

CLASS: YEAR 11

SUBJECT: BIOLOGY

TEACHER : Thakshila Damayanthi

Month	No. of Periods	Unit No.	TOPIC /DETAILS	INTENDED LEARNING OUTCOMES	Remarks
<b>September</b>			<b>School Reopens- 1stTerm</b>		
Week 1	1		Discussion of papers		
Week 2	5	12	<b>Chemical coordination in plants</b>	<ul style="list-style-type: none"> <li>State that plants respond to stimuli</li> <li>Describe the geotropic responses of roots and stems</li> <li>Describe positive phototropism of stems</li> <li>Explain the involvement of the plant hormones in tropism response</li> </ul>	
Week 3			<b>EID Holidays</b>		
Week 4	5	13	<b>Reproduction in Plants</b>	<ul style="list-style-type: none"> <li>Describe the differences between sexual and asexual reproduction</li> <li>State the methods of asexual reproduction in plants</li> <li>Outline the major steps and the importance of sexual reproduction</li> <li>Recognize the parts of a flower and relate them with their function</li> <li>Describe the structures of an insect-pollinated and a wind-pollinated flower and explain how each is adapted for pollination</li> <li>Recall the conditions needed for seed germination</li> </ul>	
Week 5	5	9	<b>Reproduction in Humans</b>	<ul style="list-style-type: none"> <li>Recall the structure and function of the male and female reproductive systems</li> <li>State the roles of oestrogen and progesterone in the menstrual cycle</li> <li>Describe the role of the placenta in the nutrition of the developing embryo</li> </ul>	
<b>October</b>					
Week 6	3	9	<b>Reproduction in Humans</b>	<ul style="list-style-type: none"> <li>Explain how the developing embryo is protected by amniotic fluid</li> <li>Recall the roles of oestrogen and testosterone in the development of secondary sexual characteristics</li> </ul>	
Week 7	5	16	<b>Chromosomes, Genes &amp; DNA</b>	<ul style="list-style-type: none"> <li>Recall that the nucleus of a cell contains chromosomes on which genes are located</li> <li>Describe the structure of DNA.</li> <li>Explain the replication of DNA</li> <li>Illustrate the gene mutations</li> <li>Describe the structure of chromosomes</li> </ul>	
Week 8	5	17	<b>Cell Division</b>	<ul style="list-style-type: none"> <li>Explain division of a diploid cell by mitosis</li> <li>State the role of mitosis</li> <li>Explain the division of a cell by meiosis</li> <li>State the relationship between sexual reproduction &amp; variation</li> </ul>	

<b>Week 9</b>	5	18	<b>Genes &amp; Inheritance</b>	<ul style="list-style-type: none"> <li>• State that genes exist in alternative forms called alleles</li> <li>• Recall the meaning of the terms dominant, recessive, homozygous, heterozygous, phenotype, genotype and codominance</li> <li>• Recall that variation within a species can be genetic, environmental, or a combination of both</li> </ul>	
<b>November</b>					
<b>Week 10</b>	4	18	<b>Genes &amp; Inheritance</b>	<ul style="list-style-type: none"> <li>• Describe patterns of monohybrid inheritance using a genetic diagram</li> <li>• Understand how to interpret family pedigrees</li> <li>• Predict probabilities of outcomes from monohybrid crosses</li> </ul>	
<b>Week 11</b>	5	18	<b>Genes &amp; Inheritance</b>	<ul style="list-style-type: none"> <li>• Recall that the sex of a person is controlled by one pair of chromosomes, XX in a female and XY in a male</li> <li>• Describe the determination of the sex of offspring at fertilisation, using a genetic diagram</li> </ul>	
<b>Week 12</b>	5	19	<b>Natural selection &amp; Evolution</b>	<ul style="list-style-type: none"> <li>• Recall that mutation is a rare, random change in genetic material that can be inherited</li> <li>• Understand that many mutations are harmful but some are neutral and a few are beneficial</li> </ul>	
<b>Week 13</b>	3	19	<b>Natural selection &amp; Evolution</b>	<ul style="list-style-type: none"> <li>• Describe the process of evolution by means of natural selection</li> <li>• Understand how resistance to antibiotics can increase in bacterial populations</li> <li>• Understand that the incidence of mutations can be increased by exposure to ionising radiation (eg gamma rays, X-rays and ultraviolet rays) and some chemical mutagens (<b>eg:</b> chemicals in tobacco)</li> </ul>	
<b>Week 14</b>	5		Revision		
<b>December</b>					
<b>Week 15</b>	3		Revision/ Withdrawal		
<b>Week 16</b>			Withdrawal Examinations		
<b>Week 17</b>			Paper correction/ Distribution of reports		
<b>Week 18</b>			Vacation		
<b>January 2017</b>					
<b>Week 19</b>			Vacation		
<b>School Reopens- 2ndTerm</b>					
<b>Week 20</b>	5	14	<b>Ecosystems</b>	<ul style="list-style-type: none"> <li>• Define the terms population, community, habitat and ecosystem</li> <li>• Describe the use of quadrats as a technique for sampling the distribution of organisms in their habitats</li> <li>• Describe the concepts of food chains, food webs, pyramids of number, pyramids of biomass and pyramids of energy transfer</li> <li>• Explain the transfer of substances and of energy along a food chain</li> <li>• Explain why only about 10 per cent of energy is transferred from one trophic level to the next</li> </ul>	

