BUDHA DAL PUBLIC SCHOOL, SAMANA

ANNUAL CURRICULUM PLAN SESSION 2023-24

CLASS: XI

SUBJECT: CHEMISTRY

Month & Working Days	Theme/ Sub-theme	Learning Objectives		Activities &Resources	Expected Learning Outcomes	Assessment
		Subject Specific (Content Based)	**Behavioural (Application based)**			
May	**Structure of atom** wave nature of EM radiations, photoelectric effect, black body radiation, atomic spectra, Bohr's model of atom, Dual nature of atom , Heisenberg's uncertainty principle, quantum mechanical model , quantum numbers, Pauli's exclusion principle, Aufbau's principle, electronic configuration of ions, Hund's rule of maximum multiplicity	**After studying this unit students will be able to** 1. Understand the nature of EM waves and terminologies associated with it. 2. Know and understand the black body radiations and photoelectric effect. 3. Learn the study of atomic spectra and its types. 4. Relate the failure of one atomic model to overcome the drawbacks of the same to frame a new theory. 5. Know and understand Heisenberg's uncertainty principle and enhance the numerical solving ability. 6.Know the principle of working out the electronic configuration and will be	**After studying this unit students will be able to** 1. Observe details in a more scientific way and will become more open in expressing their ideas after learning how the scientists draw conclusions through a very small detail. 2. Appreciate and Demonstrate the use of various low frequency and high frequency waves to situations like detection of fractures by X-rays, relieve of muscle pain by infra-red etc. 3. Develop a sense of maturity regarding failures in life as to how one failure leads to a new path of success. 4.Develop an attitude to simplify things and frame some logical norms for any kind of dealings in life like filling of electrons in a very organized and a set norm	**Problem solving Writing electronic configurations of various molecules and ions**	**Students have learnt** 1. The nature of EM waves and terminologies associated with it. 2. The process of radioactivity. 3. The black body radiations and photoelectric effect. 4. The study of atomic spectra and its types. 5. To relate the failure of one atomic model to overcome the drawbacks of the same to frame a new theory. 6. Heisenberg's uncertainty principle and have enhanced the ability to solve numerical. 7. the principle of working out the electronic configuration and will be able to understand various properties of a number atoms . 8. To Develop a sense of maturity regarding failures in	Assignment Half yearly examination

		able to understand various properties of a number atoms .	does not lead to any confusion.		life as to how one failure leads to a new path of success. 9. To Appreciate and Demonstrate the use of various low frequency and high frequency waves to situations like detection of fractures by X-rays , relieve of muscle pain by infra red etc. 10. Atomic spectra: Emission spectra, Absorption spectra, continuous spectra, line spectra, band spectra. 11. Failure of Rutherford's model of atom, overcoming the failure through Bohr's model for hydrogen atom, deriving mathematical relation of energy of an electron by Bohr's theory, numerical solving to calculate the energy of an electron. 11.Dual behavior of matter : de Broglie Equation, its derivation , and numerical 12Heisenberg's uncertainty principle, its significance and numerical related to it . 13. Quantum mechanical model of an atom , Quantum numbers , Pauli's exclusion principle:, Aufbau's principle :. Hund's rule of maximum multiplicity. 14. Stability of completely	

					filled and Half–filled Orbitals : configuration of various atoms and ions	
July	**Classification of elements** Modern periodic law and the present form of periodic table, periodic trends in properties of elements – atomic radii, ionic radii, inert gas radii, Ionization enthalpy, electron gain enthalpy, electronegativity, valency. Nomenclature of elements with atomic number greater than 100.	**After studying this unit students will be able to** 1. Know how the concept of grouping elements in accordance to their properties led to the development of Periodic Table. 2.Compare the positive points and drawbacks of previous models of classification of elements e.g. laws of triads and octaves, Mendeleev's law 3.Appreciate the utility of Mendeleev's periodic classification in designing of the modern periodic classification 4.understand the Periodic Law; understand the significance of atomic number and electronic configuration as the basis for periodic classification; 5.name the elements with $Z > 100$ according to IUPAC nomenclature; 6.classify elements into *s*, *p*, *d*, *f* blocks and learn their main characteristics; 7.recognize the periodic	**After studying this unit students will be able to** 1. Understand and appreciate the importance of classification and will learn how to proceed to study, analyze and solve a problem through a systematic and sequential approach. They will develop the skills of analysis, classification (sorting) and critical thinking. 2. They will also develop analytical and critical thinking through thoughtful study of the pattern of the classification and the properties of elements followed by discussion on normal & exceptional trends in the properties. 3. Through study and discussion on work done by the scientists, they will be motivated to follow a path of optimum values and life skills so that they can get success in life.	**Problem solving activity based on periodic trends**	**Students have learnt :** 1. Students have developed an understanding about the need & importance of classification of elements and knowledge of historical back ground of the classification of elements. 2.With the help of the above information and subsequent discussion held on it they have developed an insight into significance of having skills of classifying & arranging things systematically so that further studies become easier and effective. 3. They have developed the skills of analysis, sorting, arranging through the study of this chapter and now critically think before explaining reasons about particular pattern of classification. 4. Students can predict periodic position of elements and can predict probable trends in properties of the elements in terms of their metallic/ non-metallic nature, ionization enthalpy, size, electro affinity, electronegativity, nature of compounds etc.	**Assignment and** Half yearly examination

		trends in physical and chemical properties of elements; 8.compare the reactivity of elements and correlate it with their occurrence in nature; 9.explain the relationship between ionization enthalpy and metallic character; 10. Use scientific vocabulary appropriately to communicate ideas related to certain important properties of atoms e.g., atomic/ ionic radii, ionization enthalpy, electron gain enthalpy, electro negativity, valence of elements.			5. They can explain the periodic trends in the properties of the elements.	

