

**ANNUAL
CURRICULUM PLAN
CLASS: XI-SCIENCE**

SESSION 2023-24

ASSESSMENT STRUCTURE FOR THE ACADEMIC SESSION 2023-24

SCHOLASTIC AREA:

English	➤ ASL		Passages ,Grammar& Literature ➤ Objective type questions including multiple choice questions. ➤ Short answer type questions/ Long answer type questions	
Mathematics	➤ Project ➤ Viva		❖ Objective type/ Multiple choice Questions ❖ Very short answer ❖ Short answer/ Long Answers type Questions	
Physics	➤ Laboratory Practical ➤ Project ➤ Viva		❖ Objective type/ Multiple choice Questions ❖ Very short answer ❖ Short answer/ Long Answers type Questions	
Chemistry	➤ Laboratory Practical ➤ Project ➤ Viva		❖ Objective type/ Multiple choice Questions ❖ Very short answer ❖ Short answer/ Long Answers type Questions	
Biology	➤ Laboratory Practical ➤ Project ➤ Viva		❖ Objective type/ Multiple choice Questions ❖ Very short answer ❖ Short answer/ Long Answers type Questions	
Physical Education	➤ Field Practical ➤ Project ➤ Viva		❖ Objective type/ Multiple choice Questions ❖ Very short answer ❖ Short answer/ Long Answers type Questions	
Additional Subject:				
IP	➤ Practical ➤ Project ➤ Viva		❖ Objective type/ Multiple choice Questions ❖ Short answer/ Long Answers type Questions	
School Based Assessment of Co-scholastic Areas (Work Education, General Studies, Health & Physical Education)				
Assessment of Co-scholastic Area		Internally Assessed		

Grading Scale for Scholastic Areas

Marks Range	Grade
91 – 100	A1
81–90	A2
71–80	B1
61–70	B2
51–60	C1
41–50	C2
33–40	D
32& below	E (Needs improvement)

1. Co-Scholastic Activities:

For the holistic development of the students, co-curricular activities in the following areas will be graded term-wise on a 3-point grading scale (**A=Outstanding, B=Very Good** and **C=Fair**). The aspect of regularity, sincere participation, output and team work will be the generic criteria for grading in the following co-scholastic activities

Activity	To be graded on a 3-point scale (A-C)
General studies	By the concerned teacher
Health and Physical Education (Sports / Martial Arts / Yoga / NCC etc.)	By the PE Teacher
Work education	By the concerned teacher

2. Discipline (Attendance, Sincerity, Behaviour, Values):

The students will also be assessed for the discipline which will be based on the factors like attendance, sincerity, behaviour, values, tidiness, respectfulness for rules and regulations, attitude towards society, nation and others. Grading on Discipline will be done term-wise on a 3-point grading scale (**A=Outstanding, B=Very Good** and **C=Fair**).

ENGLISH

Month	Lesson & Topics	No. of Periods	Learning Objectives	Output (Activities)	Teaching Aids /Resources	Experiential Learning	Assessment Tools	Learning Outcomes
June	The Portrait of A Lady		It is a loving tribute to his Grandmother and emotional bond shared with her	Explanatory/Group Discussion	Chart/formats based on topics/NCERT text books	we	Pen paper test /MCQ /oral-test	Throws light on the need of companionship and friendship not only by human-being but also by animals and birds
	The Summer of the Beautiful White Horse	3	Adventure and thrill of you hand strong tribe character	ReadingExplanation/ Quiz	Chart/formats based on topics/NCERT text books	Will enhance the communicative skill and critical thinking	pen paper test /Mcq/oral test	Importance of keeping the values of trust and honesty
	Poem-A Photograph	2	Is developing a aesthetic sense among the learners. Memories are not restricted to one's	Explanatory/recitation	chart/formats based on topics/NCERT text books	will enhance the child's language expression and vocabulary	pen paper test /mcq/oral test	Throws light on the message of impermanence of life
	Writing Skills- Notice, Advertisement	3	Learn new forms of advertising techniques	Format explanation/sm artboard. Wat test	chart/formats based on topics/NCERT text books	will enhance the creative thinking	pen paper-test /Mcq/oral-test	Enhanced the knowledge of vocabulary and creative writing
July	Writing Skills -Poster	2	Will enable the learners to express their ideas cohesively	Drawing posters for various reasons	chart/formats based on topics/NCERT text books	Will help the students in showcasing their creative aspects	pen paper test /mcq/oral test	Enhanced the knowledge of vocabulary and creative writing
	We Are Not Afraid To Die	3	learners will be acquainted to a new kind of adventure, action, suspense	Reading, Explanation/Quiz	chart/formats based on topics/NCERT text books	Will enhance the communicative skill and critical thinking	pen paper test /mcq/oral test	learners will appreciate and imbibe the never say die attitude and strengths of hope

	Discovering Tut	3	Explains Egyptian beliefs and traditions about the afterlife	Lecture and interactive/Debate	chart/formats based on topics/NCERT text books	will develop the quality of crossing examining and will bring clarity and organization in language	pen paper test /mcq/oral test	throws light on the physical as well as mental participation to heritage and culture
August	The Address	3	of crisis that we as an individual encounter in our daily life	Reading, Explanation/Quiz	chart/formats based on topics/NCERT text books	Will enhance the communicative skill and critical thinking	pen paper test /mcq/oral test	Importance of memory in one's life how a girl overcomes all the hardships and wanted to preserve all the memories of her mother
	The Voice of the Rain	2	Comparative study between human life and nature	Explanatory/recitation	chart/formats based on topics/NCERT text books	will enhance the child's language expression and vocabulary	pen paper test /mcq/oral test	Importance of love, reunion, and long lasting relationship.
	Landscape of the Soul	4	presents two instances of paintings to show the beauty and difference in the perception of painters	Lecture and interactive/Speech	chart/formats based on topics/NCERT text books	will enhance the voice modulation and gesture of the child	pen paper test /mcq/oral test	the significance of history in establishing the identity of a culture
	The Ailing Planet	3	raising several issues regarding the declining health of the earth	Explanatory/Group Discussion	chart/formats based on topics/NCERT text books	will enhance the language fluency and leadership quality of the child	pen paper test /mcq/oral test	signifies the eternal role that the rain plays in nurturing, quenching and purifying the various elements of Earth
	Ranga's Marriage	3	is the conflict between tradition and modernity	Explanatory/Group Discussion	chart/formats based on topics/NCERT text books	will enhance the language fluency and leadership quality of the child	pen paper test /Mcq/oral test	One should be prepared for his/her choices in life

	Albert Einstein At School	3	A refusal to confirm to the education and not the learning effects	Lecture and interactive/Debate	chart/formats based on topics/NCERT text books	will develop the quality of crossing examining and will bring clarity and organization in language	pen paper-test /Mcq/oral-test	how a girl overcomes all the hardships and wanted to preserve all the memories of her mother
October	The Browning Version	3	To present the relationship between a student and a teacher	Explanatory/Group Discussion	chart/formats based on topics/NCERT text books	will enhance the language fluency and leadership quality of the child	pen paper-test /Mcq/oral-test	To be punctual and develop a sense of duty and not to indulge in criticism
	Mother's Day	3	status of women in their own household	Lecture and interactive/Speech	chart/formats based on topics/NCERT text books	will enhance the voice modulation and gesture of the child	pen paper-test /mcq/oral test	One should not take his/her mother for granted as it is not at all a respectful thing to do
	Childhood	2	focuses on the loss of innocence	Explanatory/recitation	chart/formats based on topics/NCERT text books	will enhance the child's language expression and vocabulary	pen paper-test /mcq/oral-test	we find how our childhood becomes memory
November	The Adventure	3	To learn the value of adventurous activities	Reading, Explanation/Quiz	chart/formats based on topics/NCERT text books	Will enhance the communicative skill and critical thinking	pen paper-test /Mcq/oral-test	Knowledge comes from experience and perseverance is priceless
	Birth	2	how to take quick decisions at the time of emergency	Lecture and interactive/Speech	chart/formats based on topics/NCERT text books	will enhance the voice modulation and gesture of the child	pen paper-test /mcq/oral-test	how one represses the emotions

December	Silk Road	3	importance of silk road and religious beliefs attached with it	Reading, Explanation/Quiz	chart/formats based on topics/NCERT text books	Will enhance the communicatives skill and critical thinking	pen paper test /mcq/oral test	limit the overuse of resources that are in limited amount
	Writing Skills- Letter Writing	5	Learn new forms of advertising techniques	Format explanation/Wat test	chart/formats based on topics/NCERT text books	students will be able to express their thoughts in more creative way	pen paper test /mcq/oral test	Enhanced the knowledge of vocabulary and creative writing
	The Laburnum Top	2	Symbiotic relationship between the tree and the goldfinch the bird	Explanatory/recitation	chart/formats based on topics/NCERT text books	will enhance the child's language expression and vocabulary	pen paper test /mcq/oral test	we find how our childhood becomes memory
January	Father to Son	2	portrayed the generations gap between a father and his son	Explanatory/recitation	chart/formats based on topics/NCERT text books	will enhance the child's language expression and vocabulary	pen paper test /mcq/oral test	Comprehend and appreciate poetry, and express effectively
	The Tale of Melon City	3	knowledge, intelligence and wisdom are extremely important for survival	Explanatory/Group Discussion	chart/formats based on topics/NCERT text books	will enhance the language fluency and leadership quality of the child	pen paper test /mcq/oral test	Able to understand that the ruler of the state must understand the problems and needs of the people
	The Ghat of the Only World	4	About friendship and commitment	Explanatory/Group Discussion	chart/formats based on topics/NCERT text books	will enhance the language fluency and leadership quality of the child	pen paper-test /mcq/oral-test	one should be always careful with relationships as it takes years to build those relationships
February	Final-Exams						PEN PAPER TEST	

