1. Date: _____ 3. Subject : Biology 5. Periods Required:_____ 7. Date of Commencement :_____

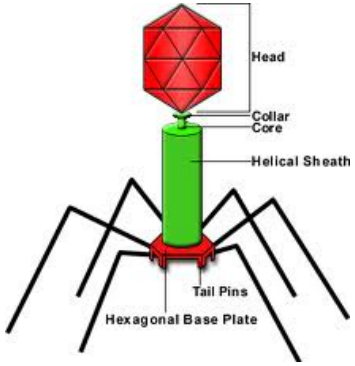
2. Class: XI 4.Topic /Lesson : **The living world** 6. Expected date of completion:_____ 8. Actual Date of Completion:_____

Month	List of Units/ Sub Units	Activities (Individual or Group)Demonstrations / E-Class)Home Assignments	Home Assignments	HOT and MLL (Minimum Level of learning) Question Prepared	Correlation with other Subjects
J u n e - J u l y	***UNIT : DIVERSITY IN THE LIVING WORLD*** ***Lesson :* The living world** ***Being alive,*** characteristics of living organisms, respiration, metabolism, anabolism, catabolism, consciousness, response to stimuli, growth, reproduction, Diversity, nomenclature, vernacular nomenclature, polynomial nomenclature, Binomial nomenclature, species, genus, family, order, class , phylum, kingdom, Hierarchy of classification, taxonomy, Taxonomic aids, zoological park, botanical garden, herbarium, museum, taxonomic key	1. Preparation of herbarium specimen, writing binomial nomenclature for any two common organism, 2. Observation of various available e-content on this topic and videos and ppts. 	1. Define species. Explain with the help of suitable examples. 2. What is binomial nomenclature? Enlist various rules/ guidelines we need to fallow while giving scientific name to an organism. 3. What is herbarium? What are its advantages? 4. What are advantages of zoological park?	1. Enlist various characters of living organisms. Explain any four characteristics of it. 2. Arrange the following in ascending order. Species, family, phylum, order, genus. 3. What is the scientific name of human? Which phylum and kingdom it belongs to? 4. Define classification. What is the need to classify the organisms?	Chemistry English

Remarks/Suggestion SIGN. OF TEACHER: _____ PRINCIPAL: _____

1. Date:_____ 3. Subject: Biology 5. Periods Required: _____ 7. Date of Commencement :_____

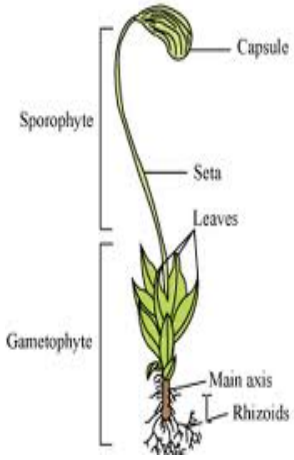
2. Class: XI 4.Topic /Lesson : **Biological classification** 6. Expected date of completion:_____ 8. Actual Date of Completion:_____

Month	List of Units/ Sub Units	Activities (Individual or Group)Demonstrations / E-Class)Home Assignments	Home Assignments	HOT and MLL (Minimum Level of learning) Question Prepared	Correlation with other Subjects
J u l y	***UNIT : DIVERSITY IN THE LIVING WORLD*** ***Lesson :*** **Biological classification** Two kingdom classification, three kingdom classification, five kingdom classification, Advantages of five kingdom Classification and shortcomings of five kingdom classification, Basis of classification, Characteristics of the following kingdom and their examples, Kingdom Monera, Kingdom Bacteria, Kingdom Archaebacteria,, classification of bacteria on the basis of their shape and cell structure,, role of bacteria, chemosynthetic bacteria , Kingdom Protista, Chrysophytes, Dinoflagellates, Euglenoids, Slime Moulds, Protozoans, , Kingdom Fungi/ Kingdom Mycota, Animalia, Plasmogamy, Karyogamy, Dikaryon condition, Phycomycetes, Ascomycetes, Basidiomycetes, Dueteromycetes Kingdom Plantae, Kingdom, Alternation of Generation, Viruses Viroids and lichens, Phycobionts and Mycobionts, Mycoplasma	1. Observation of various specimens available in the school. 2. Observation of various available e-content on this topic and Observing videos and ppts on this topic  	1. What is the nature of cell wall in diatoms? 2. State economic important uses of Eubacteria and Archaebacteria. 3. Differentiate between Kingdom Mycota and Kingdom Protista. 4. Why do the viruses are considered on the borderline of living and nonliving ? 5. Plants are normally autotrophic but some plants are heterotrophic. Explain why?	1. A student observed an umbrella like greyish structure growing on the rotten wooden log. His friend told him that it is frogs umbrella and it is edible variety and sold in the market. What may be the scientific name of it? Which kingdom it belongs to? Give any four characteristics of this group. 2. What is lichen? What are its two components? What is their role in this association? What type of interspecies association they show? 3. Differentiate between the kingdom to which snail and spirogyra belongs to.	Geography

Remarks/Suggestion SIGN. OF TEACHER:_____ PRINCIPAL:_____

1. Date:_____ 3. Subject: Biology 5. Periods Required: _____ 7. Date of Commencement :_____

2. Class: XI 4.Topic /Lesson : **Plant kingdom** 6. Expected date of completion:_____ 8. Actual Date of Completion:_____

Month	List of Units/ Sub Units	Activities (Individual or Group)Demonstrations / E-Class)Home Assignments	Home Assignments	HOT and MLL (Minimum Level of learning) Question Prepared	Correlation with other Subjects
J u l y	***UNIT : DIVERSITY IN THE LIVING WORLD*** ***Lesson :*** **Plant kingdom** Artificial system of classification, natural classification system, phylogenetic classification system, numerical taxonomy, chemotaxonomy and its advantages, Algae, habitate, types of algae, green algae, brown algae and red algae, their characteristics and uses, Bryophtes , gametophyte stage and sporophyte stage, archaegonia and antheridia, alternation of generation, gemmae cup and protonema stage, leafy stage, Pteidophytes , sporophyll, sporangia homospore and heterospore, prothallus, alternation of generation, Gymnosperm characteristics of gymnosperms, male cone and female cone, male strobilli, pollen grain, female strobilli, ovules and pollination, type of wood present, type of seed, Alternation of generation Angiosperm, characteristics of angiosperms type of flowers and wood produced in this group characteristics of the seeds and type of fertilization in this group, Dicot and Monocot, alternation of generation	1. Observation of various specimens available in the school. 2. Observation of various available e-content on this topic and Observing videos and ppts on this topic  	1. What is the basis of classification of algae? 2. Explain the following terms with suitable examples. a. Protonema b. Antheridia c. Archaegonia d. Diplontic e. Sporophyll f. Isogamy 3. Differentiate between liverwort and moss 4. Differentiate between monocots and dicots.	1. Differentiate between angiosperm and gymnosperms on the basis of the following characteristics . a. Type of seed b. Type of wood c. Reproductive parts/ reproduction d. Type of pollination e. Type of fertilization 2. Which plant group is always aquatic? What are its characteristics? 3. Why do the life cycle of fern is called is haplo-diplontic type? 4. Describe the alternation of generation in mango plant with the help of suitable schematic diagram.	Economics , Geography