April	**Some Basic concepts of chemistry** Importance and scope of chemistry, Law of conservation, Law of constant proportion, Law of multiple proportion Postulates of Daltons atomic theory, Relative atomic mass, calculation of molecular mass, formula mass, Concept of mole, Ways of expressing concentration such as strength	**After studying this unit students will be able to** 1.explain the characteristics of three states of matter 2.classify different substances into elements, compounds and mixtures 3.explain various laws of chemical combination 4.appreciate significance of atomic mass, average atomic mass, molecular mass and formula mass 5.describe the terms – mole and molar mass express concentration of solution in different unit 6.calculate the mass per cent of different elements constituting a compound	**After studying this unit students will be able to** 1. Appreciate the role of chemistry in different spheres of life like supply of healthy food, contribution to better health and sanitation, saving environment etc. 2.Appreciate the use of chemistry only for the welfare of the human being 3. Discourage the consumption of drugs like LSD, cocaine etc, which cripple society. 4. Deal with safety issues while working in lab.	Volumetric analysis/laboratory equipment Previous years question papers, practice work sheets.	**Expected Learning Outcomes:** 1.To explain the characteristics of three states of matter; 2.To classify different substances into elements, compounds and mixtures; 3.To explain various laws of chemical combination; 4.To appreciate significance of atomic mass, average atomic mass, molecular mass and formula Mass; 5.To describe the	Assignment, practice questions, Half yearly examination

	,molarity, molality, mass and volume percentage ,ppm ,mole fractions and stoichiometric calculation and limiting reagent.	7. perform stoichiometric calculations.			terms – mole and molar mass; 6.To calculate the mass per cent of different elements constituting a compound; 7.Perform stoichiometric calculations.	
Aug	**Chemical bonding/** **I**onic , covalent, coordinate bond. Lewis dot representation, various theories to explain geometry of molecules like VSEPR, VBT and MOT ,hybridization involving s,p,d,f orbital's, hydrogen bonding	Student will be able 1.Understand Kossel-Lewis approach to chemical bonding; 2. Explain the octet rule and its limitations, 3.Draw Lewis structures of simple molecules;• 4.Explain the formation of different types of bonds; 3.Describe the VSEPR theory and predict the geometry of simple molecules; 4.Explain the valence bond approach for the formation of covalent bonds; 5.Predict the directional properties of covalent bonds; 6.Explain the different types of hybridization involving *s*, *p* and *d* orbitals and draw shapes	**After studying this unit students will be able to** 1. Appreciate how chemical bonding keeps atoms together that are necessary for their existence. 2. Appreciate chemical bonds lends itself to discovering some important appreciation of our surroundings. 3. Students will then be challenged to think about the chemical bonds that are essential to the functioning of our body. What bonds exist among atoms within our bodies that are sustaining us.	**Practice** 1.Drawing electron dot structure 2.Predicting and drawing shapes of organic compounds using VSEPR theory	.1. Student have developed an understanding of KÖssel-Lewis approach for chemical bonding; 2. with the help of above information and subsequent discussion they can explain the octet rule and its limitations, 3.Student can draw Lewis Structures of simple molecules and ions. 4.They can explain the Formation of different types of bonds. 5.With the help of VSEPR theory they can predict the geometry of simple molecule 6.After understanding valence bond approach for the formation of covalent bonds student have developed an insight to predict the directional properties of covalent bonds;	**Practice questions, assignment**

		of simple covalent molecules; 7. Describe the molecular orbital theory of homonuclear diatomic molecules; 8. Explain the concept of hydrogen bonding			7.They can explain the different types of hybridization involving *s*, *p* and *d* orbitals and draw shapes of simple covalent molecules; 8.student can describe the molecular orbital theory of homonuclear diatomic molecules; 9.They can explain the concept of hydrogen bonding 10. Student have learnt and appreciate that chemical bonds lends itself to discovering some important appreciation of our surroundings. For instance, understanding how the significant bonding of H_2O leads to unique properties of water, chemical bonding occurs around us and in us leads to a description of the processes necessary for our survival. If we're able to understand the bonds that result from electrons then we can understand the chemical reactions that take place that sustain us.	
August	**Redox reaction/** Oxidation reduction, redox reaction, oxidizing agent, reducing	**After studying this unit students will be able to** 1. Define the terms oxidation , reduction, redox reaction, oxidizing	**After studying this unit** students will evaluate that like variable oxidation states variations in life can also allow us to exhibit our various hidden	**Problem solving activity based on redox reaction, Balancing of equation in acidic**	**Students have learnt** 1 .To define the terms oxidation , reduction, redox reaction, oxidizing agent, reducing agent.	Practice questions will be given

	agent, mechanism of redox reactions by electron transfer and oxidation number concept. Identification of oxidant and reluctant. Classification of redox reaction into various types. Balancing redox equations and Galvanic cell.	agent and reducing agent. 2. Explain mechanism of redox reactions by electron transfer and oxidation number concept. 3. Use the concept of oxidation number to identify oxidant and reductant. 4. Classify redox reaction into various types. 5. Balance chemical equations using oxidation number and half reaction method.	character	**and basic medium**	2. The mechanism of redox reactions by electron transfer and oxidation number concept. 3. To use the concept of oxidation number to identify oxidant and reluctant. 4 .To classify redox reaction into various types. 5. To balance chemical equations using oxidation number and half reaction method. 6.students have learnt to evaluate that like various oxidation states of atoms variation in life also allow us to exhibit our various hidden character	