CHEMISTRY

MONTH	No. of Periods	Name of unit	LEARNING OBJECTIVES	TEACHING Aids & Resources	METHODOLOGY/ Activity	EXPERIENTIAL LEARNING	ASSESSMENT TOOLS	LEARNING OUTCOME
June	10	1. Some basic principle of chemistry.	Student will study about the Classification of matter, Measurement in chemistry, SI units, Precision & Accuracy, Scientific notation, Law of chemical combination, Mole concept, different terms to express the concentration of solution. Limiting reagents, Numerical	Smart board & Digi modules, Atomic models, Periodic table chart, internet NCERT text books, Modern abc, Dinesh publication	Lecture method, Discussion and demonstration method, Question-answer method Activity – To verify the law of conservation of mass	Students will analysis the law of conservation of mass by the experiment and will acknowledge its applications	Class response, Pen paper test, Lab activity, Work sheet,	Student will learn about the basic concept of chemistry, Different term of concentration of solution and basic terms used in the measurement.
July	15	2. Structure of atom	Students will study the different atomic models Bohr's model, Electromagnetic radiation, Planks Theory, and the nature of light. Students will study about: Heisenberg's uncertainty principle, Quantum model and quantum numbers, Different rules to write the electronic configurations. quantum model.	Smart board & Digi modules, Atomic models, Periodic table chart, internet NCERT text books, Modern abc, Dinesh publication	Lecture method, Discussion and demonstration method, Question-answer method Activity - To analyse the acid and basic radical in the given salt. (NH₄Cl)	Students will analyse the confirmation of Acid radical (Cl ⁻) and basic radical (NH ₄ ⁺) by performing their individual test.	Class response, Pen paper test, Lab activity, Work sheet, Quiz.	Student will learn about different theory and atomic models of atom, and their significance to understand the micro structure of atom.

MONTH	No. of Periods	Name of unit	LEARNING OBJECTIVES	Teaching Aids & Resources	METHODOLOGY/ Activity	EXPERIENTIAL LEARNING	ASSESSMENT TOOLS	LEARNING OUTCOME
July	10	3.Periodic classification of elements	Students will study about the: Features of Mendeleev's table and modern periodic table with their characteristics, Features of s, p, d and- block elements, Periodic properties Atomic size, Ionization energy, electron gain enthalpy, electronegativity, metallic & Non-metallic properties, diagonal relation & anomalous properties of II period elements.	Smart board & Digi modules, Atomic models, Periodic table chart, internet NCERT text books, Modern ABC, Dinesh publication	Lecture method, Discussion and demonstration method, Question-answer method Activity- To analyze the acid and basic radical in the given salt. (NH₄Br)	Students will analyze the confirmation of Acid radical (Br-) and basic radical (NH ₄ ⁺) by performing their individual test.	Class response, Pen paper test, Lab activity, Work sheet, Quiz.	Student will understand the features of modern periodic Table and the periodic properties of different elements.
August	15	4. Chemical bonding and molecular structure.	Students will learn about the types of bonding and the properties of these compound, Ionic and covalent bond, Bond parameter, VSEPR theory, VBT theory and the concept of hybridization and its types, MOT for diatomic molecules. H-bonding and its types	Smart board & Digi modules, Atomic models, Periodic table chart, internet NCERT text books, Modern ABC, Dinesh publication	Lecture method, Discussion and demonstration method, Question-answer method Activity- Activity- To analyze the acid and basic radical in the given salt. (NH₄)₂CO₄	Students will analyze the confirmation of Acid radical (CO ₃ ²⁻) and basic radical (NH ₄ ⁺) by performing their individual test.	Class response, Pen paper test, Lab activity, Work sheet, Quiz.	Student will learn about the different theory of chemical bonding and molecular structure of different compounds with their properties. Students will understand the behavior of ideal and real gas in different condition with different gas laws, properties of liquid.
	15	5. States of matter	Students will learn about the Properties of gases, Different gas law, Boyle's law, Charles's law, Avogadro's law, Ideal and real gas, Ideal gas equation, deviation towards ideal behavior, Properties of liquids.					

Sept	4	6. Environmental Chemistry	Students will learn about green chemistry Atmosphere, Different types of pollutions, Photochemical smog, Ozone layer soil erosions, Green chemistry.	Smart board & Digi modules, Atomic models, Periodic table chart, internet NCERT text books, Modern ABC,	Lecture method, Discussion, Question-answer method Activity- Prepare a report of soil pollution and water pollution of your area.	Students can apply the abstraction and knowledge to make a judgement towards the environment chemistry.	Class response, Pen paper test, Lab activity, Work sheet, Quiz.	Create awareness about the environment and its Surrounding with green chemistry.
I-term exam								
Oct	15	7. Thermodynamics	Students will learn the generalization of different terms and concept of the laws of thermodynamics for the spontaneous process. Enthalpy, Types of enthalpy, Hess's law and its application & numerical. First, second and third law of thermodynamic, its mathematical expression, Spontaneity criteria. Entropy and Gibb's free energy.	Smart board & Digi modules, Atomic models, Periodic table chart, internet NCERT text books, Modern ABC, Dinesh publication	Lecture method, Discussion and demonstration method, Question-answer method Activity- Find the molarity and strength of HCl solution by M/20 solution of NaHCO ₃ .	They will evaluate the molarity and strength of HCl solution by M/20 solution of NaHCO ₃ by volumetric analysis.	Class response, Pen paper test, Lab activity, Work sheet, Quiz.	Student will learn about the different laws of thermodynamics, and the criteria of spontaneity by the entropy and free energy.
Nov	15	8. Organic chemistry , 9. s- block elements	Classification of carbon compounds, Alkanes, alkenes and alkynes, Homologous series, IUPAC nomenclature, Isomerism and its types, mechanism criteria of chemical reaction. Qualitative and quantitative analysis of different elements	Smart board & Digi modules, Atomic models, Periodic table chart, internet NCERT text books, Modern ABC, Dinesh publication	Lecture method, Discussion and demonstration method, Question-answer method Activity- To analyze the acid and basic radical in the given salt. Pb(NO₃)₂ and Al₂(SO₄)₃	Students will analyze the confirmation of Acid radical (NO ₃ ⁻) and basic radical (Pb ²⁺) and Acid radical (SO ₄ ⁻) and basic radical (Al ³⁺) by performing their individual test.	Class response, Pen paper test, Lab activity.	Student will learn about the classification, IUPAC name of carbon compounds and also the qualitative and quantitative analysis of elements.
	08		Students will study about the Physical and chemical properties of I and II group elements of s-block elements, Diagonal relations, Anomalous properties of Li and Be element. Some important compounds of sodium and calcium.					Students will understand the properties of alkali and alkaline earth metals and their compounds.

Dec	09	10. p-block elements Physical and chemical properties of 13 and 14 group elements	Students will study about the Physical and chemical properties of 13 and 14 group elements of p-block elements, Diagonal relations, Anomalous properties of Boron and carbon. Some important compounds of boron and carbon.	Smart board & Digi modules, Atomic models, Periodic table chart, internet NCERT text books, Modern ABC, Dinesh publication	Lecture method, Discussion and demonstration method, Question-answer method Activity- To analyze the acid and basic radical in the given salt. BaCl₂ Activity- Find the molarity and strength of NaOH solution by M/20 solution of oxalic acid.	Students will analyze the confirmation of Acid radical (Cl ⁻) and basic radical (Ba ²⁺) by performing their individual test.	Class response, Pen paper test, Lab activity.	Students will understand the properties of boron and carbon family and chemistry of their compounds.
	18	11. Hydrocarbons	Students will learn about the Structures, Physical and chemical properties with reactions of alkanes, alkenes, alkynes and aromatic compounds. chemical reaction of preparation, isomerism.			They will evaluate the molarity and strength of NaOH solution by M/20 solution of Oxalic acid by volumetric analysis.		Students will understand the preparation and physical and chemical properties of alkanes, Alkenes, alkynes and benzene.
Jan	10	12. Equilibrium	Students will learn about the physical & chemical equilibrium, their characteristics, Equilibrium state, factors effecting equilibrium state, Le-chatelier principle, Electrolytes, Theories of acid and base, conjugated acid base pair, Oswald dilution law, pH value, common ion effect, Buffer solution.	Smart board & Digi modules, Atomic models, Periodic table chart, internet NCERT text books, Modern ABC, Dinesh publication	Lecture method, Discussion and demonstration method, Question-answer method Activity- Solve the numerical problems	They will solve and evaluate the work sheet, and will enhance the problem-solving skill.	Class response, Pen paper test, work sheet.	They will enhance the knowledge of equilibrium state and factors, concept of acid and base, electrolytes and their behavior.
		13. Redox reactions 14. Hydrogen	concept of oxidation and reduction, Different types of redox reactions, Oxidation numbers, Balancing of redox reaction. Preparation and properties of hydrogen.	Smart board & Digi modules, Periodic table chart, NCERT text books, Modern ABC, Dinesh publication	Lecture method, Discussion and demonstration method, Question-answer method Activity- To analyses the acid and basic radical in the given salt. MgSO₄	Students will analyses the confirmation of Acid radical (SO ₄ ⁻) and basic radical (Mg ²⁺) by performing their individual test.	Class response, Pen paper test, Lab activity, Work sheet, Quiz	Student will learn about the concept of redox reaction and their types. They will also generalize the properties of hydrogen.
Feb	Revision and Annual exam							

