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| **CLASS : X**  **SUBJECT : BIOLOGY**  **ANNUAL PEDAGOGICAL PLANS** | | | | |
| Chapter | Learning objectives | Methodology | Activities | Learning outcomes |
| Life processes | Students shall be able to-   * Identify the vital life processes * Differentiate auto and heterotrophic nutrition * Explain human nutrition * Explain the mechanism of respiration, transportation and excretion wrt to humans and plants. | Lecture, stimulatory questioning, drawing diagrams and labeling, textual questions, content mapping, flow charts | * Experiential learning – hands on learning of measuring the pulse rate and blood pressure * Lab activity –  1. To prepare a slide of leaf peel to observe open and closed stomata. 2. To study that CO2 is evolved during respiration.  * PPTs on digestive, respiratory, circulatory and excretory systems * AV on nutrition in amoeba. | * Students are able to develop a basic understanding of basic life processes. * They are able to show an interest in the working of heart, lungs and kidneys. * They are able to appreciate the interlinking of various life processes. |
| Control and coordination | Students shall be able to-   * Explain parts of human nervous system. * Discuss the action caused by nervous system. * Describe all aspects of reflex action. * Recall coordination in plants. * Discuss various tropic movements in plants. * Locate the major endocrine glands in human body, hormones secreted by them and their functions. | Lecture, stimulatory questioning, drawing diagrams and labeling, textual questions, content mapping, flow charts, group discussion, AV aids | * Experiential learning – studying the nastic movements in touch me not plant, growth of tendrils and bending of shoot towards light. * Preparing PPT on parts and functions of human brain. * Lab activity – to observe hydrotropism in roots. * AV on reflex action. * Flash card activity on reflex action. | * Students are able to comprehend the functions of major parts of brain. * They are able to understand the role of reflex action in prevention from dangerous situations. * They also realize the parallel role of hormonal coordination alongside nervous control. * They get to know about disorders caused by inefficient working of endocrine glands. |
| How do organisms reproduce? | Students shall be able to-   * Explain the need for reproduction. * Understand the importance of DNA copying during cell division. * Correlate variations with speciation. * Learn the differences between asexual and sexual modes of reproduction. * Describe the various modes of asexual reproduction. * Explain reproduction in flowering plants and human beings. * Understand the concept of reproductive and child health. | Lecture, stimulatory questioning, drawing diagrams and labeling, textual questions, content mapping, flow charts, group discussion, tables of classification, AV aids | * Lab activity – study of binary fission in Amoeba, budding in Yeast and Hydra through permanent slides and visuals. * Experiential learning – hands on experience by growing money plant, Bryophyllum and cuttings of rose plant. * AV on regeneration in Planaria. * AV on means of natural and artificial propagation. * Chart on definition, causes of declining sex ration and measures to improve the sex ratio. | * Students are able to to explain major differences between asexual and sexual reproduction. * They are able to describe asexual means of reproduction. * They are able to understand the term double fertilization in angiosperms. * They are able to appreciate the process of human reproduction. * They get an insight about STD, contraceptive methods, declining sex ratio, poverty and population explosion. |
| Heredity and evolution | Students shall be able to-   * Understand and explain the terms inheritance, heredity, genes, alleles, phenotype, genotype etc. * Highlight the laws of inheritance proposed by Mendel on the basis of monohybrid and dihybrid crosses conducted on pea plant. * Learn about the concept of evolution. * Comprehend the idea and factors leading to evolution. * Appreciate the evidences in favor of evolution. | Lecture, stimulatory questioning, drawing diagrams and labeling, textual questions, content mapping, flow charts, group discussion, Punnett squares for Mendel’s crosses. | * Practice of Mendel’s crosses. * Showing different types of relatives of wild cabbages selected artificially * Conducting a survey in class, family and locality on common traits like free or attached ear lobes and tongue rolling. * Activity on natural selection. | * The students are able to appreciate the importance of genetics. * They are able to relate speciation with evolution and classification with evolution. * They are also able to learn how to find an age of fossil by carbon-dating method. * They are also able to show an interest in human evolution. |
| Our environment | Students shall be able to-   * Classify the types of ecosystems. * Define the terms food chain, food web and trophic levels. * Discuss and draw food chains and food pyramids. * Relate the effects of ozone depletion with environment. | Lecture, stimulatory questioning, textual questions, content mapping, flow charts, group discussion. | * Constructing 3D model of food pyramids * Awareness campaign in school about segregation of wastes, no use of plastic, and three R’s of waste. | * The students are able to understand the phenomena of Biomagnification as an important aspect of food chain. * They are able to realize their role in garbage disposal and segregation of wastes * They are able to learn the importance of sustainable management and conservation of environment. |
| Management of natural resources | Students shall be able to-   * Explain the necessity of resources and their conservation. * Describe the need of forests and contribution of local people towards its conservation. * Express the importance and problems posed by construction of dams. * Appreciate the importance of rain water harvesting and advantages of ground water. | Lecture, stimulatory questioning, textual questions, content mapping, flow charts, group discussion | * Interdisciplinary activity (biology and Geography) - Chart showing use, abuse and sustainable management of resources. | * The students are able to value the free availability of natural resources and avoiding its wastage. * They are able to understand their role in sustainable management of resources. * They are able to appreciate the various measures taken to improve the quantity and quality of natural resources. * They learn to play their bit as a global citizen. |