MINISTRY OF EDUCATION AND VOCATIONAL TRAINING
SCHEME OF WORK

Name of teacher:_____
Year: **2023**
Class/Stream: **FORM TWO**

Name of School: **.....**
TERM: **1 & 2**
Subject: **PHYSICS**

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	JANUARY		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**?**	
			3				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.	

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							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?	
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			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?	

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			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?	
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		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.	
							i) 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**

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							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		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.	
			6			**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**

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.							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. ii) 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.	
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		F E B R U A R Y	**7 - 7**		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.			
			8 - 8				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			
			9				iii) 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**

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					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**

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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. The teacher to display different types of magnetic and non-magnetic materials and organise for their testing on magnetic behaviour.	Students in groups using gallery walk to discuss the origin of magnetism. Students to identify magnetic and non magnetic materials.	- Reference books -Internet - Magnets - Iron rod - Cobalt plate - Neckel rod - Copper rod - Piece of wood	 Complete Junior Physics	Is the student able to explain the origin of magnetism. Is the student be able to identify magnetic and non magnetic materials/substances?	
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		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 MIDTERM EXAM / MIDTERM BREAK									
		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**

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		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?	
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					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**

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			13 & 14			**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		
			14 15	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.	-			
		A P R I L		**MID – TERM BREAK**								

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		APRIL	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?	

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							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?	
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		APRILY	**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			
		MAY	**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?	

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							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.				
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		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.			

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			(20 – 21) TERMINAL EXAM & ONE WEEK BREAK									
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		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?	
							To organize students to discuss application of levers in daily life.	Students to discuss applications of levers in daily life.			Is the student able to use levers in daily life?	

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			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.				
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		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.	

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							- 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.				
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		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?	
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			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?	
		J U N E / J U L Y	**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			
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		JULY	**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?	
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		JULY/OCTOBER	**28**		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?	
			29				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)								

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		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?	

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							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?	
							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		-Is the student able to state Newton's 3rd Law of motion.	

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							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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		SEPTEMBER/OCTOBER	**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 Measurement 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			

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							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.			

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							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?	

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							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	
COMPETENCE	**GENERAL OBJECTIVES**	**MONTH**	**WEEK**	**MAIN TOPIC**	**SUB-TOPIC**	**PERIODS**	**TEACHING ACTIVITIES**	**LEARNING ACTIVITIES**	**T/L MATERIAS**	**REFERENCES**	**ASSESSMENT**	**REMARKS**

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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?	
							Lead the students to discuss the applications of wind mill in daily life.	In groups to discuss the application of the wind mill.	-		- Is the student able to use wind mill in daily life?	
			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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		NOVEMBER	**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?	