

## Year 11 Biology - Unit Two: Organisms and their Environment

### Area of Study 1- Adaptations of Organisms

**Outcome 1. Explain and analyse the relationship between environmental factors, and adaptations and distribution of living things.**

Week	KeyKnowledge	Lessons	Biozone/Text Reading and Q's	
(2Lessons)	Classification: purposes, principles, hierarchy of biological classification. Features of major taxonomic groups	Classification of Living Things -PPT 1. Define Classification – what do you remember. 2. New Classification System <ul style="list-style-type: none"> <li>Read p 210 and discuss in small groups. Answer questions 1and 2 . Give feedback in large group.</li> </ul> 3. Taxonomic System <ul style="list-style-type: none"> <li>Define binomial</li> <li>Naming of species</li> <li>levels of Classification</li> <li>Classification keys pp225 and 227</li> </ul> 4. The 5 kingdoms <ul style="list-style-type: none"> <li>Concept map work</li> <li>Use pages 213-217</li> <li>Ch 12 of Heinemann text</li> <li>PowerPoint</li> </ul> <ul style="list-style-type: none"> <li>Homweork - Complete pp218 as summary</li> </ul> 5. Other <ul style="list-style-type: none"> <li>pp219-224</li> <li>Snake key</li> <li>Animal worksheet</li> </ul>	Chapter 12 pp216-236  <b><i>The new tree of life - p 210</i></b>          <b><i>Classification keys- pp225 and 227</i></b>          <b><i>Features of taxonomic groups - pages 213-217</i></b>          <b><i>pp219-224</i></b>	

	Key Knowledge/ Learning outcomes	Learning Strategies	Biozone/Text Reading and Q's	Other resources
	<p>Structural adaptations:</p> <ul style="list-style-type: none"> <li>relating major features of organisms to survival value;</li> </ul> <p>Physiological adaptations</p> <ul style="list-style-type: none"> <li>tolerance range of organisms maintaining equilibrium by detecting and responding to changes in environmental condition</li> </ul>	<ul style="list-style-type: none"> <li>Understand Habitat               <ul style="list-style-type: none"> <li>Tolerance Range</li> </ul> </li> <li>Adaptations               <ul style="list-style-type: none"> <li>Define structural, physiological and behavioural adaptations</li> <li>Give examples</li> </ul> </li> </ul> <ol style="list-style-type: none"> <li>Review what classification is about.</li> <li>Asking questions What animal am I? Identify what you have on back by asking questions. Questions can only be yes and no. What type of questions did you ask? Which type of questions where they. Where do I live? What questions do you ask. Descriptive terms about environment. Do snake example How am I adapted to live in this habitat i.e. snake in rocky desert habitat</li> <li>Define habitat and adaptation (PowerPoint)               <ul style="list-style-type: none"> <li>Define structural, physiological and behavioural adaptations</li> </ul> </li> <li>Video on DVC – The Life of mammal – Episode 8-Life In a Tree               <ul style="list-style-type: none"> <li>Write down structural adaptations in</li> </ul> </li> </ol>	<p><b>Habitat p 243</b>  <b>Dingo Habitats p 245</b>  <b>Ecological niche p 244</b></p> <p><b>P253 Animal adaptations</b></p>	