PHYSICS

Month	Lesson & Topics	No. of period's	Learning Objectives	Methodology/ Activities	Teaching Aids / Resources	Experiential Learning	Assessment tools	Learning Outcomes
July	Unit-1 Physical World and Measurements (a) Introduction (b) System of units (c) Measurements of length, mass and time. (d) Dimensional Analysis (e) Errors of Measurements	23	Students will be able to learn about measurement in physics.	Introduction. Hypothesis, Demonstration, result and discussion, conclusion	Smart board, Teach Next modules Text book, refreshers, Activity :-To make a paper scale of given least count.	Experiment based on Vernier calipers, Screw gauge, and spherometer.	Pen and paper, project, Lab activity	Students are able to measure the various dimension.
August	Unit-2 Motion in a plane Unit-3 Laws of Motion (a) Newton's law of Motion	16	Students will be able to understand the conceptual and competitive knowledge.	Introduction. Hypothesis, Demonstration, result and discussion, conclusion	Smart board, Teach Next modules Text book, refreshers, Activity : - To determine the mass of a given body using a meter's scale by principle moments.	Students will be able learn about topics with the help of various activities.	Pen and paper, project, Lab activity	Students are able to solve the problems related with motion
Sep.	Friction and Dynamics of circular motion. Unit-4 Work, Energy and Power Unit-5 System of Particles and rotational motion (i) Centre of mass (ii) Moment of Inertia	20	Students will be able to understand the conceptual knowledge of force energy and power	Introduction. Hypothesis, Demonstration, result and discussion. conclusion	Smart board, Teach Next modules Text book, refreshers, Activity : - To plot a graph for a given set of data, with proper choice of scales and errors bars.	Students will be able to perform the lab activities based on force power and energy	Pen and paper, project, Lab activity	Students are able to solve the mechanics problem related with concept so

Oct.	Unit-6 Gravitation- Kepler's law, Newton's law Gravity and Gravitational potential & energy	21	Student will be able to learn about the gravitation and its application in the outer space	Introduction. Hypothesis, Demonstration, result and discussion, conclusion	Smart board, Teach Next modules Text book, refreshers, Activity: - to measure the force of limiting friction For rolling of a roller on a horizontal plane.	A student will be able to perform the activity with the help of inclined plane .	Pen and paper, project, Lab activity	Students are able to understand the concept of gravitation and its application
Nov.	Unit-7 Properties of bulk matter, a) Solids b) Hydrostatics c) Hydrodynamics, d) thermal properties of matter	16	Students will be able to understand the nature of plastic materials and nature of hydrostatic	Introduction. Hypothesis, Demonstration, result and discussion, conclusion	Smart board, Teach Next modules Text book, Activity: - to study the variation in range of a projectile with angle of projection.	Experimental based learning Young's modulus and Surface tension by travelling microscope	Pen and paper, project, Lab activity	Students are able to know about the elastic behaviour of different materials and hydrostatic
Dec.	Unit-8 Thermodynamics, hemodynamics Unit-9 Behavior of perfect gas and kinetic theory.	15	Students will be able to understand About Thermodynamics and behaviour of gasses.	Introduction. Hypothesis, Demonstration, result and discussion, conclusion	Smart board, Teach Next modules Text book, refreshers, Activity: - To study the conservation of energy of a ball rolling down on an inclined plane (using a double inclined plane).	Experiment related with temperature pressure and volume	Pen and paper, project, Lab activity	Students are able to understand about heat, temperature pressure in various condition
Jan.	Unit-10 Oscillations and Waves.	10	Students will be able to understand about the frequency oscillations of longitudinal and transverse waves in various medium	Introduction. Hypothesis, Demonstration, result and discussion. conclusion	Smart board, Teach Next modules. Text book, refreshers, Activity: - To study of energy of a simple pendulum by plotting a graph between square of amplitude and time.	Students will be able to calculate the frequency and tension arises in the medium with the help of resonance tube and sonometer.	Pen and paper, project, Lab activity	Students are able to calculate the frequency speed and time period of wave in the medium

MATHEMATICS

Month	Lesson & Topics	No. of Periods	Learning Objectives	Methodology/ Activities	Teaching Aids / Resources	Experiential Learning	Assessment tools	Learning Outcomes
JUNE	1.Sets 2.Relation and Function & Two Activities (I-Sets II-Relation and Function)	8+5+2=15	(a)Introduction (b)Learning about basic concept of sets , Relation and Function (c)To increase the level of understanding of Sets ,Relation and Functions, and its application	Explanation, Questioner. Problem solving, Induction and Deduction Method. And demonstration	Smart Board,Chart, model Modules, Internet, Lesson Plan. Text Book, Ref. books and Competitive Exams Books and Lab manual etc.	Different Practical Examples connecting in our daily life.	Pen-paper Test, Oral Test, Class Test, Lab work, Quiz, and Model Presentation etc.	Students will be able to solve all related problems (general &practical) from different sources. They will be also developed higher order thinking skills.
JULY	3.Trigonometry 4.Mathematical Induction Principle 5.Complex Numbers	10 + 4 + 4 + 2 = 20	(a)Introduction (b)Learning about basic concept of Trigonometry, Mathematical Induction Principle ,Complex Numbers. (c)To increase the level of understanding about Trigonometry, Mathematical Induction Principle , ComplexNumbers, and its application	Explanation, Questioner,problem solving method,Induction and deduction Method.	Smart Board, Chart ,model Teach Next Modules CD, Internet , Lesson Plan. Textbook. books , Competition books	Examples of different Practical Examples jessing in daily life.	Pen-paper test, Oral test, Class test, Lab work, Quiz, Model Presentation	Students will be able to solve the problem- based questions and develop higher thinking order skills.
AUGUST	5. Quadratic Equations 6. Linear Inequalities 7. Permutations and Combinations 8. Binomial Theorems & One Activity (I-Permutation &Combination)	2 + 5 + 6 + 5 + 2 = 20	(a)Introduction (b)Learning about Quadratic Equations , Linear Inequalities , Permutations and Combinations , Binomial Theorems To increase the level of understanding about Quadratic Equations , Linear Inequalities , Permutations and Combinations , and Binomial Theorems and its application in our daily life	Explanation, Questioner, problem solving method, Induction and deduction Method.	Smart Board,Chart ,model Teach Next Modules CD, Internet , Lesson Plan.TextBook,ref. books , Competition books Pen-paper test, Oral test,Class-test, Lab work, Quiz,Model Presentation	Examples of different Practical Examples jessing in daily life.	Pen-paper test, Oral test,Classtest, Lab work, Quiz,Model Presentation	Students will be able to solve the problem-based questions and develop higher thinking order skills.
SEPTEMBER	Revision For Term-I							
OCTOBER	9. Sequence and series & Two Activities (I-Pascal's Triangle	11+ 4 =15	(a)Introduction (b)Learning about Sequence and Series To increase the level of					

