

REPUBLIQUE DU CAMEROUN
Paix – Travail – Patrie

MINISTERE DES ENSEIGNEMENTS SECONDAIRES

DELEGATION REGIONALE DE L'OUEST

INSPECTION REGIONALE DE PEDAGOGIE CHARGEE DES SCIENCES

SECTION : PHYSIQUE, CHIMIE ET TECHNOLOGIE
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REPUBLIC OF CAMEROON
Peace – Work – Fatherland

MINISTRY OF SECONDARY EDUCATION

REGIONAL DELEGATION FOR THE WEST

REGIONAL INSPECTORATE OF PEDAGOGY IN CHARGE OF SCIENCES

DEPARTMENT OF: PHYSICS, CHEMISTRY & TECHNOLOGY
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SCHOOL: No OF STUDENTS ON ROLL: ACADEMIC YEAR:
NAME OF TEACHER: QUALIFICATION/GRADE: CLASSES TAUGHT:

REGIONAL HARMONIZED SCHEME OF WORK

PHYSICS – FIRST CYCLE – GENERAL EDUCATION

FORM 1

(Number of periods per week: 02 of 50 minutes each)

TERM	MODULE	FAMILY OF SITUATIONS (MAIN TOPICS)	WEEK	EXAMPLES OF SITUATIONS (SUB-TOPICS)	LESSON CONTENT (CORE KNOWLEDGE)	No OF PERIODS		
FIRST TERM	MODULE 1 THE WORLD OF SCIENCE	INVESTIGATING SCIENCE	1 (02 to 06/09/19)	1. Introduction to science	- Definition and branches of science	01		
					- Definition and branches of physics	01		
			2 (09 to 13/09/19)	2. The science laboratory	- Basic laboratory equipment and their uses	01		
					- Safety rules	01		
			3 (16 to 20/09/19)	3. Careers in science	- Prominent scientists and discoveries	01		
					- Job opportunities for science students	01		
			4 (23 to 28/09/19)	4. Scientific method	- Observing using the 5 senses	01		
					- Measurements using measuring instruments	01		
			5(30/9 to 04/10/19)	INTEGRATION LESSON / EVALUATION				02
			6 (07 to 11/10/19)	5. Physical quantities	- Identifying physical and non-physical quantities	01		
			- Units and SI units	01				
	MODULE II MATTER: PROPERTIES AND TRANSFORMATION	COMMONLY CONSUMED AND USED PRODUCTS	7(14 to 18/10/19)	6. Matter	- States of matter & differences b/w them	02		
			8 (21 to 25/10/19)	7. Change of state	- Conservation of matter	01		
					- Interconversion processes	01		
			9 (28/10 to 1/11/19)	8. Measurement of Mass	- Measurement of mass using common balances	02		
					- Units and conversion of units of mass			
			10 (04 to 08/11/19)	9. Measurement of volume	- Measurement of volume of liquids, regular/ irregular solids	02		
					- Units and conversion of units of volume			
			11(11 to 15/11/19)	INTEGRATION LESSON / EVALUATION				02
			12 (18 to 22/11/19)	10. Measuring density	- Calculation of density from mass and volume	02		
					- Daily uses of density			
				13 (25 to 29/11/19)	11. Measuring temperature	- Calculation of weight from mass	01	
				14 (02 to 06/12/19)	12. Using info on products	- Practical measurement of the body temperature	01	
	MODULE III	EVERYDAY USE OF ENERGY	15 (09 to 13/12/19)	13. Forms of energy	- Definition, forms and sources of energy (heat, chemical, electrical, mechanical and light)	02		
			16 (16 to 20/12/19)	14. Energy needs	- Daily situations where energy is used	01		
							- Common devices that use different forms of energy	01

