating the behavior of waves
 |  |
| **Competence** | **General objective** | **Month** | **Week** | **Main Topic** | **Sub-topic** | **Periods** | **Teaching Activities** | **Learning Activities** | **T/L Materials** | **References** | **Assessment** | **Remarks** |
| -do- | -do- | JANUARY / FEBRUARY | 56 | WAVES | Propagation of waves | 2 | * using question and answer technique to assist students to describe the propagation of mechanical waves.
* guide students to demonstrate the propagation of mechanical waves.
 | * to sit in group to describe the propagation of mechanical waves.
 | * Slinky spring.
* Tuning fork.
* Ripple tank.
* Rope.
 |  | * ask students to note down the criteria of propagation of mechanical waves.
 |  |
| 224 | * through questions and answer technique explain the propagation of electromagnetic waves.
* guide students to demonstrate the propagation of e.m. waves.
* Guide students to determine the relationship between frequency, speed and wavelength.
* Group students in two and guide them to determine the refractive index of glass.
* Guide students to use the formula to find refractive index of different materials.
 | * to discuss the propagation of e.m. waves.
* to describe frequency from equation
* to state S. I. unit of frequency.
* to determine the refractive index of a glass black and submit their results to the teacher.
 | * Chart showing the e.m. spectrum.
* Chart showing the relationship between frequency, speed and wavelength.
* Glass block.
* Optical pins.
* White sheet.
* Protector.
* Ruler.
* Drawing board.
 | * ask students to explain propagation of e.m.w.
* ask students to state the S.I. unit of frequency.
* assess students while they are doing practical.
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| **Competence** | **General objective** | **Month** | **Week** | **Main Topic** | **Sub-topic** | **Periods** | **Teaching Activities** | **Learning Activities** | **T/L Materials** | **References** | **Assessment** | **Remarks** |
| -do- | -do- | FEB RUARY | 67 | WAVES | Sound waves | 2 | * Guide students to identify sources of sound waves.
* Using questions and answer technique guide students to explain the concept of audibility range.
 | * Students to produce sound waves by using different sources of sound.
* Students to explain the concept of audibility range.
 | * Drum
* Guitar
* Whistle
* Turning
* Model of ear.
* Table with audibility range.
 |  | * Ask students to explain different sources of sound waves.
* Ask students to explain the concept of audibility range.
 |  |
| 2 | * Guide students to describe the perception of hearing.
* Guide students to demonstrate the production of an echo and explain the concept of reverberation of sound.
 | * Students to describe the perception of hearing.
* To explain the concept of echo and reverberation of sound.
 | * Model of the human ear.
* Tall wall
* Hall/studio.
* Sound absorbing materials (cloth, spongy material)
 |  | * Ask students to explain the concept of echo and reverberation of sound.
 |
| 8 | Speed of sound in air.Musical sound | 22 | * Using drum and stop watch, guide students to measure the speed of sound in air.
* Using different musical instruments, guide students to explain the concept of musical sound.
* Lead students to identify factors affecting loudness, pitch and quality of musical sound.
 | * Students to perform an experiment to measure the velocity of sound in air.
* Students to give the meaning of music and noise.
* Students to identify factors affecting loudness, pitch and quality of musical sound.
 | * Stop watch
* Drum
* Tape measure
* Guitar
* Drum
* Sonometer
* Turning forks
* Violin
* Flute
* Microphone
* C.R.O.
 |  | * Assess students’ participation on measuring velocity of sound in air.
* Give the class work asking students to explain factors affecting loudness, pitch and quality of musical sound.
 |
| **Competence** | **General objective** | **Month** | **Week** | **Main Topic** | **Sub-topic** | **Periods** | **Teaching Activities** | **Learning Activities** | **T/L Materials** | **References** | **Assessment** | **Remarks** |
| -do- | -do- | FEBRUARY /MARCH | 9 | Musical sound | Musical instrument.Standing waves |  | * Organize the study strip to visit a musical band or studio to identify different types of musical instruments.
* Lead students to explain the terms of standing (stationery) waves
 | * By listening students to distinguish different musical instruments by the sound they produce.
* Students to explain the terms nodes, antinodes, crest and trough as applied in stationery waves.
 | * Pipes, string, membrane, and electronic instruments.
* Helical spring.
* Vibrator
* Marker pen
* White sheet
* Motor and battery
* Rubber band
 |  | * Ask students if they can identify the different musical instrument.
* Give quiz on terms used in stationery waves
 |  |
| String instruments | 2 | * Guide students to perform an experiment to determine the factors which affect the frequency of a note by stretched string.
 | * Students to carry out an experiment to determine factors which affect the frequency of a note produced by a stretched string.
* Students to determine the frequency of a musical note.
 | * String
* Sonometer
* Guitar
* Turning fork
 |  | * Assess students’ performance and participation on finding the frequency of a stretched string.
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| **Competence** | **General objective** | **Month** | **Week** | **Main Topic** | **Sub-topic** | **Periods** | **Teaching Activities** | **Learning Activities** | **T/L Materials** | **References** | **Assessment** | **Remarks** |
| -do- | -do- | FEBRUARYMARCH | 9 | WAVESMusical sound | Pipe instrumentsElectromagnetic spectrum | 222 | * Lead students to distinguish between fundamental note and overtones.