		<p>animals on worksheets</p> <ul style="list-style-type: none"> <li>○ Homework p243 and 253</li> <li>○</li> </ul>		
	<p>Structural adaptations:</p> <ul style="list-style-type: none"> <li>• relating major features of organisms to survival value;</li> </ul> <p><b>Unit 1 Outcome 2</b> On completion of this unit the student should be able to describe and explain the relationship between features and requirements of functioning organisms and how these are used to construct taxonomic systems.</p> <p><i>Key knowledge</i></p> <ul style="list-style-type: none"> <li>• distributing materials: features of effective transport systems; examples of transport systems in multicellular organisms</li> </ul>	<p>Lesson 2</p> <p>Review structural adaptations in animal.</p> <ul style="list-style-type: none"> <li>• Why am I game- Ask questions about factors related to structural adaptations only answer if a structural adaptation e.g. Do I have a long tail for balance? Do I have eyes on the front of my head so as to judge distance when I swing from trees.</li> </ul> <p>Structural adaptations in plants</p> <ul style="list-style-type: none"> <li>• List plant adaptations on worksheet from the clip <a href="http://www.youtube.com/watch?v=fA4rpATxaHU&amp;feature=Playlist&amp;p=8FB6EAFEAF424CDC&amp;playnext_from=PL&amp;index=0&amp;playnext=1">http://www.youtube.com/watch?v=fA4rpATxaHU&amp;feature=Playlist&amp;p=8FB6EAFEAF424CDC&amp;playnext_from=PL&amp;index=0&amp;playnext=1</a></li> </ul> <p>Plant Transport activity (laptops)</p> <p>Worksheet on wiki at <a href="http://vce-unit1and2biology.wikispaces.com/Plants">http://vce-unit1and2biology.wikispaces.com/Plants</a></p>	<p>Chapter 13</p> <p><b><i>Complete Xylem and phloem 144</i></b>  <b><i>Complete transpiration and 145 and 146</i></b>  <b><i>Complete translocation p 147</i></b></p>	
	<p>Structural adaptations:</p> <ul style="list-style-type: none"> <li>• relating major features of organisms to survival value;</li> </ul>	<p>Lesson 3</p> <p>Structural adaptations in angiosperm leaves</p> <ul style="list-style-type: none"> <li>• Review leaf structure</li> <li>• Investigate definition and example of hydrophyte, mesophyte, Xerophyte</li> <li>• No slides of halophyte</li> <li>• see wiki <a href="http://vce-unit1and2biology.wikispaces.com/Plant">http://vce-unit1and2biology.wikispaces.com/Plant</a> for some help and Ch 13</li> </ul> <p>Prac need slides Draw or make labelled diagrams. Use large microscope and overhead projector</p> <p>Prac on Environmental adaptations in angiosperm leaves</p> <ul style="list-style-type: none"> <li>• Hydrophyte- adapted to living either partially or fully submerged in water e.g. waterlilies</li> <li>• Mesophyte- terrestrial plants which are adapted to neither a dry nor particularly wet environment e.g. clover, daisy</li> </ul>	<p><b><i>Mesophytes - Review leaf Structure p99</i></b></p> <p><b><i>Hydrophytes 278 Adaptations of Hydrophytes.</i></b>  <b><i>Xerophytes 275-276 Adaptations of Xerophytes.</i></b>  <b><i>Halophytes - 277 Mangrove Adaptations.</i></b></p> <p><b><i>279-280. Plant Adaptations to Fire.</i></b></p>	<p><b>Plants (Structure, transport and xerophytic adaptations</b>  <a href="http://www.youtube.com/watch?v=9A5zDjQ06Hs&amp;feature=related">http://www.youtube.com/watch?v=9A5zDjQ06Hs&amp;feature=related</a>  <a href="http://www.youtube.com/watch?v=-PJBBowRO0w&amp;feature=related">http://www.youtube.com/watch?v=-PJBBowRO0w&amp;feature=related</a></p> <p>Chapter 13</p>

		<ul style="list-style-type: none"> <li>• Xerophytes – adapted to dry conditions e.g. cacti, bromeliads</li> <li>• Halophyte – adapted to conditions high in salinity either in the root area or salty spray e.g. mangroves</li> </ul> <p>Could create poster</p>		
	Holiday Homework	<ol style="list-style-type: none"> <li>1. Glossary – put these words in a glossary p261. Also include             <ul style="list-style-type: none"> <li>• niche</li> <li>• hydrophyte</li> <li>• physiological adaptations</li> <li>• Structural adaptations</li> <li>• behavioural adaptations</li> <li>• factors</li> <li>• aclimatisation</li> </ul> </li> <li>2. Read over Chapter 13 to review work done so far             <ul style="list-style-type: none"> <li>• Read Pages 243-260 and answer questions</li> <li>• Chapter Review Questions</li> </ul> </li> <li>3. Ensure all following Biozone are complete</li> <li>4. Extra work             <ul style="list-style-type: none"> <li>• Dingo Habitats p 245</li> <li>• P244 Ecological Niche</li> </ul> </li> <li>5. Create a mind map including work we have done so far</li> </ol>	<p>Chapter 13 Text Book</p> <p>Read over Chapter 13 to review work done so far</p> <ul style="list-style-type: none"> <li>• Read Pages 243-260</li> <li>• Answer following questions             <ul style="list-style-type: none"> <li>○ Questions 1-3. Page 245</li> <li>○ Questions 4-7. Page 251</li> <li>○ Questions 8-11 Page 258</li> <li>○ Questions 12-14. Page 260</li> </ul> </li> </ul> <p><b>Habitat p 243</b>  <b>P253 Animal adaptations</b>  <b>Parts of leaf p99</b>  <b>Complete Xylem and phloem p144</b>  <b>Complete transpiration and 145 and 146</b>  <b>Complete translocation p 147</b>  <b>Mesophytes - Review leaf Structure p99</b>  <b>Hydrophytes 278 Adaptations of Hydrophytes.</b>  <b>Xerophytes 275-276 Adaptations of Xerophytes.</b>  <b>Halophytes - 277 Mangrove Adaptations.</b>  <b>279-280. Plant Adaptations to Fire.</b></p> <p><b>Dingo Habitats p 245</b>  <b>P244 Ecological Niche</b></p>	