BREAK	ENERGY: APPLICATIONS AND USES		17 & 18 (23/12/19 to 3/1/20)	FIRST BREAK (FIRST TERM HOLIDAYS)			
SECOND TERM			19(06 to 10/01/20)	INTEGRATION LESSON / EVALUATION		02	
			20 (13 to 17/01/20)	15. Solar energy	- Source, components & uses of solar energy	01	
					- Effects of strong sun rays and its protection	01	
		EVERYDAY USE OF ENERGY	21 (20 to 24/01/20)	16. Thermal energy	- Sources, effects and uses of heat	01	
				- Detection of heat	01		
			22 & 23 (27/01 to 07/02/20)	17. Transmission of heat	- Conduction (definition, conductors and insulators) - Convection (definition & application in ventilation) - Radiation (good and bad absorbers/emitters)	04	
			24 (10 to 14/02/20)	18. Forces and motion	- Demonstrating the effect of a force	01	
					- Other effects of forces	01	
					- Definition of motion		
			25(17 to 21/02/20)	INTEGRATION LESSON / EVALUATION		02	
			26(24 to 28/02/20)	- Safety rules: Use of seat belts, Low speed, Road signs		02	
		MODULE IV HEALTH EDUCATION	HUMAN ORGANS	27 (02 to 06/03/20)	19. Sound	- Musical instruments - Production of sound	01
					- Parts of the human ear & Noise level	01	
	28 (09 to 13/03/20)			20. Temperature	- Body temperature: measurement / health situation	01	
				- Use of hot/ cold substances	01		
				- Sports – posture/ importance to the body			
	MODULE V ENVIRONMENTAL EDUCATION AND SUSTAINABLE DEVELOPMENT	CLIMATE CHANGE	29 (16 to 20/03/20)	21. Radiations	- Toxic waste	01	
				- Background radiation	01		
				- Handling radioactive substances			
			30(23 to 27/03/20)	22. Global warming	- Greenhouse effect – concept and causes		01
BREAK			31 & 32 (30/03 to 10/04/19)	SECOND BREAK (EASTER BREAK)			
THIRD TERM			33(13 to 17/04/20)	INTEGRATION LESSON / EVALUATION		02	
			34(20 to 24/04/20)	23. Climate change	- Greenhouse effects - effects	02	
		MODULE VI TECHNOLOGY	AMELIORATION OF LIVING CONDITIONS. TOOLS AND COMMON APPLIANCES	35(27/4 to 01/5/20)	24. Common tools	- Identification and Uses of common tools	02
				36(04 to 08/05/20)	25. Maintenance	- Lubrication, cleaning & repairs using the tools	02
				37 (11 to 15/05/20)	26. Technical drawing	- Instruments used / Sample drawings	02
		GENERAL REVISION		38-40(18/5 to 5/6/20)	CATCH-UP CLASSES / INTEGRATION LESSONS / END OF YEAR EVALUATION		3 weeks

FORM 2

(Number of periods per week: 02 of 50 minutes each)

TERM	MODULE	FAMILY OF SITUATIONS (MAIN TOPICS)	WEEK	EXAMPLES OF SITUATIONS (SUB-TOPIC)	LESSON CONTENT (CORE KNOWLEDGE)	Nº OF PERIODS			
FIRST TERM	MODULE 1 THE WORLD OF SCIENCE	Investigating science	1 (02 to 06/09/19)	1. The scientific method	– Definition and steps of the scientific method	01			
					– Scientific models, theories and laws	01			
			2 (09 to 13/09/19)	2. Scientific data	– Definition and collection of data	01			
					– Analysis and application of experimental data	01			
			3 (16 to 20/09/19)	3. Density	– Definition and measurement of density	01			
					– Practical measurement of household things	01			
			4 (23 to 28/09/19)	4. Speed	– Definition and measurement of speed	01			
			– Practical measurement in classroom and in sports	01					
			5(30/9 to 4/10/19)	INTEGRATION LESSON / EVALUATION			02		
	MODULE II MATTER: PROPERTIES AND TRANSFORMATION	Properties of matter	6 (07 to 11/10/19)	5. Temperature	– Definition and measurement	01			
					– Temperature scales and conversion	01			
		Characteristics of Matter	7 (14 to 18/10/19)	6. Change of state	– Melting and melting point	01			
			8(21 to 25/10/19)		– Evaporation and boiling point	01			
			9(28/10 to 1/11/19)		– Heating / cooling curves	02			
					– Evaporation / boiling and sublimation	02			
			10 (04 to 08/11/19)	7. Thermal insulation	– Thermal conductors and insulators	01			
					– Methods of heat transfer	01			
					11(11 to 15/11/19)	INTEGRATION LESSON / EVALUATION			02
				12 (18 to 22/11/19)	8. Electrical insulation	– Electrical conductors and insulators: Transmission of electrical energy	01		
			– Electrical insulation and applications	01					
	MODULE III ENERGY: SOME APPLICATIONS AND USES	Everyday use of energy	13 (25 to 29/11/19)	9. Human energy needs	– Forms and sources of energy	01			
					– Energy conversions	01			
			14 (02 to 06/12/19)	10. Renewable energy	– Renewable energy sources	01			
					– Energy problems	01			
			15 (09 to 13/12/19)	11. Electricity	– Devices that use electricity	01			
					– Advantages and inconveniences of electricity	01			
			16 (16 to 20/12/19)	12. Light	– Sources and properties of light	01			
			– Formation of shadow	01					

