

Budha Dal Public school samana

ANNUAL CURRICULUM PLAN SESSION

( 2 0 2 3 - 2 4 )

CLASS:XII.

SUBJECT:BIOLOGY

No. Of periods 25 Month April- may	Theme/ Sub-theme	Learning Objectives		Activities &Resources	Expected Learning Outcomes	Assessment/ Assignment
		Subject Specific (Content Based)	Behavioural/pedag ogical (Application based)			
				NCERT textbook NCERT exemplar Reference books Bank of biology presentations for whole year.		Question answers from back exercise of NCERT book and ncert exemplar questions

	<p><b>Sexual reproduction in flowering Plants</b></p> <ul style="list-style-type: none"> <li>• Flower – A Fascinating organ of Angiosperm</li> <li>• Pre- Fertilization structure and events</li> <li>• Stamen , Microsporangium and Pollen grain</li> <li>• Structure of microsporangium and Microsporogenesis</li> <li>• Pistil, Megasporangium and Embryosac formation</li> <li>• Pollination and its Types and its agents</li> <li>• Outbreeding Devices</li> <li>• Pollen pistil interaction</li> <li>• Artificial Hybridization</li> </ul>	<p><b>Specific objectives</b></p> <p>To make the learners understand about the asexual and sexual reproduction in flowering plants</p> <p>To acquire knowledge of Pre fertilization , fertilization and post fertilization events</p>	<p>Students will develop scientific temperament and inquisitiveness.</p> <p>Students will analyze various methods of asexual reproduction</p> <p>Students will understand the mechanism of gamete formation in flowers.</p> <p>They can interpret the cause why all pollen grains cannot develop the pollen tube by conferring their understanding about the pollen pistil interactions</p> <p>They would understand the concept of double fertilization and finally the formation of embryo and endosperm</p>	<p>To prepare and study the slide of pollen grain germination</p> <p><a href="https://www.youtube.com/watch?v=S4wAtd11S5Y">https://www.youtube.com/watch?v=S4wAtd11S5Y</a></p> <p><a href="https://amrita.olabs.edu.in/?sub=79&amp;brch=18&amp;sim=228&amp;cnt=591">https://amrita.olabs.edu.in/?sub=79&amp;brch=18&amp;sim=228&amp;cnt=591</a></p> <p><a href="https://amrita.olabs.edu.in/?sub=79&amp;brch=18&amp;sim=237&amp;cnt=4">https://amrita.olabs.edu.in/?sub=79&amp;brch=18&amp;sim=237&amp;cnt=4</a></p>	<p>Teaching botany is challenge as students in general lacks interest in plants. Reproduction in flowering plants may serve as useful topic for teaching plants by providing a real life context to aid learning.</p> <p>List out various ways of asexual reproduction</p> <p>Describe and comprehend about the events involved in the process of double fertilization in plants</p> <p>Understand about the formation of embryo and endosperm (double fertilization) in dicotyledon and monocotyledon seeds,</p>	<p>Practice questions</p>
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	<ul style="list-style-type: none"> <li>• Double Fertilization</li> <li>• Post – Fertilization : Structures and Events – Embryo, Endosperm and Seed formation</li> <li>• Apomixes and Polyembryony</li> </ul>		<p>Students can relate the importance of apomixes and polyembryony in horticulture to increase the productivity qualitative and quantitative way.</p>		<p>They could able to identify the various parts of the seeds like difference between coleoptile and coleorrhiza, integument and testa, perisperm and pericarp.</p>	
	<p><b>Human Reproduction –</b></p> <ul style="list-style-type: none"> <li>• Male and female reproductive system,</li> <li>• Gametogenesis</li> <li>• Menstrual cycle</li> <li>• Fertilization and implantation</li> <li>• Pregnancy and Embryonic Development</li> <li>• Parturition and Lactation</li> </ul>	<p>To make the students learn and understand about the different parts of Male and Female reproductive System, their function</p> <p>Learn and understand on the hormonal changes during puberty which leads to gametogenesis</p>	<p>Infer the effect of hormones for the changes in human after puberty.</p> <p>Realize the role of hormones in regulating the process of spermatogenesis and oogenesis which helps in gamete formation, fertilization and implantation</p>	<p>To observe the slides of human testis, ovary, blastula, various stages in mitosis and meiosis</p> <p><a href="https://www.youtube.com/watch?v=NShd2e6m568">https://www.youtube.com/watch?v=NShd2e6m568</a></p> <p><a href="https://www.youtube.com/watch?v=NShd2e6m568">https://www.youtube.com/watch?v=NShd2e6m568</a></p>	<p>Analyse and interpret the role of different hormones in the life span of the organism.</p> <p>Understand about clones, identical and non identical twins</p> <p>Consider the evolutionary advantages of the genetic variation that comes from sexual reproduction</p>	