Remarks/Suggestion SIGN. OF TEACHER:_____ PRINCIPAL:_____

1. Date:_____ 3. Subject : Biology 5. Periods Required:_____ 7. Date of Commencement :_____

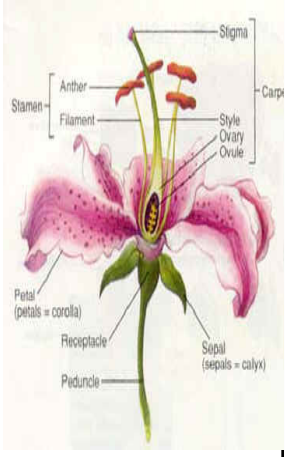
2. Class: XI 4.Topic /Lesson : **Animal kingdom** 6. Expected date of completion:_____ 8. Actual Date of Completion:_____

Month	List of Units/ Sub Units	Activities (Individual or Group)Demonstrations / E-Class)Home Assignments	Home Assignments	HOT and MLL (Minimum Level of learning) Question Prepared	Correlation with other Subjects
July-August	***UNIT : DIVERSITY IN THE LIVING WORLD*** ***Lesson :*** **Animal kingdom** Basis of classification, level of organization, type of blood vascular system, type of symmetry, numbers of embryonic layers in embryo, type of coelomic cavities, type of segmentation, presence or absence of notochord, Phylum Porifera, Coelenterata / Cnidaria, Ctenophora, Platyhelminthese, Aschelminthese, Annelida, Arthropoda, Mollusca, Echinodermata, Protochordata, Chordata, Pisces, Amphibia, Reptilia, Aves, Mammalia, Bioluminescence, malpighian tubules, nephridia, wings, radula, parapodia, water vascular system,	1. Observation of various specimens available in the school. 2. Observation of various available e-content on this topic and Observing videos and ppts on this topic 	1. Give any four characteristics of parasitic Platyhelminthese and two examples of parasites belonging to this phylum. 2. Give any eight characteristics of phylum Arthropoda. Give any two examples of this phylum. 3. Differentiate between Phylum Annelida and Echinodermata. 4. Differentiate between chordata and Non -chordata. 5. Name the class which contain aquatic organism having gills and fins. Give any four other characteristics of this class.	1. Ramesh went to a museum and saw an preserved specimen labelled as salamander to which he called lizard. What way the salamander is different to the lizard? 2. Sheetal observed the beautiful coral in the sea of Andaman and Nicobar islands. She wondered why the corals are considered as animals although they fixed on the substrate just like plant. Explain various a characteristic of phylum to which corals belongs to. 3. Name the class to which whale belongs to. Give any six characteristics of this class and two other examples of this class. 4.	Chemistry Economics

Remarks/Suggestion SIGN. OF TEACHER:_____ PRINCIPAL:_____

1. Date:_____ 3. Subject : Biology 5. Periods Required:_____ 7. Date of Commencement :_____

2. Class: XI 4.Topic /Lesson : **Morphology of flowering plants** 6. Expected date of completion:_____ 8. Actual Date of Completion:_____

Month	List of Units/ Sub Units	Activities (Individual or Group)Demonstrations / E-Class)Home Assignments	Home Assignments	HOT and MLL (Minimum Level of learning) Question Prepared	Correlation with other Subjects
A u g u s t	***UNIT : ORGANISATION IN PLANTS AND ANIMALS*** ***Lesson :*** **Morphology of flowering plants** Morphology of typical plant, root, types of root,tap root, adventitious root, regions of the root tip, root modification , stem , stem modification, leaf, structure of typical leaf, leaf modification, inflorescence, significance of inflorescence, types of inflorescence, flower and its internal structure, functions of various parts, types of flower on the basis of structure and position of ovary, corolla, calyx, androecium, gynoecium, placentation, fruit and types of fruit, structure of monocot seed and dicot seed, floral formula and floral diagram, family Solanaceae, family Fabaceae, family Lilaceae	1. Observation of various specimens available in the school. 2. Observation of various available e-content on this topic and Observing videos and ppts on this topic  	1. Differentiate between racemose and cymose inflorescence. 2. Differentiate between apocarpous and syncarpous ovary. 3. Draw well labelled diagram of gram seed. 4. Draw well labelled diagram of a seed showing scutellum and endosperm in its internal structure. 5. Describe various types of placentation with the help of suitable diagrams.	1. Why do Potato is considered stem modification while sweet potato is considered as modification of root? 2. Differentiate between thorn of rose and spines of cactus. 3. What is pneumatophores? Where they are found? What is the role of pneumatophores. 4. Draw well labelled diagram of typical flower. 5. Describe various characteristics of plants belonging to family Solanaceae.	Economics Agriculture

Remarks/Suggestion SIGN. OF TEACHER:_____ PRINCIPAL:_____

1. Date:_____ 3. Subject : Biology 5. Periods Required:_____ 7. Date of Commencement :_____

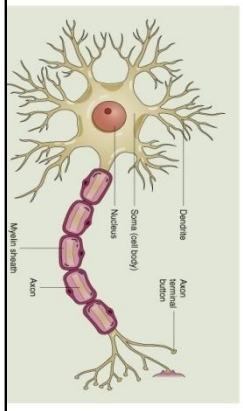
2. Class: XI 4.Topic /Lesson : ***Anatomy of flowering plants*** 6. Expected date of completion:_____ 8. Actual Date of Completion:_____

Month	List of Units/ Sub Units	Activities (Individual or Group)Demonstrations / E-Class)Home Assignments	Home Assignments	HOT and MLL (Minimum Level of learning) Question Prepared	Correlation with other Subjects
A u g u s t	***UNIT : ORGANISATION IN PLANTS AND ANIMALS*** ***Lesson :Anatomy of flowering plants*** Tissue, Meristematic tissue, definition types and their locations in a plant and their function, Permanent tissue, simple tissue, parenchyma, chlorenchyma, aerenchyma collenchymas, scerenchyma, scleroids, Vascular bundle, functions, xylem, vessels, tracheids, xylem parenchyma, xylem fibres, protoxylem, metaxylem, primary xylem and secondary xylem, endarch, exarch, functions of xylem, phloem, companion cell, sieve tube, phloem parenchyma, phloem fibres, functions of phloem, primary and secondary phloem, epidermal tissue, cork, stomata, trichome, types of vascular bundles, closed, open, conjoint, collateral, radial, concentric, Anatomy of dicotyledonous and monocotyledonous root and stems, Dorsi -ventral leaf, isobilateral leaf, secondary growth	1. Observation of various specimens, slides available in the school. 2. Observation of various available e-content on this topic and Observing videos and ppts on this topic 	1. Differentiate between hard wood and soft wood. 2. Differentiate between dicot leaf and monocot leaf. 3. What are lenticels? What is their role in a plant? 4. Define meristematic tissue. What are its types? Where are they found in a plant body? Give one role of it. 5. Describe an activity to prove that xylem conduct water in a plant body. 6. What are different components of phloem. Give role of each components.	1. Radha brought a twig of a plant which was floating in water. She has prepared a temporary stained preparation of this material for observation under microscope. Enlist various characters she should observe in the twig to decide whether it is root or stem. Enlist various observations which will help her in finding out whether it is monocot or dicot, whether it is root or stem. 2. Describe secondary growth in dicot stem with the help of series of suitable diagrams. 3. Differentiate between dicot stem and monocot stem.	Economics Agriculture

Remarks/Suggestion SIGN. OF TEACHER:_____ PRINCIPAL:_____

1. Date:_____ 3. Subject : Biology 5. Periods Required:_____ 7. Date of Commencement :_____

Month	List of Units/ Sub Units	Activities (Individual or Group)Demonstrations / E-Class)Home Assignments	Home Assignments	HOT and MLL (Minimum Level of learning) Question Prepared	Correlation with other Subjects

