

SN	Units	Credit Hour							
			K	U	A	HA	QN	FM	FM
1	Science & Scientific Studies	7							3
2	Information and Communication Technology	14	2x1	4x1	2x1	2x1	10	7	4
3	Classification of Living Beings	6							3
4	Life Cycle	5							2
5	Evolution	6	2x1	4x1	2x1	1x1	9	21	8
6	Anatomy and Life Process	16							6
7	Nature and Environment	6							2
8	Force and Motion	11							5
9	Machine	5							3
10	Sources of Energy	8							4
11	Wave	16	2x2	3x2	5x2	4x2	14	28	7
12	Electricity and Magnetism	12							6
13	The Universe	5							3
14	Atomic Structure and Chemical Bond	13							5
15	Chemical Reaction	6							3
16	Gases	6							3
17	Metal and Non-metal	5	1x4	2x4	2x4	2x4	7	19	2
18	Carbon and Its Compounds	6							3
19	Materials Used in Daily Life	7							3
		160	12	22	22	19	40	75	75

K=Knowing Level, U=Understanding Level, A= Applying Level, HA=Higher ability level, MCQ=Multiple Choice Questions, VSAQ=Very short answer questions, SAQ=Short answer questions and LAQ=Long answer questions.

Unit	Topics	Per iods	Teaching Methods	Teaching Materials	Evaluation techniques & tools	Rem Arks
1.	<p>Science & Scientific Studies Scopes of Science :-Physics - Chemistry , - Biology -Astronomy , -Environmental Science - Professional opportunities on the fields of science 1.2 Achievements and challenges brought by science and technology. 1.3 Safety measures on scientific experiments 1.4 Scientific measurement 1.41. Introduction of Scientific notation 1.4.2 Introduction and uses of metric prefixes, precision 1.4.3 Uses and need of average in measurement.</p>	5	i. Introduce the fields of science, scientific studies and to seek professional opportunities in these fields. ii. review the achievements and challenges brought by science and technology. iii. adopt safety measures while conducting scientific experimental work iv. use scientific notation, metric prefixes, precision and average in measurement.	Measuring cylinder, pan balance, spring balance, weights, etc	1) Class test 2) Home work 3) Viva 4) Judgement of problem solving	
12.	<p>Astronomy and Geology Universe 12.1 Introduction of Nebula and Black hole. 12.2 Life cycle of star -Birth -Red giant - Nova and Super nova 12.3 International and national agencies involved in astronomy</p>	3+1 =4	i. give a general introduction of nebula and black hole ii. give a simple introduction to the life cycle of a star iii. analyze the scientific facts about the universe and the significance of eastern philosophy 1) Group discussion 2) Demonstration 3) Presentation 4) Question answer 5) Explanation	Movies, chart, figure of disaster etc.	1) Presentation skill 2) Individual involvement 3) Viva 4) Class test	
7	<p>Physics/ Astronomy Motion & Force 7.1 Equations of motion - acceleration in st. linear motion - Uniform & non-uniform acceleration ,non-uniform velocity - Inertia and effects 7.2 Graph of time motion and acceleration 7.3 Newton's three laws of motion - Newton's fist law of motion and their uses in daily life and equation - Newton's second law of motion and their uses in daily life and equation - Newton's third law of motion and their uses in daily life and equation 7.4 Elasticity and plasticity</p>	8 + 2 = 10	i. derive and use motion equations based on the definition of average speed and acceleration in straight linear motion. ii. draw a graph of transfer-time and a graph of motion-time and to distinguish equal and unequal speed / acceleration on the basis of inclination of the corresponding lines. iii. explain, demonstrate, and apply Newton's three laws of motion iv. introduce elasticity and plasticity based on the effect of consequential force on the shape and size of the object 1) Discussion 2) Explanation 3) Problem solving 4) Question answer	Toy car, tin cane, beaker, post card, coin, balloons, rope tog of bar. Rope, spring balance, etc.	Problem solving skill Viva Class test Home work Equation derivation	
14	<p>Chemistry Atomic Structure and Chemical Bond 14.1 Introduction of Atomic structure Niels Bohrs atomic structures 14.2 Radio activity 14.3 Radioactivity and emissions -Introduction of nuclear fission and nuclear fusion - Alpha , Beta and Gamma Rays -Introduction of Atomic Energy and their uses. 14.4 Valence shell and Valance electron, Octet and duplet valance 14.5 Introduction of Ions -Types and formation of Ions - Examples of Ions</p>	10 + 1 = 11	i. describe the atomic structure of blue bore ii. give a general introduction to radioactive emissions (nuclear fusion and nuclear fission) and to state the conditions required for these processes. iii. give an example of the utility of nuclear energy iv. illustrate the process and process of formation of chemical bonds on the basis of octet and duplicate with examples. v. explain the general concept of valence and ion and write the molecular formula of compounds. vi. write the molecular formula of ordinary compounds and to find the molecular weight using Crisscross	Valency written cards, molecular formula written cards. Molecular structure chart	1) Viva 2) Class work 3) Home work 4) Unit test 5) Involvement of discussion and project work 6) Model making	

