EDF4402 BIOLOGY EDUCATION Assessment Task 1A

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| VCE Year 11  Unit 2  Area of Study 1 | **BIOLOGY IDEA:**  **ADAPTATION AND ENVIRONMENTAL REQUIREMENTS** |
| **What you intend the students to learn about this idea.** | * **Adaptations** are **inherited characteristics** that **increase the survival** and reproductive likelihood of **living organisms** * Adaptations that evolve in species are the result of selection pressures on them throughout their evolution * There are **three** **types of adaptation** in organisms which enable them to survive and reproduce in ever changing environments ie. **physiological, anatomical** (structural) and **behavioural** * There is a relationship between the **environment, adaptation** and **distribution** * An **organisms environment** consists of their **abiotic** (physical surroundings) and **biotic** (other organisms) **environments** * **Living organisms** require adequate levels of **nutrients, water**, **oxygen,** **carbon dioxide** and suitable **environmental conditions** (eg. light, temperature) to **survive, grow and reproduce** * **Limiting factors** are any environmental requirements that are in limited supply – this can **affect distribution** |
| **Why it is important for students to know this.** | * To understand why particular organisms can only live in certain environments * It will help students to understand ecosystems, natural selection and evolution * So students will be able to understand that any change to the environment, natural or human induced, can have an effect on the distribution and survival of organisms * Students will be able to understand particular adaptation if they understand a organisms abiotic and biotic environment * Will provide basis for understanding of genetics and evolution in units 3 and 4   Reference: Heinemann Biology 1 4th ed. 2007 |
| **What else you know about this idea (that you do not intend students to know yet).** | * Students need to be aware that there are three types of adaptation, anatomical, physiological and behavioural. However the details of these adaptations will be covered later in the topic. |
| **Knowledge about students’ thinking/difficulties connected with teaching this idea.** | * Students may confuse the scientific term adaptation with the idea of adapting to, or getting used to * Students should have already learnt requirements of living organisms in Unit 1 * Students may have trouble grasping the time taken for changes to occur, they tend to think changes happen quickly   VCAA 2005 VCE Study Design |
| **Teaching procedures (and particular reasons for using these to engage with this idea).** | * Use local examples to examine adaptations, students are more likely to take an interest in their local environment * Show adaptation eg. Visit mangrove area as they are an excellent and obvious example of adaptation (however students may learn more from a field trip once further big ideas of adaptation have been covered) * Students should create a glossary of new words * Give examples of habitats of particular animals, students need to describe abiotic and biotic factors of the animals environment.(see Year 11 Biology Student Resource and Activity Manual 2006) * Review and answer questions pp245-260 Heinemann Biology 1 for examples of particular Australian environments and adaptations |
| **Specific ways of ascertaining students’ understanding or confusion around this idea (include likely range of responses).** | * Through monitoring and marking students reponses to the above activities * Students develop a concept map from their glossary this should help to ascertain the depth of students’ understanding |