Year ……		Term ……		Subject ……..				

No.	Unit/competency	Lesson/competency level	Teaching leaning process/learning outcomes	No. of periods	Quality Inputs	Proposed Date	Date taught	Signature of teacher	Note of supervision
	1.0: Explores life and life processes in order to improve productivity of biological systems	1.1: Investigates the importance of chemical basis of life	1.State carbohydrates, proteins, lipids and nucleic acids as major bio molecules of living matter	3	A4 sheets,Laborarory equipments and chemicals,Reference materials,Pictures of nutrient deficiencies				
			2.State that carbon, hydrogen, oxygen and nitrogen are most abundant elements in living matter						
			3.State the composition and examples of carbohydrates, proteins, lipids and nucleic acids.						
			4.Introduce enzymes as proteins which catalyze chemical reactions in the cell or body.	2					
			5.Conduct simple activities to demonstrate the action of enzyme.						
			6.Briefly explain unique characteristics of water related to life (respiratory medium, as a solvent, thermal regulation of body, as a medium of transport, and living medium).	2					
			7.Accept that water is essential for life forms on the Earth.						
			8.Describe the roles of carbohydrates, proteins, lipids, nucleic acids, minerals, vitamins and water.	1					
			9.Ilustrate the importance of minerals and vitamins to the biological systems.	2					
			10.State the deficiencies of minerals and vitamins.						
			11.Appreciate the nature of living matter.						
				10					
	3.0: Utilizes various forms of energy, their interaction with matter and energy transformations by maintaining efficiency and effectiveness at an optimum level	3.1: Investigates the quantities related to rectilinear motion and the use of graphs of motion to analyze the rectilinear motion	1.Describe physical quantities related to motion (distance, displacement, speed, velocity and acceleration).	1	A smooth trolley, a long pin, a small amount of clay, a stop watch, a long smooth flat plank (8 feet x 6 inches), a metre tape, a clamp stand				
			2.Distinguish between average speed and speed, average velocity and velocity.						
			3.Solve problems using average speed = distance travelled/time taken average velocity = displacement/time taken acceleration = change in velocity/time taken	1					
			4.Construct s-t graphs using given data and data obtained from a simple activity.	2					
			5.Describe velocity from s-t graphs.						
			6.Construct v-t graphs using given data	1					
			7. Explain that gradient obtained from v-t graph is the acceleration of motion.						

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				2					
			8.State that the area under the curve of a v-t graph is the displacement of the object.						
			9.Obtain relevant information from s-t and v-t graphs.	1					
			10.Accept the importance of the information obtained from s-t and v-t graphs in describing the nature of rectilinear motion of a body	1					
				9					
	2.0: Investigates matter, properties of	2.1: Investigates scientific findings about structure of	1 .Describe planetary model of atoms.	2	Samples of metals, non metals and metalloids given in the syllabus, a modern full periodic table, wire, beads of different sizes and colours, Styrofoam boards, marker pens				
			2. Accept that electrons exist in energy levels and there is a maximum number of electrons that each energy level can occupy.						
			3.Describe electronic configuration as a way of expressing the arrangement of electrons in energy levels.	1					
			4.Write the electronic configuration of first 20 elements in the periodic table.						
			5.Construct periodic table of first 20 elements based on their electronic configuration.	2					
			6.Describe the terms group and period.						
			7.Derive a relationship between the position of an element in the periodic table and its electronic configuration.						
			8. Define the term 'isotope'.	1					
			9.Denote isotopes of an element with the standard notation.						
			10.Accept that classification of elements facilitates learning about elements.						
			11.Describe the term first ionization energy and electronegativity	2					
			12.Identify the variation pattern of first ionization energy and electronegativity of elements along a period and down a group.						
			13.Accepts that there is a pattern in the variation of first ionization energy and electro negativity along a period and a group.						
			14.Describe the properties of metals, non metals and metalloids in relation to the given examples.						
			15.State the acidic, basic and amphoteric nature of oxides formed by of third period determents	2					
			16. Define valency of an element.						
			17.Deduce the valency of first twenty elements based on their positions in the periodic table.	2					

