

## CURRICULUM SUMMARY – April to June 2010

SUBJECT: BIOLOGY IGCSE

YEAR GROUP: 10

TEACHER: Mrs Asia Peplinska

Week	Learning objectives	Activities (in brief)
1	To be able to describe the structure and function of parts of the human eye digestion To be able to describe how the eye focuses and how sight is corrected	Boardworks and PowerPoint presentation, exam style questions, dissection of cow eye
2	Complete work on the eye To understand why we need hormones, to be able to give examples of hormones in the body with their function	End of unit test on the Nervous System Power Point presentation, research by students, exam style question
3	To be able to describe how the following are controlled through homeostasis: skin temperature, blood sugar levels To be able to describe the role of adrenaline	Boardworks and PowerPoint presentation, exam style questions
4	Bank Holiday. Photosynthesis: to be able to draw the structure of a plant , leaf and root explaining function of each part	Boardworks and PowerPoint presentation, exam style questions drawing structures, dissection of plants
5 6 7	Plant nutrition: to be able to give the equation for photosynthesis and give the evidence for this equation To be able to describe and explain factors affecting rate of photosynthesis	Boardworks and PowerPoint presentation, exam style questions Practicals– proving leaves are required for photosynthesis etc. ICT practical to investigate factors
8	Boze Cialo. Plants and Minerals: to know that plants require minerals to grow, to be able to list the most important minerals with their effect on plant growth	Boardworks and PowerPoint presentation, exam style questions practical work with Basil and different minerals

9	To understand and be able to describe how water enters the plant: osmosis, active transport. To be able to explain the transpiration stream, to be able to explain translocation	Test on plants to date Boardworks and PowerPoint presentation, exam style questions ICT practical to investigate transpiration
10	<b>revision</b>	End of Year EXAM
11	Completion of plant transport system	

SUBJECT: Biology

YEAR GROUP: 11

TEACHER: Ardeishir Rana

Week	Learning objectives	Activities (in brief)
27	<p><b>Revision of various topics in Biology</b></p> <ul style="list-style-type: none"> <li>• Be able to explain that the sun is the principal source of energy input to biological systems</li> <li>• Be able to define and describe the terms food chain, food web, producer, consumer, carnivore, decomposer, ecosystem and trophic levels.</li> <li>• Be able to explain the energy loss at each trophic level</li> <li>• Be able to explain why it is efficient to provide green plants as human food and inefficient in feeding animals for human consumption</li> </ul>	<ul style="list-style-type: none"> <li>❖ Power point on food chains</li> <li>❖ Class discussion about the source of energy and relating the topic to photosynthesis (equation writing and eliciting sun as the source of energy)</li> <li>❖ Food chain questions from the text book</li> <li>❖ Eliciting various definitions relating to food chains and discussing the meaning of various terms</li> <li>❖ Given organisms, students to make food webs and chains</li> <li>❖ Eliciting how it may be efficient to be vegetarians (in terms of feeding humans) compared to being omnivore</li> </ul>
28	<ul style="list-style-type: none"> <li>• Be able to describe, draw and annotate pyramids of biomass and numbers</li> </ul>	<ul style="list-style-type: none"> <li>❖ Using the food webs and chains from week 9, drawing of pyramids of biomass and numbers and comparing the two</li> <li>❖ Looking at carbon and nitrogen cycle on power point and class discussion on the</li> </ul>