	<ul style="list-style-type: none"> <li>• <b>Reproductive health</b> – problems and strategies</li> <li>• Population Explosion and Birth control methods</li> <li>• Medical termination of Pregnancy</li> <li>• Amniocentesis</li> <li>• Sexually Transmitted Diseases</li> <li>• Infertility and assisted reproductive technologies.</li> </ul>	<p>To make them aware of the menstrual cycle</p> <p>To make them understand the mechanism of fertilization, implantation and embryonic development</p> <p>Disorders of the reproductive system</p> <p>Create awareness regarding various sexually transmitted diseases</p> <p>Educate and make them aware of Amniocentesis</p> <p>To make aware of different Assisted reproductive technologies</p>	<p>Understand about clones, identical and non identical twins</p> <p>To enumerate the applications of Assisted Reproduction Technologies which assist infertile couples to have children</p> <p>To make them aware of overcome population leads to population explosion</p> <p>To make them aware of the different ways to have sound reproductive health</p> <p>Learners will develop critical thinking, decision making and logical thinking</p>		<p>Students will develop decision making and logical thinking.</p> <p>Students will inculcate the applications of Assisted Reproduction Technologies which assist infertile couples to have children.</p> <p>Students will be educated regarding developments to overcome population explosion</p> <p>Understand about the reproductive system in humans. Process of gametogenesis, fertilization and development of embryo and parturition.</p> <p>Understand the concept of identical and non identical twins..</p> <p>Understand and were updated with the application of Assisted Reproduction Technologies for the childless couples.</p> <p>Assessed various STD its causes and prevention.</p> <p>Understood about the</p>	
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					<p>population explosion and various ways of control.</p> <p>Understand and apply the DNA finger printing process in forensic laboratories for identification of criminals, to determine paternity of a person and to identify racial group to rewrite biological evolution. Creativity, Decision Making and Logical thinking how and where to implement this so that it is only use for betterment of society</p>	
<p><b>No. Of periods</b> <b>40</b> <b>Month</b> <b>May-july</b></p>	<p><b>Principles of Inheritance and variation</b></p> <ul style="list-style-type: none"> <li>• Mendel's Laws of Inheritance</li> <li>• Inheritance of one gene theory</li> <li>• Inheritance of two gene theory</li> <li>• Sex determination</li> <li>• Mutation</li> <li>• Genetic disorder</li> </ul>	<p><b>Specific objectives :</b> Explain and understand Mendel's monohybrid and dihybrid experiment and draw the different laws like law of dominance, independent assortment, law of segregation.</p> <p>Understand and express the limitations of Mendel's experiment.</p>	<p><b>Behavioral objectives</b> :Students will be able to understand the behaviour of chromosomes during Meiosis.</p> <p>Students will relate the dominant and recessive characters which they inherited from their parents or grandparents</p> <p>Appreciate a new change (evolution) can be due to mutation which develops</p>	<p>To Study the pedigree chart on the genetic traits like widow's peak, Rolling tongue, Blood group, color blindness</p> <p>2.To prepare a pedigree chart on any of the genetic disease.</p> <p>3.Study of Mendelian inheritance using pea seeds of different colours and</p>	<p>Students have learnt to Illustrate the monohybrid and dihybrid crosses.</p> <p>Analyze and infer the cause of blood groups and its importance during blood transfusion.</p> <p>Understand the importance of blood donation, use of blood bank separation of various blood components.</p> <p>Apply quantitative problem-</p>	<p>To prepare a pedigree chart on any of the genetic disease</p> <p><b>Assignment Is given</b></p>