	II-Sequence and series)		understanding about Sequence and series and its application in our daily life					
NOVEMBER	10. Straight Lines 11. Conic Sections	$7 + 8 = 15$	(a)Basic Concept of Straight lines,Conic Sections (b)Application of Straight lines and Conic Sequence	Explanation, Questioner,problem solving method,Induction and deduction Method.	Smart Board, Chart, model Teach Next Modules CD, Internet,Examples Lesson Plan. Text Book,ref. books, Competition books	Examples of different Practical Examples existing in daily life.	Pen-paper test, Oral test,Classtest, Lab work, Quiz,Model Presentation	Students will be able to solve the problem-based questions and develop higher thinking order skills.
DECEMBER	12. Three-Dimensional Geometry 13. Limits and Derivatives & One Activity (I-Three Dimensional Geometry)	$5 + 8 + 2 = 15$	(a Introduction (b)Learning about basic concept of 3D Geometry , Limits and Derivatives and its application in Daily life.	Explanation, Questioner. problem solving method,Induction and deduction Method.	Smart Board, Chart, model Teach Next Modules CD, Internet, Lesson Plan. Textbook,ref. books, Competition books	Examples of different Practical Examples existing in daily life.	Pen-paper test, Oral test, Class test, Lab work, Quiz, Model	Students will be able to solve the problem based questions and develop higher thinking order skills.
JANUARY	14.Mathematical Reasoning 15. Statistics 16.Probability & One Activity [I-Probability]	$4 + 6 + 8 + 2 = 20$	(a)Introduction (b)Learning about basic concept of Mathematical Reasoning,Statistics, Probability and its application in our daily life.	Explanation, Questioner,problem solving method, Induction and deduction Method.	Smart Board, Chart-model Teach Next Modules CD, Internet , Lesson Plan. Textbook. books , Competition books	Examples of different Practical Examples existing in daily life.	Pen-paper test, Oral test,Class test, Lab work, Quiz, Model Presentation	Students will be able to solve the problem-based questions and develop higher thinking order skills.
FEBURARY	REVISION							

CLASS XIBIOLOGY CURRICULUM

S.No	UNIT	NAME OF UNIT	NO. OF PERIODS	MONTH	WORKING DAYS	Marks
1.	I	Diversity in the living world	23	April	22	10
2	II	Structural organization in plants & animals	22	June	14	12
3	III	Structure and function	35	July	27	14
4	IV	Plant Physiology	40	August	22	17
5	V	Human Physiology	40	October- November	20+10=30	17
			160		139	70
No. of working days is counted with the instructions to complete the syllabus by <u>November 15th</u>.						

Month	Topics & Sub -Topics	No of Periods	Learning Objective	Methodology	Teaching tools/Resources	Experiential Learning	Assessment Tools	Learning outcome
June	01.The Living World What is living? Biodiversity; Need for classification; three domains of life; taxonomy and systematics; concept of species and taxonomical hierarchy; binomial nomenclature; tools for study of taxonomy museums, zoological parks, herbaria, botanical gardens	04	It would enable student: <ul style="list-style-type: none"> To introduce living –the meaning, its salient features and diversity. To understand the systematic in the study of living world. To understand the binomial nomenclature. To know taxonomic aids. 	<ul style="list-style-type: none"> Lecture Interaction Demonstration of models, Group assignment brainstorming Discussion Case-study Field exercise Projects Seminars <p>ACTIVITY: Ask students to make herbarium file.</p>	<ul style="list-style-type: none"> Smart Board, videos diagrams (NCERT) mind maps charts specimens, models pictures, actual objects flash cards slides chalk-board books & references <p>NCERT Text book For activity: Pen Paper</p>	Students would be: Able to learn and observe nearby diversity. Able to make herbarium files.	<ul style="list-style-type: none"> Observations Testing & Records Practical approach Checklist & Rating scale Quiz in class In class activity Homework records 	Student would be able to: Brief herbarium, taxonomy, nomenclature botanical parks.

<p>02 Biological Classification Five kingdom classification; Salient features and classification of Monera, Protista and Fungi into major groups: Lichens, Viruses and Viroids</p>	<p>04</p>	<p>It would enable student :</p> <ul style="list-style-type: none"> To know five kingdom classification. To know the characteristics of all kingdoms separately To know viruses, viroids and lichens. 	<ul style="list-style-type: none"> Lecture Interaction Demonstration of models, Group assignment brainstorming Discussion Case-study Field exercise Projects Seminars <p>ACTIVITY: Make a list of five characteristics of viruses which are similar to living organism.</p>	<ul style="list-style-type: none"> Smart Board, videos diagrams (NCERT) mind maps charts specimens, models pictures, actual objects flash cards slides chalk-board books & references <p>NCERT Text book</p> <p>For activity: Pen Paper</p>	<p>Students would be: Able to understand & observe biological diversity near them.</p>	<ul style="list-style-type: none"> Observations Testing & Records Practical approach Checklist & Rating scale Quiz in class In class activity Homework records 	<p>Student would be able to Understand the ecological role of different groups of organism. Understand the need and function of classification.</p>
<p>03. Plant Kingdom Salient features and classification of plants into major groups - Algae, Bryophyta, Pteridophyta, Gymnospermae and Angiospermae (three to five salient and distinguishing features and at least two examples of each category); Angiosperms - classification upto class, characteristic features and examples.</p>	<p>05</p>	<p>It would enable student:</p> <ul style="list-style-type: none"> To know the characteristics of plants. Discuss the challenges to plant life on land. Describe the adaptations that allowed plants to colonize land 	<ul style="list-style-type: none"> Lecture Interaction Demonstration of models, Group assignment brainstorming Discussion Case-study Field exercise Projects Seminars <p>ACTIVITY: Students will collect the seeds of gymnosperms present nearby.</p>	<ul style="list-style-type: none"> Smart Board, videos diagrams (NCERT) mind maps charts specimens, models pictures, actual objects flash cards slides chalk-board books & references <p>NCERT Text book</p> <p>For activity: Pen Paper</p>	<p>Students would be Able to recognize nearby plant species their needs and functions.</p>	<ul style="list-style-type: none"> Observations Testing & Records Practical approach Checklist & Rating scale Quiz in class In class activity Homework records 	<p>Student would be able to: 1. Understand the ecological role of different divisions of plants. 2. To describe unique characters of all division.</p>
<p>04. Animal Kingdom Salient features and classification of animals, non-chordates up to phyla level and chordates up to class level (three to five salient features and at least two examples of each category). (No live animals or specimen should be displayed.)</p>	<p>07</p>	<p>It would enable student:</p> <ul style="list-style-type: none"> To understand the animal kingdom. To understand the taxonomic position. To understand the origin and evolutionary relationship of 	<ul style="list-style-type: none"> Lecture Interaction Demonstration of models, Group assignment brainstorming 	<ul style="list-style-type: none"> Smart Board, videos diagrams (NCERT) mind maps charts specimens, 	<p>Students would be Able to recognize nearby animal species their needs and functions.</p>	<ul style="list-style-type: none"> Observations Testing & Records Practical approach Checklist & Rating scale 	<p>Student would be able to: 1. Understand the ecological role of different groups of chordates. 2. To describe</p>

	<p><u>PRACTICALS:</u> 1.Study of the parts of a compound microscope 2.Study of the specimens/slides/models and identification with reasons 3.Study of virtual specimens/slides/models and identification with reasons.</p>	03	different phylum.	<ul style="list-style-type: none"> • Discussion • Case-study • Field exercise • Projects • Seminars <p><u>ACTIVITY:</u> Make a collection of pictures of animals present around you in different habitats.</p>	<ul style="list-style-type: none"> ➤ models ➤ pictures, ➤ actual objects ➤ flash cards ➤ slides ➤ chalk-board ➤ books & references NCERT Text book <u>For activity:</u> Pen Paper	<p>Students would be</p> <ul style="list-style-type: none"> • Able to know all parts and functions of microscope. • Identify the specimens. 	<ul style="list-style-type: none"> • Quiz in class • In class activity • Homework records 	<p>unique characters of all organism.</p> <p>3. To recognize life functions of living organism.</p> <p>4. Recognize the ecological role of phylum.</p>
July	<p>05. Morphology of Flowering Plants Morphology and modifications: Morphology of different parts of flowering plants: root, stem, leaf, inflorescence, flower, fruit and seed (to be dealt along with the relevant experiment of the Practical Syllabus).</p>	04	<p>It would enable student to understand : The morphology of all parts of plant including fruits, seeds, flowers etc.</p>	<ul style="list-style-type: none"> • Lecture • Interaction • Demonstration of models, • Group assignment brainstorming • Discussion • Case-study • Field exercise • Projects • Seminars <p><u>ACTIVITY:</u> Collect 5 different types of leaves around you on the basis of</p> <p>a) <u>Simple</u> b) <u>compound</u></p>	<ul style="list-style-type: none"> ➤ Smart Board, ➤ videos ➤ diagrams (NCERT) mind maps ➤ charts ➤ specimens, ➤ models ➤ pictures, ➤ actual objects ➤ flash cards ➤ slides ➤ chalk-board ➤ books & references NCERT Text book <u>For activity:</u> Pen Paper Leaves	<p>Students would: Know the most important implication of plant physiology is the elucidation of the subtle processes that regulate energy metabolism in green plants.</p> <p>Students would: Understand and relate the anatomy of plants</p>	<ul style="list-style-type: none"> • Observations • Testing & Records • Practical approach • Checklist & Rating scale • Quiz in class • In class activity • Homework records 	<p>Student would be able to: Understand the morphology, inflorescence and structure of plant.</p> <p>Student would be able to: Understand the anatomy of flowering plants.</p>
	<p>06. Anatomy of Flowering Plants Anatomy and functions of different tissues and tissue</p>	03	<p>It would enable student to understand:</p>	<ul style="list-style-type: none"> • Lecture 	<ul style="list-style-type: none"> ➤ Smart Board, ➤ videos 	<p>Students would Identify the part of animals like earthworm, cockroach and frog.</p>	<ul style="list-style-type: none"> • Observations • Testing & Records • Practical 	<p>Student would be able to: Understand</p>