No.	Unit/competency	Lesson/competency level	Teaching leaning process/learning outcomes	No. of periods	Quality Inputs	Proposed Date	Date taught	Signature of teacher	Note of supervision
			18. Formulate chemical formulae of compounds using valency.						
				12					
	3.0: Utilizes various forms of energy, their interaction with matter and energy transformations by maintaining efficiency and effectiveness at an optimum level	3.2: Uses Newton's laws of motion to describe the effects of a force	1. conduct simple activities to show the effect of a force. describe the concept of force using Newton's first law of motion.	1	Smooth pulleys, smooth trolleys, spring balances, rubber bands				
			2. State Newton's laws of motion.						
			3. Describe the concept of force using Newton's first law of motion	1					
			4. Show experimentally that (when m is constant) (when F is constant).	2					
			5. Express Newton's second law of motion as F=ma. E						
			6. Use the relationship F=ma relevantly in appropriate situations to solve problems						
			7. Define the SI unit of force.	1					
			8. Express Newton's third law of motion.						
			9. Explain that action and reaction are two mutual forces equal in magnitude and opposite in direction which are acting in the same straight-line on two bodies.						
			10. Express that weight of an object is the forces attracted towards the earth and it is equal to the product of the mass and the gravitational acceleration	2					
			11. Appreciate the importance of Newton's laws of motion to explain the applications of force in day-to-day life.						
			12.Explain the concept of momentum using relevant examples from day-to-day lif	2					
			13 .Conduct simple activities to show the factors affecting momentum.						
			14. represent momentum as the product of mass and velocity.						
			15. accept that the concept of momentum can be used to explain the relevant day-to-day phenomena.						
	3.0: Utilizes various forms of energy, their interaction with matter and energy transformations by maintaining efficiency and	3.3: Investigates the nature and uses of friction	1. conduct simple activities to show the nature of friction.. .	1	A cuboid wooden block of equal size, sand papers, rubber bands, spring balances and newton balances				
			2. explain the variation of static frictional force between two surfaces with the external force						
			3. conduct experiments to identify the factors affecting the limiting frictional force (It depends on the nature of the surfaces and the normal reaction. It does not depend on the area of the surfaces)	1					
			4. distinguish ' static friction', 'limiting friction' and 'dynamic friction'.						

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	effectiveness at an optimum level		5. state that the dynamic frictional force acts on a moving object and it is constant. Also it is slightly lower than the limiting frictional force.	1					
			6. accept that friction always opposes relative motion between two surfaces. However, it is also utilized to produce motion.						
			7. appreciate the uses of friction in human activities.						
	1.0: Explores life and life processes in order to improve productivity of biological systems	1.2: Discovers the structure of plant and animal cells	1. classify a set of given cells as plant and animal cells using specific features.	2					
			2. state the concept of a typical cell						
			3. state that the cell is structural and functional unit of life, all organisms are made up of one or more cells and all cells arise from pre-existing cells						
			4. appreciate cell as a structural and functional unit of life.						
			5. accept the microscopic nature of cell organelles.	1					
			6. compare and contrast the structure of the animal and plant cells.	2					
			7. outline briefly the structure and functional relationship of cell organelles.						
			8. label organelles in a given diagram of cell.						
			9. explain cell growth and cell division.	2					
			10. state that mitosis and meiosis are the types of cell division						
			11. compare mitosis and meiosis.						
			Revision						
			Term Test						
	2nd Term								
i	2.0: Investigates matter, properties of matter and their interaction to enhance the quality of life	2.2: Uses mole to quantify elements and compounds	1. define the term atomic mass unit.	3	Textbook, beads or seeds of various masses				
			2. define the term relative atomic mass						
			3. calculate relative atomic mass of a given atom						
			4.define the term relative molecular mass	2					
			5. calculate relative molecular mass of a given molecule.						
			6. calculate relative molecular mass of a compound using relative atomic mass of constituent elements.	2					
			7. define Avogadro constant.	2					
			8.describe mole as the unit of amount of substance.						
			9.state the definition of mole						
			10 carry out calculations based on the relationship among mass, amount of substances and molar masses	3					