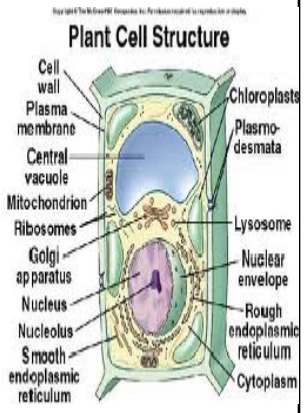
August-September	***UNIT : ORGANISATION IN PLANTS AND ANIMALS*** ***Lesson :*** **Structural organisation in animals** Animal tissue, Epithelial tissue, types , squamous, cuboidal, columnar, ciliated, transitional, glandular epithelial tissue, stratified epithelium, types of cell junctions, connective tissue, loose, areolar, adipose dense connective tissue, tendon, ligament, cartilage, bone, Blood, RBC, WBC, plasma, platelets, lymph muscles, striated muscle, non striated muscles, cardiac muscles, their locations in our body and their functions, neural tissue, External morphology of frog, earthworm, cockroach, internal structure and organ systems of cockroach.	1. Observation of various specimens available in the school. 2. Observation of various available e-content on this topic and Observing videos and ppts on this topic 	1. Define epithelial tissue. What are its types. Explain the structure of any three types. 2. Define muscular tissue. What are its types? Where they are found in our body? What is their role in our body? 3. Describe the digestive system of cockroach with the help of suitable diagram. 4. What are malpighian tubules where they are found? What is their role? 5. What are the economic importance of earthworms?	1. Neha has been given two specimens A & B of cockroaches belonging to different gender. On what external morphological characters she can determine that whether A is male or female? 2. Differentiate between tendon and ligament. 3. Differentiate between bone and cartilage. 4. Define blood. What are its different components. What are the functions of each components? 5. What is osteocytes? Where they are found?	Physics

2. Class: XI 4.Topic /Lesson: **Structural organisation in animals** 6. Expected date of completion:_____ 8. Actual Date of Completion:_____

Remarks/Suggestion SIGN. OF TEACHER:_____ PRINCIPAL:_____

1. Date:_____ 3. Subject : Biology 5. Periods Required:_____ 7. Date of Commencement :_____

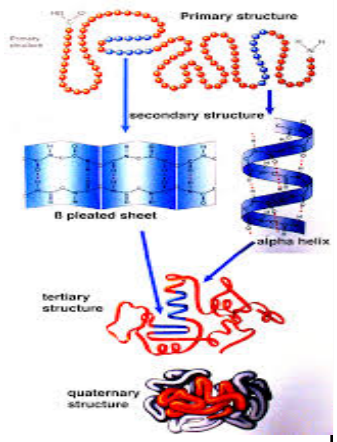
2. Class: XI 4.Topic /Lesson : ***Cell : The unit of life*** 6. Expected date of completion:_____ 8. Actual Date of Completion:_____

Month	List of Units/ Sub Units	Activities (Individual or Group)Demonstrations / E-Class)Home Assignments	Home Assignments	HOT and MLL (Minimum Level of learning) Question Prepared	Correlation with other Subjects
S e p t e m b e r	***UNIT : CELL: STRUCTURE AND FUNCTIONS*** ***Lesson :Cell : The unit of life*** Cell, cell theory, Theodore Schwann, Schleiden, omnis cellula-e-cellula, types of cell, prokaryotic cell, eukaryotic cell,cell envelope and modification, glycocalyx, gram staining, mesosome, ribosome and polyribosomes, flagella, pilli, fimbriae, inclusion bodies, cell membrane, fluid mosaic model, active transport, passive transport, osmosis, cell wall, endomembrane system, RER, SER, golgi complex, lysosome, vacuoles, mitochondria, plastids, chloroplast, leucoplast, chromoplast, amyloplast, elaioplast, aleuroplast, ribosomes, cytoskeleton, cilia, flagella, centrosome and centriole, nucleus, chromosome, types of chromosome, microbodies,	1. Observation of various specimens/ material available in the school. 2.Observation of various available e-content on this topic and Observing videos and ppts on this topic 	1. Define cell theory. Who proposed it? 2. What is mesosome in a prokaryotic cell? Mention the functions that it performs. 3. Differentiate between bacterial cell and plant cell. 4. What are nuclear pores? State their functions. 5. What is centromere? How does the position of centromere form the basis of classification of chromosome?	1. Which cell organelle is called kitchen of the cell and why? 2. Which cell organelle is called suicide bag of the cell and why? 3. Which cell organelle is called power house of the cell and why? 4. What will happen to a cell if lacks Golgi complex? 5. Expand SER. What is the role of SER? 6. What is polyribosome?	Chemistry History

Remarks/Suggestion SIGN. OF TEACHER:_____ PRINCIPAL:_____

1. Date:_____ 3. Subject : Biology 5. Periods Required:_____ 7. Date of Commencement :_____

Month	List of Units/ Sub Units	Activities (Individual or Group)Demonstrations / E-Class)Home Assignments	Home Assignments	HOT and MLL (Minimum Level of learning) Question Prepared	Correlation with other Subjects

S e p t e m b e r - O c t o b	***UNIT : CELL: STRUCTURE AND FUNCTIONS*** ***Lesson : Biomolecules*** Comparision of elements present in living and nonliving matter, Carbohydrates, monosaccharides, disaccharides, polysaccharides, storage polysaccharides and structural polysaccharides, functions of sugars, protein, amino acids and its types, structure of proteins, lipids, glycerol and fatty acids, nucleic acids, DNA, RNA, nucleotide, nucleoside, nitrogenous bases, adenine, thymine, cytosine, guanine, uracil, deoxyribose sugar, secondary metabolites, nature of bonds linking monomers in a polymer, peptide bond, glycosidic bond , homeostasis, metabolism, anabolism, catabolism, enzymes, types of enzymes on the basis of type of reaction they catalyses, mechanism of enzyme action, nature of enzyme action, factors affecting enzyme action, cofactors	1. Observation of various specimens/ material available in the school. 2.Observation of various available e-content on this topic and Observing videos and ppts on this topic 3.Detection of various food nutrients from the given food samples.  	1. Name the blood sugar in human beings. 2. Draw the structure of amino acid alanine. 3. Find out qualititative test for proteins, fats, and oils . 4. Describe what happens when milk is converted to curd. 5. Describe glycosidic bond, peptide and phosphor di ester bond.	1. Describe the structure of proteins on the basis of bond formation . 2. What is homeostasis. How it is maintained in our body? 3. Describe the structure of DNA. 4. Describe various types of enzyme on the basis of the reactions they catalyse. 5. Enlist various factors which affect the rate of reaction in a enzyme catalysed reaction.	Chemistry Physics, Biochemistry

Month	List of Units/ Sub Units	Activities (Individual or Group)Demonstrations / E-Class)Home Assignments	Home Assignments	HOT and MLL (Minimum Level of learning) Question Prepared	Correlation with other Subjects
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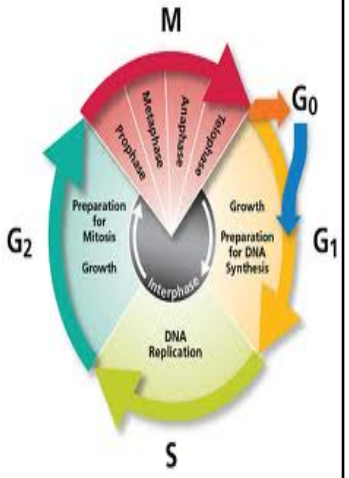
2. Class: XI 4.Topic /Lesson : ***Biomolecules*** 6. Expected date of completion:_____ 8. Actual Date of Completion:_____