<b>Week 21</b>	5	14	<b>Ecosystems</b> Cycles within the ecosystems	<ul style="list-style-type: none"> <li>Describe the stages in the water cycle, including evaporation, transpiration, condensation and precipitation</li> <li>Describe the stages in the carbon cycle, including respiration, photosynthesis, decomposition and combustion</li> <li>Describe the stages in the nitrogen cycle, including the roles of nitrogen fixing bacteria,</li> </ul>	
<b>Week 22</b>	5	15	<b>Human Influences on the environment</b> Modern Agriculture- Food production	<ul style="list-style-type: none"> <li>Describe how glasshouses and polythene tunnels can be used to increase the yield of certain crops</li> <li>Describe the effects on crop yield of increased carbon dioxide and increased temperature in glasshouses</li> <li>State the use of fertiliser to increase crop yield</li> </ul>	
<b>Week 23</b>	3	15	<b>Human Influences on the environment</b> -Pollution	<ul style="list-style-type: none"> <li>Explain the biological consequences of pollution of air by sulphur dioxide and by carbon monoxide.</li> <li>State the types of greenhouse gases.</li> <li>Explain the greenhouse effect and how this may lead to global warming and its consequence</li> <li>Illustrate the biological consequences of pollution of water by sewage including increases in the number of micro-organisms causing depletion of oxygen</li> <li>Explain that eutrophication can result from leached minerals from fertiliser</li> <li>Understand the effects of deforestation, including leaching, soil erosion, disturbance of the water cycle and of the balance in atmospheric oxygen and carbon dioxide</li> </ul>	
<b>February</b>					
<b>Week 23</b>	2	20	<b>Selective Breeding</b>	<ul style="list-style-type: none"> <li>State that plants with desired characteristics can be developed by selective breeding</li> <li>Recall that animals with desired characteristics can be developed by selective breeding</li> </ul>	
<b>Week 24</b>	5	20	<b>Selective Breeding</b> -Cloning	<ul style="list-style-type: none"> <li>Describe the process of micropropagation (tissue culture) in which small pieces of plants (explants) are grown in vitro using nutrient media</li> <li>Explain how micropropagation can be used to produce commercial quantities of identical plants (clones) with desirable characteristics</li> <li>Describe the stages in the production of cloned mammals involving the introduction of a diploid nucleus from a mature cell into an enucleated egg cell, illustrated by Dolly the sheep</li> <li>Evaluate the potential for using cloned transgenic animals, for example, to produce commercial quantities of human antibodies or organs for transplantation</li> </ul>	

Week 25	5	21	Using Microorganisms	<ul style="list-style-type: none"> <li>State the role of yeast in the production of beer</li> <li>Describe a simple experiment to investigate carbon dioxide production by yeast, in different conditions</li> <li>Recall the role of bacteria (lactobacillus) in the production of yoghurt</li> <li>Interpret and label a diagram of an industrial fermenter and explain the need to provide suitable conditions in the fermenter, including aseptic precautions, nutrients, optimum temperature and pH, oxygenation and agitation, for the growth of micro-organisms</li> </ul>	
Week 26	5	22	Genetic modifications	<ul style="list-style-type: none"> <li>Recall the structure of DNA molecule</li> <li>Describe the use of restriction enzymes and ligase enzymes</li> <li>Describe how plasmids and viruses can act as vectors,</li> <li>Understand that large amounts of human insulin can be manufactured from genetically modified bacteria that are grown in a fermenter</li> <li>Evaluate the potential for using genetically modified plants to improve food production (illustrated by plants with improved resistance to pests)</li> <li>Recall that the term 'transgenic' means the transfer of genetic material from one species to a different species</li> </ul>	
Week 27	3		Graphs	<ul style="list-style-type: none"> <li>Plot graphs using given data</li> <li>Explain graphs by using the features</li> </ul>	
<b>March</b>					
Week27	2		Planing an experiment	<ul style="list-style-type: none"> <li>Distinguish the independent, dependent &amp; controlled variables</li> <li>State how to improve the accuracy of an experiment</li> <li>Describe how to improve the reliability of an experiment.</li> </ul>	
Week28	5		Revision		
Week29	5		Revision		
Week30	2		Revision		
Week31			Mock Examinations		
<b>April</b>					
Week32			Paper correction		
Week33			Vacation		
<b>School Reopens- 3<sup>rd</sup> Term</b>					
Week34			Seminars		
Week35			Seminars		
<b>May</b>					
Week36			Seminars		
Week37			Study leave		
Week38			Edexcel examinations		
Week39					
Week40					
<b>June</b>					

Week41					
Week42					
Week43					
Week44					
<b>July</b>					
			Summer vacation		