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			11. accept that relative atomic mass and relative molecular mass have no units while molar mass has unit.	3					
	1.0: Explores life and life processes in order to improve productivity of biological systems	1.3: Uses characteristics of living matter to differentiate the living from non-living	1. explain cellular organization, nutrition, respiration, sensitivity, excretion, movement, reproduction, growth and development as characteristics of living matter. .	4	Pictuers of cells, Microscope,Clay ,Cover slips,Glass slides				
			2. evaluate evidences to classify living and non-living matter.	1					
			3. respect all living matter as life forms.						
			4. accept that some living forms are difficult to differentiate as living or non-living.						
	3.0: Utilizes various forms of energy, their interaction with matter and energy transformations by maintaining efficiency and effectiveness at an optimum level	3.4: Makes jobs easy using resultant of forces	1. describe the concept of resultant of forces.	1	Trolleys, pulleys, a horizontal surface with white paper pasted slotted mass.				
			2. conduct simple activities to show the effect of the resultant of forces.						
			3. conduct simple activities to find resultant of two collinear forces acting in the same direction and also in opposite directions.	1					
			4. conduct simple activities to find the resultant of two parallel forces acting in the same direction.						
			5. solve simple numerical problems to find the resultant of two collinear forces and of two parallel forces (the line of action of resultant force is not necessary)	2					
			6. accept that a large force can be obtained by collection of small forces.	1					
			7. accept that there are ways of varying the magnitude and direction of a force according to the situation.						
	2.0: Investigates matter, properties of matter and their interaction to enhance the quality of life	2.3: Relates properties of compounds with the existing bonds	1.express that electrons participate in the formation of chemical bonding.	2	Different colour beads, ekkels and clay, beakers, connecting wires, bulbs, sodium chloride, sugar, Bunsen burner, batteries/dry cells, laboratory atomic model sets.				
			2.describe that atoms form cations by losing electrons and anions by gaining electrons.						
			3. accept that elements form chemical bonds to become stable						
			4. determine the charge of an ion formed by a given atom based on its electronic configuration.	1					
			5. state that electron transfer takes place during the formation of ionic bonds.						

No.	Unit/competency	Lesson/competency level	Teaching leaning process/learning outcomes	No. of periods	Quality Inputs	Proposed Date	Date taught	Signature of teacher	Note of supervision
i			6. illustrate the formation of ionic compounds diagrammatically.	2					
			7. accept ionic bond as a strong electrostatic attraction between cations and anions.						
			8. describe that covalent bond is formed by sharing pairs of electrons between atoms.	2					
			9. draw Lewis structures for simple covalent compounds.						
			10. construct models of ionic and covalent compounds	1					
			11. describe that a bond formed between two different atoms are polarized due to their electronegativity differences.	1					
			12. state that intermolecular bonds are formed in water due to the polarization of water molecule.						
			13.conduct simple activities to demonstrate physical properties of ionic and covalent compounds.	1					
	3.0: Utilizes various forms of energy, their interaction with matter and energy transformations by maintaining efficiency and effectiveness at an optimum level	3.5: Estimates and calculates the turning effect of a force	1. conduct simple activities to demonstrate the turning effect of a force.	1	A uniform wooden or aluminum strip in which holes are drilled at equal distances from its centre, suitable stand to pivot the wooden or aluminum strip at a height of about 25 cm from the table, weights of several values				
			2. describe the factors affecting the moment of force.	1					
			3. express the moment of a force about a point as the product of the force and the perpendicular distance from the point to the line of action of the force.						
			4. express the unit of the moment of a force as N m.						
			5. state that the turning effect of the moment of a force can be clockwise or anticlockwise.	1					
			6. make calculations involving the moment of force.	2					
			7. accept the importance of turning effect of a force in day-to-day activities						
			8. describe the moment of a couple of forces.	1					
			9. make a list of instances where moment of a couple of forces apply in day-to-day life.						
			10. accept that moments appear in couples in many practical situations.						
	3.0: Utilizes various forms of energy, their interaction with	3.6: Investigates the conditions of equilibrium of forces	1. explain the equilibrium of forces on a body.	1	Spring balances, a metre ruler, a plastic pan with a diameter of 3 cm on which two				
			2. construct simple arrangements to demonstrate the equilibrium of forces.						
			3. explain the conditions necessary for two forces to be in equilibrium.						

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	matter and energy transformations by maintaining efficiency and effectiveness at an optimum level		4. explain the conditions necessary for three parallel forces to be in equilibrium.	2	connectors are fixed across two edges of a diameter and a similar plastic pan on which three connectors are fixed from three places				
			5. describe practical applications of equilibrium of forces.						
			6. state the conditions necessary for three non-parallel forces to be in equilibrium (qualitatively).	1					
			7. accept that the equilibrium can exist under more than three forces too.						
i	1.0: Explores life and life processes in order to improve productivity of biological systems	1.4: Classifies organisms using suitable methods	1. explain the importance of classification.	1	Classification charts,Pictures of plants and animals,Video clips				
			2. state that there are natural and artificial methods of classification.						
			3. state the domains as Archaea, bacteria and Eukarya.						
			4. classify the living organisms as major groups – bacteria, protista, fungi, plantae and animalia based on their specific features.	2					
			5. identify monocots from dicots using their distinct features.	1					
			6.classify non flowering plants as seed bearing and non seed bearing with examples.	1					
			7.classify invertebrates as Coelenterate, Annelida, Mollusca, Arthropoda and Echinodermata.	3					
			8.classify vertebrates as Pisces, Amphibia, Reptilia, Aves and Mammalia.	3					
			9. write scientific names using binomial nomenclature.	1					
	1.0: Explores life and life processes in order to improve productivity of biological systems	1.5: Investigates the contribution of reproduction in maintaining the continuity of organisms	1.differentiate sexual and asexual reproduction using suitable examples. .	1					
			2. conduct simple activities to demonstrate vegetative propagation in plants.	2	Specimens pf plant parts, Pictures of reproductive systems of human,Video clips				
			3.explain basics behind tissue culture	1					
			4.explain sexual reproduction in plants.	2					
			5. identify the methods of dispersal of fruits and seeds and their adaptations for it	1					
			6.accept the concept of sustainable use of plant resources.						
			7. describe the processes of fertilization and implantation.	1					
			8.explain importance of menstrual cycle in human reproduction.	1					
			9.describe sexually transmitted diseases	1					
			10.act as a responsible citizen with regard to sexual behaviour.						
			Revision						
			Term Test						
	3rd Term								