	<p>Physiological Adaptations:</p> <ul style="list-style-type: none"> <li>– tolerance range of organisms, maintaining equilibrium and responding to changes in environmental conditions.</li> <li>– regulating water balance and controlling temperature</li> </ul>	<ol style="list-style-type: none"> <li>1. Review Structural adaptations with the Adaptation Game created by LC</li> <li>2. Case Study – Camels (note taking) <ul style="list-style-type: none"> <li>• First view powerpoint and identify the Family (Camelidae) Genus (Camels) Species Bactrian and dromedary <ul style="list-style-type: none"> <li>○ all originated in north America</li> <li>○ Dromedary-arabian one humped camel</li> <li>○ Bactrian – Asian 2 humped camel</li> </ul> </li> <li>• Read handout to themselves. Outline adaptations.(on note sheet)</li> <li>• Go over physiological adaptations in detail.</li> <li>• identify adaptations(up to5) that are <ul style="list-style-type: none"> <li>○ physiological</li> <li>○ structural</li> <li>○ behavioural</li> </ul> </li> <li>• Biozone pp257-258 and 259</li> </ul> </li> </ol>	<p><b>257-258. Control of Body Temperature.</b>  <b>259. Thermoregulation in Mammals.</b>  Extra  <b>260. Water Balance in desert mammals</b>  <b>261 managing Fluid balance on land</b></p> <p>Chapter 16, Pages 299-315  Questions 1-2, 4. Page 302  Questions 6-9. Page 308  Questions 14-15. Page 315</p>	H/O on Camel adaptations
	<p>Physiological Adaptations:</p> <ul style="list-style-type: none"> <li>– tolerance range of organisms, maintaining equilibrium and responding to changes in environmental conditions.</li> <li>– hormonal control in complex multicellular organisms</li> </ul>	<ol style="list-style-type: none"> <li>1. Hormonal control Introductions <ul style="list-style-type: none"> <li>• Animal hormone PowerPoint</li> </ul> </li> <li>2. <b>Biozone examples</b></li> </ol>	<p><b>P205 Growth and development</b>  <b>P206Sexual development</b>  <b>P207 Ageing</b></p> <p><b>Extra</b>  <b>P197 Control of menstrual Cycle leave this to when discussing negative feedback)</b>  <b>P201 The hormones of pregnancy</b></p>	

	<p>Physiological Adaptations:</p> <ul style="list-style-type: none"> <li>– tolerance range of organisms, maintaining equilibrium and responding to changes in environmental conditions.</li> </ul> <p>Plant tropisms: growth responses, rhythmic activities;</p> <p>Hormonal control in complex multicellular organisms.</p>	<p><b>Plant Tropism (PPT)</b></p> <ul style="list-style-type: none"> <li>• Review Animal Hormones</li> <li>• Discuss environmental cues – light, gravity and temperature</li> <li>• Tropisms <ul style="list-style-type: none"> <li>○ Phototropism</li> <li>○ Gravitropism (geotropism)</li> <li>○ Positive and negative tropisms</li> </ul> </li> </ul> <p>Class Investigation</p> <ul style="list-style-type: none"> <li>• Set up plant prac to investigate phototropism and gravitropism</li> <li>• Read pages 276 and 277</li> </ul> <p>Video Coordination and Control 2:Plants</p> <p>Plant Hormones</p> <ul style="list-style-type: none"> <li>• Auxins</li> <li>• Cytokinins</li> <li>• Gibberellins</li> <li>• Ethylene</li> <li>• Absciscic acid</li> </ul> <p>Video-Plant Hormones-Coordination and Control</p>	<p>Heinemann Chapter 14, Pages 264-275 Questions 1-4. Page 268 Questions 5-10. Page 275</p> <p><b><i>P.250 Plant responses</i></b> <b><i>P. 251 Investigating Phototropism.</i></b> <b><i>P.252 Investigating Gravitropism.</i></b></p> <p>DVDV1624</p>	<p>PPT-Plant hormones <a href="http://vce-unit1and2biology.wikispaces.com/Plant+hormones">http://vce-unit1and2biology.wikispaces.com/Plant+hormones</a></p> <p>PPT-Plant hormones</p> <p>Video-Coordination and Control DVDV1624</p> <p>PPT- Plant Hormones Practical Investigation (SAT 2): Plant Tropisms</p>
<p>SAC 1 – Plant hormones Phototropism and Geotropism</p> <p>Students will be working on their investigation and writing reports over next 3 weeks.(Due date 18 august 2012)</p>				