	systems. 07. Structural Organization in Animal Animal tissues; Morphology, anatomy and functions of different systems (digestive, circulatory, respiratory, nervous and reproductive) of an insect (cockroach). (a brief account only) <u>PRACTICALS:</u> 4. Study of tissues and diversity in shapes and sizes of plant cells 5. Study of tissues and diversity in shapes and sizes of animal cells.	04	The anatomy of plants. It would enable student to understand: Morphology of animals like frog, earthworm and cockroach.	<ul style="list-style-type: none"> • Interaction • Demonstration of models, • Group assignment brainstorming • Discussion • Case-study • Field exercise • Projects • Seminars <p><u>ACTIVITY:</u> Observe a drop of blood under microscope.</p>	<ul style="list-style-type: none"> ➤ diagrams (NCERT) mind maps ➤ charts ➤ specimens, ➤ models ➤ pictures, ➤ actual objects ➤ flash cards ➤ slides ➤ chalk-board ➤ books & references NCERT Text book <u>For activity:</u> Microscope Ethanol Blood Slide Needle	Students would Able to identify the shapes and structure of plant and animal cells.	approach <ul style="list-style-type: none"> • Checklist & Rating scale • Quiz in class • In class activity Homework records	important animal tissues, their functions and role. Describe earthworm, cockroach and frog in detail.
Name of month- July No. of periods- 12+12+11	Cell theory and cell as the basic unit of life: Structure of prokaryotic and eukaryotic cells; Plant cell and animal cell; cell envelope; cell membrane, cell wall; cell organelles - structure and function; endomembrane system, endoplasmic reticulum, golgi bodies, lysosomes, vacuoles; mitochondria, ribosomes, plastids, microbodies; cytoskeleton, cilia, flagella, centrioles (ultrastructure and function); nucleus. 09. Biomolecules Chemical constituents of living cells: biomolecules,	05	It would enable student to understand: <ul style="list-style-type: none"> ▪ The structures and purposes of basic components of prokaryotic and eukaryotic cells, especially macromolecules, membranes, and organelles. ▪ how these cellular components are used to generate and utilize energy in cells ▪ the cellular components underlying mitotic cell division ▪ the process of cell division in both somatic and germ cell. It would enable student to understand: <ul style="list-style-type: none"> • the metabolic activities in mammalian body. 	<ul style="list-style-type: none"> • Lecture • Interaction • Demonstration of models, • Group assignment brainstorming • Discussion • Case-study • Field exercise • Projects • Seminars <p><u>ACTIVITY:</u> Identify major cell components; know structures and functions of components; understand how the parts of a cell interact together.</p> <ul style="list-style-type: none"> • Lecture 	<ul style="list-style-type: none"> ➤ Smart Board, ➤ videos ➤ diagrams (NCERT) mind maps ➤ charts ➤ specimens, ➤ models ➤ pictures, ➤ actual objects ➤ flash cards ➤ slides ➤ chalk-board ➤ books & references NCERT Text book <u>For activity:</u> Pen Paper <ul style="list-style-type: none"> ➤ Smart Board, ➤ videos 	Students would <ul style="list-style-type: none"> • Identify cell organelles and its functions. • Work on cell theory. • Understand plasmolysis, deplasmolysis. 	<ul style="list-style-type: none"> • Observations • Testing & Records • Practical approach • Checklist & Rating scale • Quiz in class • In class activity • Homework records 	Student would be able to: <ol style="list-style-type: none"> 1. Able to describe the function and the composition of the plasma membrane. 2. Able to explain the principles of the cell theory. 3. Able to differentiate between prokaryotes and eukaryotes. 4. Able to understand the importance of the nucleus and its components. 5. Able to understand how the endoplasmic reticulum and Golgi apparatus interact with one another and know with

	<p>structure and function of proteins, carbohydrates, lipids, nucleic acids; Enzymes- types, properties, enzyme action.</p> <p>10.Cell Cycle and Cell Division Cell cycle, mitosis, meiosis and their significance.</p> <p><u>PRACTICALS:</u> 5. Study of plasmolysis in epidermal peels 6. Study of osmosis by potato osmometer. 7. Study of mitosis in onion root tip cells and animals cells (grasshopper) from permanent slides. 8. Study of imbibition in seeds/raisins. 9. Study of external morphology of cockroach through virtual images/models.</p>	<p>04</p> <p>04</p> <p>05</p>	<ul style="list-style-type: none"> the various biomolecules in body. the structural chemistry of proteins, carbohydrates, fats. the functions of biomolecules in body. Secretion <p>It would enable student to understand: The procedure of cell division and how cell passes check points. The process of mitotic and meiotic division.</p>	<ul style="list-style-type: none"> Interaction Demonstration of models, Group assignment brainstorming Discussion Case-study Field exercise Projects Seminars <p><u>ACTIVITY:</u> Make a 3D model of alpha or beta protein, with the ice-cream sticks.</p> <ul style="list-style-type: none"> Lecture Interaction Demonstration of models, Group assignment brainstorming Discussion Case-study Field exercise Projects Seminars <p><u>ACTIVITY:</u> Take some raisins and dip them in</p> <ul style="list-style-type: none"> ✓ Isotonic ✓ Hypotonic ✓ Hypertonic 	<ul style="list-style-type: none"> diagrams (NCERT) mind maps charts specimens, models pictures, actual objects flash cards slides chalk-board books & references NCERT Text book <p><u>For activity:</u> Ice-cream sticks Colours Glue</p> <ul style="list-style-type: none"> Smart Board, videos diagrams (NCERT) mind maps charts specimens, models pictures, actual objects flash cards slides chalk-board books & references NCERT Text book <p><u>For activity:</u> Raisin Water Salt/Sugar Beaker Pedtridish</p>	<p>Students would Conceptualize and relate to enzyme, proteins and antibiotics structure and functions.</p> <p>Students would</p> <ul style="list-style-type: none"> Conceptualize Mitosis and meiosis and their significance Gene expressions Cell division <p>Students would work on:</p> <ul style="list-style-type: none"> Plant-water relations Importance of permeability, diffusion, osmosis, Plasmolysis, imbibition, Absorption of water 	<ul style="list-style-type: none"> Observations Testing & Records Practical approach Checklist & Rating scale Quiz in class In class activity Homework records <ul style="list-style-type: none"> Observations Testing & Records Practical approach Checklist & Rating scale Quiz in class In class activity Homework records 	<p>which other organelles they are associated. 6. Able to Identify the three primary components of the cell's cytoskeleton and how they affect cell shape, function, and movement.</p> <p>Student would be able to: 1. Understand the physiology at cellular and system levels. 2. Describe the role and functions of different biomolecules. 3. Understand meiosis and mitosis.</p>
-	11. Transport in Plants	04	It would enable student to	<ul style="list-style-type: none"> Lecture 	<ul style="list-style-type: none"> Smart Board, 	Students would:	<ul style="list-style-type: none"> Observations 	Student would be