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	3.0: Utilizes various forms of energy, their interaction with matter and energy transformations by maintaining efficiency and effectiveness at an optimum level	3.7: Uses the principles and laws of hydrostatics to realize activities related to sinking, floating and pressure transmission	1.make simple devices to show the pressure exerted by liquids and gases.	1	An aneroid barometer, a hydrometer, a Ureka vessel, a cylinder-bucket apparatus Instructions				
			2.express hydrostatic pressure (p) in terms of height of liquid column (h),density of liquid (ρ) and gravitational acceleration (g).	1					
			3. calculate the pressure exerted by a liquid using the expression p = hρg						
			4. present examples of instances where liquid pressure is used productively at present.						
			5. Conduct simple activity to demonstrate pressure transmission.	2					
			6.accept the importance of pressure to make work easier.						
			7. accept that the transmission of pressure is very useful in modern technology.						
			8.state that atmospheric pressure can be measured by using the mercury barometer and the aneroid barometer.	1					
			9. state that atmospheric pressure varies with altitude.						
			10. obtain the reading of atmospheric pressure using aneroid barometer.						
			11 conduct simple activities to show the factors affecting up-thrust acting on a body due to a liquid.	2					
			12. demonstrate Archimedes' principle using a simple activity (calculations are not expected).						
			13. use simple set-ups to show the conditions necessary for sinking and floating.	1					
			14. explain the concepts of sinking and floating according to the weight of the object and the up-thrust.						
			15. accept that sinking and floating of objects in liquids is determined by the up-thrust exerted by the liquid and the weight of the object						
			16.explain the principle and the use of hydrometer.	1					
			17. use the hydrometer to measure density of liquids.						
	2.0: Investigates matter, properties of matter and their interaction to enhance the quality of life	2.4: Uses chemical changes suitably to fulfill necessities in life	1. differentiate chemical changes from physical changes.	2	Mg ribbon, Fe powder, Zn, Cu, Sulphur powder, $KMnO_4$, $KClO_3$, Zn, $CuSO_4$ solution, Cu				
			2.conduct simple activities to demonstrate different types of chemical reactions.						
			3.state the types of reactions with examples.	2					
			4.classify given reactions under each type.						
			5.write balanced chemical equations using inspection method.	1					
			6. appreciate the importance of chemical symbols, formulae and equations as a way of communication.						

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			7.conduct simple activities to demonstrate reactions of the given metals with air, water and dilute acids.						
			8. compare reactivity of given metals with air , water and dilute acids and construct the activity series for the given metals based on their reactivity.						
			9. state that activity series is based on reactivity of metals.						
			10. determine the position of given metals in the activity series based on displacement reactions.	2					
			11.state uses of activity series.						
			12.accept that there is a relationship between reactivity of the metal and its position in the activity series.						
			13.explain how the method of extraction of the metals is related to their positions in the activity series.						
			14. describe the method of extraction of iron by reduction using blast furnace.						
			15.write the basic reactions involved in the extraction of iron from hematite.	1					
			16.relate the method of extraction of gold with its position in the activity series.						
			17.suggest a suitable extraction method for a given metal based on its position in the activity series.						
			18. name suitable chemicals that can be used to prepare hydrogen, oxygen and carbon dioxide gases in school laboratory.						
			19. write relevant chemical reactions of the preparation of hydrogen, oxygen and carbon dioxide gases in school laboratory.						
			20. collect samples of hydrogen, oxygen and carbon dioxide gases using suitable apparatus.	2					
			21.state physical properties of hydrogen, oxygen and carbon dioxide gases.						
			22. conduct simple tests to identify hydrogen, oxygen and carbon dioxide gases.						
			23 list the uses of hydrogen, oxygen and carbon dioxide gases.						
	2.0: Investigates matter, properties of matter and their interaction to enhance the	2.5: Takes necessary measures to control the rate of reaction as required in day-to-day life	1. give examples from day to day life for relatively fast and slow reactions.	1	Na2S2O3, CaCO3, HCl acid, Iron wool and nails H2O2, MnO2 Thermometer.				
			2. define the term rate of reaction.						
			3. state the factors affecting the rate of reaction.	3					
			4. conduct simple activities to demonstrate the factors affecting the rate of reaction						
			5. explain how a given factor affects the rate of reaction.						

