

Levels of Performance in Biology for Grade Twelve at the Independent Schools

Level Strand	High level of performance	Satisfactory level of performance	Low level of performance
<p>Photosynthesis and transport systems in dicotyledonous plants</p>	<p>students can:-</p> <ul style="list-style-type: none"> *describe the structure of chloroplasts and link this to the biochemical and photochemical reactions of photosynthesis. *describe the structure of dicotyledonous leaf and palisade cell and relate their structure to their roles in photosynthesis. *describe the roles of (ATP) as the universal energy currency in all living organisms and relate these to photosynthesis. *explain the reaction steps in the light- dependent and light –independent including the role of ATP in the photosynthesis . *explain how carbon dioxide concentration , light intensity, and temperature limit the rate of photosynthesis. 	<p>students can:-</p> <ul style="list-style-type: none"> *describe the structure of chloroplasts and recall the function in photosynthesis. *describe the structure of dicotyledonous leaf and palisade cell. *define the (ATP) as the universal energy currency in all living organisms. *describe in general the reaction steps in the light- dependent and light –independent. *mention the factors that limit the rate of Photosynthesis. 	<p>students can:-</p> <ul style="list-style-type: none"> *describe the structure of chloroplasts. *describe the structure of dicotyledonous leaf. *mention the (ATP) function in the cell. *Mention the steps of photosynthesis (the light- dependent and light – independent). *mention one of the limit factors.

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<p>Photosynthesis and transport systems in dicotyledonous plants</p>	<p>students can:-</p> <ul style="list-style-type: none"> *explain the needs of large plant to transport systems (gases , water, and food) in term of their surface area to volume ratios. *describe the structure of vascular system of the roots , stems and leaves of dicotyledonous plants and relate the structure and distribution of xylem and phloem to their functions. *explain the movement of water between plant cells and between plant cells and their Environment in the term of water potential. *describe the processes of translocation of photosynthetic products in the phloem and transpiration of water and dissolved miners in the xylem. 	<p>students can:-</p> <ul style="list-style-type: none"> *explain the importance of transport system to large plants. *relate the structure and distribution of xylem and phloem to their functions. *define the water potential as an affecting force in water movement. *recall the rote of photosynthetic products in the phloem and transpiration of water and dissolved miners in the xylem. 	<p>students can:-</p> <ul style="list-style-type: none"> *recall the content of the transport system in the plant. *recall the vascular system of the roots , stems and leaves of dicotyledonous plants. *describe the movement of water between plant cells and their Environment. *recall the tissue and plant cell through which photosynthetic products phloem and transpiration of water and dissolved miners in the xylem translocate..

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<p>Physiological regulatory systems of mammals</p>	<p>students can:-</p> <ul style="list-style-type: none"> *explain the responds of organisms to environmental stimuli in order to survive. *explain the importance of homeostasis in mammals and describe the processes in term of receptors, effectors, negative feed back. *describe the thermoregulation in humans and the roles of the hormones (TRH, TSH). *describe the mammalian estrous cycle and the roles of estrogen , progesterone , LH and FSH . *describe the similarities and differences between nervous and hormonal control system in mammals. 	<p>students can:-</p> <ul style="list-style-type: none"> *describe some responds of organisms to environmental stimuli in order to survive. *explain the importance of homeostasis in mammals. * explain the thermoregulation in humans. * recall the role of the LH, FSH , estrogen and progesterone . *describe the nervous and hormonal control system in mammals. 	<p>students can:-</p> <ul style="list-style-type: none"> * give examples of some responds of organisms to environmental stimuli . *define the homeostasis in mammals. *list hormones that contribute in the thermoregulation in humans . *list hormones that affect mammalian estrous cycle . *recall the function of nervous and hormonal control system in mammals.

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<p>HIV / AIDS Pandemic</p>	<p>students can:- *Explain the causes and transmission mechanisms of HIV / AIDS, how its spread may be controlled and the significance of the pandemic. *explain the reaction of antibodies against antigens in the human immune system.</p>	<p>students can:- *Recall the causes and transmission mechanisms of HIV / AIDS. *Mention the function of antibodies in the human immune system.</p>	<p>students can:- * Define the HIV / AIDS. * Mention that antibodies are components of immune system .</p>
<p>Genetic inheritance</p>	<p>students can:- *explain the terms gene, allele phenotype ,genotype , dominate, recessive and co- dominate. * use genetic diagrams to solve genetic problems involving mono hybrid crosses. *explain how variation occurs through segregation of allele during gamete formation and through the crossing over of chromosome segment during meiosis. *explain how X and Y chromosomes determine sex in humans and the inheritance pattern of sex-linked</p>	<p>students can:- *distinguish and compare between some of the terms (gene, allele, phenotype, genotype). *determine the phenotype ,genotype from mono hybrid crosses. *mention that the segregation of allele and crossing over of chromosome segment are reasons to variation. *determine sex chromosomes , and Use genetic diagrams to explain inheritance</p>	<p>students can: * define the (gene, allele). *draw punette square involving genotype forms. *explain segregation of allele during gamete formation. *give example for sex-linked characteristics of humans.</p>

	characteristics .	pattern of sex-linked characteristics in humans.	
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Mechanism and outcomes of natural selection	<p>students can:-</p> <ul style="list-style-type: none"> *explain that predation, disease and competition within a population result in the survival and reproduction of the strongest individuals and that this Natural selection allows the inheritance of their characteristics. *explain that natural selection and breeding isolation can lead to speciation. *explain how natural selection and evolution over a long period of time have resulted in a great diversity of forms among living organisms. *give examples and explanations of how organisms are adapted to survive in particular environmental conditions. 	<p>students can:-</p> <ul style="list-style-type: none"> *mention the factors that lead to Natural selection. *list factors that's lead to speciation. *link the great diversity of forms among living organisms to natural selection and evolution. * give examples of organisms adaptation for survival and link that to particular environmental conditions. 	<p>students can:</p> <ul style="list-style-type: none"> *define the terms predation, disease and competition. *define the terms natural selection and breeding isolation. *give examples for diversity of forms among living organisms. *give examples of organisms adaptation.

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<p>The basis of biotechnology</p>	<p>students can:</p> <ul style="list-style-type: none"> *explain the principles of gene cloning and the roles of restriction enzymes, Recombinant DNA, plasmids and bacteriophages. *explain some of the potential advantages of, and ethical and moral concerns about genetic engineering. *explain some uses of micro-organisms in food production. *explain how micro-organisms are used in the treatment of wastewater. 	<p>students can:</p> <ul style="list-style-type: none"> *mention the principles of gene cloning. *list some of the potential advantages of ethical and moral concerns about genetic engineering. *mention food production steps by using micro-organisms. *list the important steps to use micro-organisms in the treatment of wastewater. 	<p>students can:</p> <ul style="list-style-type: none"> * define the term(gene cloning). *list some of the potential advantages of genetic engineering. *mention some food production that use micro-organisms. *mention micro-organisms that are used in the treatment of wastewater.