October	**Thermodynamics** system and surroundings close, open and isolated systems, internal energy, work and heat, first law of thermodynamics state functions: *U*, *H*.Δ*U* and Δ*H* standard states for Δ*H* enthalpy changes for various types of reactions .Hess's	**After studying this unit student will be able to** 1.Explain the terms system and surroundings 2. Discriminate between close, open and isolated systems. 3. Explain internal energy, work and heat. 4.state first law of Thermodynamics and express it mathematically. 5. Explain state functions: *U*, *H* and correlate Δ*U* and Δ*H*. 6. Define standard states	Children will be able to – 1. Appreciate and realize the justified use of energy and will create awareness about conservation of energy 2. Devise new techniques to conserve energy and start using renewable means of energy 3. The concept of entropy shall make them appreciate the importance of discipline, regularity, order while working in any field to complete a task.	Numerical based on the topic will be given	1.Students have learnt to Explain the terms like system and surroundings 2. They can discriminate between close, open and isolated systems. 3. They have developed an understanding of the variables like internal energy, work and heat. 4.They can state first law of thermodynamics and express it mathematically. 5. They can correlate Δ*U* and Δ*H*. 6. They can define standard	Assignment, practice questions and worksheets

	law of constant heat summation extensive and intensive properties spontaneous and nonspontaneous processes and second law of thermodynamics entropy as a thermodynamic state function Gibbs energy change ΔG); establish relationship between ΔG and spontaneity, ΔG and Equilibrium constant.	for ΔH. 7. Calculate enthalpy changes for various types of reactions. 8. State and apply Hess's law of constant heat summation. 9. Differentiate between extensive and intensive properties. 10.Define spontaneous and nonspontaneous Processes. 11.Explain entropy as a Thermodynamic state function and apply it for spontaneity. 12.explain Gibbs energy change ΔG)and establish relationship between ΔG and spontaneity, ΔG and equilibrium constant.			states for ΔH. 7. student can calculate enthalpy changes for Various types of reactions and also state and apply Hess's law of constant heat summation. 8.They can differentiate between extensive and intensive properties and can also define spontaneous and nonspontaneous Processes. 9. Student can explain entropy as a thermodynamic state function and apply it for spontaneity. 10.They can explain Gibbs energy change ΔG) and establish relationship betweenΔG and spontaneity, ΔG and equilibrium constant. 11. They can use energy judiously and developed various skills and values required to achieve success in life.	
October + November	**Equilibrium** chemical equilibrium Dynamic nature of equilibrium involved in physical and chemical processes.	**After studying this unit students will be able to** 1. Identify dynamic nature of equilibrium. 2. State the law of equilibrium. 3. Write expression for eq. constant.	Children will be able to: Appreciate and explain the scientific reason behind the following phenomena from daily life: 1. Clothes dry quicker when there is a breeze or we keep on shaking it.	1.Numerical based on the topic 2.concentration time graph	Students have learnt to 1.Identify dynamic nature of equilibrium. 2. State the law of equilibrium. 3.Write expression for eq. constant. 4.Explain various factors that affect equilibrium.	**Practice questions numericals**

	law of equilibrium, characteristics of equilibrium involved in physical and chemical processes,expressions for equilibrium constants, establish a relationship between Kp and Kc; various factors that affect the equilibrium state of a reaction,	4. Explain various factors that affect equilibrium.	2. We sweat more on a humid day. 3. Transport of oxygen by hemoglobin in blood. 4. Removal of CO_2 from the tissues by blood. On the basis of their knowledge and understanding they will be able to create awareness about above phenomena and hence cope up and guide others to do the same in justified manner.		5. Appreciate and explain the scientific reason behind the various phenomena from daily life.	
November	**Equilibrium ii** classify substances as acids or bases according to Arrhenius, bronsted-Lowry and Lewis concepts, classify acids and bases as weak or strong in terms of their ionization constants, explain the dependence of degree of ionization on concentration of the electrolyte and that of the common ion, describe pH	**After studying this unit student will be able to** 1.classify substance as acids or bases describe pH scale. 2.Understand common ion effect and solubility product. 3.Calculate solubility product. 4.apply concept of common ion effect and solubility product in qualitative analysis	1. They will apply their knowledge of significance of pH in day to day life 2. They will appreciate and understand the application of solubility product and common ion effect in salting out of soap. 3. They will also apply these conceptswhile doingqualitative analysis.	**Qualitative analysis**	Students have learnt 1. to classify substance as acids or bases 2.to describe pH scale. 3.to Calculate solubility product 4.to apply concept of common ion effect and solubility product in daily life like in purification of salt 5. toapply their knowledge of significance of pH in daily life while choosing eatables, drinks, cosmetics and medicines.	**assignment**