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	quality of life		6. accept that the rate of reaction can be controlled as required.	1					
	3.0: Utilizes various forms of energy, their interaction with matter and energy transformations by maintaining efficiency and effectiveness at an optimum level	3.8: Quantifies the mechanical energy and power in mechanical processes	1. state that the work done by a force is the product of the magnitude of the force and the displacement in the direction of the force.	1	A rubber band, a helical spring, a suitable apparatus to show the energy transformations between gravitational potential energy and kinetic energy				
			2.make simple devices to demonstrate the applications of kinetic energy and potential energy.						
			3. explain the two forms of mechanical energy as kinetic energy and potential energy.	1					
			4. provide the expression for kinetic energy as						
			5. provide the expression for gravitational potential energy as with reference to a zero potential level.						
			6. do calculations involving work, kinetic energy and gravitational potential energy.	1					
			7. accept that kinetic energy, gravitational potential energy and elastic potential energy can be used for human energy requirements.						
			8.accept that energy is used to do work.	2					
			9. state power as the rate of doing work. (work done/time taken)						
			10. calculate the power.						
	3.0: Utilizes various forms of energy, their interaction with matter and energy transformations by maintaining efficiency and effectiveness at an optimum level	3.9: Uses fundamental principles and laws of current electricity to understand and control the action of simple circuits	1. conduct simple activities to demonstrate the difference between static electricity and current electricity.	1	Resistors, a voltmeter, an ammeter, connecting wire, a switch, a rheostat				
			2. state the direction of conventional current in relation to the direction of electron flow						
			3. accept that a flow of current occurs due to a potential difference.	2					
			4. describe that an electric source is used to supply a potential difference to a circuit.						
			5. state that the emf of a source is the potential difference between its terminals when no current flows from the source						
			6.explain the resistance as a factor which opposes the flow of electric current	1					
			7.conduct a simple activity to show the factors affecting the resistance of a conductor (length, cross-sectional area and resistivity)						
			8. conduct a simple experiment to show the relationship between V across a conductor and I.	2					
			9. show graphically the variation of potential difference with current						
			10.use the relationship between V and I to express Ohm's law as V = IR						
			11. state R as resistance of the conductor.						
			12.find the resistance of a resistor using the resistor colour code.						
			13. identify different types of resistors.						

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			14. show qualitatively the variation of resistance in series and parallel combination using simple devices.	1					
			15.give expressions for the equivalent resistance of resistors in series and in parallel combinations.	1					
			16. calculate the equivalent resistance in series and in parallel combinations.	2					
			17. calculate the equivalent resistance in series and in parallel combinations.						
			18.accept that series and parallel combinations of resistors are very important in controlling the current in a circuit to suit the given condition.						
	1.0: Explores life and life processes in order to improve productivity of biological systems	1.6: Investigates the patterns of inheritance of traits in organisms	1. collect and present some examples to show common heredity characteristics in living world.	2	Beads (100 white and 100 red per group), beakers or suitable containers, text book, web resources, relevant pictures and articles				
			2. conduct bead experiment to investigate patterns in heredity.						
			3.explain Mendel's work on heredity using one pair of contrasting characteristics.	3					
			4.construct a Punnet square.						
			5.appreciate Mendel's experimental procedure as an example for effective use of scientific method						
			6.describe chromosomes, sex chromosome, autosome, gene, gene expression and gene-linkage.	2					
			7. show understanding of concepts in gene linkage to explain genetic disorders such as Hemophilia, Color blindness, Thalasemia and Albinism.	2					
			8.describe the possibility of manipulating genes quoting examples from the fields of food, agriculture, medicine and industries.						
			9. accept the importance of avoiding marriages among blood relatives.	2					
			10. explain how genetic engineering is applied in various fields.						
			Revision						
			Term Test						