Remarks/Suggestion SIGN. OF TEACHER:_____ PRINCIPAL:_____

1. Date:_____ 3. Subject : Biology 5. Periods Required:_____ 7. Date of Commencement :_____

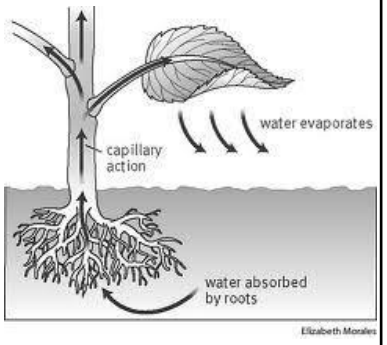
2. Class: XI 4.Topic /Lesson ***Cell cycle and Cell division***: 6. Expected date of completion:_____ 8. Actual Date of Completion:_____

Month	List of Units/ Sub Units	Activities (Individual or Group)Demonstrations / E-Class)Home Assignments	Home Assignments	HOT and MLL (Minimum Level of learning) Question Prepared	Correlation with other Subjects
October	***UNIT : CELL: STRUCTURE AND FUNCTIONS*** ***Lesson : Cell cycle and Cell division*** Cell cycle, Phases of cell cycle, interphase , Go phase, G1 phase, S phase, G2 phase, M phase(Karyokinesis), prophase, metaphase, anaphase, telophase,, cytokinesis Mitosis , definition, stages of mitosis, interphase, prophase, metaphase, anaphase, telophase, cytokinesis, when and where it happen, characteristics of mitosis. Meiosis , definition, location in a plant body and animal body, stages of meiosis, interphase, Meiosis I, Prophase I, leptotene, zygotene, pachytene, diplotene, dikinesis, metaphaseI , anaphase I, telophase, crossing over, Meiosis II, prophase II, metaphase II, anaphase II, telophaseII, cytokinesis, advantages of meiosis, differences between mitosis and meiosis, amitosis	1. Observation of various models / charts available in the school. 2.Observation of various available e-content on this topic and Observing videos and ppts on this topic 	1. Define mitosis. Where does it occure? What are its main stages? 2. Differentiate between metaphase and anaphase. 3. Why do telophase is considered opposite of prophase ? 4. What is S phase? What are its advantages? 5. Differentiate between metaphase and metaphase I	1. Differentiate between mitosis and meiosis on the basis of following points. a. No. of stages b. crossing over c. no of daughter cells d. fate of daughter cells e. no of chromosomes in daughter cells 2. What is significance of Go phase. 3. Differentiate between G1 and S phase. 4. What is chiasmata formation? Where it occurs? What is its significance?	Chemistry

Remarks/Suggestion SIGN. OF TEACHER:_____ PRINCIPAL:_____

1. Date:_____ 3. Subject : Biology 5. Periods Required:_____ 7. Date of Commencement :_____

2. Class: XI 4.Topic /Lesson: ***TRANSPORT IN PLANT*** 6. Expected date of completion:_____ 8. Actual Date of Completion:_____

Month	List of Units/ Sub Units	Activities (Individual or Group)Demonstrations / E-Class)Home Assignments	Home Assignments	HOT and MLL (Minimum Level of learning) Question Prepared	Correlation with other Subjects
October	**Means of transport in plants:** Diffusion (Facilitated Diffusion, active transport) **Comparison of different transport processes** **Water potential, solute potential, pressure potential** **Osmosis, plasmolysis, hypotonic, hypertonic, isotonic.** **Turgor pressure, imbibitions, flaccid.** **Translocation, apoplast and symplast pathway, root pressure, guttation.** **Transpiration – cohesion, adhesion, surface tension, tensile strength, capillarity.** **Transloction of mineral ions.** **Phloem transport** **Pressure flow and mass flow hypothesis**	1. Observation of various charts/ material available in the school. 2.Observation of various available e-content on this topic and Observing videos and ppts on 3. Observation of water droplets on leaf lamina of short plants like grass in morning. 4.Observe the process of imbibitions when dry gum or piece of agar agar are placed in water. They swell and their volume increases.	6. Represent movement of water and minerals in plants through different mechanism using chat papers  	1. Why transpiration is also considered as a compromise? 2. What is plasmolysis? 3. Why animal cell do not show plasmolysis? 4. What is the significance of casperian strips in endodermis? 5. Explain apoplast and symplast pathway? 6. Describe transpiration pull. 7. Describe an activity to prove that xylem is responsible for ascent of sap in a plant.	Chemistry Physics

Remarks/Suggestion SIGN. OF TEACHER:_____ PRINCIPAL:_____

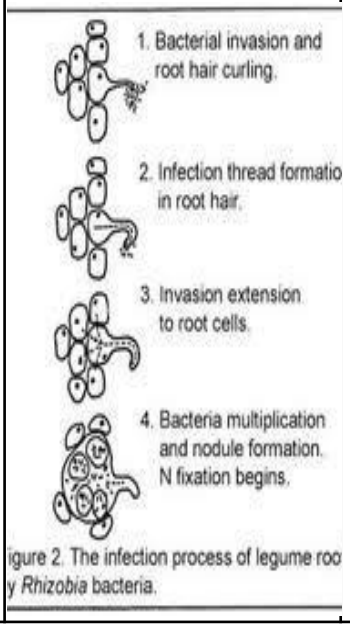
1. Date:_____ 3. Subject : Biology 5. Periods Required:_____ 7. Date of Commencement :_____
2. Class: XI 4.Topic /Lesson : REVISION 6. Expected date of completion:_____ 8. Actual Date of Completion:_____

Month	List of Units/ Sub Units	Activities (Individual or Group)Demonstrations / E-Class)Home Assignments	Home Assignments	HOT and MLL (Minimum Level of learning) Question Prepared	Correlation with other Subjects
O c t o b e r	***UNIT : REVISION OF UNIT I , II, III*** ***Lesson :***	1. Observation of various charts/ material available in the school. 2.Observation of various available e-content on this topic and Observing videos and ppts on this topic	1.		

Remarks/Suggestion SIGN. OF TEACHER:_____ PRINCIPAL:_____

1. Date:_____ 3. Subject : Biology 5. Periods Required:_____ 7. Date of Commencement :_____

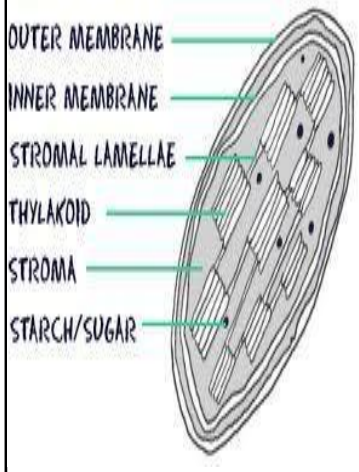
2. Class: XI 4.Topic /Lesson : ***Mineral Nutrition*** 6. Expected date of completion:_____ 8. Actual Date of Completion:_____