	<ul style="list-style-type: none"> <li>• Be able to draw and describe nitrogen and carbon cycles</li> <li>• Be able to define population and state the factors affecting the rate of population growth</li> <li>• Be able to discuss the population growth of humans</li> </ul>	<p>effects of human activity on these cycles</p> <ul style="list-style-type: none"> <li>❖ Looking at nodules of some legume plants (if available) and discussing the way nitrogen is fixed by bacteria</li> <li>❖ Past paper questions on nitrogen and carbon cycle</li> <li>❖ Graphs of various animal population and discussing the lag phase and stationary phase in population growth</li> <li>❖ Discussing human population graph and its effect on the environment</li> </ul>
29	<ul style="list-style-type: none"> <li>• Be able to outline the effects of humans on ecosystems and that the effects are not limited by national boundaries</li> <li>• Be able to explain the effects of deforestation</li> <li>• Be able to explain the reasons for deforestation and possible solutions</li> </ul>	<ul style="list-style-type: none"> <li>❖ Looking at NASA web site to see the effects of global warming and how it will affect all nations</li> <li>❖ Data collection from NASA web site and drawing of graphs</li> <li>❖ Looking at deforestation from space (NASA web site)</li> <li>❖ Discussion on effects of deforestation</li> <li>❖ Past paper questions</li> </ul>
30	<ul style="list-style-type: none"> <li>• Be able to explain the effects of chemicals used in agriculture</li> <li>• Be able to explain pollution in general</li> <li>• Be able to describe the undesirable effects of pollution in water by sewage, in air by carbon dioxide and sulphur dioxide, by nuclear fall-out and by pesticides and herbicides</li> </ul>	<ul style="list-style-type: none"> <li>❖ Discuss the chemicals used in agriculture (display pesticides, fertilizers and herbicides boxes from the farm)</li> <li>❖ Discuss their benefits and disadvantages</li> <li>❖ Photos of Eutrophication and how the chemicals discussed are responsible</li> <li>❖ News paper articles on river pollution and changes to fish behavior</li> <li>❖ News paper article on Nuclear fall- out</li> <li>❖ Past paper questions</li> <li>❖ Poster presentation on Pollution</li> </ul>
31	<ul style="list-style-type: none"> <li>• Be able to explain and describe various conservation methods</li> </ul>	<ul style="list-style-type: none"> <li>❖ Students to make various posters to explain conservation of various environments with emphasis on forests</li> </ul>
32	<ul style="list-style-type: none"> <li>• Be able to explain the filtration process of blood</li> <li>• Be able to draw and annotate the structure of the kidney</li> </ul>	<ul style="list-style-type: none"> <li>❖ Power point presentation on filtration of the blood</li> <li>❖ Diagram annotation practice</li> <li>❖ Past paper questions</li> </ul>
33	<ul style="list-style-type: none"> <li>• Exam / Study leave</li> </ul>	<ul style="list-style-type: none"> <li>❖ N/A</li> </ul>

34	• Exam / Study leave	❖ N/A
35	• Exam / Study leave	❖ N/A
36	• Exam / Study leave	❖ N/A
37	• Exam / Study leave	❖ N/A

SUBJECT: Biology

YEAR GROUP: IB1

TEACHER: Ardeishir Rana

Week	Learning objectives	Activities (in brief)
27	<ul style="list-style-type: none"> <li>• Be able to carry out accurate and precise experiment</li> <li>• Be able to write a complete lab report</li> </ul>	<ul style="list-style-type: none"> <li>❖ Students will carry out the osmosis experiment and record results</li> <li>❖ They will write up the lab and hand me the final version by the end of the week</li> </ul>
28	<ul style="list-style-type: none"> <li>• Be able to draw and annotate the human digestive system and explain the various processes at the different stages of digestion</li> </ul>	<ul style="list-style-type: none"> <li>❖ Carry out food test practical</li> <li>❖ Power point of samples taken from various parts of the human digestive system</li> <li>❖ Work sheet from the student workbook</li> <li>❖ Past paper questions</li> </ul>
29	<ul style="list-style-type: none"> <li>• Be able to draw and annotate the human heart and the circulatory system</li> <li>• Be able to compare arteries, veins and capillaries</li> <li>• Be able to state the function of coronary arteries</li> <li>• Be able to explain the action of the heart in detail</li> <li>• Be able to outline the control of the heart beat</li> </ul>	<ul style="list-style-type: none"> <li>❖ Dissection of a pig's heart</li> <li>❖ Power point of the human circulatory system</li> <li>❖ Past paper questions on the circulatory system</li> <li>❖ Practical on the effect of exercise on the pulse rate</li> <li>❖ Work sheet from student work book on the circulatory system</li> </ul>
30	<ul style="list-style-type: none"> <li>• Be able to state the composition of blood and explain the function of plasma, erythrocytes, leucocytes and</li> </ul>	<ul style="list-style-type: none"> <li>❖ Observation of blood cells under the microscope</li> <li>❖ Discussion on the function of various parts of the blood</li> <li>❖ Work sheet from the student work book</li> </ul>