BREAK			17 & 18 (23/12/19 to 3/1/20)	FIRST BREAK (FIRST TERM HOLIDAYS)		
SECOND TERM			19(06 to 10/01/20)	INTEGRATION LESSON / EVALUATION		01
			20 (13 to 17/01/20)	13. Energy exchanges and motion	– Types of forces: contact and non-contact	01
					– Calculation of velocity and speed	01
	MODULE IV HEALTH EDUCATION	Healthy Living	21 (20 to 24/01/20)	14. Pressure variation in liquids	– Factors affecting pressure Transmission in a liquid	01
				15. Blood pressure	– Measurement of blood pressure	01
			22 (27 to 31/01/20)	16. Muscle stress	– Causes and effects of muscle stress	01
				17. Lenses & eye defects	– Lenses and eye problems	01
	MODULE V ENVIRONME NTAL EDUCATION.	Climate change	23 (03 to 07/02/20)	18. Cosmic radiation	– Origin and effects of cosmic radiations	01
				19. The atmosphere	– Atmosphere and the effects of its destruction	01
			24 (10 to 14/02/20)	20. Green house	– Greenhouse effect – consequences	01
					– Fighting global warming	01
			25(17 to 21/02/20)	INTEGRATION LESSON / EVALUATION		02
			26 (24 to 28/02/20)	21. The soil/rain	– Effects of exposing the soil to heat	01
					– Variation of rainfall in Cameroon	01
	MODULE VI TECHNOLOG Y	Amelioration of living condition. Tools and Common appliances	27 (02 to 06/03/20)	22. Concept of project	– Definition and examples of projects	01
					– Conception and feasibility studies	01
					– House water system – cleaning and lubrication	01
			28(09 to 13/03/20)	23. Appliances	– Common appliances and their functioning	02
			29 (16 to 20/03/20)	24. Technical drawing	– Two-dimensional drawing	01
					– Three-dimensional drawing	01
			30 (23 to 27/03/20)	25. Communication devices	– Basic telecommunication devices	02
BREAK			31 & 32 (30/03 to 10/04/19)	SECOND BREAK (EASTER BREAK)		02 WEEKS
THIRD TERM			33(13 to 17/04/20)	INTEGRATION LESSON / EVALUATION		02
			34(20 to 24/04/20)		– Cell phones	02
	35 – 40 (27/04 to 05/06/20)			CATCH-UP CLASSES / INTEGRATION LESSONS / END OF YEAR EVALUATION		6 weeks

FORM 3

(Number of periods per week: 03)

TERM	MODULE	FAMILIES OF SITUATIONS (MAIN TOPIC)	WEEK	EXAMPLES OF SITUATIONS (SUB-TOPIC)	LESSON CONTENT (CORE KNOWLEDGE)	No of periods
FIRST TERM	MODULE 1: INTRODUCTION TO MECHANICS	Mechanics	1 (02 to 06/09/19)	1. Physical quantities	– Define, list examples & units of physical quantities. – Define and give examples of a scalar quantity	01
					– Name some basic equipment used in the study of force: newton meter, balance, springs, masses etc.	01
					– Safety rules for working with these equipment including signs	01
			2 (09 to 13/09/19)		– Differences between mass and weight – How mass is affected by temperature	01
					– Measurement of mass, volume, temperature and time using laboratory apparatus	02
	MODULE II: MATTER: PROPERTIES AND TRANSFORMATION	Properties of matter	3 (16 to 20/09/19)	2. Density	– Define and states its units – Show density as a derived physical quantity.	01
					– Describe experiments to measure the density of regular and irregular objects	01
					– Solve problems using $\rho = \frac{m}{v}$ – State the applications of the density of a material in engineering works	01
			4 (23 to 28/09/19)	3. Pressure	– Define pressure, stating its units. – State & explain the factors that affect pressure	01
					– Appreciate the relationship between pressure and weather	01
					– Understand the influence of height and density of liquid column on pressure. – Appreciate the transmission of pressure in fluids.	01
			5(30/9 to 4/10/19)		INTERGRATION LESSON / EVALUATION	03
			6 (07 to 11/10/19)		– Solve problems using $\Delta P = h\rho g$ and $P = \frac{F}{A}$ – Appreciate the existence of atmospheric pressure.	02

