

Cambridge International School, Mohal, Kullu

Class - XII

Subject – Biology

Subject Code(044)

Curriculum

Session 2020-21

Unit / Month	Chapter Name	Practical	Methodology	Assessment
Unit 1/ March - April	<p>Reproduction Learning outcomes: # To define Sexual reproduction in flowering plants; # To demonstrate Flower structure; development of male and female gametophytes; # To compare and contrast pollination - types, agencies and examples; outbreeding devices; pollen-pistil interaction; double fertilization; post fertilization events - development of endosperm and embryo, development of seed and formation of fruit; # To analyse special modes-apomixis, parthenocarpy, polyembryony; Significance of seed dispersal and fruit formation. https://youtu.be/6UXGobXdZGA</p> <p># To interpret terminologies related to Human Reproduction: Male and female reproductive systems; microscopic anatomy of testis and ovary; # To examine gametogenesis - spermatogenesis and oogenesis; menstrual cycle; fertilisation, embryo development upto blastocyst formation, implantation; pregnancy and placenta formation (elementary idea); parturition (elementary idea); lactation (elementary idea). https://youtu.be/Lbv6WbjIQW0</p> <p># To describe reproductive health: Need for reproductive health and prevention of sexually transmitted diseases (STDs); birth control - need and methods, contraception and medical termination of pregnancy (MTP); amniocentesis; infertility and assisted reproductive technologies - IVF, ZIFT, GIFT (elementary idea for general awareness). https://youtu.be/NShd2e6m568</p>		Discussion/ Explanation through examples/ Video demonstration/ Notes making	Oral Test/ Class test/ Quizzes on google forms/ lab activity through virtual links.
Unit 2/ May- June	<p>Genetics *Learning outcomes #To define heredity and variation: #To explain Mendelian inheritance; deviations from Mendelism - incomplete dominance, codominance, multiple alleles and inheritance of blood groups, pleiotropy; elementary idea of polygenic inheritance; # To discuss Chromosomal theory of inheritance; chromosomes and genes;</p>	<ul style="list-style-type: none"> Prepared pedigree charts of any one of the genetic traits such as rolling of tongue, blood groups, ear lobes, widow's peak and colour blindness https://youtu.be/iTKn83p2L0s 	Discussion/ Explanation through examples/ Video demonstration/ Notes making	Oral Test/ Class test/ Quizzes on google forms/ lab activity through virtual links.

	<p># To demonstrate Sex determination - in humans, birds and honey bee; # To comprehend linkage and crossing over; # To assess sex linked inheritance - haemophilia, colour blindness; Mendelian disorders in humans - thalassemia; chromosomal disorders in humans; Down's syndrome, Turner's and Klinefelter's syndromes. https://youtu.be/agUgUIJQ1pk</p> <p># To interpret terminologies related to molecular basis of inheritance: # To describe search for genetic material and DNA as genetic material; # To explain structure of DNA and RNA; DNA packaging; DNA replication; Central dogma; transcription, genetic code, translation; # To investigate gene expression and regulation - lac operon; # To analyze genome of human and rice genome projects; # To describe DNA fingerprinting. https://youtu.be/1xXeTccA-w</p>	<ul style="list-style-type: none"> • Prepare a temporary mount of onion root tip to study mitosis. https://youtu.be/5-ur7bWqlDQ • Meiosis in onion bud cell or grasshopper testis through permanent slides. 		
<p>Unit 3/ July- August</p>	<p>Biology and Human Welfare *Learning outcomes #To introduce health and disease: # To explain involvement of Pathogens; parasites causing human diseases (malaria, dengue, chickengunia, filariasis, ascariasis, typhoid, pneumonia, common cold, amoebiasis, ring worm) and their control; # To explain basic concepts of immunology - vaccines; # To describe cancer, HIV and AIDS; Adolescence, drug and alcohol abuse. https://youtu.be/YA9KiI7gW5Q https://youtu.be/AwISyM1L8N4</p> <p># To interpret terminologies related to microbes in human welfare: # To describe and comprehend household food processing with industrial production, # To explain sewage treatment, energy generation and as biocontrol agents and biofertilizers. # To describe antibiotics; production and judicious use.</p> <p>Biotechnology and Its Applications *Learning outcomes #To interpret terminologies related to Principles and processes of biotechnology: # To explain</p>	<ul style="list-style-type: none"> • Common disease causing organisms like Ascaris, Entamoeba, Plasmodium, Roundworm through permanent slides or specimens. Comment on symptoms of disease that they cause. • Two plants and two animals (models/virtual images) found in xeric conditions. Comment upon their morphological adaptations. • Two plants and two animals (models/virtual images) found in aquatic conditions. Comment upon their morphological 	<p>Discussion/ Explanation through examples/ Video demonstration/ Notes making</p>	<p>Oral Test/ Class test/ Quizzes on google forms/ lab activity through virtual links.</p>

<p>Unit 4/ September</p>	<p>Genetic Engineering (Recombinant DNA Technology). https://youtu.be/TQRL9JnYkA4 # To describe applications of biotechnology in health and agriculture: # To analyse role of biochemical engineering through human insulin and vaccine production, # To extend the knowledge by discussion on stem cell technology, gene therapy; genetically modified organisms - Bt crops; transgenic animals; biosafety issues, bio Piracy and patents. https://youtu.be/xF7F3kAJmuQ</p> <p>Ecology and Environment *Learning outcomes ; # To introduce the concept of Organisms and environment: Habitat and niche, # To describe population and ecological adaptations; # To extend knowledge up to population interactions - mutualism, competition, predation, parasitism; # To analyze population attributes - growth, birth rate and death rate, age distribution. # To introduce Biodiversity and its conservation: # To explain concept of biodiversity; patterns of biodiversity; #To describe importance of biodiversity; # #To illustrate loss of biodiversity; biodiversity conservation; # To extend knowledge by discussion on hotspots, endangered organisms, extinction, # To analyse Red Data Book, biosphere reserves, national parks, sanctuaries. https://youtu.be/ZbVkJrlaJ4</p>	<p>adaptations.</p> <ul style="list-style-type: none"> • Study the effect of different temperatures and three different pH on the activity of salivary amylase on starch. https://youtu.be/JUQExVhugFI https://youtu.be/CWt7Lg-QhjM	<p>Discussion/ Explanation through examples/ Video demonstration/ Notes making</p>	<p>Oral Test/ Class test/ Quizzes on google forms/ lab activity through virtual links.</p>
<p>Unit 5 October</p>		<p>Collect and study soil from at least two different sites and study them for texture, moisture content, pH and water holding capacity. Correlate with</p>	<p>Discussion/ Explanation through examples/ Video demonstration/ Notes making</p>	<p>Oral Test/ Class test/ Quizzes on google forms/ lab activity through virtual links.</p>

		<p>the kinds of plants found in them.</p> <ul style="list-style-type: none"> https://youtu.be/87h6BGKxE3c https://youtu.be/P0ivZf4vc-c Collect water from two different water bodies around you and study them for pH, clarity and presence of any living organism. https://youtu.be/RVpSPidRhM8 		
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PRACTICALS

Evaluation Scheme	Maximum Marks: 30
One Major Experiment	5 Marks
One Minor Experiment	4 Marks
Slide preparation	5 Marks
Spotting	7 Marks
Practical Record + Viva Voce	4 Marks
Project Record + Viva Voce	5 Marks
Total	30 Marks