* Lead students to explain the concept of resonances as applied to sound.
* With the guidance of an expert, support student to construct a simple musical instrument.
* Guide students to explain the concept of the electromagnetic spectrum.
* Guide students to draw and label the electromagnetic spectrum.
* Guide students to detect infrared radiation, visible and u-v rays
 | * Students to distinguish between fundamental note and overtones.
* Students to explain the concept of resonance as applied to sound.
* Students to initiate the construction of simple musical instruments.
* Students to explain the concept of electromagnetic spectrum.
* Students to identify bands of the lectromagnetic spectrum.
* Students in groups to detect infrared rays, visible and U-V rays.
 | * Resonance tube/burette.
* Turning fork.
* String
* Nails
* Membrane
* Metal can
* Piece of wood.
* Glass prism
* Chart of rain bow.
* Thermometer
* Iron
* Heater
* Sun rays.
 |  | * Through questions and answers assess students on distinguish between fundamental note and overtones
* Assess students work i.e. their musical instruments they made.
* Ask students to identify the bands of electromagnetic spectrum.
* Asses and record the participation of students on detecting those rays
 |  |
| 110 |
|  **11 – 12 MIDTERM EXAM / MIDTERM BREAK** |
| **Competence** | **General objective** | **Month** | **Week** | **Main Topic** | **Sub-topic** | **Periods** | **Teaching Activities** | **Learning Activities** | **T/L Materials** | **References** | **Assessment** | **Remarks** |
| do-Demonstrating effects and application of electromagnetic induction | -do- | MARCH | 13 | WAVES | Application of e.m.w in daily life | 2 | * Guide students to identify the application of microwaves, radio waves, and infrared, γ-rays and x-rays.
* Explain the importance of electromagnetic waves in Agriculture and climate.
 | * Through think-pair-share technique
* Students to identify the applications of microwaves, radio-waves, infrared, γ-rays and x-rays.
* Students to carryout project work on the importance of electromagnetic waves in agriculture and climate.
 |  |  | * Give test to check if students can identify the application of e.m.w in daily life.
 |  |
| Understand laws and principles of electromagnetic induction | MARCH |  | Electromagnetism | Magnetic field due to a current carrying conductor. | 2 | * Assist students to explain how electric current produce magnetic field.
 | * Students in group to perform an experiment to produce magnetic field due to current carrying wire.
 | * Wire
* Source of electric current
* Compass needle.
 |  | * Give a home asking students to write short notes on how electric current produce magnetic field and identify patterns of the field lines.
 |
|  | * Guide students to carryout experiments to investigate the magnetic.
* Fields associated with an electric current passing through a straight wire, loop and solenoid
 | * Students, in groups, to identify the patterns of the field lines.
* Straight conductor, loop and solenoid.
 | * Cardboard
* Iron fillings
* Wire
* Source of electric current.
 |
| **Competence** | **General objective** | **Month** | **Week** | **Main Topic** | **Sub-topic** | **Periods** | **Teaching Activities** | **Learning Activities** | **T/L Materials** | **References** | **Assessment** | **Remarks** |
|  |  | MARCH | 14 | ELECTROMAGNETISMS | Right hand grip rule and cork screw rule.Magnetic field due to a current carrying conductor | 22 | * Guide students to state right hand rule and the cork screw rule.
* With students determine the direction of magnetic field due to current flowing through straight wire, loop and solenoid.
* Teacher and students to determine the direction of the force acting on a current carrying conductor placed at right-angle to a magnetic field.
* Guide students to state Fleming’s left hand rule.
* Guide students to determine the attraction and repulsion of current flowing through parallel wire.
 | * To state the right hand rule and cork screw rule.
* Students to identify the direction of the magnetic field due to current carrying conductor.
* students to determine the direction of the force acting on a current carrying conductor.
* students to state Fleming’s left hand rule.
* to perform experiment to show the directions of repulsive and attractive force.
 | * Compass needle
* Iron fillings.
* Wire
* U-shaped magnet
* Wire
* Meter rule
* Source of electricity
 |  | * Ask students to state right hand rule and cork screw rule.
* Assess students involvement on determining the direction of magnetic field produced.
* Ask students to state Fleming’s left hand rule.
* Assess students’ performance on doing experiment.
 |  |
| **Competence** | **General objective** | **Month** | **Week** | **Main Topic** | **Sub-topic** | **Periods** | **Teaching Activities** | **Learning Activities** | **T/L Materials** | **References** | **Assessment** | **Remarks** |
| -do- | -do- | APRIL |  | ELECTROMAGNETISM | Electromagnetic induction. | 22 | * Guide students to demonstrate the production of induced current using a coil and a magnet.
* Guide students to explain the concept of electromagnetic induction.
* Guide students to state and explain Faraday’s and Lenz’s laws of electromagnetic induction.
* Group students to perform the experiment on electromagnetic induction.
 | * Students, in group, to demonstrate the production of induced current using coil and magnet.
* Students to explain the concept of electromagnetic induction.
* Students to explain Faraday’s and Lenz’s laws of electromagnetic induction.
* Students to apply Faraday’s law and Lenz’s law of electromagnetic induction to demonstrate the factors affecting magnitude of induced electromagnetic force and direction of induced current
 | * Magnet
* Coil
* Galvanometer