					- Describe experiments to demonstrate atmospheric pressure e.g. collapsing can experiment - Describe the principle of the manometer.	
					- State effects of pressure on boiling point. - List and explain hazards of high altitudes and deep-sea diving and state precautions to take.	01
		Properties of matter	7 (14 to 18/10/19)	4. Hooke's law	- Sate Hooke's Law - Define elasticity and elastic limit	01
					- Sketch F – e graphs within the elastic limit. - Describe situations in which Hooke's la applies	01
					Stretching of springs, rubber bands and threads	01
	MODULE III: ENERGY: APPLICATIONS AND USES	Energy	8 (21 to 25/10/19)	5. Forms of energy	- Define energy and state its unit. - Name forms of energy	01
					- State different sources of energy. - Distinguish between renewable and non-renewable energy sources	01
					State & apply the law of conservation of energy.	01
					Describe energy transformation in stretching strings, rubber bands and threads	01
					Work	9 (28/10 to 1/11/19)
		Power	10 (04 to 08/11/19)	7. Power		
					- Appreciate the power ratings of some devices e.g. electric iron, light bulbs, electric motors etc. - Do appropriate calculations	02
			11(11 to 15/11/19)	INTERGRATION LESSON / EVALUATION		03
		Machines	12 (18 to 22/11/19)	8. Simple Machines	- Define a machine. - State the advantages of using a machine	01
					Define MA, Velocity Ratio and Efficiency, explaining why efficiency is never 100%	02
			13 (25 to 29/11/19)		- Explain the use of various machines at building sites (Lever, inclined plane and pulley) - Solve the problems involving simple machines	03

	MODULE IV: OPTICS	Light	14 (02 to 06/12/19)	9. Reflection of light	– Represent the paths of narrow beams of light travelling in uniform media by rays	01	
					– Appreciate that objects are seen because of the light they give out or reflect	01	
					– Recall the law of reflection		
					– Describe an experiment to show that the angle of reflection equals the angle of incidence	01	
					– Appreciate the properties of plane mirror images	01	
				15 (09 to 13/12/19)		– shadows	01
						– Construct ray diagrams to show the formation of images by plane mirrors.	01
				16 (16 to 20/12/19)	10. Refraction of light	– Identify refraction phenomena in everyday life. – Define refraction & draw ray diagrams illustrating it	01
						– State the laws of refraction – Define refractive index	01
						– Describe an experiment to determine refractive index of a glass block	01
BREAK		17 & 18 (23/12/19 to 3/1/20)	FIRST BREAK (FIRST TERM HOLIDAYS)				
SECOND TERM		19(06 to 10/01/20)		INTEGRATION LESSON / EVALUATION		03	
		20 (13 to 17/01/20)		– Be familiar with the refraction of light in everyday phenomena e.g. apparent depth of a swimming pole		01	
				– Solve the problems using $n = \frac{\sin i}{\sin r}$, $n = \frac{\text{speed of light in vacuul}}{\text{speed of light in medium}}$ and $n = \frac{\text{real depth}}{\text{apparent depth}}$		02	
				– Explain with the aid of diagrams what is meant by total internal reflection (TIR) – State the conditions for TIR and define critical angle – Draw the path of a totally internally reflected ray at a plane surface		02	
		21 (20 to 24/01/20)		– Draw ray to show the action of totally reflecting prism in periscopes, binoculars and fibre optics. – Solve problems using $\text{sinc} = \frac{1}{n}$		01	

SECOND TERM			22 (27 to 31/01/20)		– Identify types of lenses – Define the terms: Principal axis, optical centre, Focal length and Principal focus for converging and diverging lenses – Explain the action of a lens in terms of refraction by collection of prisms	03
			23 (03 to 07/02/20)		– Draw ray diagrams to illustrate the meaning of principal foci, for converging and diverging lenses – Describe an experiment to determine the focal length of a converging lens by (a) auxiliary plane mirror and (b) distant objects methods	02
			24 (10 to 14/02/20)		– Solve the problems involving the lens formula and magnification, $m = \frac{v}{u}$	01
			25(17 to 21/02/20)		INTEGRATION LESSON / EVALUATION	03
	MODULE V: ELECTROMAGNETIC SPECTRUM	Colours of light	26 (24 to 28/02/20)	11. Dispersion. Electromagnetic Spectrum	– Define dispersion and demonstrate dispersion by prism and diffraction grating.	01
					– Describe and explain how a pure spectrum is obtained from white light.	01
					– Name and explain a natural occurrence of the dispersion of white light	01
			27 (02 to 06/03/20)		– Be familiar with the relative positions of radiation on electromagnetic spectrum, in terms of wavelength and frequency	01
					– Describe methods of detection UV and IR radiations – State the properties of X-rays	01
	MODULE VI: Projects and Elementary Engineering	Amelioration of life style	28 (09 to 13/03/20)	12. Understanding how to go about a project.	– Technical drawing: – General notions involve in technical drawing; – Two-dimensional diagram; – Do an orthogonal representation – Technical Project – Types of technical projects;	03
			29		– Elements involve in a project	03