		<p>Describe Chromosomal theory of inheritance and will understand how it modified Mendel's limitations.</p> <p>Understand ABO- blood group and the concept of dominance, co-dominance and multiple allelism.</p>	<p>adaptability according to the environment.</p> <p>Understand how inheritance patterns are affected by position on chromosomes</p> <p>To explore the critical thinking of the society that females are not responsible for the sex of offspring as man is heterogametic and woman is homogametic.</p> <p>Infer the responsibility of genes for various traits.</p> <p>Will be able to construct a phylogenetic tree.</p>	Shape and Size.	<p>solving skills to genetics problems and issues..</p> <p>Describe the chromosomal theory, molecular genetics and quantitative and evolutionary genetics.</p> <p>Select and apply experimental procedures to solve genetic problems and screening.</p> <p>Describe the theory of natural selection which lead to evolution.</p>	
	<p><b>Principles of Inheritance and variation</b></p> <ul style="list-style-type: none"> <li>• Mutation</li> <li>• Genetic disorder</li> </ul>	<p>Understand the concept of sex determination and the mutations which leads to variation.</p>	<p>Sensitize that genetic disorders occurs due to change in chromosomal number, chromosomal abbrevations and mutations..</p>		<p>Synthesize from the concept of gene mutation some genetic disorders can be cured by gene transformations</p> <p>Relate the chromosomal abbrevations with real life situation.</p>	
	<p><b>Molecular basis of Inheritance</b></p> <ul style="list-style-type: none"> <li>• The DNA</li> <li>• The search of Genetic Material</li> </ul>	<p>Understand the location and chemical composition of DNA.</p> <p>Explain the process of protein synthesis</p>	<p>Appreciate the role of DNA to initiate and guide the process of protein synthesis.</p> <p>To explore the use of DNA</p>	<p>1. Isolate DNA from Plant material.</p> <p>2. Classifying the sequences into DNA, RNA and Protein.</p> <p>3. Motif analysis of the</p>	<p>Relate the chromosomal abbrevations with real life situation.</p> <p>The students will understand the</p>	<p><b>Assignment Is given</b></p>

	<ul style="list-style-type: none"> <li>• RNA World</li> <li>• Replication</li> <li>• Transcription</li> <li>• Genetic code</li> <li>• Regulation of gene expression</li> <li>• Human Genome Project</li> </ul> <p>DNA Fingerprinting</p> <p><b>Evolution</b></p> <ul style="list-style-type: none"> <li>• Origin of life</li> <li>• Evolution of Life Forms</li> <li>• Evidences of evolution</li> <li>• Adaptive radiation</li> <li>• Biological Evolution</li> <li>• Mechanism of Evolution</li> <li>• Hardy Weinberg Principle</li> <li>• Brief Account of evolution</li> </ul> <p>Origin and evolution of man</p>	<p>Understand the Human Genomic project which provide information for various genetic diseases and its treatments.</p> <p>Understand and express the different pattern of sequencing of DNA by the process of DNA finger printing.</p> <p>Understand different theories on evolution.</p>	<p>finger print technique to find out variation in polulation, genetic disorders, criminology, parental dispute</p> <p>They will be able to evaluate the importance Human genome project in preventing inherited disease.</p> <p>The learners could apply the knowledge of evolutionof human beings by the molecular study of analogous and homologus organ in animalsand theiranatomical evidences.</p>	<p>given sample.</p> <p>4.To make complementary sequence of the given nucleotide.</p> <p>Study of analogous and homologus organ in various plants and animals</p> <p><b>Digital Content to be used:</b>  <b>Video</b><a href="https://youtu.be/gGZuCskUOrA">https://youtu.be/gGZuCskUOrA</a> (DNA to ptotein)  <a href="https://youtu.be/dKubyIRiN84">https://youtu.be/dKubyIRiN84</a> (DNA REPLICATION)  <a href="https://youtu.be/DKgJPhvCDU8">https://youtu.be/DKgJPhvCDU8</a> (DNA Transcription)  <a href="https://youtu.be/2BwWavExcFI">https://youtu.be/2BwWavExcFI</a> (Translation)  <a href="https://youtu.be/AVuj0q4mKa8">https://youtu.be/AVuj0q4mKa8</a> (Lac Operon)  <a href="https://www.youtube.com/watch?v=DbR9xMXuK7c">https://www.youtube.com/watch?v=DbR9xMXuK7c</a> (DNA- finger printing)</p>	<p>importance of DNA in all activities</p> <p>The students learnt how DNA finger printing helps in Forensic sciences</p> <p>The learners learnt about the human genomic project which helped in identifying and preventing many hereditary disease</p>	
<p><b>No. Of peri ods</b>  <b>18</b>  <b>Month</b>  <b>August</b></p>	<p><b>Human health and Diseases</b>  Disease, Types of disease: Congenital and acquired, common diseases(pneumonia, common cold, malaria, ascariasis), Immunity, Development of immunity, types of immunity, vaccination, kinds of defence mechanism, external defence, internal</p>	<p>Understand and classify the disease into congenital- since birth (gene mutation, chromosomal aberrations, environmental factors- first two are</p>	<p>Learn to imbibe awareness, concern, cleanliness to prevent themselves from different pathogenic diseases.</p> <p>Sensitize that genetic disorders occurs due to change in chromosomal number,</p>	<p>Video on tissue culture to save exotic plants  <a href="https://www.youtube.com/watch?v=TORRxwbz7aY">https://www.youtube.com/watch?v=TORRxwbz7aY</a></p>	<p>The students learnt about the life cycle of malarial parasite and the different stages of life cycle it completes in different host</p> <p>Students learnt to prevent themselves from different diseases by observing signs and</p>	<p>Draw the life cycle of malarial parasite showing the stages at in different host</p>