	scale for representing hydrogen ion concentration, ionization of water and its duel role as acid and base, describe ionic product (Kw) and pKw for water, buffer solutions, calculate solubility product constant.					
November	**Organic chemistry some basic concepts**	**After studying this unit student will be able to** 1.understand reasons for tetra valence of carbon andshapes of organic molecules; 2. Write structures of organic molecules in various ways and classify the organic compounds. 3.name the compounds according to IUPAC system of nomenclature and also derive their structures from the given names; 4. Understand the concept of organic reaction mechanism. 5. Explain the influence of electronic displacements onstructure and reactivity	Student will use various methods to purify organic compounds and appreciate the use of this technique in day to day life.	Nomenclature of organic compounds. A video to explain process and use of various purification technique of organic compounds will be shown.	**Students have learnt** 1.the reasons for tetra valence of carbon and Shapes of organic molecules. 2. to write structures of organic molecules in various ways. 3.to classify the organic compounds. 3.to name the compounds according to IUPAC system of nomenclature and also derive their structures from the given names; 4. the concept of organic reaction mechanism; 5.to explain the influence of electronic displacements on structure and reactivity of organic compounds; 5.to recognize the types of organic Reactions. 8.Student have learnt how the	**Assignment/worksheets**

		of organic compounds.			pure substances are obtained by using various techniques and appreciate the use of these technique in day to day life like separating drugs from blood,use of fractional distillation in separating crude oil in petroleum industry,use of TLC technique in forensic department in order to solve suspicious matter.	
November	**HYDROCARBON**	**After studying this unit students will be able to** 1. Name hydrocarbons according to IUPAC system of nomenclature. 2 .recognize and write structures of isomers of alkanes, alkenes, alkynes aromatic hydrocarbons. 3. Learn about various methods of preparation of hydrocarbons. 4.distinguish between alkanes, alkenes, alkynes and aromatic hydrocarbons on the basis of physical and chemical properties; 5.draw and differentiate between various conformations of ethane; 6.appreciate the role of hydrocarbons as sources ofenergy and for other industrial applications;	**After studying this unit students will be able to** 1. to appreciate use of hydrocarbons for health care and industrial purpose 2.to discourage excessive use ofharmful chemicals and to think for the alternating solution .	1.writing names of hydrocarbons 2.Draw isomers of hydrocarbons	**Students have learnt** 1. To name hydrocarbons according to IUPAC system of nomenclature. 2. To recognize and write structures of isomers of alkanes, alkenes, alkynes and aromatic hydrocarbons. 3. About various methods of preparation of hydrocarbons. 4.to distinguish between alkanes,alkenes, alkynes and aromatic hydrocarbons on the basis of physical and chemical properties; 5.to draw and differentiate between various conformations of ethane. 6.to appreciate the role of hydrocarbons as sources of energy and for other industrial applications; 7.To Predict the formation of the addition products of	**Assignment,practice questions**

		7. Predict the formation of the addition products of unsymmetrical alkenes and alkynes on the basis of electronic mechanism. 8.comprehend the structure of benzene, explain aromaticity and understand mechanism of electrophilic substitution reactions of benzene. 9. Predict the directive influence of substituent's in monosubstituted benzene ring. 10.learn about carcinogenicity and toxicity			unsymmetrical alkenes and alkynes on the basis of electronic mechanism. 8.To comprehend the structure of benzene, explain aromaticity and understand mechanism of electrophilic substitution reactions of benzene. 9.To predict the directive influence of substituent's in monosubstituted benzene ring; 10. Student have developed concern for our future generation by appreciating judious use of petroleum and natural gas and practicing in their own life.They also realized the tragic side effects of excessive use of insecticides likeDDT in world war iiand felt importance of cheaper alternate to it like BHC .	

BUDHA DAL PUBLIC SCHOOL, SAMANA

ANNUAL CURRICULUM PLAN SESSION 2023-24

CLASS: IX

SUBJECT: Science

SUBJECT: Biology

Month & Working Days	Topic/Sub/Topic	LEARNING OBJECTIVES	PEDAGOGY/METHOED	ART INTEGRATED Activities & Resources	Expected Learning Outcomes	Assessment/Assignment
July 17th To 31st August	**Theme - Improvement of food resources** i) Crop variety improvement ii) Crop production management iii) Cropping Patterns	Students will be able to: know different types of crops like zayed, kharif and rabi and understand about micro and macro nutrients and about manures and fertilizers Analyze different cropping patterns like-	To emphasized on development of skills like observational, experimental and inculcating values like Awareness, Responsibility, concern, Students will be able to identify kharif, rabi and zaid crop when they will had them in food They will be able to apply to Interpret their growing and harvesting seasons by classifying them according to the	To make a list of Rabi, Kharif and Zaid crops with their growing and harvesting season.	1) Learner learnt and understood about importance of animal husbandry. 2) Students will be able to identify that livestock farming is done for dairy and drought and marine-culture not only provides seafood but also for pearl cultivation along with the difference between broilers (consuming) and layers (for eggs production). 3) Students will be able to share their opinion on improvement of animal variety through breeding. 4) They will be able to evaluate different types of	News Analysis Subject enrichment activities & Assignment

		Mixed, crop rotation, inter, organic farming. Share their opinion on improvement of crop variety. Explore their critical thinking by studying the importance of plant breeding.	availability in particular season. They will be able to evaluate that deficiency of nutrients affects the physiological processes in plants including reproduction, growth and susceptibility to disease. They will be able to construct biological waste into different types of manure. They will be able to Appreciate the importance of organic farming. They will be able to evaluate consequences of fertilizers over manure. To emphasized on development of skills like observational, diagrammatical and experimental and inculcating values like	class will be divided in groups .Talking point will be given on cropping pattern will be conducted. News analysis:- search a news on latest innovations in agricultural practices and crop production and analysis it	farming practices like – poultry, fish, bee-keeping of different states or places. 5) They will be able to explore their critical thinking on the main aim of improvement of food resources and were able to justify different revolutions done by government for improvement of food resources. 6) They will be able to apply their knowledge to relate quality of honey depends on pasturage (availability of flower for nectar collection). 7) They will be able to analyzing different adulterates present in food stuff. (like spices, arhar dal) as well as able to interpret that adulterated food items leads to health problems.	