			(16 to 20/03/20)		– Steps involved in planning a project – Definition of planning – Study the advantages offered by the project; – Feasibility Studies – Theorical knowledge of a simple technical object	
			30 (23 to 27/03/20)		– Bring out the different energy components when using the instrument; – Technical diagram. – Technical studies. – Identification of the movement of certain parts with respect to others (guide, reducing friction...) – Definition: drawing board, mould, welding, soldering, bolt – Realisation of a project. -Understand the uses of measuring instruments and their limitations.	03
BREAK			31 & 32 (30/03 to 10/04/19)	SECOND BREAK (EASTER BREAK)		02 WEEKS
THIRD TERM			33(13 to 17/04/20)	INTEGRATION LESSON / EVALUATION		03
			34 (20 to 24/04/20)	13. Investigating forces	– Understand why and how things move. – Understand the relationship between mass and volume through measurements – Observing colours of light on a CD or DVD and suggesting reasons for their appearance. – Observe a pen or pencil in a glass of water and explain why there are two images. – Use the images to estimate the refractive index of water.	03
	35 – 40 (27/04 to 05/06/20)		CATCH-UP CLASSES / INTEGRATION LESSONS / END OF YEAR EVALUATION			

FORM 4

(Number of periods per week: 03 of 50 mins each)

TERM	MODULE	FAMILIES OF SITUATIONS (MAIN TOPIC)	WEEK	EXAMPLES OF SITUATIONS (SUB-TOPIC)	LESSON CONTENT (CORE KNOWLEDGE)	No OF PERIODS		
FIRST TERM	MODULE I ENERGY: APPLICATIONS AND USES (HEAT)	Climate change	1 (02 to 06/09/19)	1. Temperature	Introduction to heat. – Its importance in everyday life – Some basic equipment used in the study of heat – Safety rules for working with these equipment including signs and symbols	03		
			2 (09 to 13/09/19)		Construction and use of liquid-in-glass thermometers – Appreciate the need for calibrated thermometers to measure temperature	01		
					3 (16 to 20/09/19)	– Read off the numerical values of the fixed points in the Celsius scale of temperature – Calibrate a thermometer using fixed points – Calculate an unknown temperature from the length of the liquid column	01	
						– Appreciate the difference between a clinical and a normal thermometer	01	
						4 (23 to 28/09/19)	Heat capacity and SHC of solids and liquids – Define heat capacity and SHC and state the units of each term – Distinguish between heat capacity and SHC	01
							– Appreciate the use of materials with high & low heat capacities – Do calculations using $Q = mc\Delta\theta$	01
					5 (30/9 to 4/10/19)	– Describe experiments to measure the SHC of a metal & liquid.	01	
			Use of latent heat and specific latent heat – Define and state the units of the two terms – Distinguish between the two terms – Appreciate the cooling effect due to loss of latent heat – Compare the heat content of ℓ and c of the same material			03		
5(30/9 to 4/10/19)					INTEGRATION LESSON / EVALUATION	03		

FIRST TERM			6 (07 to 11/10/19)	Temperature	Conduction, convection and radiation – Define each term – Describe experiments to show the conductivity of different materials – Thermal expansion	01
					– Explain the principle of the bimetallic strip – Appreciate bulk movement of particles of a fluid in convection – Explain the phenomena of land and sea breezes	01
					– Appreciate the factors that affect the rate of radiation – Name devices that convert radiant energy into other forms	01
	MODULE II WAVES	Wave phenomena	7 (14 to 18/10/19)	2. Properties of waves	– Describe wave motion in strings, springs & the ripple tank – Recall and use the equation $v = f\lambda$. – Distinguish b/w longitudinal & transverse waves. Give examples	03
			8 (21 to 25/10/19)		– Define the phenomena of reflection, refraction & interference – Use water waves to show each phenomenon	03
			9 (28/10 to 1/11/19)		– Production of stationary waves – Harmonics and overtones	03
		Vibrations and sound	10 (04 to 08/11/19)	3. The wave nature of sound	– Describe the longitudinal nature of sound – Reflection, Refraction, diffraction and interference of sound – State the approximate range of audible frequencies	02
					– Show an understanding that sound is a mechanical wave	01
			11(11 to 15/11/19)	INTEGRATION LESSON / EVALUATION		03
			12 (18 to 22/11/19)	The wave nature of sound	– Speed of sound in various media. Order of magnitude of speed of sound in air, liquid and solid	01
					– Describe how the reflection of sound will produce an echo	02
			13 (25 to 29/11/19)	4. Forced vibration Resonance	– Describe an experiment to measure the speed of sound in air	02
					– Characteristics of notes	03
					– Relate the loudness and pitch of sound waves to amplitude and frequency respectively	03
			14 (02 to 06/12/19)	4. Forced vibration Resonance	– Explain forced vibration on a string and tube	03
					– Explain resonance and state its applications	03
			15 (09 to 13/12/19)	4. Forced vibration Resonance	– Stationary waves in strings	03
					– Relationship between inter-node distance and wavelength	03
					– Vibration in string. Factors affecting the frequency	03