	<p>platelets</p> <ul style="list-style-type: none"> <li>• Be able to explain the function of pace maker and bypass operations</li> <li>• Recapping of the circulatory system</li> </ul>	<ul style="list-style-type: none"> <li>❖ Past paper question</li> <li>❖ Mini test on the circulatory system to recap the topic</li> </ul>
31	<ul style="list-style-type: none"> <li>• Be able to carry out an accurate experiment and write the lab report</li> </ul>	<ul style="list-style-type: none"> <li>❖ Practical on enzymes and factors that effect the rate of enzyme activity</li> <li>❖ Writing up of the lab report and handing the final version by the end of the week</li> </ul>
32	<ul style="list-style-type: none"> <li>• Be able to define pathogen, antibodies and antigens</li> <li>• Be able to explain the role of skin and mucous membranes in defence against pathogen</li> <li>• Be able to outline how phagocytic leucocytes ingest pathogens in the blood and in the tissues</li> <li>• Be able to outline the effects of HIV on the immune system</li> </ul>	<ul style="list-style-type: none"> <li>❖ Recapping the plasma membrane from the autumn term, by past paper questions</li> <li>❖ Relating the plasma membrane structure to the antigens and antibodies</li> <li>❖ Discussing the working of the immune system</li> <li>❖ Video clip from youtube</li> <li>❖ Video "body invaders" and related work sheet</li> <li>❖ Past paper questions</li> </ul>
33	<ul style="list-style-type: none"> <li>• Be able to carry out practical accurately</li> <li>• Be able to write the lab report for the practical</li> </ul>	<ul style="list-style-type: none"> <li>❖ Experiment effect of temperature on the movement of pigment through the cell membrane</li> <li>❖ Students will write the lab report and hand in the final version by the end of the week</li> </ul>
34	<ul style="list-style-type: none"> <li>• Be able to state that the nervous system consists of the central nervous system and peripheral nerves</li> <li>• Be able to draw and annotate the structure of motor, relay and sensory neurone</li> <li>• Be able to compare the three neurons</li> <li>• Be able to define and explain the resting potential and action potential</li> </ul>	<ul style="list-style-type: none"> <li>❖ Power point presentation</li> <li>❖ Diagram drawing exercise</li> <li>❖ Work book work sheet</li> <li>❖ Past paper questions</li> </ul>

	<ul style="list-style-type: none"> <li>• Be able to explain how a nerve impulse passes along a non myelinated neuron</li> </ul>	
35	<ul style="list-style-type: none"> <li>• Be able to explain the function of synapsis</li> <li>• Be able to explain the endocrine systems</li> <li>• Be able to compare and contrast the endocrine and nervous system</li> <li>• Be able to explain homeostasis with examples</li> <li>• Be able to define and explain type 1 and type II diabetes</li> </ul>	<ul style="list-style-type: none"> <li>❖ Power point presentation</li> <li>❖ Past paper questions</li> </ul>
36	<ul style="list-style-type: none"> <li>• Exam week</li> </ul>	<ul style="list-style-type: none"> <li>❖ Mock exams</li> </ul>
37	<ul style="list-style-type: none"> <li>• Recapping and assessing the work done during the year</li> </ul>	<ul style="list-style-type: none"> <li>❖ Students will give feedback, suggest improvements and go over the difficult topics covered so far.</li> </ul>