	Animal Husbandry Cattle farming and poultry farming, Eggs and broiler production Fish production-i) marine ii) Inland, Bee keeping-Apiculture	To make them learne and understand about importance of animal husbandry. 2) To enhance the ability to analyses different types of animal livestock management 3) To make them share their opinion on improvement of animal variety through breeding. 4) To evaluate different types of farming practices like – poultry, fish, beekeeping of different states or places. 6) To justify the main aim of improvement of	Creativity (while drawing the diagram), Awareness (about different types of animal livestock management)**,** Care and Safety(Proper housing keeping of animals are required to keep them healthy and to increase production), Cleanliness(Its required to keep animals disease free), Environmental Concerns(Animals should not serve as source of diseases) Responsibility(concern for sustainable management) Students will be able to identify that livestock farming is done for dairy and drought and mari-culture not only provides seafood but also for pearl cultivation. They will be aware	according to understanding.		

		food resources. 7) To analyses different revolutions done by government for improvement of food resources.	about difference between broilers (consuming) and layers (for eggs production) as well as different breeds of cattle, fishes, honey bees etc. They will be able to apply their knowledge to relate role of pasturage (availability of flower for nectar collection) determines the quality of honey. They will able analyzing different adulterates present in food stuff. (like spices, arhar dal) They will interpret and will be able to share their opinion on that adulterated food items leads to certain disorders.	To test the presence of adulterants in food stuff.- present of starch and metanil yellow in tuar daal.and disorder cause by these adulterants.		
April 3rd to May 8th	**Fundamental unit of life** Diffusion and	Students will be able to: 1) Know about cell and structural	1) Identify the process of Diffusion and osmosis with real life examples like salt on salad and Burning of	To prepare stained temporary mounts of onion peel and to record observation and draw their labelled diagrams.	**1.** Learner learnt and understood about cell and structural organization of cell. **2.** Skills like observational	To study the concept of Permeability, tonicity and osmosis with it types by preparing potato osmometer

	Osmosis Permeability- Impermeable, Semi-permeable, Permeable Tonicity of solution - Hypotonic, Isotonic and Hypertonic solution. Plasmolysis	orgization of cell. 2) Understand the role and importance of different organelles present 3) Analyze the function of cell membrane and cell wall with reference to their importance in vital role of life 4) Explore their critical thinking by studying the permeability concepts 5) Evaluate different types of tonicity depending on concentration of solute and solvent. 6) Justify the concept of osmosis and imbibitions with real life examples.	agarbatti or opening of perfume or fragrance of cooked food.. 2) Interpret swelling of raisin in desserts is dueto imbibitions.. 3) Evaluate that if salt is added into vegetables during cooking its release water due to process of exosmosis.. 4) Analyze the concept of hypertonic solution is responsible for shrinkage of finger when we wash clothes for longer period of time. 5) Measure the consequences of swelling of different substances due to difference in concentration like swelling of gram or kidney beans in kitchen. 6) Recognize that if substance is boiled and then kept in different concentrated solution it will not show any difference as cell are dead example boil	To observe the result of hypertonic solution the concept of plasmolysis will be explained to the students**.** To study the concept of Permeability, tonicity and osmosis with its types by preparing potato osmometer	and experimental were developed in the students and values like division of labor and team work (as all the organelles divide the work among themselves), leadership (as nucleus work as controlling unit), obedience (as all organelles obey the command of controlling unit) were inculcated among the students. 3. Students will be able to identified that cuts and wound heals due to the process of cell division 4. They will be sensitized that genetic disorder cannot be cured. 6. Students ability were enhanced to understand the mechanism of different organelles with reference to their importance in vital role of life	**Periodic** Test Assignment

	Division of labor, Prokaryotic versus Eukaryotic cell Structural organization of cell- Nucleus-Its role and functions, Cytoplasm-its role and importance, ER-its role, importance, functions and types, Golgi bodies-role and functions, Lysosomes and Mitochondria- role, functions and importance Ribosome and vacuoles- Types,	1) To make them learned and understand about cell and structural organization of cell. 2) To enhance the ability to comprehend the role and importance of different organelles present in the cell. 3) To make them share their opinion on	potato does not show any change with tonicity. 7) Relate importance of saline solution while giving injection to human. To emphasized on development of skills like observational and experimental and inculcating values like division of labor and team work (as all the organelles divide the work among themselves), leadership(as nucleus work as controlling unit), obedience (as all organelles obey the command of controlling unit) Students will be able to identify that cuts and wound heals due to the process of cell division They will be sensitized and will be able to apply their knowledge that genetic disorder	To prepare stained temporary mounts of human cheek cells and to record observation and draw their labelled diagrams.		To prepare stained temporary mounts of onion peel and human cheek cells and to record observation and draw their labeled diagrams.