SECOND TERM	MODULE III ELECTRICAL ENERGY	Electrical energy	16 (16 to 20/12/19)	5. Electrostatics	– Understand that two types of charges exist – Unit / definition of unit of charge – Conductors and insulators	01		
					– Electrification by contact and rubbing (friction) – Understand the type of charge certain material can have such as polythene, Perspex/cellulose acetate.	01		
					– Factors affecting the size of the force b/w 2 charged bodies – State the law of electrostatics	01		
					17 & 18 (23/12/19to3/1/20)		FIRST BREAK (FIRST TERM HOLIDAYS)	
					19(06 to 10/01/20)	INTEGRATION LESSON / EVALUATION		03
			20 (13 to 17/01/20)	Electrostatics	– Electrification by induction	01		
					– The structure and uses of the gold-leaf electroscope	01		
					– Describe experimentally how to distinguish between positively, negatively and neutrally charges bodies	01		
			21 (20 to 24/01/20)		– Give and explain everyday observations of electrostatics – Explain the disadvantages due to electrostatics – Explain some applications of electrostatics	03		
			22 (27 to 31/01/20)	6. Current electricity	– Understand and define electric current – Understand the conditions under which charges move – Understand and state the difference between p.d and e.m.f – Identify and name sources of e.m.f	03		
			23 (03 to 07/02/20)		– Draw circuit diagrams – State and use the relationship $W = QV$ and $P = IV$	03		
			24 (10 to 14/02/20)		– Define resistance and state its units – State and use Ohm’s law in simple calculations	01		
					– State and explain the factors that affect resistance; $R = \rho \frac{\ell}{A}$ – Understand and use the relationship $V = IR$	01		
					– Series and parallel connections of two resistors	01		
			25(17 to 21/02/20)	INTEGRATION LESSON / EVALUATION		03		
			26 (24 to 28/02/20)	Current electricity	– Understand the effects of ac and dc in wires filament lamps and non-inductive coils – Appreciate the heating effect of electric current	03		
BREAK								

					– Explain the advantages of transmitting of transmitting electrical energy at high voltage		
			27 (02 to 06/03/20)		– Calculate power dissipated in simple cases – Calculate energy consumed at home using KWH and ENEO bill	02	
					– Understand the functions of a fuse in a circuit – Select suitable fuses various electrical appliances	01	
					– Understand the need for good electrical contact and earthing in house wiring circuits	01	
			28 (09 to 13/03/20)		– Compare linear and ring circuits in house wiring	01	
					– Understand and appreciate the need for safety precautions in electrical installations	01	
					29(16 to 20/03/20)	7. Display signals	– Structure and functions of the CRO
	MODULE VI PROJECTS AND ELEMENTARY ENGINEERING	Improving on life-style	30 (23 to 27/03/20)	8. Production of appliances	– Technical drawing – Cross-section of an object – Know how to construct and calibrate a thermometer – Know that different substances have different thermometric properties – Understand that frequency depends on the length, mass and type of material used	03	
			31 & 32 (30/3 to 10/4/19)	SECOND BREAK (EASTER BREAK)			02 WEEKS
			33(13 to 17/04/20)	INTEGRATION LESSON / EVALUATION			03
34 (20 to 24/04/20)			Production of appliances	– Use resonance to measure the velocity of sound in a resonance tube experiment – Thermal conduction in metals, convection in liquids – Know that all appliances have basically four parts; the input, the output, the processing or central unit and the power supply – Know for a computer that the input is the key board, the central unit is the process and memory unit, the output is the screen	03		
THIRD TERM	35 – 40 (27/04 to 05/06/20)		CATCH-UP CLASSES / INTEGRATION LESSONS / END OF YEAR EVALUATION			6 weeks	

FORM 5

(Number of periods per week: 03 of 50 mins each)