-do--do- |  | * Assess students in group while they are demonstrating.
* Ask students to state the laws of electromagnetic induction.
* Ask students to note down the factors affecting electromagnetic induction.
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| **Competence** | **General objective** | **Month** | **Week** | **Main Topic** | **Sub-topic** | **Periods** | **Teaching Activities** | **Learning Activities** | **T/L Materials** | **References** | **Assessment** | **Remarks** |
| -do- | -do- | APRIL | 15 | -do- | Self and mutual inductiona.c. and d.c generator | 22 | * Guide students to explain the concept of self induction and mutual induction
* Using diagram describe the structure of the induction coil and how it works
* Explain to the students the flow of a.c and d.c from a coil rotating in a magnetic field.
* The teacher to explain the mode of action of a.c and d.c generators and how to convert a.c generator to d.c.
 | * Students to explain the concept of self and mutual induction.
* Students to describe the mode of action of an induction coil.
* To explain the flow of a.c and d.c from a coil rotating in a magnetic field.
* Students to discuss the applications of a.c generator and the advantages of a.c generator over d.c generator.
 | * Source of electricity
* Iron ring
* Coil
* Galvanometer
* Induction coil
* Chart showing induction coil
* Chart of a.c and d.c generator
 |  | * Give a group work and ask students to write short notes on mode of action of induction coil.
* In group work ask students to write the notes on the mode of action of a.c and d.c generator
 |  |
| 16 | transformers | 4 | * Describe the structure and mode of action of a transformer.
* Using enquiry deductive technique guide students to develop the relation Es/Ep = Ns/Np
* Guide students to apply the above formula.
 | * To explain the mode of action of a transformer.
* Students to discuss the applications of a transformer.
 | * Wire
* Primary and Secondary coil.
* Voltmeter.
* Rectangular soft iron ring.
 |  | * Ask students to construct simple step-up and step down transformer.
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| **Competence** | **General objective** | **Month** | **Week** | **Main Topic** | **Sub-topic** | **Periods** | **Teaching Activities** | **Learning Activities** | **T/L Materials** | **References** | **Assessment** | **Remarks** |
| Recognizing the importance and hazards of radioactive emissions. | Realize the importance and hazards of radioactive emission. | APRIL | 17 | RADIOACTIVTY | The nucleus of an atom | 4 | * Guide students to discuss the