	<p>defence – cellular and cytokine barrier, Addiction (tobacco, alcohol, drugs)</p>	<p>transmitted to children where as environmentally are not) or acquired (after birth-communicable or non communicable) . communicable – infectious spread through pathogens and non- communicable- non infectious (organ ic disease, deficiency disease, hypo or hyper secretion of hormones, allergies and cancer, AIDS)</p> <p>Understand and explain about different diseases its cause, causative agents, symptoms, life cycle, preventive measures.</p> <p>Explain about immunity its type : inborn or acquired. Inborn is accomplished by providing different types of barriers – physical, physiological, cellular and cytokine. Acquired- Active and passive.</p>	<p>chromosomal aberrations and mutations.</p> <p>Inculcate self control, determination to keep away from social diseases like, smoking, drinking, drugs etc.</p> <p>Appreciate the useful use of microbes in day to day life.</p> <p>To explore the critical thinking of the society that microbes are not always bane but act as boon in our daily life.</p>	<p>To observe the permanent slides of disease causing organisms like Ascaris, Entamoeba, Plasmodium, Round worm and write the symptoms of the disease.</p> <p>To visit sewage treatment plant to observe and understand about the primary and secondary treatment using microbes.</p>	<p>symptoms.</p> <p>Synthesize some genetic disorders can be cured by genetic transformations.</p> <p>The learners understood that chromosomal abberation can lead to genetic disease.</p> <p>Learnt the way to conserve the exotic plants by tissue culture</p> <p>The learners understood the role of microbes in sewage treatment,biogas production, preparation of antibiotics, biofertilizers enzymes etc.</p>	<p>)</p>
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	<p><b>Microbes in Human Welfare</b> Microbes in human welfare in house hold, industrial, antibiotics, sewage treatment</p>	<p>Understand the concept of Addiction and explain different social disease like, smoking, drinking, drugs</p> <p>Understand and express the benefits of bacteria in probiotics, antibiotics, industrial and sewage treatment.</p>				<p>Visit to water treatment plant</p>
<p><b>No. Of Period 24 Month August - September</b></p>	<p><b>Principles of Biotechnology</b> Tools for recombinant DNA Technology of Recombinant DNA technology</p> <p><b>Biotechnology and its Application</b></p> <ul style="list-style-type: none"> <li>Principles and process of Biotechnology</li> <li>Genetic engineering</li> <li>Biotechnological application in Agriculture</li> <li>Biotechnological Application in Medicines</li> <li>Transgenic Animals &amp; Ethical Issues</li> </ul>	<p>Understand Basic concept of genetic engineering Learn basic tools of rDNA technology Describe restriction enzymes, cloning vecto Understand procedures, to transfer rDNA into host cell, Apply procedures to identify recombinants, Acquire knowledge of DNA sequencing,</p>	<p>Students will appreciate the DNA manipulation technique for welfare Students will develop scientific temperament and inquisitiveness. Students will analyze various methods of genetic engineering for improving standard of living Students will get awareness regarding developments in recombinant DNA technology yielded numerous new useful products in the fields of healthcare and agriculture</p>	<p>To Prepare vinegar from fruit peels by the process of fermentation</p> <p>To determine the action of salivary amylase in carbohydrates/starch at different pH and temperature</p> <p>To isolate DNA from fruit samples</p>	<p>The students learnt the process of r-DNA technology</p> <p>The learners understood how the technology is used in the large scale production of antibiotics, enzymes etc in industries</p> <p>The students learnt about the different techniques which could be applied to transfer the genes. The students learnt about the gene therapy which enabled the medical scientist to replace the defective gene responsible for</p>	<p>To determine salivary amylase at different pH and temperature</p>