Month	List of Units/ Sub Units	Activities (Individual or Group)Demonstrations / E-Class)Home Assignments	Home Assignments	HOT and MLL (Minimum Level of learning) Question Prepared	Correlation with other Subjects
November	***UNIT : PLANT PHYSIOLOGY*** ***Lesson : Mineral Nutrition*** **METHODS TO STUDY THE MINERAL REQUIREMENT OF PLANTS HYDROPONICS, Sand Culture,CRITERIA FOR ESSESNTIALITY,Macro-nutrients present in larger amount (excess of10 m mole kg -1 of dry matter, Nitrogen, Sulphur, Phosphours,Calcium, Potassium, Magnesium.(their deficiency & symptoms) Micro-nutrients present in very small amount Iron, manganese, boron, copper, zinc, molybdenum, chlorine, nickel (their deficiency & symptoms). Critical concentration. Cholorosis s caused by the deficiency of elements N, K,.Mg,S ,Fe,Mn,Zn,Mo Necrosis, death of tissue is due to deficiency of Ca, Mg, Cu,K. Toxicity of micronutrient, mechanism of absorption of elements, trans location of solutes, soil as reservoir of esential elements, nitrogen cyclethe process of conversion of nitrogen to ammonia is called nitrogen fixation.** • **$2NH_3 + 3O_2 \longrightarrow 2NO_2^- + 2H^+ + 2H_2O$ …..(i)** • **$2NO_2^- + O_2$ ---□ $2NO_3^-$ nitrification & nitrifying bacteria is called <u>chemoautotroph.</u>** • **BIOLOGICAL NITROGEN FIXATION, Symbiotic biological nitrogen fixation** • **Nodule formation** **<u>Reductive amination</u> , Transamination**	1. Observation of various charts/ material available in the school. 2.Observation of various available e-content on this topic and Observing videos and ppts on this topic  igure 2. The infection process of legume roo y *Rhizobia* bacteria.	**1. Why the terms macronutrients and micronutrients are confusing?** **2. Why common salt is used to preserved certain foods?** **3. Why purification of water & nutrients is salts so important in studies involving mineral nutrition using hydroponics?** **4. What are the steps involved in formation of root nodule?**	**1. The nitrogen is present in the atmosphere in huge amount but higher plants fail to utilize it. Why?** **2. Where is the leg haemoglobin located in the root nodule? What is its function?** **3. Why do plants absorb and accumulate those elements which are not essential for their survival?** **4. Which are the two macronutrients that usually play the most important role in limiting plant growth globally?** **5. Prior to sowing rice a legume crop was cultivated and ploughed back in the field, why?** **6. What arnon's criteria?** **7. What are the deficiency symptoms of nitrogen in green plants?** **8. What is balanced nutrient solution?** **9. What is the role of infection thread as carrier of rhizobium bacteria into the roots?** **10. Give the advantages of solution culture of hydroponics.**	Chemistry Physics Agriculture

Remarks/Suggestion SIGN. OF TEACHER:_____ PRINCIPAL:_____

1. Date:_____ 3. Subject : Biology 5. Periods Required:_____ 7. Date of Commencement :_____

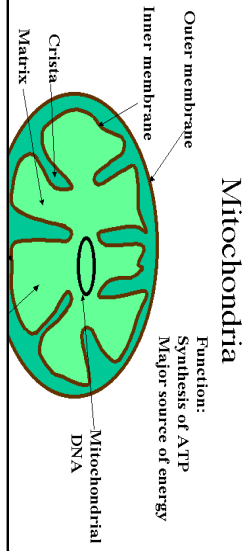
2. Class: XI 4.Topic /Lesson : ***Photosynthesis in Higher plants*** 6. Expected date of completion:_____ 8. Actual Date of Completion:_____

Month	List of Units/ Sub Units	Activities (Individual or Group)Demonstrations / E-Class)Home Assignments	Home Assignments	HOT and MLL (Minimum Level of learning) Question Prepared	Correlation with other Subjects
D e c e m b e r	***UNIT : PLANT PHYSIOLOGY*** ***Lesson :Photosynthesis in Higher plants*** Photosynthesis ,theories of photosynthesis and various experiment to prove that oxygen is released during photosynthesis, structure of chloroplast, role of photosynthetic pigments, reaction centre, photo-excitation of chlorophyll a molecule, light reaction and its types, differences between cyclic and non – cyclic photo phosphorylation, dark reaction and its types, Calvin cycle, site of reaction and no of ATP, NADPH involved, C4 cycle, Kranz anatomy, differences between C3 and C4 cycle, photorespiration, factors affecting rate of photosynthesis, law of liming factors, CO_2 fertilization effect	1. Observation of various charts/ material available in the school. 2.Observation of various available e-content on this topic and Observing videos and ppts on this topic  	1. Define photosynthesis. Give balanced chemical equation of photosynthesis. 2. Oxygen gas is released by the plants during photosynthesis. Which molecule is split to release oxygen? Who proved it? 3. Differentiate between cyclic and non photo phosphorylation. 4. Describe cyclic photo phosphorylation with the help of suitable flow chart. 5. Why do the plants growing along the highway faster than the other plants. What this effect is called as?	1. Describe the most common type of Dark reaction occurring in the plant with the help of suitable schematic diagram. 2. What is photo respiration? What are its harmful effects? Where does it occur? 3. Describe the dark reaction which plants adopt to overcome the photo respiration with the help of suitable schematic diagram. 4. Differentiate between C3 and C4 cycle. 5. Enlist various factors which regulate the rate of photosynthesis. Describe the role of any three factors affecting the rate of photosynthesis.	Chemistry Physics

Remarks/Suggestion SIGN. OF TEACHER:_____ PRINCIPAL:_____

1. Date:_____ 3. Subject : Biology 5. Periods Required:_____ 7. Date of Commencement :_____

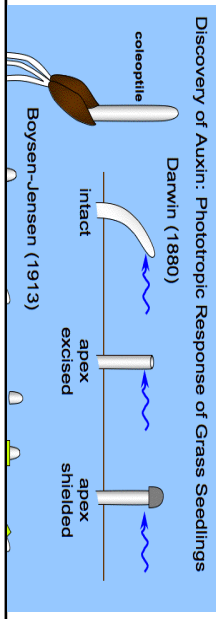
2. Class: XI 4.Topic /Lesson : ***Respiration in Plants*** 6. Expected date of completion:_____ 8. Actual Date of Completion:_____

Month	List of Units/ Sub Units	Activities (Individual or Group)Demonstrations / E-Class)Home Assignments	Home Assignments	HOT and MLL (Minimum Level of learning) Question Prepared	Correlation with other Subjects
D e c e m b e r	***UNIT : PLANT PHYSIOLOGY*** ***Lesson :Respiration in Plants*** Respiration, need for respiration, types of respiration, aerobic respiration and its main steps and site, anaerobic respiration, Respiratory quotient in carbohydrates, protein, fats, mitochondria its internal structure and location of various steps of respiration within mitochondria, Glycolysis (EMP) pathway, substrate, enzymes involved and its flowchart, no of ATP, NAD molecules involved, Krebs cycle site of reaction, Flow chart, no of ATP, NAD, H_2O molecules involved, significance of krebs cycle, Electron transport system, Role of cytochrome complex, Proton ion gradient in mitochondria,	1. Observation of various charts/ material available in the school. 2.Observation of various available e-content on this topic and Observing videos and ppts on this topic  Mitochondria	1. Differentiate between aerobic respiration and anaerobic respiration. 2. Define Glycolysis. Explain complete oxidation of pyruvic acid molecule. 3. Define R Q. What is the RQ for starch molecule? 4. Describe the proton gradient created during respiration. Where it is formed? What is its role in the cell metabolism? 5. What is oxidative de-caroxylation? Where does it occurs?	1. Define Glycolysis. Explain formation of pyruvic acid molecule. 2. Ankit participated in 800 meters race in enthusiasm but earlier he has never gone for running. After the completion of race he felt cramps in his legs as he has not even done warm up exercise. What may be the probable reasons for his cramp? Could it have been avoided? Explain. 3. Draw a well labelled diagram of mitochondria. What is the location of kerb cycle and ETS in it?	Chemistry Physics