	structure, role and function and Plastid	evolution of self autonomous organelles like- Mitochondria and plasmid 4) To enhance the ability to understand the mechanism of different organelles with reference to their importance in vital role of life 5) To make them understand about the flexibility of cell membrane and its significance with example of virus which they will correlate with the recent pandemic cause by virus as viruses lack cell membrane and therefore does not show any	cannot be cured. They will interpret and will be able to share their opinion on evolution of self autonomous organelles like- Mitochondria and plasmid			

		characteristics of life until they enter a living body.				
Oct 3rd To Nov 6th	**Tissue** **Plant tissues- Meristematic tissue, permanent tissue -simple tissue, Complex permanent tissue** **animal tissues- epithelial tissue, Connective muscular and nervous tissues**	To make them learn and understand about tissues and structural organization of different tissues 2) To enhance the ability to analyses the role and importance of different tissues present in plants and animals. 3) To make them share their opinion on simple and complex tissues. 4).To evaluates different function of tissues depending on their location and structure.	To emphasized on development of skills like observational, diagrammatical and experimental and inculcating values like Creativity (while drawing the diagram), Awareness (about location of different tissues of plant and animal)**,** Responsibility(function of one tissue leads to the formation of other tissue), Coordination(collectively all the tissues works together in body to accomplish the work), Division of labor(works are divided among different tissues in the body to avoid overloading) Students will be able to identify that obesity is due to adipose tissue which stores fat in our	To observe permanent slides of different permanent tissues like parenchyma, collenchyma, sclerenchyma, Xylem and phloem. They will draw and their labelled diagrams. To identify striped, unstriped, cardiac, nerve tissue from prepared slides and draw their labelled diagrams. .	1. Learner learnt and understood about tissues and structural organization of different tissues 2) Students ability will be enhanced to analysed the role and importance of different tissues present in plants and animals. 3) They will be able to share their opinion on simple and complex tissues. 4).They will be able to evaluate different function of tissues depending on their location and structure. Development of skills like observational, diagrammatical and experimental and inculcating values like Creativity (while drawing the diagram), Awareness (about location of different tissues of plant and animal)**,** Responsibility(function of one tissue leads to the formation of other tissue), Coordination(collectively	To observe permanent slides of different permanent tissues like parenchyma, collenchyma, striped, unstriped, nerve tissue from prepared slides and draw their labeled diagrams.

			body. They will be aware and will be able to apply their knowledge that wrong postures while sitting, lying or watching T.V affects different tissues present in the body. They will be analyzing that pumping of heart, jumping of frog and writing with hand or movement depends on different voluntary and involuntary muscles. They will interpret and will be able to share their opinion on occurrence of sprain is due to over stretched of ligaments, fatigue is due to accumulation of lactic acid in muscles.		all the tissues works together in body to accomplish the work), Division of labor(works are divided among different tissues in the body to avoid overloading) will be enhanced in the students. Students wereable to identify that obesity is due to adipose tissue which stores fat in our body beneath the skin.. They were aware that wrong postures while sitting, lying or watching T.V affects different tissues present in the body. They will be able to analyze that pumping of heart, jumping of frog and writing with hand or movement depends on different voluntary and involuntary muscles. They will be able to interpret and were be able to share to their opinion on occurrence of sprain is due to over stretched of ligaments, fatigue is due to accumulation of lactic acid in muscles.	

		triploplastic, and symmetry-asymmetry, bilateral etc.	algae which is develop on moist soil is good sources of protein and act as crop yield booster.		5) Development of skills observational, experimental and inculcating values like Responsibility, Coordination and Collaboration, Creativity, Awareness**,** Concerns, Coordination 6) They were able to analyzed difference between evolution and classification. 7) They were able to interpret importance of algae in environmental concern.	
January-05 February-06	**Natural resources**	**1)** To make them learned and understand about Resources on earth**.** 2) To enhance the ability to analyses the role and importance of different bio-geo chemical cycle. 3) To make them share their	To emphasized on development of skills like observational, experimental and inculcating values like Care and Safety, Cleanliness, Environmental Concerns,	1)To demonstrate that air currents are caused by uneven heating of air 2) To study about ozone layer and then do the comparison in size of ozone hole in last few years.	1.Learner learnt and understood about Resources on earth**.** 2) Students ability were enhanced to analysed the role and importance of different bio-geo chemical	Draw Nitrogen cycle and name two biologically important compounds that contain both oxygen and nitrogen

		opinion on pollution 4) To explore their critical thinking by studying the importance of green house effect. 5) To evaluate the importance of ozone layer. 6) To justify the concept of water cycle	Obedience, Responsibility, Awareness**.** Students will be able to identify about environmental concern about Taj Mahal and heritage monument and effect of acid rain on these monuments They will be aware smog is due to pollution. They will be able to apply their knowledge that smog and zero visibility in Delhi is due to air pollution which leads to traffic jams and accidents. They will be able to analyze that excessive nutrient in water bodies due to pollution leads to eutrophication. They will be able to interpret the reasons Faecal matter of rhinoceros provided excess nutrients in water bodies leads to algal bloom which leads to	consequences of global warming and name the green house gases. 4) Draw Nitrogen cycle and name two biologically important compounds that contain both oxygen and nitrogen. 5) Demonstrating Acid rain in lab.	cycle. 3) They were able to share their opinion on pollution and lichen as indicator of SO2 indicator and Mathura refinery causing marble cancer to The Taj-Mahal. 4).They were able to evaluate application importance of greenhouse effect and relate it with life on earth whereas other planet do not have life. **5)** Development of skills like development of skills like observational, experimental and inculcating values like Care and Safety, Cleanliness, Environmental Concerns, Obedience, Responsibility, Awarenesswere incorporated in students**.** 6) They were aware about environmental concern and effect of acid rain on these monumentsand how it is formed. 7) They were able to	

			accumulation of heavy metal. They will be able to evaluate the importance of sustainable management of natural resources .		traffic jams and accidents 8) They were able to interpret that excessive nutrient in water bodies due to pollution leads to Eutrophication. 9) Understanding the concept of biomagnification of heavy metals. .	