<p>August</p>	<p>Movement of water, gases and nutrients; cell to cell transport, diffusion, facilitated diffusion, active transport; plant-water relations, imbibition, water potential, osmosis, plasmolysis; long distance transport of water - Absorption, apoplast, symplast, transpiration pull, root pressure and guttation; transpiration, opening and closing of stomata; Uptake and translocation of mineral nutrients - Transport of food, phloem transport, mass flow hypothesis.</p> <p>12. Mineral Nutrition Essential minerals, macro- and micronutrients and their role; deficiency symptoms; mineral toxicity; elementary idea of hydroponics as a method to study mineral nutrition; nitrogen metabolism, nitrogen cycle, biological nitrogen fixation.</p> <p>13. Photosynthesis in Higher Plant Photosynthesis as a means of autotrophic nutrition; site of photosynthesis, pigments involved in photosynthesis (elementary idea); photochemical and biosynthetic phases of photosynthesis; cyclic and</p>	<p>05</p> <p>08</p>	<p>understand :</p> <ul style="list-style-type: none"> • Translocation of organic solutes • Source and sink relationships • Growth and development • Physiology-concept of biotic, abiotic and xenobiotic stresses. <p>It would enable student to understand</p> <ul style="list-style-type: none"> • Mineral nutrition and mineral salt absorption • Criteria of essentiality of elements • Micro and macro nutrients • specific functions and deficiency symptoms, mineral salt absorption <p>It would enable student to understand</p> <ul style="list-style-type: none"> • Photosynthesis: photolysis of water, • cyclic and non-cyclic 	<ul style="list-style-type: none"> • Interaction • Demonstration of models, • Group assignment brainstorming • Discussion • Case-study • Field exercise • Projects • Seminars <p>ACTIVITY: Keep a plant pot Filled with lots of water observe the process in the morning.</p> <ul style="list-style-type: none"> • Lecture • Interaction • Demonstration of models, • Group assignment brainstorming • Discussion • Case-study • Field exercise • Projects • Seminars <p>ACTIVITY: Give one spoon urea to a plant and observe the change in it.</p> <ul style="list-style-type: none"> • Lecture • Interaction • Demonstration of models, 	<ul style="list-style-type: none"> ➤ videos ➤ diagrams (NCERT) mind maps ➤ charts ➤ specimens, ➤ models ➤ pictures, ➤ actual objects ➤ flash cards ➤ slides ➤ chalk-board ➤ books & references <p>NCERT Text book For activity: Plant Pot Water Soil Pen Paper</p> <ul style="list-style-type: none"> ➤ Smart Board, ➤ videos ➤ diagrams (NCERT) mind maps ➤ charts ➤ specimens, ➤ models ➤ pictures, ➤ actual objects ➤ flash cards ➤ slides ➤ chalk-board ➤ books & references <p>NCERT Text book For activity: Urea plant</p> <ul style="list-style-type: none"> ➤ Smart Board, ➤ videos 	<ul style="list-style-type: none"> ▪ Movement of water within the plant body. ▪ Translocation of organic solutes. ▪ Plant-soil-water relationship. <p>Students would:</p> <ul style="list-style-type: none"> ▪ Determine the osmotic potential of cell sap by plasmolytic method. ▪ Determine the water potential of plant tissue. ▪ Soil to plant-water potential, osmotic potential <p>Students would:</p> <ul style="list-style-type: none"> ▪ Determine the stomatal index, stomatal frequency and estimate the transpiration rate of 	<ul style="list-style-type: none"> • Testing & Records • Practical approach • Checklist & Rating scale • Quiz in class • In class activity • Homework records <ul style="list-style-type: none"> • Observations • Testing & Records • Practical approach • Checklist & Rating scale • Quiz in class • In class activity • Homework records <ul style="list-style-type: none"> • Observations • Testing & Records • Practical approach 	<p>able to:</p> <ul style="list-style-type: none"> ▪ Know the most important implication of plant physiology is the elucidation of the subtle processes that regulate energy metabolism in green plants. <p>Student would be able to</p> <ul style="list-style-type: none"> • Understand and explain Mineral nutrition • deficiency, symptoms, disease & functions • Translocation of organic solutes. <p>Student would be able to Understand</p> <ul style="list-style-type: none"> • Photosynthesis, • Ultra structure of chloroplast,
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<p>non-cyclic photophosphorylation; chemiosmotic hypothesis; photorespiration; C3 and C4 pathways; factors affecting photosynthesis.</p> <p>14. Respiration in Plants Exchange of gases; cellular respiration - glycolysis, fermentation (anaerobic), TCA cycle and electron transport system (aerobic); energy relations - number of ATP molecules generated; amphiboles pathways; respiratory quotient.</p> <p>15. Plant Growth and Development Seed germination; phases of plant growth and plant growth rate; conditions of growth; differentiation, dedifferentiation and redifferentiation; sequence of developmental processes in a plant cell; growth regulators - auxin, gibberellin, cytokinin, ethylene, ABA; seed dormancy; vernalization; photoperiodism.</p> <p>PRACTICALS: 10. Study of distribution of stomata in the upper and lower surface of leaves 11. Comparative study of the rates of transpiration in the</p>	<p>08</p> <p>05</p>	<ul style="list-style-type: none"> • photophosphorylation, • electron transport system, • C3 cycle, glycolytic metabolism (C2 cycle), CAM pathway, C4 cycle <p>It would enable student to understand</p> <ul style="list-style-type: none"> • photorespiration • Aerobic respiration, • Glycolysis (EMP, PPP) and • TCA cycles and its regulation • anaerobic respiration • mechanism and factors <p>It would enable student to understand</p> <p>Mechanism of translocation, diffusion,</p> <ul style="list-style-type: none"> • Munch hypothesis, source and sink relationships • Phages of growth, growth regulation, • Physiological role and mechanism of action 	<ul style="list-style-type: none"> • Group assignment brainstorming • Discussion • Case-study • Field exercise • Projects • Seminars <p>ACTIVITY: Make a list of bacteria's having autotrophic mode of nutrition.</p> <ul style="list-style-type: none"> • Lecture • Interaction • Demonstration of models, • Group assignment brainstorming • Discussion • Case-study • Field exercise • Projects • Seminars <p>ACTIVITY: Separate plant pigments through paper chromatography.</p> <ul style="list-style-type: none"> • Lecture • Interaction • Demonstration of models, • Group assignment brainstorming • Discussion • Case-study • Field exercise • Projects 	<ul style="list-style-type: none"> ➤ diagrams (NCERT) mind maps ➤ charts ➤ specimens, ➤ models ➤ pictures, ➤ actual objects ➤ flash cards ➤ slides ➤ chalk-board ➤ books & references <p>NCERT Text book For activity: Pen Paper</p> <ul style="list-style-type: none"> ➤ Smart Board, ➤ videos ➤ diagrams (NCERT) mind maps ➤ charts ➤ specimens, ➤ models ➤ pictures, ➤ actual objects ➤ flash cards ➤ slides ➤ chalk-board ➤ books & references <p>NCERT Text book For activity: Pencil Chromatography paper Spinach Acetone/ether</p> <ul style="list-style-type: none"> ➤ Smart Board, ➤ videos ➤ diagrams (NCERT) mind maps ➤ charts ➤ specimens, ➤ models ➤ pictures, 	<p>different types of leaves.</p> <ul style="list-style-type: none"> ▪ Photosynthesis: photolysis of water, cyclic and non-cyclic photophosphorylation, electron transport system. <p>Students would:</p> <ul style="list-style-type: none"> • Determine RQ of different plant material • Understand C3 cycle, photorespiration and glycolytic metabolism (C2 cycle), CAM pathway, C4 cycle. <p>Students would:</p> <ul style="list-style-type: none"> • Observe phages of growth, growth regulation • Observe physiology of flowering - photoperiodism and vernalization • Understand xenobiotic stresses • Crop domestication 	<ul style="list-style-type: none"> • Checklist & Rating scale • Quiz in class • In class activity • Homework records <ul style="list-style-type: none"> • Observations • Testing & Records • Practical approach • Checklist & Rating scale • Quiz in class • In class activity • Homework records <ul style="list-style-type: none"> • Observations • Testing & Records • Practical approach • Checklist & Rating scale • Quiz in class • In class activity • Homework records 	<p>photosynthetic pigments,</p> <ul style="list-style-type: none"> • Concepts of two Photo systems <p>Student would be able to Understand types of respiration – Aerobic: Glycolysis, TCA cycle ETS (Oxidative phosphorylation) respiration.</p> <p>Student would be able to</p> <ul style="list-style-type: none"> • Physiological role and mechanism of action (Auxins, cytokinins, GA, ABA, ethylene); • Physiology of flowering - photoperiodism and vernalization; • Seed dormancy- types and causes, • methods of
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	<p>upper and lower surface of leaves</p> <p>12. Study and description of three locally available common flowering plants,</p> <p>13. Preparation and study of T.S. of dicot and monocot roots and stems</p> <p>14. Separation of plant pigments through paper chromatography</p> <p>15. Study of the rate of respiration in flower buds/leaf tissue and germinating seeds</p> <p>16. Study of different modifications in roots, stems and leaves.</p>	05		<ul style="list-style-type: none"> • Seminars <p>ACTIVITY: Make a list of phytohormones, its location in plant and its function.</p>	<ul style="list-style-type: none"> ➤ actual objects ➤ flash cards ➤ slides ➤ chalk-board ➤ books & references <p>NCERT Text book</p> <p>For activity: Pen Paper</p>	<p>Students would:</p> <ul style="list-style-type: none"> • Identify structure of stomata. • Calculate the rate of transpiration. • Observe and identify the types of flower. • Differentiate dicot and monocot plants root and stem structure. • Separate pigments of chlorophyll by chromatography. • Observe modifications in plants. • Identify the rate of respiration in seeds. 	<p>overcoming dormancy;</p> <ul style="list-style-type: none"> • senescence and aging; stress physiology- concept of biotic, abiotic and xenobiotic stresses. 	
SEP	REVISION							
October	<p>16. Digestion and Absorption</p> <p>Alimentary canal and digestive glands, role of digestive enzymes and gastrointestinal hormones; Peristalsis, digestion, absorption and assimilation of proteins, carbohydrates and fats; calorific values of proteins, carbohydrates and fats; egestion; nutritional and digestive disorders - PEM, indigestion, constipation, vomiting, jaundice, diarrhea.</p> <p>17. Breathing and</p>	07	<p>It would enable student to understand:</p> <ul style="list-style-type: none"> • the metabolic activities in mammalian body. • the various biomolecules in body. • the process of digestion. 	<ul style="list-style-type: none"> • Lecture • Interaction • Demonstration of models, • Group assignment brainstorming • Discussion • Case-study • Field exercise • Projects • Seminars <p>ACTIVITY: Observe the daily routine and make the list of food we are having throughout the day, calculate the uptake of calories in one day.</p>	<ul style="list-style-type: none"> ➤ Smart Board, ➤ videos ➤ diagrams (NCERT) mind maps ➤ charts ➤ specimens, ➤ models ➤ pictures, ➤ actual objects ➤ flash cards ➤ slides ➤ chalk-board ➤ books & references <p>NCERT Text book</p> <p>For activity: Pen Paper</p>	<p>Students would:</p> <ul style="list-style-type: none"> • Be able to conceptualize the digestive function • Work on metabolism of fat, protein, carbohydrate, vitamins and minerals. 	<p>Observations Testing & Records Practical approach Checklist & Rating scale Quiz in class In class activity Homework records</p>	<p>Student would be able to:</p> <ul style="list-style-type: none"> • Understand the physiology at cellular and system levels. • Describe the role and functions of digestive system. • Understand normal and abnormal functions & know physiological parameters are measured in mammals. • Describe the physiology of digestion how mammalian body gets nutrition