	<p>- Elements up to 20 atomic number 14.6 Chemical bonds and their types 14.7 Formation of chemical bond 14.8 Molecular formula - Methods of writing molecular formula - Find the molecular weight with the Crisscross method</p>		<p>method 1) <i>Playing</i> 2) <i>Project work</i> 3) <i>Discussion</i> 4) <i>Question answer</i> 5) <i>Explanation</i></p>		
15	<p><u>Chemical Reaction</u> 15.1 Introduction of chemical reactions and chemical equations 15.2 Ways to right balances chemical equation 15.3 Importance of chemical reaction in daily life 15.4 Endothermic and exothermic reactions</p>	4	<p>i. introduce chemical reactions and chemical equations ii. write a balanced chemical equation iii. give examples of thermal and heat absorbing chemical reactions iv. describe the importance of chemical reaction in daily life. 1) <i>Problem solving</i> 2) <i>Question answer</i> 3) <i>Discussion</i> 4) <i>Element/radical valency chart</i></p>	different chemicals and relevant chemical reactions in laboratory	1) Balancing equation skill 2) Viva 3) Class activities
2.	<p><u>Biology</u> <u>Classification of plants & animals</u> <u>[Organism]</u> 2.1 Introduce the binomial nomenclature system of classification 2.2 Relationship between different level of classification 2.3 Features of Monera, Protista and Fungi 2.4 Importance of the classification of organisms.</p>	4	<p>i. introduce the binomial nomenclature system of organisms and to write the scientific names of some prevalent organisms. ii. define a genus on the basis of the concept of species and to define species as a basic unit of classification. iii. clarify the relationship between the different levels of classification of organisms according to the five world systems iv. describe the main features of Monera, Protista and Fungi worlds with examples 1) <i>Field study</i> 2) <i>Mini file report</i> 3) <i>Discussion</i> 4) <i>Question answer</i></p>	chart, museum specimen, etc.	1) Viva 2) Class activities 3) Home work 4) spotting test 5) project work
3.	<p><u>Mushroom</u> 3.1 Importance of use of mushroom 3.2 Economic importance of mushroom 3.3 Importance of mushroom for human health 3.4 Ways of conservation of mushroom for longtime 3.5 Life cycle of mushroom 3.6 Features of poisonous and edible fungi.</p>	4	<p>i. describe the importance of mushrooms. ii. identify edible fungi and poisonous fungi. iii. describe briefly life cycle of fungus. 1) <i>Field study</i> 2) <i>Observation</i> 3) <i>Explanation</i> 4) <i>Discussion</i> 5) <i>Question answer</i></p>	charts, figure of different types of mushroom , mushroom diagram. edible and non edible fungus and mushroom.	1) Drawing skill 2) Class performance 3) Home work 4) Unit test 5) Terminal test
	<u>Revision</u>	42			