structure of the atoms while they sit in groups.* Assist students to give the

meaning of atomic number, mass number and isotopes of elements.* Assist students to mention the

existence of forces holding the nucleons. | * to sit in group and

discuss the structure of the atom.* Using think-pair-share technique.
* Students to discuss the

meaning of atomic number, mass number and isotopes of elements.* Students in groups to

mention the forces holding the nucleus. | * Chart of atom
* Model of atom.
* Model

showing atomic no., mass no. of elements.* Charts

showing electron and proton in an atom. |  | * Ask each group to

describe the structure of the nucleus of an atom.* Give class work

testing students on atomic no., mass no., and isotopes of element and forces holding nucleus. |  |
|  |  |  APRIL | 18 |  | Natural radioactivity | 2 | * The teacher to explain the concept of radioactivity.
* The teacher to highlight the

properties of alpha (α) and Beta (β) and gamma (γ) radiations. | * Students to explain the concept of radioactivity.
* While in groups,

students to describe the properties of radiations emitted by radioactive substances. | Periodic table. |  | * Ask students to

write few sentences to explain the concept of radioactivity.* Give a quiz on

properties of radiations emitted by radioactive substances. |  |
| **Competence** | **General objective** | **Month** | **Week** | **Main Topic** | **Sub-topic** | **Periods** | **Teaching Activities** | **Learning Activities** | **T/L Materials** | **References** | **Assessment** | **Remarks** |
| -do- | -do- | MAY | 18/19 | -do- | -do- | 4 | * The teacher to highlight the nuclear changes due to the emission of α, β and γ radiations.
* Guide students on the detection of α and β rays using G-M counters, spark chamber or Wilson Cloud Chamber.
* Guide students to detect γ-rays using photographic plate.
 | * Students to discuss in groups the nuclear change due to emission of α, β and γ radiations.
* Students to follow the explanation and take note.
 | * Periodic emission.
* Chart showing emission of α, β and γ radiations.
* Chart showing the detectors.
 |  | * Ask students to explain the nuclear changes due to emission ofα, β and γ radiations.
* Give students home work to write short notes on one of the detectors discussed.
 |  |
| Half life of radioactive substance | 2 | * Guide students to describe the meaning of half-life as applied to a radioactive substance highlight of background radiations.
* Teacher to demonstrate on how to determine half-life using various methods.
* Guide students to identify the applications of radio isotopes.
 | * Students to demonstrate the half-life using dice.
* While in groups, students to determine half-life of radioactive elements.
* Students to identify the applications of Radioisotopes in agriculture, medicine and industry.
 | * Graph showing radioactivity.
* Dice
* Graph paper
* Graph of count-rate against time
* Graph paper
* Pencil
* Charts
 |  | * Students to do homework on determining the half-life of radioactive substances.
* Students to be asked to write the applications of radio isotopes.
 |
| **Competence** | **General objective** | **Month** | **Week** | **Main Topic** | **Sub-topic** | **Periods** | **Teaching Activities** | **Learning Activities** | **T/L Materials** | **References** | **Assessment** | **Remarks** |
| -do- | -do- | MAY | 20 | RADIOACTIVITY | Artificial Radioactivity | 4 | * Guide students to distinguish between natural and artificial radioactive isotopes.
* The teacher to describe the methods of producing artificial radioactive isotopes.
* Guide students to mention the applications of artificial radioactivity.
 | * Students to distinguish between natural and artificial radioactivity.
* Students in groups to discuss methods of producing artificial radioactive isotopes.
* Students to use library search technique to write down uses of artificial radioactivity.
 | * Periodic table
* Chart of bomb adding elements.
 |  | * Ask students to distinguish between natural and artificial radioactivity.
* Arrange students in group to write method of producing and applications of artificial radioactivity.
 |  |
| (**21 – 22) 2ND QUARTER** |
|  |  | MAY | 23 |  | Radiation Hazards and safety | 2 | * Teacher to explain the effects of nuclear radiations on human body.
* The teacher to highlight about protection from the nuclear radiations.
 | * Students in group to explain the effect of nuclear radiation on human body.
* Students to demonstrate using role play on how to protect themselves from nuclear radiations.
 | * Chart showing the hazards of radiations