<p>Exchange of Gases Respiratory organs in animals (recall only); Respiratory system in humans; mechanism of breathing and its regulation in humans - exchange of gases, transport of gases and regulation of respiration, respiratory volume; disorders related to respiration - asthma, emphysema, occupational respiratory disorders.</p>	<p>07</p>	<p>It would enable student to understand:</p> <ul style="list-style-type: none"> • The physiology of breathing and respiration in human body. • Transportation of gases. • Cell to cell interaction of role of hemoglobin. • Various diseases of respiratory track. 	<ul style="list-style-type: none"> • Lecture • Interaction • Demonstration of models, • Group assignment brainstorming • Discussion • Case-study • Field exercise • Projects • Seminars <p>ACTIVITY: Make the data of number of patients of asthma in five cities of your state.</p>	<ul style="list-style-type: none"> ➤ Smart Board, ➤ videos ➤ diagrams (NCERT) mind maps ➤ charts ➤ specimens, ➤ models ➤ pictures, ➤ actual objects ➤ flash cards ➤ slides ➤ chalk-board ➤ books & references <p>NCERT Text book For activity: Pen Paper</p>	<p>Students would:</p> <ul style="list-style-type: none"> • Be able to find respiratory quotient in different cases. • Work on fermentation, and various types of respiratory modes. • the gaseous transport and the structure involved in gaseous transport in mammalian body. 	<ul style="list-style-type: none"> • Observations • Testing & Records • Practical approach • Checklist & Rating scale • Quiz in class • In class activity • Homework records 	<p>from different biomolecules</p> <p>Student would be able to</p> <ul style="list-style-type: none"> • Describe the physiology of respiratory • Define normal and abnormal functions. • Understand how physiological parameters are measured in mammals • Describe the role of respiratory system
<p>18. Body Fluids and Circulation Composition of blood, blood groups, coagulation of blood; composition of lymph and its function; human circulatory system - Structure of human heart and blood vessels; cardiac cycle, cardiac output, ECG; double circulation; regulation of cardiac activity; disorders of circulatory system - hypertension, coronary artery disease, angina pectoris, heart failure.</p>	<p>05</p>	<p>It would enable student to understand:</p> <ul style="list-style-type: none"> • The physiology of circulatory system in human body. • The blood flow in mammalian body. • Various diseases of circulatory system. 	<ul style="list-style-type: none"> • Lecture • Interaction • Demonstration of models, • Group assignment brainstorming • Discussion • Case-study • Field exercise • Projects • Seminars <p>ACTIVITY: Take the blood pressure of a person before and after exercise.</p>	<ul style="list-style-type: none"> ➤ Smart Board, ➤ videos ➤ diagrams (NCERT) mind maps ➤ charts ➤ specimens, ➤ models ➤ pictures, ➤ actual objects ➤ flash cards ➤ slides ➤ chalk-board ➤ books & references <p>NCERT Text book For activity: Blood Pressure machine</p>	<p>Students would</p> <ul style="list-style-type: none"> • Interconnect it with physics by learning ECG, cardiogram etc. • Able to understand different diseases related to heart. 	<ul style="list-style-type: none"> • Observations • Testing & Records • Practical approach • Checklist & Rating scale • Quiz in class • In class activity • Homework records 	<p>Student would be able to</p> <ul style="list-style-type: none"> • Describe the physiology of circulatory system • Define normal and abnormal functions. • Understand how physiological parameters are measured in mammals Describe ECG, cardiac disorder.
<p>19. Excretory Products and Their Elimination Modes of excretion - ammonotelism, ureotelism, uricotelism; human excretory system - structure and function; urine formation, osmoregulation;</p>		<p>It would enable student to understand:</p>	<ul style="list-style-type: none"> • Lecture • Interaction 	<ul style="list-style-type: none"> ➤ Smart Board, ➤ videos 		<ul style="list-style-type: none"> • Observations • Testing & Records 	<p>Student would be able to</p> <ul style="list-style-type: none"> • Describe the structure of urinary system. • Function of

	<p>regulation of kidney function - renin - angiotensin, atrial factor, ADH and diabetes insipid us; role of other organs in excretion; disorders - uremia, renal failure, renal calculi, nephritis; dialysis and artificial kidney, kidney transplant.</p> <p>20.Locomotion and Movement Types of movement - ciliary, flagellar, muscular; skeletal muscle- contractile proteins and muscle contraction; skeletal system and its functions; joints; disorders of muscular and skeletal system - myasthenia gravis, tetany, muscular dystrophy, arthritis, osteoporosis, gout.</p> <p><u>PRACTICALS:</u> 17. Test for the presence of sugar, starch, proteins and fats. Detection in suitable plant and animal Materials. 18. Observation and comments on the experimental set up for showing: a) Anaerobic respiration b) Phototropism c) Effect of apical bud removal</p>	<p>07</p> <p>05</p>	<ul style="list-style-type: none"> The physiology of excretion in human body. Nephron the structural and functional unit of life. Osmoregulation. Artificial kidney. <p>It would enable student to understand</p> <ul style="list-style-type: none"> The physiology of locomotion in human body. Vertebral column Sliding theory Disorders of muscular systems 	<ul style="list-style-type: none"> Demonstration of models, Group assignment brainstorming Discussion Case-study Field exercise Projects Seminars <p><u>ACTIVITY:</u> Make list of animals on the basis of removal of nitrogenous waste.</p> <ul style="list-style-type: none"> Lecture Interaction Demonstration of models, Group assignment brainstorming Discussion Case-study Field exercise Projects Seminars <p><u>ACTIVITY:</u> Visit to nearby physiotherapist and observe the patient of spondylitis and arthritis.</p>	<ul style="list-style-type: none"> diagrams (NCERT) mind maps charts specimens, models pictures, actual objects flash cards slides chalk-board books & references <p>NCERT Text book <u>For activity:</u> Pen Paper</p> <ul style="list-style-type: none"> Smart Board, videos diagrams (NCERT) mind maps charts specimens, models pictures, actual objects flash cards slides chalk-board books & references <p>NCERT Text book <u>For activity:</u> Pen Paper</p>	<p>Students would</p> <ul style="list-style-type: none"> Understand the toxic removal from different organism. Able to check the urine waste, <p>Students would</p> <ul style="list-style-type: none"> Understand the skeletal system , feel the joints and movement. Conceptualize use of ATP in movement by interconnecting it with sliding theory. 	<ul style="list-style-type: none"> Practical approach Checklist & Rating scale Quiz in class In class activity Homework records <ul style="list-style-type: none"> Observations Testing & Records Practical approach Checklist & Rating scale Quiz in class In class activity Homework records 	<p>urinary system.</p> <ul style="list-style-type: none"> Skin excretory product. Name of different excretory products <p>Student would be able to</p> <ul style="list-style-type: none"> Understand difference between locomotion and movement. Learn sliding theory. ATP consumption in movement. Different disorders.
Novem ber	21. Neural Control and Coordination	07	It would enable student : 1. To understand the types	<ul style="list-style-type: none"> Lecture Interaction 	<ul style="list-style-type: none"> Smart Board, videos 	<p>Students would:</p> <ul style="list-style-type: none"> Establish 	<ul style="list-style-type: none"> Observations Testing 	Student would be able to:

<p>Neuron and nerves; Nervous system in humans - central nervous system; peripheral nervous system and visceral nervous system; generation and conduction of nerve impulse; reflex action; sensory perception; sense organs; elementary structure and functions of eye and ear</p> <p>22. Chemical Coordination and Co-Ordination Endocrine glands and hormones; human endocrine system - hypothalamus, pituitary, pineal, thyroid, parathyroid, adrenal, pancreas, gonads; mechanism of hormone action (elementary idea); role of hormones as messengers and regulators, hypo - and hyperactivity and related disorders; dwarfism, acromegaly, cretinism, goiter, exophthalmic goiter, diabetes, Addison's disease.</p> <p><u>PRACTICALS:</u> 19. Study of human skeleton and different types of joints with the help of virtual images/models only. 20. Test for presence of urea, sugar, albumin and bile salt in urine.</p>	<p>08</p>	<p>mechanism of working of nerve cells. 2. Signal transmission 3. Communication of nervous system.</p> <p>It would enable student: 1. To understand the nature of endocrine glands and their secretion. 2. Hormonal imbalance Different diseases related to it.</p>	<ul style="list-style-type: none"> • Demonstration of models, • Group assignment brainstorming • Discussion • Case-study • Field exercise • Projects • Seminars <p><u>ACTIVITY:</u> Observe the reflex actions in different age groups, and calculate the time taken by them to react.</p> <ul style="list-style-type: none"> • Lecture • Interaction • Demonstration of models, • Group assignment brainstorming • Discussion • Case-study • Field exercise • Projects • Seminars <p><u>ACTIVITY:</u> Make the list of changes during puberty.</p>	<ul style="list-style-type: none"> ➤ diagrams (NCERT) mind maps ➤ charts ➤ specimens, ➤ models ➤ pictures, ➤ actual objects ➤ flash cards ➤ slides ➤ chalk-board ➤ books & references <p>NCERT Text book <u>For activity:</u> Pen Paper</p> <ul style="list-style-type: none"> ➤ Smart Board, ➤ videos ➤ diagrams (NCERT) mind maps ➤ charts ➤ specimens, ➤ models ➤ pictures, ➤ actual objects ➤ flash cards ➤ slides ➤ chalk-board ➤ books & references <p>NCERT Text book <u>For activity:</u> Pen Paper</p>	<p>the relation between noise and physiology of brain</p> <ul style="list-style-type: none"> • (e.g. headache). • Work on reflex actions <p>Students would: Understand the nature of endocrine glands and their secretion.</p>	<p>& Records</p> <ul style="list-style-type: none"> • Practical approach • Checklist & Rating scale • Quiz in class • In class activity • Homework records <ul style="list-style-type: none"> • Observations • Testing & Records • Practical approach • Checklist & Rating scale • Quiz in class • In class activity • Homework records 	<ul style="list-style-type: none"> • Tabulate the structure and function of human brain. • Identify the structure of spinal cord. <p>Student would be able to:</p> <ul style="list-style-type: none"> • Interpret the significance of feedback mechanism • Correlate the function of different hormones as a means of information transmission in human body.
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INFORMATION PRACTICS

MONTH	NO. OF WORKING DAYS	TOPIC / CONCEPT AND SKILL	No of periods	LEARNING OBJECTIVE	METHODOLOGY	TEACHING AIDS/ RESOURCES	EXPERIENTIAL LEARNING	ASSESSMENT OF TOOLS	LEARNING OUTCOME
Jun	14	Computer System	8	Introduction,Computer System,Computer System and Data Software	Experimental Learning, Demonstrative Brain storming, Interactive, Communicative	By giving practical program,also suggesting algorithm to program conversion	Practically identify all the computer software and study deeply about computer system	Given to identify more new devices and advance AI devices	Student are now aware about python numerical calculus
Jul	26	Getting Started with python	15	Python,Pluses,Python-Some Minuses,Working in Python,FirstScript	Brain storming, Experimental Learning, Demonstrative, Interactive, Communicative	Text book National Council of Educational Research and Training (NCERT) and Reference Books.	We will recognize device of computer in lab	Given to identify more new devices	Students are able to develop application of number using simple python.
Aug	24	Python Fundamentals	10	Python Character Set,Tokens,Barebones of Python Program,Variables and Assignments	Communicative, Experimental Learning, Demonstrative Brain storming, Interactive,	Text book National Council of Educational Research and Training (NCERT) and Reference Books.	for example, learning of these items absolute value, sort 3 numbers, divisibility.	Anaconda software to running program of python	Student are now able to use, develop & debug programs independently.
Sep	26	Data Handling	12	Basic concept of Data representation: Binary, ASCII, Unicode	Experimental Learning, Demonstrative Brain storming, Interactive, Communicative	Text book National Council of Educational Research and Training(NCERT) and Reference Books.	perimeter-wise/ area-wise cost calculation, interest calculation	List and dictionary: finding the maximum, minimum, mean; linear search on a list of numbers, and counting the frequency of elements in a list using a dictionary.	student are able to plot very creative graphs using python.

Oct	14	Flow of control	5	Types of Statements in python, If else, Nested if else, Repetition of Tasks, Range Function, Iteration /looping statements	Experimental Learning, Demonstrative Brain storming, Interactive, Communicative	Text book National Council of Educational Research and Training (NCERT) and Reference Books.	Python modules: importing math (sqrt, ceil, floor, pow, fabs), random (random, randint, randrange), statistics (mean, median) modules.	Linking of python to SQL database	Students are now able to understand complete architecture of software development.
Revision of Term I Lesson 1 To 8									
Nov	19	List Manipulation	8	Creating and Accessing list, list operations, Making true copy of a list, list functions and Methods	Experimental Learning, Demonstrative Brain storming, Interactive, Communicative	Text book National Council of Educational Research and Training (NCERT) and Reference Books.	To create a database, To insert the details of at least 10 student in the above table	Array can be designed in Lab	Students are now able to construct table with their own idea
Dec	25	Dictionaries	12	Dictionary Key Value Pairs, Functions and Methods	Experimental Learning, Demonstrative Brain storming, Interactive, Communicative	Text book National Council of Educational Research and Training (NCERT) and Reference Books.	with the help of table, we can connect python to program	Connector of SQL is used	Students are now able to deal with MYSQL database management
Jan	24	Database Concepts Structured Query Language (SQL)	13	File Based System, Relational Database Model, Relational model terminology, history of MYSQL	Experimental Learning, Demonstrative Brain storming, Interactive, Communicative	Now student is able to identify all type of online attack in online system	Identifies all type of virus, attracts online fraud, aware about that and work on its safety	All type of online sensitive website must be identified	Students are able to ensure safety and security in cyber-space.
Feb	17	Emerging Trends	8	Artificial Intelligence, Robotics, Big Data, Internet of Things (IOT) Cloud Computing	Interactive, Communicative Experimental Learning, Demonstrative Brain storming,	Text book National Council of Educational Research and Training (NCERT) and Reference Books.	Indian cyber security authority is working on	Aware related to virus and transfer of worms	Students can understand societal, legal and ethical aspect of technology
Feb	17	Revision for Term II							

PHYSICAL EDUCATION

Months	Topics & Sub-Topics	No of Periods	Learning Objectives	Methodology	Teaching Tools /Resources	Experiential Learning	Assessment Tools	Learning Outcome
June	Changing trends and career and physical education	14	Meaning and Definition of physical education	Lecture method, Discussion Method,& and Demonstration Activity: Students would be taken to auditorium to watch gladiator movie	Smart board Internet Flow chart Board marker	Students will become aware about fitness and health care They will learn different forms of actions that were primitive.	Pen-paper Test,class response Physical activity Running Yoga	Children will become aware about changing trends in current physical education syllabus
July	1-olympic Movement 2-Physical Fitness,Wellness and life style	27	Ancient and modern olympics, Components of wellness	Lecture method, Discussion Method,& and Demonstration Activity: Make a file showing the difference between ancient and modern Olympic.	Smart board Internet Flow chart Board marker Pen Paper	Organisational set-up Sports and Chacha Nehru sports awards.	Pen-paper Test,class response Physical activity Running Yoga	children will become aware about components of Health- Related Fitness
August	1- Yoga 2- Physical Activity 3- Test measurement and Evaluation.	22	Relaxation technique and concentration	Lecture method, Discussion Method,& and Demonstration Activity: Students would be doing three types of asana's a) Cultural b) Meditative c) Therapeutic	Smart board Internet Flow chart Board marker Yoga mat	Introduction to Asanas,Pranayama and yoga skills	Pen-paper Test,class response Physical activity Running Yoga	Concept of physical Activity in terms of yoga and importance of test and Measurement t and evaluation in sports
SEP	REVISION							
October	Fundamentals of Anatomy and physiology	20	Definition of Anatomy, Physiology and their importance	Lecture method, Discussion Method& and Demonstration Activity: Students would be visit to Biolab	Smart board Internet Flow chart Board marker	Introduce function of Respiratory system, and properties of muscles	Pen-paper Test, class response Physical activity Running Yoga	Functions of skeletal system, Classification of Bones and Types of joints

November	-Kinesiology, Biomechanics and sports 2- Psychology and sports	19	Meaning and importance of kinesiology and Biomechanics in physical education and sports	Lecture method, Discussion Method& and Demonstration Activity: Students would be go for 100 m race in field	Smart board Internet Flow chart Board marker	Major muscles around the joints (neck, shoulder, Elbow, Hip and knees)	Pen-paper Test, class response Physical activity Running Yoga	Children will learn analysis of skills of physical movement
Dec	-Training in sports and 2- Doping	22	Knowledge about method of improving motor skills 2- disadvantage of doping	Lecture method, Discussion Method& and Demonstration Activity: Students would make projects on different types of drugs.	Smart board Internet Flow chart Board marker	Developing strength, Endurance, speed flexibility	Pen-paper Test, class response Physical activity Running Yoga	Specific fitness and control dropping procedure
JAN	REVISION							
FEB	REVISION							