Remarks/Suggestion SIGN. OF TEACHER:_____ PRINCIPAL:_____

1. Date:_____ 3. Subject : Biology 5. Periods Required:_____ 7. Date of Commencement :_____

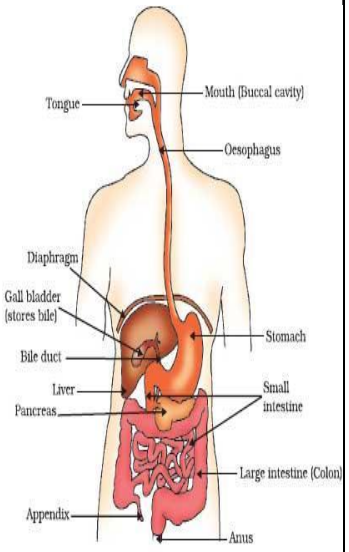
2. Class: XI 4.Topic /Lesson : ***Plant Growth and Development*** 6. Expected date of completion:_____ 8. Actual Date of Completion:_____

Month	List of Units/ Sub Units	Activities (Individual or Group)Demonstrations / E-Class)Home Assignments	Home Assignments	HOT and MLL (Minimum Level of learning) Question Prepared	Correlation with other Subjects
D e c e m b e r	***UNIT : PLANT PHYSIOLOGY*** ***Lesson :Plant Growth and Development*** Characteristics of plant growth conditions for growth.*Phases of growth:Lag phase, Exponential phase, Stationary phase.*Measurement of growth:It is sum total of various processes which causes increase in mass,weight or volume of an individual.*Growth regulators (phytoharmons): Auxins, Gibberellins, Cytokinins, ethylene, ABA.*Dormancy and seed germination-mechanism and factors affecting germination.*Role of growth regulators in seed dormancy.*Plant movement-Geotropism, phototropism, turgor growth movements (tropic, nastic and nutation). Photoperiodism: 1.Lond day plants 2.Short day plants 3.Day neutral plants. Vernalisation: Promotion of flowering by cold treatment.	1. Observation of various charts/ material available in the school. 2.Observation of various available e-content on this topic and Observing videos and ppts on this topic 	1. In botanical gardens and tea gardens, gardeners trim the plant regularly so that they remain bushy.Does this practice have any scientific explanation. 2. What is short-night plant ? Give an example. 3. What induces parthenocarpy in grapes? 4. Describe how auxins are related with the bending of shoots towards the source of light. 5. Explain different phases of growth with the help of well-labelled diagrams. 6. What is the difference between: (a) Nastic and tropic movements. (b) Phototropism and geotropism. 7. State the significance of abscission in plants. 8. What is “Bioassay”?	1 .Plant cutting are dipped in a solution and then planted in nursery beds fasten the rooting.What is there in the solution and what function it plays in the initiation of roots? 2.Give three examples of dedifferentiation in plants. 3.How will you prevent the premature ripening of fruits? 4.How will you prevent premature fall of leaves and flowers? 5.What causes apples to ripen much more slowly in a refregerator than they do if left on a table at room temperature? 6.Taking the example of auxins and cytokinins together explain: (a) a synergetics action in plants. (b) an antagonistic action in plants.	Chemistry Physics Horticulture Agriculture

Remarks/Suggestion SIGN. OF TEACHER:_____ PRINCIPAL:_____

1. Date:_____ 3. Subject : Biology 5. Periods Required:_____ 7. Date of Commencement :_____

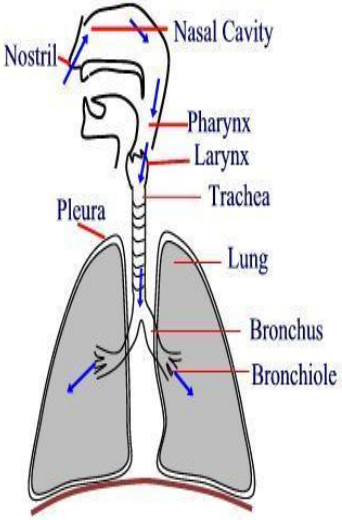
2. Class: XI 4.Topic /Lesson : ***Digestion and Absorption*** 6. Expected date of completion:_____ 8. Actual Date of Completion:_____

Month	List of Units/ Sub Units	Activities (Individual or Group)Demonstrations / E-Class)Home Assignments	Home Assignments	HOT and MLL (Minimum Level of learning) Question Prepared	Correlation with other Subjects
January	***UNIT : HUMAN PHYSIOLOGY*** ***Lesson :Digestion and Absorption*** Human digestive system, mouth, tongue, teeth, dental formula, types of teeth, salivary gland and their role, uvula, epiglottis, esophagus, pharynx, stomach, small intestine, duodenum, jejunum, ileum, large intestine colon, rectum , anus, mechanism of digestion of carbohydrates, protein, lipids, nucleic acids, aborption of sugars, amino acids, fatty acids, nucleotides, vitamins, minerals, role of roughage, role of various glands liver, pancreas, small intestine, villi, lysin, salivary amylase, bile juice, disorders of digestive system, indigestion, constipation, vomiting	1. Observation of various charts/ material available in the school. 2.Observation of various available e-content on this topic and Observing videos and ppts on this topic  *Figure 6.6 Human alimentary canal*	1. What is meant by diphodont condition? Give the dental formula of an adult human male. 1. Explain the digestion of DNA present in afood in our body. 2. What is constipation? How it can be avoided? 3. What is obstructive jaundice? What way it is different from viral jaundice? 4. What are micro villi? Where they are present? What is their role in our body?	1. Which gland secrete ptyaline? What is its role in our body? 2. A flap like structure is present just above glottis. What it is called as? Give its role in our body. 3. Draw well labelled diagram of human digestive system. 4. Explain how carbohydrates are digested in our body. Which enzymes are involved in it? 5. Although bile juice does not contain any enzymes still it is necessary for digestion of a specific nutrient. Explain how? 6. Although very strong acid is present in our stomach but it does not cause harm to stomach. Explain why?	

Remarks/Suggestion SIGN. OF TEACHER:_____ PRINCIPAL:_____

1. Date:_____ 3. Subject : Biology 5. Periods Required:_____ 7. Date of Commencement: _____

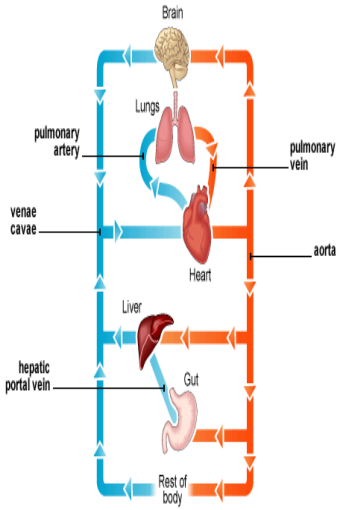
2. Class: XI 4.Topic /Lesson : **Breathing and Exchange of Gases** 6. Expected date of completion:_____ 8. Actual Date of Completion:_____

Month	List of Units/ Sub Units	Activities (Individual or Group)Demonstrations / E-Class)Home Assignments	Home Assignments	HOT and MLL (Minimum Level of learning) Question Prepared	Correlation with other Subjects
January	***UNIT : HUMAN PHYSIOLOGY*** ***Lesson :Breathing and Exchange of Gases*** Respiratory system of different organism, Human respiratory system, role of nose, epiglottis, trachea, larynx, bronchi, bronchiole, alveoli, steps involved in respiration in human, pulmonary ventilation mechanism of breathing, transport of nitrogen, oxygen, carbon dioxide, carbon monoxide, respiratory volumes and capacities, tidal volume, inspiratory reserve volume, expiratory reserve volume, residual volume, functional residual capacity, vital capacity, total lung capacity, exchange of gases in lungs and at tissue level, regulation of respiration, disorders of respiratory system, asthma, bronchitis, emphysema, occupational respiratory disorders,	1. Observation of various charts/ material available in the school. 2.Observation of various available e-content on this topic and Observing videos and ppt.s on this topic  	1. Explain the respiration under normal conditions. 2. How the respiration is regulated. 3. Distinguish between IRV and ERV. 4. What will be the pO_2 And pCO_2 in the atmospheric air compared to those in the alveolar air? i. pO_2 lessor, higher pCO_2 ii. pO_2 higher , lessor pCO_2 iii. pO_2 higher, higher pCO_2 iv. pO_2 lessor, lessor pCO_2	1. Describe the transport of carbon di oxide in blood. 2. If epiglottis is removed from a persons body due to disease, what will be its effect on the persons body? 3. Why do scuba divers are brought to sea surface slowly? What will happen if they are brought to sea surface suddenly? And why? 4. What is emphysema? What are its symptoms? 5. Why do we are advised to breath using our nose and not our mouth?	Chemistry Physics