CURRICULUM PLAN: 2079
Mid-Terminal Examination

Science

Class: 9
Science

Unit	Topics	Per r	Teaching Methods	Teaching Materials	Evaluation techniques & tools	Rem arks
8	<p align="center"><u>Physics</u></p> <p><u>Machines</u> 8.1 Introduction of inclined plane, pulley, wheel and axle as simple machine 8.2 Mechanical advantage and velocity ration of inclined plane, pulley, wheel and axle 8.3 Working principle of simple machine and their efficiency 8.4 Complex machine 8.5 Efficiency of simple machine</p>	8	i. introduce inclined plane, pulley, wheel and axle as simple machine and to do mathematical calculation regarding mechanical advantage and velocity ratio. ii. explain the working principle of simple machine and to introduce efficiency. iii. describe a complex machine as a combination of a simple machine. 1) Problem solving 2) Discussion 3) Explanation 4) Question answer	Chart papers model of machines, etc.	1) Class test 2) Problem solving skill 3) Home work 4) Unit test	
16.	<p align="center"><u>Chemistry</u></p> <p><u>Some gases</u> 16.1 Hydrogen ,Oxygen gas , Nitrogen gas 16.2 Preparation of hydrogen , Nitrogen and oxygen gases in laboratory 16.3 Chemical and physical properties of hydrogen and oxygen gas , Nitrogen 16.4 Introduction Ozone layer - Formation of ozone layer -depletion of ozone layer Effect of ozone layer depletion</p>	12	i. construct and describe the properties of hydrogen and oxygen gases in the laboratory ii. describe the utility of hydrogen and oxygen gases iii. introduce the ozone layer, explain its formation and depletion process and explore its significance 1) Practical 2) Demonstration 3) Discussion 4) Explanation 5) Question answer	Beakers, gas jars, different apparatus for lab preparation of gases, Different chemicals required. 1) Practical skill 2) Participation evaluation 3) Oral test	
5	<p align="center"><u>Biology</u></p> <p><u>Life process</u> 5.1 Tissue Introduction and types of tissue 5.1.1 Plant tissue -Meristematic tissues - Permanent tissues (Simple tissue and complex tissue and special tissue) 5.1.2 Animal tissue - Epithelial tissue - Muscular tissue -Connective tissue -Nervous tissue 5.2 Human Nervous system - Central Nervous System and Parts of Central Nervous System - Peripheral Nervous System - Autonomic Nervous System 5.3 Human Glandular System - Exocrine Gland and Their Functions Endocrine Gland and Their Functions 5.4 Hormones (Plant hormones) -Cytokines and their functions -Tissue culture and use</p>	13	i. introduce tissue and to describe the types, parts and functions of plant and animal tissues. ii. explain the structure, function and interrelationship of different parts of human nervous system. iii. identify the different parts of the human brain and to describe their functions. iv. compare glands on the basis of duct and secretion by introducing glandular system. v. introduce human hormones and describe their functions and effects. vi. introduce plant hormones and to describe the use of plant growth hormones. 1) Field visit 2) Demonstration 3) Discussion 4) Question answer	chart; movies, etc	1) Participation in discuss 2) Class work 3) Home work	
23	<p align="center"><u>Information and Communication Technology</u></p> <p>13.1 Introduction of telecommunication technology 13.2 Introduction of artificial satellite in telecommunication - Significance of artificial satellite in telecommunication 13.3 Use of Internet in modern communication technology - search of information by use of internet -Search of filetype, Inurl, and site, map, weather with the help of internet -find about the copy right of search material. 13.4 Uses of online security</p>	16	i. introduce the working process of telecommunication technology ii. mention the importance of artificial satellite in telecommunication technology iii. describe and use the Internet as a modern technology in telecommunication systems iv. search for learning materials on the Internet v. identify and adopt online security 1)Discussion 2) Explanation 3) Demonstration 4) Practical 5) Question answer	Demonstration chart, different taste materials, movies, charts, etc	1)Homework 2)class test 1) Observation of practical work 2) Oral test	
	Revision 3	49				