TERM	MODULE	FAMILIES OF SITUATIONS (MAIN TOPIC)	WEEK	EXAMPLES OF SITUATIONS (SUB-TOPIC)	LESSON CONTENT (CORE KNOWLEDGE)	No Of periods	
FIRST TERM	MODULE I FIELDS: MAGNETIC FIELDS AND THEIR EFFECTS	Magnets	1 (02 to 06/09/19)	1. Attraction and repulsion of specific materials	What is a magnet? Name some types of magnets	01	
					Magnetic properties of a dipole magnet		
					How is a magnet different from a non-magnet?		01
					State the difference b/w the magnetic properties of iron & steel		
			Appreciate that magnetic poles exist in pairs.	01			
			State the laws of magnetism.				
			List the uses of magnet				
			2 (09 to 13/09/19)	2. Magnetic field	Define Field lines and magnetic flux.	01	
		Set up various patterns for magnetic flux around a single permanent magnet and also two permanent magnets placed side by side.					
		Know the properties of magnetic field lines.			01		
		Draw magnetic flux pattern.					
		Understand how the earth's magnetic field is used in navigation (using magnetic compasses)	01				
		Current in a magnetic field	3 (16 to 20/09/19)	3. Magnetic effect of current	Understand the magnetic effects of a steady current.	01	
					Use the compass to identify that magnetic fields are produced when current flows in a conductor		01
					Sketch and understand magnetic flux patterns for a straight wire, a flat circular coil and a solenoid, each carrying a current and also the pattern for a strong permanent dipole magnet.	01	
4 (23 to 28/09/19)	4. Force on a current carrying conductor placed in a magnetic field				Appreciate that there is a force on a current-carrying conductor placed in a magnetic field as long as the conductor is not parallel to the field.	01	
			Appreciate that there is a force on a charged particle when it moves in a magnetic field as long as the particle is not parallel to the field.	01			
			Understand that the force on a current-carrying conductor in a magnetic field increases with the strength of the field & the current.		01		
Sketch and recognize the magnetic flux patterns for a straight wire carrying a current perpendicular to the plane of a magnetic field.							
5(30/9 to 4/10/19)	INTEGRATION LESSON / EVALUATION				03		

			6 (07 to 11/10/19)	5. Electromagnetic induction	- What is electromagnetic induction? - State Faraday's law / Lenz's law	01
			7 (14 to 18/10/19)	6. Alternating current	- Describe the construction of electromagnets and state its uses - List the factors that affect induced current in conductor placed in changing magnetic field	02
					Describe experiments to demonstrate that induced current increases when the rate of change of magnetic field lines increases.	01
					- Understand how voltage and current vary with time. - Understand the production of induced e.m.f.	01
					- Appreciate electromagnetic induction as an energy transfer process. - Understand the concept of mutual and self-induction	01
					Be familiar with the structure and functioning of the transformer.	01
					Appreciate the factors that affect the efficiency of a transformer.	01
			8 (21 to 25/10/19)		- Relate the turns ratio of an ideal transformer to the ratio of the input to output voltages. - Differentiate between direct current and alternating current.	01
	MODULE II ENVIRONMENTAL PROTECTION MODERN PHYSICS	The atom			9 (28/10 to 1/11/19)	7. The relative sizes of nuclei and atoms
			- Understand the relative mass of the electron. - Structure of the atom and the nucleus. - Relative sizes and masses of the nucleus and atom.	01		
			- Bohr model of the atom. - Relative charges of electrons and nucleons. - State nucleus as containing protons and neutrons	01		
			Radiation	10 (04 to 08/11/19)		
		- Define radioactivity - Distinguish between natural and artificial radioactivity.			01	
		- Understand some nuclei emit particles such as α, β and γ - Properties of α, β and γ.			01	
		11(11 to 15/11/19)			INTEGRATION LESSON / EVALUATION	
		12	The nucleus	Identify α, β & γ radiations from their speed, range in air, penetration.	01	

			(18 to 22/11/19)		Identify α , β and γ radiations from their ionization ability, deflection in electric and magnetic fields.	01
			13 (25 to 29/11/19)		The GM – tube (uses only)	01
					Use of the diffusion cloud chambers to detect radiations	01
					Balanced nuclear equations.	01
					Stability of the nucleus. Relate N – Z ratio to the stability of the nucleus.	01
					Explain the meaning of half – life and state its importance.	01
					Understand the importance and use of isotopes.	01
					What are radioisotopes?	01
			14 (02 to 06/12/19)		Define background radiation.	01
					Name sources of background radiation.	
					Understand the concept of background radiation and how it is used in calculation and count rate.	
					Appreciate the environmental and health hazards caused by background radiation.	01
	Appreciate that radiations are easily detected, hence their uses.					
	Name areas of use such as: medicine; agriculture and dating, understand how the uses relate to their properties	01				
	Name areas of uses such as: Industry; food preservation; therapy; etc. understand how the uses relate to their properties.					
	Explain the effect of ionizing radiation on humans, showing how it depends on the type of radiation, the activity of the sources and the type of tissue irradiated.					
15 (09 to 13/12/19)	Define fusion and fission & state the differences between them.	01				
	Explain the origin of the energy released during nuclear decay. Interpret nuclear reaction.					
	State safety precautions that must be observed when handling radioactive materials.	01				
	Name some diseases caused by exposure to radiation					
MODULE III MECHANICS	Forces	15 (09 to 13/12/19)	9. Scalars and vectors	Define scalar and vector quantities. Give examples in each case.	01	
				Understand how to use, denote, and express (through diagrammatic and algebraic representation) scalar and vector quantities		
		16 (16 to 20/12/19)	10. Types of forces	Do calculations involving, addition, subtraction and resolution of vectors in 2 dimensions only. Understand vector diagrams.	01	
				Define force and state its units.	01	
Define contact and non-contact forces giving examples.						
		Appreciate the importance of force in everyday life situations.				