* Pictures showing people working with radioactive materials.
 |  | * Ask students to explain effects of nuclear reactions of human body.
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| **Competence** | **General objective** | **Month** | **Week** | **Main Topic** | **Sub-topic** | **Periods** | **Teaching Activities** | **Learning Activities** | **T/L Materials** | **References** | **Assessment** | **Remarks** |
| -do-Recognizing the importance and hazards of x-rays. | -do-Realize the importance and hazard of x-ray | MAYJUNE | 23 | RADIOACTIVITY | Nuclear fission and fusion | 2 | * The teacher to assist the students to explain the concept of nuclear fission and fusion.
* The teacher to explain the applications of nuclear fission and fusion.
 | * Students to explain the nuclear fission and fusion.
* While in groups, students to mention the applications of nuclear fission and fusion.
 | * Chart of nuclear power station.
 |  | * Give a quiz on nuclear fission and fusion.
* Each group to give their report and teacher to assess their presentation.
 |  |
| 24 | THERMIONIC EMISSION | Cathode rays. | 4 | * The teacher to explain the production of cathode rays.
* The teacher to facilitate students to state the properties of cathode rays.
* The teacher to assist students to state the applications of cathode ray tube in daily life.
 | * Students to explain the production of cathode rays.
* Students to state properties of cathode rays.
* Students to state the applications of cathode ray tube.
 | * Cathode ray tube.
* Chart showing cathode ray tube.
* TV
* Computer monitor.
* Charts of maltose cross and paddle wheel.
 |  | * Assess students on explaining the production of cathode rays.
* Ask students to state the properties of cathode rays.
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| **Competence** | **General objective** | **Month** | **Week** | **Main Topic** | **Sub-topic** | **Periods** | **Teaching Activities** | **Learning Activities** | **T/L Materials** | **References** | **Assessment** | **Remarks** |
| Recognizing the importance and hazards of X-rays. | Realize the importance and hazard of X-ray | J U N E | 25 | THERMIONIC EMISSION | X-rays | 2 | * Guide students to describe the structure and mode of action of the X-ray tube.
* Through question and answer technique, the teacher to guide students to distinguish between X-rays and their production.
* Guide students to review the position of X-rays in electromagnetic spectrum.
* The teacher to arrange a study visit to the X-rays unit centre.
 | * Students to describe the structure and mode of action of an X-ray tube.
* Students to draw and label the diagram of the X-ray tube.
* Students in group to distinguish between soft and hard X-rays.
* Students to brainstorm on the properties of X-rays.
* Students to discuss the applications of X-rays in daily life.
* Students to write notes on their educational trip.
 | * Chart showing X-rays tube.
* X-rays unit centre.
* X-ray photographic plate.
 |  | * Group students and ask them to note down the structure and mode of action of X-rays tube.
* Give a quiz on soft and hard X-rays.
* Let students write the applications of X-rays.
 |  |
| **Competence** | **General objective** | **Month** | **Week** | **Main Topic** | **Sub-topic** | **Periods** | **Teaching Activities** | **Learning Activities** | **T/L Materials** | **References** | **Assessment** | **Remarks** |
| Students to be able to design and implementing the simple electronic circuits | Students to understand basic building unit for electronic circuit. | JUNE | 25 | ELECTRONICS | Semiconductors | 2 | * The teacher to guide students to explain the concept of energy bands in solids.
* Guide students to distinguish between conductors, semiconductors and insulators.
 | * Students to draw the energy bands in solids.
* Students to distinguish between conductors, semiconductors and insulators.
 | * Chart of energy bands in solids
 |  | * Test students on distinguish conductors, semiconductors and insulators using energy bands.
 |  |
| JUNE | 26 | 4 | * Guide students on the effect of temperature on conductivity of conductors, semiconductors and insulators.
* Guide students to identify types of semiconductors.
* Guide students to describe the mechanisms of doping in intrinsic semiconductors.
 | * Students to explain the effect of temperature on conductivity of solid.
* Students to identify types of semiconductors.
* Students to describe the mechanism of doping.
 |  |  | * Test students to explain the effect of temperature on conductivity of solids.
* Assess students to identify types of semiconductors.