		<p>Enumerate the applications of PCR. Understand techniques of isolating, purifying and manipulating the DNA.</p> <p>Learn methods of gene sequencing and DNA fingerprinting</p>	<p>Value the ethical concerns regarding manipulation of DNA and learn care and safety. Illustrating the examples like insulin, Hepatitis B vaccine etc developed by using this technique playing important role in improving health</p> <p>learn to use various safety measures while using instruments like laminar air flow bench, centrifuges, autoclave, hot air oven</p> <p>Students will inculcate the applications of DNA fingerprinting in solving parental disputes, crime cases, archaeological research and prenatal diagnosis</p> <p>Students will develop creativity, decision Making and logical thinking</p> <p>To acquaint students with different applications of biotechnology in everyday life.</p> <p>Describe current biotechnology in relation to vaccine development, treatment and improved diagnostics of these</p>	<p>1. Study the effect of antibiotics on microorganism</p> <p>2. Study of drug resistance in bacteria using antibiotics.</p>	<p>hereditary disease.</p> <p>Describe the events involved in generating recombinant DNA molecule</p> <p>properties of restriction enzymes, Choice of host cell</p> <p>Use various safety measures while using instruments like laminar air flow bench, centrifuges, autoclave, hot air oven</p> <p>Use of restriction enzyme in DNA and transformation in bacteria</p> <p>Application of PCR in DNA fingerprinting,</p> <p>Creativity, Decision Making and Logical thinking how and where to implement this so that it is only use for betterment of society and environment</p> <p>Demonstrate their ability to reason both inductively and deductively with experimental information and data</p>	
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			<p>diseases.</p> <p>Identify challenges of epidemics of sexually transmitted diseases to economy, public health system, individuals, and society at large.</p> <p>Describe the significance of stem cell technology and application in medicine and public health.</p>			
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No. Of periods 35	Theme/ Sub-theme	Learning Objectives		Activities & Resources	Expected Learning Outcomes	Assessment
		Subject Specific (Content Based)	Behavioural (Application based)			
Month October	<p><b>ECOLOGY</b></p> <p><b>Organisms and Populations</b></p> <p>Organisms and environment: Habitat and niche, population and ecological adaptations; population interactions - mutualism, competition, predation, parasitism;</p>	<p><b>Specific objectives</b></p> <p>Students will be familiarized with various hierarchical levels of organization like- Organism, Population, Community, Biosphere Ecosystem.</p> <p>Students will learn about plant adaptation to different medium like light, salinity etc.</p> <p>To enhance their ability to learn and understand biotic community.</p> <p>To explore their critical thinking by studying</p>	<p>To emphasized on development of skills like observational, experimental, critical thinking and problem solving skill determining and inculcating values like Awareness, Responsibility.</p> <p>They will describe and practice scientific methods of observation, experimentation by finding population frequency and density.</p> <p>They will be able to evaluate that increase or decrease in population attribute is due to birth and death rates.</p>	<p>To determine population density and frequency by quadrat method.</p> <p>Adaptation of xerophytic and aquatic plants and animals</p>	<p>The students learnt how adaptation allows organism to survive and reproduce in natural environment</p> <p>The students have learnt to explain how single species population grow and regulate.</p> <p>The learners can distinguish between density dependent and density independent birth and death rates.</p> <p>They will be well versed with the analysis of population data using</p>	Assignment is given