Remarks/Suggestion SIGN. OF TEACHER:_____ PRINCIPAL:_____

1. Date:_____ 3. Subject : Biology 5. Periods Required:_____ 7. Date of Commencement :_____

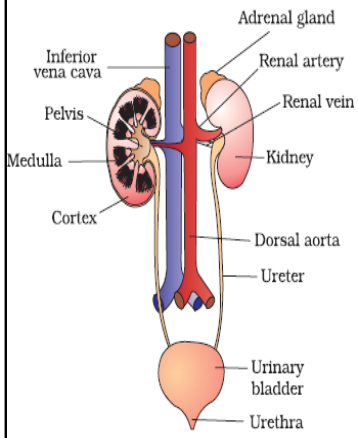
2. Class: XI 4.Topic /Lesson : ***Body Fluids and Circulation*** 6. Expected date of completion:_____ 8. Actual Date of Completion:_____

Month	List of Units/ Sub Units	Activities (Individual or Group)Demonstrations / E-Class)Home Assignments	Home Assignments	HOT and MLL (Minimum Level of learning) Question Prepared	Correlation with other Subjects
J a n u a r y	***UNIT : HUMAN PHYSIOLOGY*** ***Lesson :Body Fluids and Circulation*** Blood , components of blood, plasma, RBC, WBC, platelets, haemoglobin, soldiers of body, neutrophils, basophils, acidophils, lymphocytes , monocytes, , graveyard of RBC, ABO blood grouping, universal donor and universal acceptor, Rh grouping, HDN, blood coagulation, lymph, open circulatory system, closed circulatory system,, heart and its chambers, regulation of heart beat, cardiac cycle, double circulation, ECG, P wave, QRS wave, T wave, regulation of cardiac activity, disorders of circulatory system, CAD(atherosclerosis), Angina, heart failure. Pace maker pace setter,	1. Observation of various charts/ material available in the school. 2.Observation of various available e-content on this topic and Observing videos and ppts on this topic  	1. Why do we consider blood as connective tissue? 2. Which cells are called as soldiers of our body and why? 3. Which blood group is called as universal donor and why? 4. Why do we call our heart myogenic? 5. Define cardiac cycle and cardiac output. 6. Which node is called as pacemaker and why? Where it is located on heart wall? 7. What is angina pectoris? Why does it occurs?	1. Draw a well labelled diagram of internal structure of heart showing various regulation centres of heart beat. 2. Why do blood circulation in humans is called as double circulation? What are its two parts? 3. What is ECG? How it is taken? Draw a schematic diagram to show a standard ECG. 4. A person having blood group O positive is married to a lady having blood group O negative? What type of problems she may face while second pregnancy and why?	

Remarks/Suggestion SIGN. OF TEACHER:_____ PRINCIPAL:_____

1. Date:_____ 3. Subject : Biology 5. Periods Required:_____ 7. Date of Commencement :_____

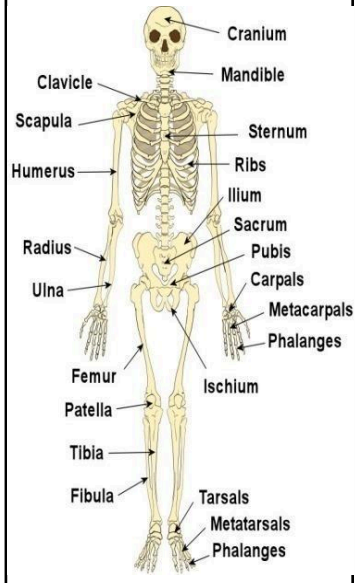
2. Class: XI 4.Topic /Lesson : **Excretory Products and their Elimination** 6. Expected date of completion:_____ 8. Actual Date of Completion:_____

Month	List of Units/ Sub Units	Activities (Individual or Group)Demonstrations / E-Class)Home Assignments	Home Assignments	HOT and MLL (Minimum Level of learning) Question Prepared	Correlation with other Subjects
January	***UNIT : HUMAN PHYSIOLOGY*** ***Lesson :Excretory Products and their Elimination*** Excretion, types of excretory products, ammonotelism, ureotelism, urecotelism, role of kidney as osmo regulatory organ, human excretory system, kidney, ureters, urinary bladder, urethra, differences between urethra and ureter, structure of kidney, structure of nephron, structure of renal capsule or bowman's capsule, heneles loop, PCT, DCT, CD, vasa recta, glomerulus, mechanism of urine formation, ultra filtration, selective reabsorption, renal secretion, glomerular filtration rate, regulation of kidney function, RAAS system, ANF, composition of urine, role of other organs in excretion, lungs, liver, sweat glands, sebaceous glands, salivary glands, disorders of excretory systems, uremia, glucosuria, diabetes insipidus, kidney stones, renal failure, glomerulonephritis	1. Observation of various charts/ material available in the school. 2.Observation of various available e-content on this topic and Observing videos and ppts on this topic  **Figure 19.1** Human Urinary system	1. Draw a well labelled diagram of human excretory system. 2. What is ureotelism . What are its advantages? 3. Draw a well labelled diagram of uriniferous Tubule of man 4. What is ANF? What is its function? 5. What are accessory excretory organs? How do they help in excretion? 6. Why do we tend to go for frequent urination in winter while in summer the frequency of urination is very less?	1. Why do reptiles and birds that lay eggs on land have to adapt urecotelism? 2. Differentiate between urecotelism and ammonotelism. 3. Describe the counter current mechanism occurring during urine formation. 4. What is RAAS? How does it help in regulation of urine osmolarity? 5. What is the problem faced by the kidneys of the bony fish living in a fresh water? How it is overcome by the fish? 6. Differentiate between ureter and urethra.	Chemistry

Remarks/Suggestion SIGN. OF TEACHER:_____ PRINCIPAL:_____

1. Date:_____ 3. Subject : Biology 5. Periods Required:_____ 7. Date of Commencement :_____

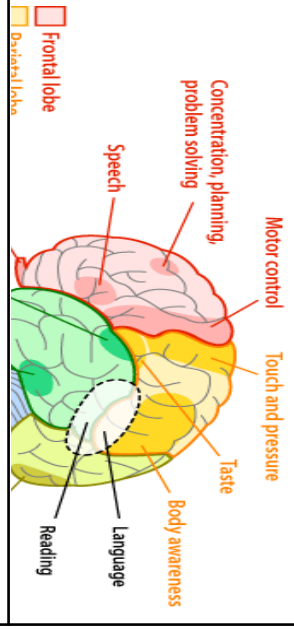
2. Class: XI 4.Topic /Lesson : ***Locomotion and Movement*** 6. Expected date of completion:_____ 8. Actual Date of Completion:_____