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| **Competence** | **General objective** | **Month** | **Week** | **Main Topic** | **Sub-topic** | **Periods** | **Teaching Activities** | **Learning Activities** | **T/L Materials** | **References** | **Assessment** | **Remarks** |
| -do- | -do- | JUNEJUNE/JULY | 2728 | ELECTRONICS | DiodesRectification.Transistor | 2 | * The teacher to lead students to describe the constructions the construction of a P-N junction.
* The teacher to display different types of diodes.
 | * Students to explain the mode of action of a P-N junction.
* Students to identify types of diodes.
 | * Diodes
* Chart showing diodes.
* P-N junction diode.
* LED
 |  | * Ask students to explain mode of action of P-N junction.
* Test the students on types of diodes.
 |  |
| 22 | * Guide students to discuss a circuit which shows half and full-wave rectification.
* The teacher to display transistors and show a diagram of a transistor.
* The teacher to display transistors.
* Through question and answer technique the teacher to lead students to outline the application of transistors.
 | * Students to construct circuits which show half-wave and full wave rectifications.
* Students to describe the construction of a transistor.
* Students to describe the structure of a transistor.
* Students to identify types of transistors.
* Students to outline the applications of transistors
 | * DC sources
* Diodes.
* Capacitor
* Resistors
* Connecting wires
 |  | * Ask students to construct half wave and full wave rectifier.
* Let students to describe the construction of PNP junction and mode of action of PNP transistor.
* Assess the students work on outlining the applications of transistors.
 |
|  |  |  |  |
| -do- | -do- | * Chart showing a transistors.
* Transistors
* PNP and NPN transistors.
* Radio
* TV
* Voltage amplifier.
 |  |
| **Competence** | **General objective** | **Month** | **Week** | **Main Topic** | **Sub-topic** | **Periods** | **Teaching Activities** | **Learning Activities** | **T/L Materials** | **References** | **Assessment** | **Remarks** |
| -do- | -do- | JUNE/JULY |  | ELECTRONICS | Single stage amplifier | 4 | * The teacher to explain the analogue signal.
* Assist students to explain the concept of digital signals.
* Guide students to design single stage amplifier.
 | * Students to explain the concept of analogue signal.
* Students to explain the concept of digital signals.
* Students in groups to design single state amplifier.
 | * Chart showing analogy signal.
* Mobile phone (analogy)
* Chart showing digital signal.
* Mobile phone (digital)
* Watch
* Transistor
* Resistors
* Oscilloscope
 |  | * Assess students on explaining analogue and digital signal.
* Give work students to design a single stage amplifier.
 |  |
| 32 & 33  |  |  |  |  |
| Students to be able to describe the solar system and other celestial bodies | Promote knowledge on the solar system and relationship with other celestial bodies | JULY | 29 | ELEMENTARY ASTRONOMY | Introduction to astronomy | 2 | * Guide students to explain the concept of astronomy.
* Arrange students in groups and guide students to explain the importance of astronomy.
 | * Students, using think-pair-share technique to explain the concept of astronomy.
* Students in groups to discuss on importance of astronomy in daily life.
 | * Model of universe.
* Chart of universe.
* Clear sky
* Chart of heavenly bodies.
 |  |  |  |
| **Competence** | **General objective** | **Month** | **Week** | **Main Topic** | **Sub-topic** | **Periods** | **Teaching Activities** | **Learning Activities** | **T/L Materials** | **References** | **Assessment** | **Remarks** |
| -do- | -do- | JULY |  | -do- | Solar system | 2 | * Guide students to distinguish between star and planet.
* Guide students to explain the concept of force of gravitation which maintains bodies in their orbits.
 | * Students in group to give the difference between star and planet.
* Students in groups to explain the concept of force of gravitation which maintain bodies in their orbits.
 | * Venus
* Jupiter
* Binoculars
* Chart of earth
* Earth and moon
 |  | * Ask students to distinguish star from planet.
* Ask students to explain the concept of gravitation.
 |  |
| 30 | ELEMENTARY ASTRONOMY | Constellations | 2 | * Guide students to explain the concept of constellation.
* Guide students to identify kinds of constellations.
* Guide students to discuss the uses of constellations in navigation and seasons prediction.
 | * Students to explain the concept of constellations.
* Students to identify and name common constellations.
* Students to discuss with teachers the uses of constellations.
 | * Chart of different constellations.