BUDHA DAL PUBLIC SCHOOL SAMANA

LESSON PLAN SESSION 2023-24

CLASS: IX

SUBJECT: Science

Month & Working Days	Theme/ Sub-theme	Learning Objectives		Activities &Resources	Expected Learning Outcomes	Assessment kkkk
		Subject Specific (Content Based)	**Behavioural (Application based)**			
APRIL 12	**Chapter:- Motion (PHYSICS)** Distance, displacement, speed, velocity, acceleration, uniform and non uniform motion, elementary idea of circular motion, distance-time graph and velocity -time graph	Student must ableto • Understand the difference between displacement anddistance. • Understand the uniform and non-uniform motion. • To represent graphically motion of any object. • Find the relation v= u+at, s = ut+½ at ^{2}and $v^2= u^2$ + 2as. • To understand the difference between	• To understand distance and displacement can be same in some situations and different in somesituations. • Calculate the average walking or running by evaluating the distance and time. • Identify the nature or kind of motion of own oranybody. • To observe trend of motion by the helpof	• Measure the time it takes you to walk from your house to bus stop or the school. If you consider that your average walking speed is 4km/h estimate the distance if the bus stops or school from your school. Calculation should be in CGS system of unit and also plot nature of motion ofgraph. • Take a meter scale and a long rope. Walk from one corner of a basket ball court to its opposite corner along its sides. Measure the distance covered by you and magnitude of the displacement. What difference would you notice between the twoin	• They have learned the concept of various terms related to motion such as distance, displacement, speed,velocity and difference betweenthem. • They have learned the concept and examples of the uniform and non-uniformmotion. • They have learned to represent motion by usinggraph. • Theyhave	• Measure the time it takes you to walk from your house to bus stop or the school. If you consider that your average walking speed is 4km/h estimate the distance if the bus stops or school from your school. Calculation should be in CGS system of unit and also plot nature of motion ofgraph. • **Unittest** • **ClassTest**

MAY 12		velocity and speed. • To understand the concept of uniform circular motion • To understand the concept of uniformly accelerated motion • Distinguish the average velocity and average speed and their calculation. • Understand the concept of instantaneous velocity and acceleration.	graph. • Understand the reading of speedometer and odometer used invehicle.	this case? • An electron moving with a velocity of 5 x 10^4m/s enters into a uniform electric field and acquires a uniform acceleration of 10^4m/s^2in the direction of its initial motion. (i) Calculate the time in which the electron would acquire a velocity double of its initial velocity. (ii) How much distance the electron would cover in thistime? • Observation of instantaneous speed from speedometer and distance from odometer. Identitythe motion oftype.	learned to find the relation v= u+at, s = ut+½ at^2 And $v^2 = u^2 + 2as$. • They have learned the term acceleration. • They have learned the concept of uniform circular motion and its application in dailylife. • They have learned use of term average speed and average velocity while moving of anyobject.	Numerical problems of related content
July-9 August-12	**Chapter:- force and laws of motions** force (balanced and unbalanced force) and motion,	• Understand about types of forces i.e. balanced and unbalanced forces.	• To understand that mass and inertiaare related. • Apply the inertia of rest and motion and directionto different situation	• To study the roll offriction take two different ballsone with smooth surface and other of rough. Using inclinedplane. • To just verify the concept of Newton's thirdlaw.	• They have learned the concept of force and difference betweenbalance and unbalanced forces.	• Assignment • To study the roll of friction take two different balls one with smooth surface andother of rough. Using

	Newton’s laws and its applications, inertia, momentum, Impulse, law of conservation of linear momentum.	• Understand the concept of force. • Find the relationf=ma. • Understand the concept of inertia and its type. • Understand the keys of Newton’s laws. • Formulate the Newton’s second law of motion. • Understand the concept of momentum and impulse and their applications. • To understand application of all the three laws in our dailylife. • Understand the concept and types of collision.	like when a person standing in a bus falls backward when bus is start moving suddenly. • Use of balanced and unbalanced force in dailylife. • Apply the concept and applications of Newton’s second laws in daily actions like why a fielder pulls his hand backward; while catching a cricket ball? • To study motion of object in terms of momentum. • To understand that there is a reaction to everyaction.		• They have learned the relationf=ma. • They have learned the concept of inertia and itstype. • They have learned the keys of Newton’s laws and their applications. • They have learned the concept of momentum and impulse and their use in daily life. • They have learned the concept and types of collision. • They have learned the derivation of the relation between the KE and Momentum of body • Theyhave	inclined plane**.** • Numerical problems of relatedcontent

		• Derivation of law of conservation of linear momentum and itsapplication.			learned the application of inertia of rest and motion in day to daylife • They have learned the application and concept of Newton's laws in dailyactions. • They have learned the to calculate the force and momentum of object on the basis of Newton'slaws. • They have learned to calculate the mass, velocity after and before the collision. And calculate the recoil velocity of gun.	