Month	List of Units/ Sub Units	Activities (Individual or Group)Demonstrations / E-Class)Home Assignments	Home Assignments	HOT and MLL (Minimum Level of learning) Question Prepared	Correlation with other Subjects
F e b r u a r y	***UNIT : HUMAN PHYSIOLOGY*** ***Lesson :Locomotion and Movement*** Locomotion, muscles and its types, striated muscle, smooth muscle and cardiac muscle, muscle bundle and fascicles, sarcolemma, sarcosomes, myofibrils, actin and myosin, structure of sarcomere,' A' band 'I' band, structure of contractile proteins, mechanism of muscle contraction, role of calcium ion in muscle contraction, sliding filament theory of muscle contraction, Skeletal system, exoskeleton and endoskeleton, Axial skeleton, the skull, skull bones, facial bones, vertebral column, sternum, and ribs, types of ribs, true ribs, false ribs and floating ribs, Appendicular skeleton, pectoral girdle, pelvic girdle and limb bones, types of joints, disorders of muscular and skeletal system	1. Observation of various charts/ material available in the school. 2.Observation of various available e-content on this topic and Observing videos and ppts on this topic  	1. Draw the diagram of a sarcomere of skeletal muscle showing different regions. 2. Describe the sliding filament theory of muscle contraction. 3. Differentiate between smooth muscle and striated muscle on the basis of following points. a. Location b. No of nuclei c. Presence of bands d. Speed of contraction e. Length of muscles f. Duration of contraction 4. What is gout?	1. Define joint. What are its types? Explain different types of joint using one example of each. 2. Draw well labelled diagram of synovial joint. 3. Which type of joint is present between the following. a. Between atlas and axis bone b. Acetabulum and femur c. Knee d. Frontal bone and parietal bone 4. What is osteoporosis? In which age group it is more common?	

Remarks/Suggestion SIGN. OF TEACHER:_____ PRINCIPAL:_____

1. Date:_____ 3. Subject : Biology 5. Periods Required:_____ 7. Date of Commencement :_____

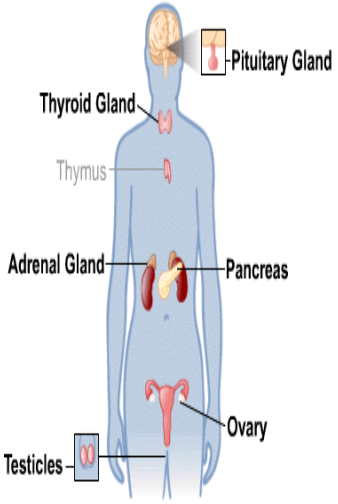
2. Class: XI 4.Topic /Lesson : **Neural Control and Coordination** 6. Expected date of completion:_____ 8. Actual Date of Completion:_____

Month	List of Units/ Sub Units	Activities (Individual or Group)Demonstrations / E-Class)Home Assignments	Home Assignments	HOT and MLL (Minimum Level of learning) Question Prepared	Correlation with other Subjects
F e b r u a r y	***UNIT : HUMAN PHYSIOLOGY*** ***Lesson :Neural Control and Coordination*** Types of neurons, unipolar, bipolar, multipolar neuron, myelinated neuron and non myelinated neuron, role of cyton, role of axon, nodes of Ranvier, Generation and Conduction of nerve impulse within a neuron, resting potential, action potential, transmission of nerve impulse across synapse, Structure of synapse, neurotransmitors, pre synaptic membrane and post synaptic membrane, meninges, central nervous system, brain, fore brain, cerebrum, frontal lobe, parietal lobe, occipital lobe, temporal lobe, thalamus, hypothalamus, crura cerebri, corpora quadragemina, hind brain, pons, medulla oblongata, cerebellum, reflex action, structure and functioning of eye, ear, ,echanism of hearing, other sense organs.	1. Observation of various charts/ material available in the school. 2.Observation of various available e-content on this topic and Observing videos and ppts on this topic 	1. Compare the resting potential and action potential. 2. Differentiate between afferent and efferent neurons. 3. Between brain and skull bones a specialized structure is present o protect the brain. What it is called as? What are its three components? 4. What is CSF? What is the role of CSF? 5. Draw well labelled diagram of sense organ of humans responsible for vision.	1. Describe the generation of nerve impulse in a neuron. 2. Define reflex action. Describe reflex action with the help of suitable diagram. 3. Specify which part of human brain regulate/ control the following functions. a. Hearing b. Thinking c. Emotions d. Body balance e. Sensation of pain f. Movement of hand 4. What will happen if due to accident the eye ball shape has changed and the image is formed on blind spot on the retina?	

Remarks/Suggestion SIGN. OF TEACHER:_____ PRINCIPAL:_____

1. Date:_____ 3. Subject : Biology 5. Periods Required:_____ 7. Date of Commencement :_____

2. Class: XI 4.Topic /Lesson : **Chemical co-ordination and Integration** 6. Expected date of completion:_____ 8. Actual Date of Completion:_____

Month	List of Units/ Sub Units	Activities (Individual or Group)Demonstrations / E-Class)Home Assignments	Home Assignments	HOT and MLL (Minimum Level of learning) Question Prepared	Correlation with other Subjects
F e b r u a r y	***UNIT : HUMAN PHYSIOLOGY*** ***Lesson :* Chemical co-ordination and Integration** Endocrine glands, exocrine glands Diagram of various endocrine glands and their relative position in human body, Pituitary glands, its components, various hormones secreted from adenohypophysis, GH, LTH, GTH,MSH, ACTH, TSH hormones secreted from neurohypophysis Oxytocin, Vasopressin, disorders caused due to less secretion or hyper secretion of hormones, Thyroid gland, thyroxine hormone T_1, T_2, T_3, T_4 calcitonin, Parathyroid gland parathormone Thymus gland, adrenal gland corticoid hormones, adrenalin FFF response, pancreas insulin, glucagon, somatostatin, testis, ovary and their hormones and their action on human body, mechanism of action of steroid hormones, mechanism of action of peptide hormones	1. Observation of various charts/ material available in the school. 2.Observation of various available e-content on this topic and Observing videos and ppts on this topic  	1. Draw a well labelled diagram showing relative position / location of various endocrine gland in a 15 year old boy. 2. Why they are considered as ductless glands? Enlist two endocrine glands. 3. What is the difference between T T_1 and T_3 on the basis of the composition and function? 4. Which hormone is secreted by testis ? what are its role in human body?	1. Anoop found that his blood sugar level is abnormally high and he feels hungry very often . Doctors told him that he is suffering from 'X' disease . this is due to hypo secretion of hormone 'Y'.which is secreted from gland 'Z'. What do this X, Y, Z represent.. What are the other symptoms of this disease? 2. Although his parents are having normal height of 5feet and five and half feet. Rocky's height has increased beyond 7 feet and his body is well proportionate. Even at the age of 18 years. What this condition is called as? Which hormone is responsible for this condition?	Chemistry

Remarks/Suggestion SIGN. OF TEACHER:_____ PRINCIPAL:_____

1. Date:_____ 3. Subject : Biology 5. Periods Required:_____ 7. Date of Commencement :_____

2. Class: XI 4.Topic /Lesson : 6. Expected date of completion:_____ 8. Actual Date of Completion:_____

Month	List of Units/ Sub Units	Activities (Individual or Group)Demonstrations / E-Class)Home Assignments	Home Assignments	HOT and MLL (Minimum Level of learning) Question Prepared	Correlation with other Subjects
March	***UNIT : I, II, III, IV &V*** ***Lesson :REVISION***	1. Observation of various charts/ material available in the school. 2.Observation of various available e-content on this topic and Observing videos and ppts on this topic	6.		

Remarks/Suggestion SIGN. OF TEACHER:_____ PRINCIPAL:_____