Grade Eleven Answers - Evolution

/18 A

Visit the polar bear. Label two structural adaptations, one behavioural adaptation, and one physiological adaptation. State which type of adaptation each of your points is referring to (remember to state how each adaptation is helpful to the animal). **(4 marks A)**

Any correct answers, 0.5 for adaptation, 0.5 for how it benefits animal. Examples include;

Structural (2)

- **Bumps of feet to grip ice**
- **Thick fur to keep warm**
- **Small ears to reduce heat loss**
- **Thick layer of fat to keep warm**

Behavioural (1)

- **Den to give birth helps protect babies**
- **Stand over breathing holes to catch seals**

Physiological (1)

- **Great sense of smell to find prey/mates**
- **Enzymes to digest food**
- **Hormones for growth and development**

Describe what is meant by homologous characteristics. Use a mammal example in your response (a different one than whale & human) **(4 marks A)**

- **Similar structure (1)**
- **Common ancestor (1)**
- **Could be different use (1)**
- **Example (1)**

Using the example of a bird and bat wing describe the characteristics of analogous structures (3 marks A)

- **The bird and bat wings have the same function (1)**
- **The wings have different structures (1)**
- **They have no common ancestor; mammal vs bird (1)**

Sharks (fish) and dolphins (mammals) look pretty similar. Would these species be an example of convergent or divergent evolution? Justify your answer. (4 marks A)

- **Convergent (1)**
- **They have no common recent ancestor, mammal vs fish (1)**
- **Both have developed body shape/fins INDEPENDENTLY (1)**
- **As traits ADVANTAGEOUS to both (1)**

Describe the process of divergent evolution using the example of the gray wolf and arctic wolf. Hint - some wolves experienced colder temperatures than others. (**3 marks A)**

- **Wolves experienced colder temperature (1)**
- **Developed adaptations to survive colder area (1)**
- **Overtime differences so large a subspecies formed (1)**