	<p>Nerve control in complex multicellular organisms. Major sense organs and pathways of transmission of nerve impulses.</p>	<p>Worksheet on nervous system</p> <p>PPT-Nerves and Senses</p> <p>Structure of NS</p> <ul style="list-style-type: none"> <li>• Neurons – nerve cells structure and type</li> <li>• CNS</li> <li>• <a href="http://www.youtube.com/watch?v=i-NgGKSNIw&amp;NR=1&amp;feature=fvwp">http://www.youtube.com/watch?v=i-NgGKSNIw&amp;NR=1&amp;feature=fvwp</a></li> </ul> <p>Peripheral NS</p> <ul style="list-style-type: none"> <li>• Reflexes <ul style="list-style-type: none"> <li>○ throw something soft at someone (reflex action)</li> <li>○ Touch something hot (reflex action)</li> <li>○ <a href="http://www.youtube.com/watch?v=gyVLDOhIOXY">http://www.youtube.com/watch?v=gyVLDOhIOXY</a></li> </ul> </li> <li>• Functioning nerves <ul style="list-style-type: none"> <li>○ Synapses <a href="http://www.youtube.com/watch?v=HXx9qJtSU">http://www.youtube.com/watch?v=HXx9qJtSU</a></li> <li>○ action potential, conduction and chemical transmission <a href="http://www.youtube.com/watch?v=yrsJ9HlnZ5s&amp;feature=related">http://www.youtube.com/watch?v=yrsJ9HlnZ5s&amp;feature=related</a></li> </ul> </li> </ul>	<p>Heinemann Chapter 15 pp 284-296 q.8-15 on page 296</p> <p>Video – Vital Systems Episode 3 Control Systems (15 minutes)</p> <p>There is a prac on reflexes but cannot find it???</p> <p><b>Biozone 255-256. Nerves and Senses.</b></p>	<p><a href="http://faculty.washington.edu/chudler/introb.html#pns">http://faculty.washington.edu/chudler/introb.html#pns</a></p> <p><a href="http://vce-unit1and2biology.wikispaces.com/Nervous+System">http://vce-unit1and2biology.wikispaces.com/Nervous+System</a></p>
	<p>Nerve control in complex multicellular organisms. Major sense organs and pathways of transmission of nerve impulses.</p> <p>Hormonal control in complex multicellular organisms.</p> <p>Physiological Adaptations:</p> <ul style="list-style-type: none"> <li>– tolerance range of organisms, maintaining equilibrium and responding to changes in environmental conditions.</li> </ul>	<ol style="list-style-type: none"> <li>1. Compare and Contrast Table - NS and Endocrine</li> <li>2. Homeostasis <ul style="list-style-type: none"> <li>• define and connect to tolerance range</li> <li>• discuss some process under homeostatic control <ul style="list-style-type: none"> <li>○ Thermoregulation</li> <li>○ Water regulation</li> <li>○ Blood glucose</li> <li>○ Oxygen and Carbon dioxide level</li> <li>○ control of body temperature</li> </ul> </li> </ul> </li> <li>3. Homeostasis and negative feedback <ul style="list-style-type: none"> <li>• Read PPT and come up with PMI</li> <li>• Discuss this and go through examples</li> </ul> </li> </ol>	<p>Heinemann text</p> <ul style="list-style-type: none"> <li>• Ch 15 pp278-279 Q1 and 2</li> <li>• Ch 16 pp 298-316 Q 1- 15</li> </ul> <p>PPT- Homeostasis</p> <p>PPT – Homeostasis and Negative Feedback</p>	<p><a href="http://vce-unit1and2biology.wikispaces.com/Thermoregulation">http://vce-unit1and2biology.wikispaces.com/Thermoregulation</a></p>