* Chart showing seasons.
 |  | * Ask students to explain the concept of constellation.
* Test students on the kind and uses of constellations.
 |
| -do- | The earth and the moon | 2 | * The teacher to guide students to describe the surface features and temperature of the moon.
* Teacher to guide students to explain the causes of ocean tides. Students can visit the coast of sea to observe the effects of water tides.
 | * Students to describe the surface features and temperature of the moon.
* Students to write down the observations they made on effects of water tides
 | * Chart of the moon and of the earth.
* Chart of ocean tides
 |  | * Give a group work for students to describe the surface features and temperature of the moon and give the effects of water tides.
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| Describing the occurrence of environmental disaster | Develop knowledge on the occurrence of environmental disaster | JULY | 31 | GEOPHYSICS | Structure and composition of the Earth | 2 | * The teacher to guide students to describe the structure of the earth.
* The teacher to guide students to describe the composition of the layers of the earth.
* Guide the students to explain the importance of the layers of the earth.
 | * Students to describe the structure of the earth.
* Students in groups to describe the composition of the layers of the earth.
* Students in groups to explain the importance of the layers of the earth.
 | * Chart of the structure of the earth.
* Minerals.
 |  | * Give a quiz which covers all these areas.
 |  |
| **32 – 37 LONG VACATION** |
|  |  | SEPTEMBER | 38 |  | The Green house effect and global warming | 2 | * Guide students to explain the green house effect.
* The teachers to lead students to identify sources of green house.
 | * Students in groups to explain the green house effect.
* Students to identify sources of green house.
 | * Chart of green house.
* Chart of ozone layer.
* Green house gases
 |  | * Ask students to tell about green house effect and identify sources of green house
 |
| 2 | * Guide students to explain the occurrence of global warming.
* Guide students to state the consequences of global warming.
 | * Students in groups to explain the occurrence of global warming.
* Students to state the consequence of global warming.
 | * Chart of effect of global warming.
* Pictures of effects of global warming
* Melting ice caps.
 |  | * Ask students to explain the occurrence of global warming and state the consequences of global warming.
 |
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| -do- | -do- | SEPTEMBER | 39 | -do- | Earthquakes and volcanoes | 2 | * The teacher to guide students to explain the origin of volcanoes.
* Guide students to describe the effects of volcanoes.
* Group students and guide them to explain the concept of the earthquake.
 | * Students to explain the origin of volcanoes.
* Students to describe the effects of volcanoes.
* Students in groups to explain the origin of earthquake.
 | * Charts of volcanoes.
* Pictures showing effects of volcanoes.
* Chart of earthquake.
* Picture of earthquake.
 |  | * Give a quiz on origin and effects of volcanoes.
* Ask students to explain the origin of earthquake.
 |  |
| 2 | * The teacher to describe the principle of measurement of earthquakes.
* Assist students to identify the hazards, precautions against earthquake hazards.
 | * Students to discuss in groups how to record the measurement of earthquake.
* Students in groups to identify the precautions against earthquake and hazards.
 | * Seismometer chart.
* Seismometer.
* Animal signs.
* Meteorology report.
 |  | * Ask students to describe the principle of measuring earthquake.
* Test students on identifications against earthquake hazards.
 |
| SEPTEMBER | 40 |  | Structure and composition of the atmosphere | 2 | * Lead students to describe the vertical structure of the atmosphere.
* Guide students to describe the compositions of the atmosphere.
* Guide students to describe the importance of various layers of the atmosphere.
 | * Students to describe the vertical structure of the atmosphere.
* Students using think-pair-technique to describe the composition of atmosphere.
* Students to explain t he importance of various layers of the atmosphere.
 | * Chart of structure of atmosphere showing the layer.
* Communication system.
 |  | * Ask students to describe the vertical structure of the atmosphere.
* Ask students to describe the composition and the importance of various layers of the atmosphere.
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| 41 – 43 R E V I S I O N |
| 44 – 47 **N EC T A E X A M I N A T I O N S** |