SECOND TERM					– Describe the advantages & disadvantages of the effect of forces.	01
					– Draw free body diagrams.	01
					– Solve problems involving addition and subtraction of forces.	01
			17 & 18 (23/12/19 to 3/1/20)	FIRST BREAK (FIRST TERM HOLIDAYS)		
			19 (06 to 10/01/20)	INTEGRATION LESSON / EVALUATION		03
			20 (13 to 17/01/20)	Types of forces	– Resolve a force into two perpendicular parts	01
					– Force due to gravity, g and its variation over the earth's surface.	01
			21 (20 to 24/01/20)	11. Newton's laws of motion	– Calculate weight W = mg	01
					– Differentiate between mass and weight.	01
			22 (27 to 31/01/20)	12. Force	– Relate drag force with velocity.	01
					– State Newton's laws.	01
			23 (03 to 07/02/20)	13. Moment	– Appreciate life situations such as seat belt, movement of rockets, sports, air-bags, etc.	01
					– Define and state the unit of force and momentum and show how the two physical quantities are related from Newton's second law	01
			24 (10 to 14/02/20)	14. Conditions for equilibrium	– Define moment and couple.	01
					– Describe simple experiments on moment and couple	01
			25 (17 to 21/02/20)	15. Linear motion	– State the principle of moment and do calculations on coplanar force.	01
					– Name and describe everyday situations where torque and couples are used. e.g. opening of tap, handle bars of a bicycle, moving coil galvanometer, simple motor	01
			26 (24 to 28/02/20)	Linear motion	– The lever and gear systems.	01
					– State conditions for static and dynamic equilibrium	01
			27 (03 to 07/02/20)	Kinematics	– Define distance, displacement, speed, velocity, acceleration and state their units.	01
					– Describe experiments to measure velocity and acceleration.	01
			28 (10 to 14/02/20)	Kinematics	– Apply knowledge of concepts in everyday situations like sports and moving objects.	01
					– Draw velocity – time graphs.	02
			29 (17 to 21/02/20)	Kinematics	– Use the graph to determine; acceleration, initial speed, total distance.	01
					– Study graph for velocity and uniform acceleration.	01
			30 (24 to 28/02/20)	Kinematics	– Use the equations of motion	01
					– Describe experiments to measure acceleration of free fall, g .	01
			31 (24 to 28/02/20)	Kinematics	– Do calculations using the equations of motion.	01
					– Do calculations using the equations of motion.	01

				16. Conservation of linear momentum	- Define linear momentum - Do calculations on $p = mv$. - State the principle of conservation of linear momentum. - Describe experiments to demonstrate the principle of conservation of linear momentum. - Describe real life situations where the principle is applied, e.g. collisions, explosions, water jets, etc - Do appropriate calculations where mass is constant	02
	MODULE VI PROJECT AND ELEMENTAR Y ENGINEERIN G	Improving on living conditions	27 (02 to 06/03/20)	17. Production and uses of appliances	Preservation and maintenance of appliances.	01
					Definition of maintenance. The essential elements in a repair box. (give the name, role and method of application) Understand the labelling on appliances.	01
			28 (09 to 13/03/20)		Techniques of dismantling and assembling of appliances.	01
					1.4.1. Technique FOLI (Dismantling)	01
					First out last in 1.4.2 technique LIFO (Assembling) Last in first out	01
					Applications: radio, computers, testers, screw-drivers, soldering iron	01
	29 – 30 (16 to 27/03/20)	INTEGRATION LESSONS / MOCK EXAMS				02 weeks
BREAK	31 & 32 (30/03 to 10/04/20)	SECOND BREAK (EASTER HOLIDAYS)				02 WEEKS
THIRD TERM	33 – 40 (13/04 to 22/05/20)	- CATCH-UP CLASSES IF NEED BE - REVISION OF MOCK - GENERAL REVISION IN PREPARATION FOR GCE EXAMS				06 weeks

Note: A summarised version of this scheme, for each class, must be pasted in the log book.