	<p>Behavioural Adaptations: individual and group behaviours of animals including rhythmic activities, feeding behaviours, communication, social and territorial behaviours.</p>	<p><b>Animal Behaviour</b>  <b>Lesson 1</b>  <b>Learning Intentions</b></p> <ul style="list-style-type: none"> <li>• <b>Define behaviour</b></li> <li>• <b>Difference between Innate and learned behaviour</b></li> <li>• <b>Brief summary of some learned behaviours</b></li> </ul> <p>Introduction – training animals using animal behaviour(benefits of understanding behaviour)</p> <ul style="list-style-type: none"> <li>○ catalyst (19/4) Equitana (17 min)</li> <li>○ <a href="http://www.abc.net.au/catalyst/stories/2494999.htm">http://www.abc.net.au/catalyst/stories/2494999.htm</a></li> </ul> <p>Animal behaviours (ppt)  wiki has video clips for each of these(mainly dealing with learned behaviour) <a href="http://vce-unit1and2biology.wikispaces.com/Animal+Behavior">http://vce-unit1and2biology.wikispaces.com/Animal+Behavior</a>  See wiki for youtube clips to support each.</p> <ul style="list-style-type: none"> <li>• Types of behaviour <ul style="list-style-type: none"> <li>○ Innate</li> <li>○ learned <ul style="list-style-type: none"> <li>▪ Imprinting</li> <li>▪ Habituation</li> <li>▪ Associative learning</li> <li>▪ Trial and error learning</li> </ul> </li> <li>○ Observational learning <ul style="list-style-type: none"> <li>▪ Insight learning</li> </ul> </li> </ul> </li> </ul> <p>DVC-Discovering psychology (Ep.6) Learning (27 min)</p> <p>Homework:  Heinemann  Chapter 17. Pages 319-325 Q. 1-10</p>	<p>Heinemann  Chapter 17. Pages 319-325 Q. 1-10</p>	<p>1_Animal Behaviour_innate&amp; learned</p> <p>Catalyst (19/4)  Equitana (17 min)  <a href="http://www.abc.net.au/catalyst/stories/2494999.htm">http://www.abc.net.au/catalyst/stories/2494999.htm</a></p> <p><a href="http://vce-unit1and2biology.wikispaces.com/Animal+Behavior">http://vce-unit1and2biology.wikispaces.com/Animal+Behavior</a></p> <p>DVC-Discovering psychology (Ep.6)  Learning (27 min)  (Check with teagan if available )</p>
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	Reproductive adaptations: systems and strategies, development and life cycles.	<ul style="list-style-type: none"> <li>• Photoperiod – Recurring cycle of dark and light periods is approx 24 hours. The ratio of dark and light periods slowly changes over the course of a year. E.g. some plants flower when days get longer, some do it when days get shorter</li> </ul> <p>Plant behaviour</p> <ul style="list-style-type: none"> <li>• Do they have a behaviour? <ul style="list-style-type: none"> <li>○ Tropism – is about plant behaviour <ul style="list-style-type: none"> <li>▪ Review (phototropism and geotropism) <a href="http://www.youtube.com/watch?v=zctM_TWg5Ik&amp;feature=fvw">http://www.youtube.com/watch?v=zctM_TWg5Ik&amp;feature=fvw</a></li> <li>▪ Attenborough <a href="http://www.youtube.com/watch?v=aNjR4rVA8to&amp;list=QL&amp;playnext=2">http://www.youtube.com/watch?v=aNjR4rVA8to&amp;list=QL&amp;playnext=2</a></li> <li>▪ Revision (just remind them about this)<a href="http://www.youtube.com/watch?v=NdA11OalmSQ">http://www.youtube.com/watch?v=NdA11OalmSQ</a></li> </ul> </li> <li>○ The root of plant intelligence <a href="http://www.ted.com/talks/stefano_mancuso_the_roots_of_plant_intelligence.html">http://www.ted.com/talks/stefano_mancuso_the_roots_of_plant_intelligence.html</a></li> </ul> </li> </ul> <p>Plant Reproductive Strategies</p> <p>Flowering Plants and Structure</p> <ul style="list-style-type: none"> <li>• PPT</li> <li>• Biozone pp177-179</li> <li>• Pollination germination pp180</li> </ul> <p>Life Cycle of Plants</p> <ul style="list-style-type: none"> <li>• Know stages of life cycle</li> <li>• Activity <a href="http://www2.bgfl.org/bgfl2/custom/resourcesftp/clientftp/ks2/science/plants_pt2/index.htm">http://www2.bgfl.org/bgfl2/custom/resourcesftp/clientftp/ks2/science/plants_pt2/index.htm</a></li> <li>• Biozone Alternation of generations pp175-176</li> </ul>	<p>199-200. Animal Reproductive Strategies.</p> <p>201-202. Insect Life Cycles.</p> <p>203. Mammalian Reproduction.</p>	
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