	<p>population attributes - growth, birth rate and death rate, age distribution</p>	<p>population growth and growth models To make them share their opinion in population interactions Appreciate the importance of interspecific interactions in biotic community</p>			<p>statistics, graphs, life tables, survivor curves.</p> <p>They learnt how community change in both space(biome and gradient)and time(succession) Students will be able to assess survival needs and interaction between organism and environment.</p> <p>Understand how interaction among species such as competition predation, parasitism and mutualism organize a community</p>	
	<p><b>Ecosystem</b> Ecosystems: Patterns, components; productivity and decomposition; energy flow; pyramids of number, biomass, energy; nutrient cycles (carbon and phosphorous); ecological succession; ecological</p>	<p>Understand Basic concept of Ecosystem Describe various biotic components in ecosystem like producers, consumers decomposers and certain abiotic components Understand different types of food chains, grazing and detritus food chain Acquire knowledge of different types of ecological pyramids Understand ten percent law in energy flow models Evaluate the mechanism</p>	<p>Students will appreciate the roles of organisms in food chains and food web.</p> <p>Students will be able to assess survival needs and between organisms and the environment.</p> <p>Students will analyze various types of ecological like number and biomass and relate to real life sit</p> <p>Students will develop scientific temperament and inquisitiveness by studying ten percent law in en ecosystem</p> <p>Students will get awareness regarding different biogeochemical cycles and would explore how to in sustainable form</p>	<p>Analysis of Soil Texture, pH, Water holding capacity, Moisture content</p> <p>Illustrations of ecological pyramids of number, biomass and energy by citing different examples</p>	<p>Analyse the roles of organism as apart of interconnected webs, population, communities and ecosystem. Interpret energy flow among population through food web and ecological pyramids Learn to describe the major forces structuring community and explain how community structure can be represented by food webs. Describe how energy from sunlight is transformed through an environment. Analyze the importance of decomposition in ecosystem</p> <p>Describe plant and animal distribution patterns in relation to</p>	<p>Documentation of files</p> <p>Role play on ecological pyramids of number, biomass and energy</p>

	<p>services - carbon fixation, pollination, seed dispersal, oxygen release (in brief).</p>	<p>of decomposition in ecosystem Explore different biogeochemical cycles</p>			<p>abiotic and biotic factors.</p> <p>Define the essential characteristics underlying natural ecosystems.</p> <p>Explain model population and community-level dynamics.</p> <p>Interpret and present ecological results.</p> <p>Identify global environmental problems</p>	
	<p><b>Chapter- Biodiversity and its Conservation</b> Concept of biodiversity; patterns of biodiversity; importance of biodiversity; loss of biodiversity; biodiversity conservation; hotspots, endangered organisms, extinction, Red Data Book, biosphere</p>	<p>To evaluate and characterize different levels of Biodiversity</p> <p>To analyse critically the factors contributing threat to extinction of biodiversity</p> <p>To enumerate different methods of conservation of biodiversity, in situ and ex situ conservation.</p> <p>Students will develop scientific temperament and inquisitiveness. Students will analyze various methods of conservation of biodiversity</p>	<p>Recall the increase in extinction rates throughout history.</p> <p>Know that biodiversity encompasses diversity of species, genetics, community, and landscape in marine, freshwater, and terrestrial habitats.</p> <p>Assess the factors responsible for the loss of biodiversity: introduction of exotic species, pollution, overexploitation, and disease.</p> <p>Justify the importance of conserving populations that have been subdivided due to habitat fragmentation.</p> <p>Recognize that the restoration of habitats is often involved in landscape preservation.</p>	<p>To study the suspended particulate matter in air at two different sites.</p> <p>To study pH, clarity and presence of living organism in water</p>	<p>The methods of in situ and ex situ for biodiversity conservation</p> <p>Develop Creativity, Decision Making and Logical thinking how and where to implement is only use for betterment of society and environment.</p> <p>Describe the cultural uses of plants for food, fiber, medicine, biotechnology, etc.</p> <p>Discuss plants in the context of broader environmental concerns, such as climate change, habitat destruction, pollution, invasive species, and agriculture</p> <p>Describe methods of how</p>	

	<p>reserves, national parks, sanctuaries and Ramsar sites.</p>	<p>Students will get awareness regarding ICUN red list categories Value the ethical concerns regarding conservation of biodiversity. Illustrating the techniques of in situ and ex situ conservation</p> <p>The learns will learn to describe how biodiversity is measured and predict the consequences of continued species loss.</p>			<p>resources are valued.</p> <p>Critically analyze the factors involved in the historical evolution of conservation.</p> <p>Analyze the general scientific bases of conservation.</p> <p>Analyze conservation management as a land use strategy.</p> <p>Critically assess relationships between human and scientific perspectives on conservation.</p> <p>Critically assess the applications of key theories in population and evolutionary ecology to scientific conservation.</p> <p>Assess methods of measuring biodiversity.</p> <p>Analyze the nature reserve concept in relation to conservation objectives.</p>	
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