Unit	Topics	Per	Teaching Methods	Teaching Materials	Evaluation techniques & tools	Remarks
9	Sources of energy	12				
10.	<p>Physics</p> <p>Waves</p> <p>10.1 Introduction and types of waves - Introduction and differences between longitudinal and transverse waves - introduction and differences between mechanical and radiation waves</p> <p>10.2 Electromagnet spectrum - Introduction of Electromagnetic waves and Electromagnetic spectrum - Application of electromagnetic waves -Radio waves - Infrared waves -light waves - Ultraviolet waves -X-rays -Gama ray</p> <p>10.3 Introduction of X-ray photography and methods of uses.</p> <p>10.4 Introduction of CT scan and methods of use .</p> <p>10.5 Reflection of sound waves uses of reflected sound.</p> <p>10.6 Uses of ultrasonography technology in health examination</p>	15	<p>i. Identify longitudinal and transverse waves and mechanical and radiation waves and differentiate between them.</p> <p>ii. Introduce radiation spectra and give examples of their use of different segments</p> <p>iii. give a brief introduction of X-ray photography and CT scan method</p> <p>iv. demonstrate the reflection of sound waves and to explore the daily uses of reflected sound</p> <p>v. summarize the operation of ultrasonography technology used in health examination</p> <p>1) Practical 2) Demonstration 3) Discussion 4) Explanation 5) Question answer</p>	glass slab, prism, drawing board, thumb pins, pins, charts, drawing papers, etc.	<p>1) Practical performance</p> <p>2) Viva</p> <p>3) Class work</p> <p>4) Homework</p>	
17.	<p>Metal and Non –metal</p> <p>17.1 Introduction of Metal and Non-metal - Physical properties of metal and non-metal - Chemical properties of metal and non-metal</p> <p>17.2 Sources and importance of minerals for human body.</p> <p>17.3 Effect mercury and lead on the human health.</p>	12	<p>i. distinguish between metals and non-metals</p> <p>ii. mention the sources and importance of essential minerals for human body</p> <p>iii. write down the names of the sources of mercury and glass that may enter the human body and to find out its negative effects</p> <p>1. Demonstration 2. Discussion 3. Explanation 4. Question answer</p>			
4	<p>Biology</p> <p>Evolution</p> <p>4.1 Concept of evolution</p> <p>4.2 Evidences of organic evolution</p> <p>4.2.1 Evidences from Fossils</p> <p>4.2.2 Evidences from comparative morphology and anatomy</p> <p>4.2.3 Evidence from vestigial organ</p> <p>4.2.4 Evidences from bridge animals</p> <p>4.2.5 Embryonic evidences</p> <p>4.3 Theory of Evolution</p> <p>4.3.1 Darwin's Theory</p> <p>4.3.2 Lamarck's Theory</p> <p>4.3.3 Hugo De Varies' Mutation Theory</p>	15	<p>i. give the concept of evolution and to describe the evidence related to it</p> <p>ii. explain Darwin's concept of evolutionary theory</p> <p>iii. explain Hugo de Vries' theory of mutation</p> <p>iv. compare the evolution brought about by change and mutation.</p> <p>1) Demonstration 2) Explanation 3) Question answer</p>	GTS model, chart, etc. Photos of Darwin, Lamarks etc. Chart	<p>1) Memory test</p> <p>2) Class work</p> <p>3) Home work</p> <p>4) Oral test</p>	
		54	Revision 6			

Unit	Topics	Per iods	Teaching Methods	Teaching Materials	Evaluation techniques & tools	Remarks
11	<p align="center">Physics</p> <p>Electricity & magnetism</p> <p>11.1 Introduction of electric current and to solve mathematical problems using $I = Q / t$ formula.</p> <p>11.2 Introduction and differences of electromotive force and potential difference.</p> <p>11.3 Define Ohm's unit and use $R = V/I$</p> <p>11.4 Introduction of series and parallel combination of potential differences.</p> <p>11.5 Effect of heat and light on electricity.</p> <p>11.6 Introduction of electrical potential - Simple mathematical problems related to electrical potential.</p> <p>11.7 Problems of electricity consumption and electricity tariff.</p>	15	<p>i. define electric current and to solve mathematical problems using $I = Q / t$ formula</p> <p>ii. Introduce electromotive force (e.m.f.) and potential difference (p.d.)</p> <p>iii. define constraint and to use $R = V / I$ formula</p> <p>iv. Introduce the type of blocker / load grouping, describe the features and solve related mathematical problems.</p> <p>v. Introduce practical examples of heating and lighting effects of electricity</p> <p>vi. define electrical potential and to solve simple mathematical problems</p> <p>vii. solve simple mathematical problems of electricity consumption and electricity tariff.</p> <p>1) Practical 2) Demonstration 3) Discussion 4) Explanation 5) Question answer</p>	Circuit materials, ammeter, voltmeter resistor, nichrome wire, magnet, compass needle, dip needle, etc.	<p>1) Practical work</p> <p>2) Oral test</p> <p>3) Class test</p> <p>4) Unit test</p> <p>5) Involvement</p> <p>6) Home work</p>	
18	<p align="center">Chemistry</p> <p>Carbon & its compounds</p> <p>18.1 Introduction of carbon and its compounds</p> <p>18.2 Physical and chemical properties of carbon</p> <p>18.3 Introduction of organic and inorganic compounds</p> <p>18.4 Differences between organic and inorganic compounds</p> <p>18.5 Importance of organic compounds in our daily life</p>	10	<p>i. introduce carbon and explain its source and nature.</p> <p>ii. explain the physical and chemical properties of carbon.</p> <p>iii. distinguish between organic and inorganic compounds.</p> <p>iv. illustrate the usefulness of organic compounds in daily life</p> <p>1) Demonstration 2) Discussion 3) Explanation 4) Question answer</p>	Chart	<p>1) Oral test</p> <p>2) Home work</p> <p>3) Discussion</p>	
19	Materials used in daily life	11				
12,13	<p>Biology</p> <p>Nature and Environment</p>	10				
	Revision	46	Revision 7			