OCTOBER-12	**Chapter:-gravitation** Newton's universal law of gravitation, free fall, acceleration due to gravity, mass, weight, pressure, thrust,	• Understand the concept of Newton's universal law of gravitation. • Understand the concept of free fall and acceleration due to gravity. • Understand the meaning and concept of mass andweight. • Differentiate between mass andweight. • Differentiate between the acceleration due to gravity and universal gravitation constant. • Understand the concept of pressure and thrust. • Differentiate between pressureand	• **To** understand how and why planets revolve around sun in different orbits. • Apply the concept of free fall during the rain fall or any object fall from certainheight • Understand that weight changes with place due to change in acceleration due togravity. • Analyses and conclude the situation for applying pressure or thrust for example why is it difficult to hold a school bag having a strap made of a thin and strong string?	• A sphere of mass 40kg is attracted by a second sphere of mass 15kg when their centres are 20 cm apart, with a force of 0.1 milligram weight. Calculate the value of gravitationalconstant. • A body of mass 1 kg is placed at a distance of 2m from another body of mass 10kg. At what distance from the body of 1 kg, another body of mass 5 kg be placed so that the net force of gravitation acting on the body of mass 1 kg is zero? • Gravitational force acts on all objects in proportion to their masses. Why then, a heavy object does not fall faster than a lightobject?	• The concept of Newton's universal law of gravitation. • The concept of free fall and acceleration due to gravity. • The meaning and concept of mass andweight. • The Difference between mass andweight. • The Difference between the acceleration due to gravity and universal gravitation constant. • The concept of pressure and thrust. • The Difference between pressure andthrust. • To Apply the concept of free fall duringthe rain fall or any	• To calculatethe kinetic and potential energy in free fall. And also the average velocity. • Classtest • Numerical problems of relatedcontent

		thrust.			object fall from certain height • To calculate the mass or weight of object at any instant using value of acceleration due to gravity. • To Analyses and conclude the situation for applying pressure or thrust for example why is it difficult to hold a school bag having a strap made of a thin and strong string? •	
November-12	**Chapter:- floatation** density, relative density, buoyancy, Archimedes'	• Understand the meaning of density ,relative density and concept of buoyancy. • Understandthe	• Daily life application of density and relative density. • Apply theconcept of Archimedes' principle when the	The volume of a 500 g sealed packet is 350 cm^3. Will the packet float or sink in water if the density of water is 1 g cm^{-3}? What will be the mass of the water displaced by this packet? **Lab Activitiy: -**	Students have learned • To apply the concept of Archimedes' principle when swimming or floating.	Determine the weight of object using Archimedes' principal. Numerical problems of related content

	principle , laws of floatation.	meaning and analyses the Archimedes' principle. • Understand and aware about the laws of floatation.	object will float or sink. • Calculate the force requires floating of an object on the water surface using buoyancy.	• Determine the weight of object usingArchimedes' principal. • Determine the density of water. • Loss of weight in tap or salty water and effect on density.	• Understand about the concept of density and relativedensity. • To apply use of density and relative density in daily life. • To apply laws of floatation in different situation.	
December-12	**Chapter:- work and energy** work and types of work, energy and types of energy, conservation of energy ,power.	Student will be able to • Define the concept of work and itstype. • Understand the concept of energy and its type. • Identify different forms of energy in our surrounding. • Formula	• Apply the concept of work in daily actions like person carries a load on his head. • Analyze the different forms and conversion of energy like chemical into electrical. • Calculate the power consumption of any mechanicalbody.	**Lab Activity: -** • Showing them work done against frictional force inclinedplane. • Showing work done against gravitationalforce. • Identify different types of work in varioussituation.	Students have learned • The concept of work and its type. • The concept of energy and its type. • The meaning of different forms of energy and its uses	Showing them work done against frictional force inclined plane. Numerical problems of related content.

		derivation of kinetic energy and potential energy. • Understand and derive law of conservation of energy. • Differentiate between energy and work and their interconversion. • Understand the concept of power and averagepower	• Understands the concept that to carry work energy is alwaysneeded.		• The concept of conservation of energy. • To deriveconservation of energy mathematically. • To derive the expression for potential and kineticenergy. • To differentiate between energy andwork. • The concept of power and average power. • To apply the concept of work in daily actions like person carries a load on hishead. • To analyze the situation to differentiate which type of work being preceded in some situation like pulling or	

					pushing a roller. • The different forms and conversion of energy like chemical into electrical. • To calculate the power consumption in different situation.	
January-9 February-06	**Chapter:- Sound (PHYSICS)** sounds and wave & types of wave, terms related with sound like frequency, wavelength etc, reflection of sound, echo, Reverberation, sonic boom, ultrasound and its applications, SONAR,Different characteristics of soundwave. **Revision**	Students will be able to learn • Concept of sound and its propagation. • The meaning and concept of frequency, wavelength, timeperiod. • Concept of loudness and pitch. • The meaning of intensity of sound. • TheDifference	• Apply the concept of sound propagation in loudspeaker. • Use of the concept of loudness and pitch during public use ofloudspeaker. • Analyze the concept of echo i.e. megaphone, stethoscope etc.	• Verify the law of reflection ofsound. • Calculation of pitch, loudness wavelength numericalproblems. • Identify types of waves in differentsituation.	They have learned • The Concept of sound and its propagation. • Different types of waves such as longitudinal and transverse. • The meaning and concept of frequency, wavelength, time period. • The Concept of loudness and pitch. • TheDifference	• Annualexam

		between intensity of sound and loudness. • Meaning of echo and reflection of sound. • Concept of the reverberation of sound and its application. • Meaning of sonic boom and ultrasound and itsapplication. • Concept of the SONAR.			between intensity of sound and loudness. • The Meaning of echo and reflection of sound. • The Concept of thereverberation of sound and its application. • Meaning of sonic boom and ultrasound and itsapplication. • Concept of the SONAR. • Apply the concept of sound propagation in loudspeaker. • Analyze the concept of loudness and pitch during public use of loudspeaker. • Analyze the concept of intensity to know	

					the frequency, wavelength etc. Analyze the concept of echo i.e. megaphone, stethoscope etc.	