SUBJECT: Biology

YEAR GROUP: IB2

TEACHER: Ardeishir Rana

Week	Learning objectives	Activities (in brief)
27	<p><b>Revision topic 8</b></p> <ul style="list-style-type: none"> <li>• Be able to explain oxidation and reduction in terms of loss and gain of electrons</li> <li>• Be able to outline glycolysis, including phosphorylation, lysis, oxidation and ATP formation</li> <li>• Be able to draw and annotate mitochondria</li> <li>• Be able to explain aerobic respiration including the Krebs cycle</li> </ul>	<ul style="list-style-type: none"> <li>❖ recapping topics using power point, text book and class discussions</li> <li>❖ past paper questions</li> <li>❖ marking the past paper</li> <li>❖ making mind maps to help with revision</li> </ul>

	<ul style="list-style-type: none"> <li>• Be able to draw and annotate the structure of chloroplast</li> <li>• Be able to explain light dependent and independent reactions of photosynthesis</li> <li>• Be able to explain the limiting factors of photosynthesis.</li> </ul>	
28	<p><b>Revision topic 9</b></p> <ul style="list-style-type: none"> <li>• Be able to explain the transport system in angiospermophytes</li> <li>• Be able to draw and annotate cross section of roots and shoots of angiospermophytes</li> <li>• Be able to explain terms related to reproduction in angiospermophytes</li> <li>• Be able to draw and annotate the structure of dicotyledonous flower and seed</li> <li>• Be able to describe the metabolic processes during germination of a starchy seed.</li> <li>• Be able to explain how flowering is controlled in long day and short day plants</li> </ul>	<ul style="list-style-type: none"> <li>❖ recapping topics using power point, text book and class discussions</li> <li>❖ past paper questions</li> <li>❖ marking the past paper</li> <li>❖ making mind maps to help with revision</li> </ul>
29	<p><b>Revision topic 10</b></p> <ul style="list-style-type: none"> <li>• Be able to describe meiosis and the behaviour of chromosomes in the different phases of meiosis.</li> <li>• Be able to explain the formation of chiasmata in the processes of crossing</li> </ul>	<ul style="list-style-type: none"> <li>❖ recapping topics using power point, text book and class discussions</li> <li>❖ past paper questions</li> <li>❖ marking the past paper</li> <li>❖ making mind maps to help with revision</li> </ul>

	<p>over</p> <ul style="list-style-type: none"> <li>• Be able to explain Mendel's law of independent assortment</li> <li>• Be able to predict the genotypic and phenotypic ratio of offspring of dyhybrid crosses involving linked and unlinked genes</li> <li>• Be able to define polygenic inheritance and explain that this contributes to continuous variation giving examples.</li> </ul>	
30	<p><b>Revision topic 11</b></p> <ul style="list-style-type: none"> <li>• Be able to explain the process of blood clotting</li> <li>• Be able to describe basis of immunity</li> <li>• Be able to define active and passive immunity</li> <li>• Be able to describe the production of monoclonal antibodies and their use in diagnosis and treatment</li> <li>• Be able to label and annotate human elbow joint</li> <li>• Be able to compare the movement of various joint</li> <li>• Be able to describe the structure and function of striated muscle fibres</li> <li>• Be able to draw and annotate the diagram of sarcomere</li> <li>• Be able to draw and annotate a nephron and explain the function of</li> </ul>	<ul style="list-style-type: none"> <li>❖ recapping topics using power point, text book and class discussions</li> <li>❖ past paper questions</li> <li>❖ marking the past paper</li> <li>❖ making mind maps to help with revision</li> </ul>

	each part.	
31	<ul style="list-style-type: none"><li>• Study leave / Exams</li></ul>	❖ N/A
32	<ul style="list-style-type: none"><li>• Study leave / Exams</li></ul>	❖ N/A
33	<ul style="list-style-type: none"><li>• Study leave / Exams</li></ul>	❖ N/A
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