Assessment Schedule – 2007

Biology: Describe diversity in the structure and function of animals (90462)

Evidence Statement

Q	Achievement	Achievement with Merit	Achievement with Excellence
1 & 2	A *description* of what the structure is AND how it works (function) to show diversity in relation to a process in THREE named animal groups. *Evidence may come from either parts (1) OR (2).*	Answers ***explain*** how these structures function to allow each group to be successful in their habitat in relation to a **process.** TWO named animal groups. *Evidence may come from either parts (1) OR (2).*	A *discussion* of the **REASONS FOR DIVERSITY, in structure and function** in relation to a process, to enable animal groups to **be successful in their habitat**. Compares and contrasts the diversity across TWO animal groups. *Evidence may come from either parts (1) OR (2).*
	Describe requires the student to define, name, draw annotated diagrams, give characteristics of, or an account of.	*Explain* requires the student to provide a reason as to how or why something occurs.	*Discuss* requires the student to show understanding by linking biological ideas in relation to the animal groups.
	Transport: What the structure is. Eg: • open circulatory system • closed single system • closed double system AND how it works ie description of function. Eg: • carries oxygen and food, wastes, hormones etc • valves to prevent backward flow • muscular action / movement to assist flow.	**Transport:** Reasons for adaptation linked to survival, eg: • activity / energy requirements • pressure / gravity • size of animal / blood volume • efficiency, effectiveness	**Transport:** Eg: relates the efficiency of closed double circulatory system and diversity of habitats to more restricted habitats of animal groups with open circulatory system. The size of animal has a direct bearing on what system it has.
	Gas Exchange: What the structure is. Eg: • diffusion in invertebrates • tracheal system • gills / counter-current • lung system / diaphragm. How it works (function) Eg: • all animals must exchange gases with environment to carry out respiration. • diffusion • "pump" to move medium.	**Gas Exchange:** Reasons for adaptation linked to survival, eg: • surface area • moist exchange surfaces • pressure • efficiency of extraction • short diffusion distance	**Gas Exchange:** Eg: raw materials available from different mediums, oxygen from air or water. Animal groups show diversity to solve requirements for metabolism and size, and the medium they live in. An eg of compare and contrast: In fish, a tracheal system would be too heavy, and lungs would require huge amounts of water to extract sufficient oxygen.

Q	Achievement	Achievement with Merit	Achievement with Excellence
	Nutrition: What the structure is, eg: • omnivore • carnivore • herbivore – foregut • herbivore – hindgut • beaks / teeth / insect mouthparts. How it works (function) Eg: animals are consumers and must extract and absorb nutrients. • physical / chemical digestion • purpose of dentition types • ruminants – micro-organisms • absorption.	**Nutrition:** Reasons for adaptation linked to survival, eg: • energy requirements • food types • beaks / no teeth / weight / crop instead. Teeth, types match diet	**Nutrition:** Eg: diversity related to types of food / body shape or size / energy requirements, the way the nutrients are obtained and absorbed. May compare and contrast types of available food.
	Excretion: What the structure is, eg: • an invertebrate system • an aquatic system • a terrestrial system • products. Function: Eg: osmoregulation, removal of toxic nitrogen-containing compounds.	**Excretion:** Reasons for adaptation linked to survival, eg: • excretory products • energy efficiency.	**Excretion:** Eg: diversity shown is related to the excretion product / energy cost of production in the particular environment, and the challenges it presents.
	Support and movement: What the structure is, eg: • hydrostatic system • exoskeleton • endoskeleton • flight • swimming. Function: Eg: locomotion – to escape predators, find food, find mates. Antagonistic pairs, muscle types, contraction / relaxation of muscles, flexible body movements.	**Support and movement:** Reasons for adaptation linked to survival eg: • skeleton type adapted for environment. • limitations of different media.	**Support and movement:** Eg: diversity of structure and function related to living in the environment. Eg: endoskeletons; bones, wings adapted for flight, limitation of size for terrestrial animals with exoskeletons.
	Sensitivity and co-ordination: What the structure is, eg: receptors / sensing organs for stimuli motor neurones / sensitivity neurones Response to stimuli • correlation with body symmetry, eg: echinoderm, insect, squid • vertebrate central NS. Function (how it works), eg: control and coordination of internal processes, sensing and responding to stimuli. Nervous, endocrine system.	**Sensitivity and co-ordination:** Reasons for adaptation linked to survival, eg: • vertebrate NS highly centralised allowing animals to grow larger • invertebrate NS related to pattern of body symmetry.	**Sensitivity and co-ordination:** Eg: diversity related to survival in environment and interaction with endocrine system to maintain homeostasis.

Q	Achievement	Achievement with Merit	Achievement with Excellence
	Reproduction: What the structure is, eg: • reproductive apparatus Function: Eg: Development of immature/dependant organism Gamete formation, zygote, mitosis, meiosis.	**Reproduction:** Reasons for adaptation linked to survival, eg: • external / internal fertilization • external / internal development (egg laying vs live young) Hermaphrodite difficulty in finding mates.	**Reproduction:** Diversity related to number of offspring produced and survival in environment. Eg: of compare and contrast • level of parental care related to the number of offspring • asexual v sexual reproduction. • extinction if death occurs before replacement.

Judgement Statement

Achievement
Description of structure AND function of THREE named animal groups in relation to a process.
A1 + A2 + A3

Achievement with Merit
Explains diversity in adaptations (structure and function) to allow survival in relation to a process.
Achievement **plus 2 out of 3** animal groups explained sufficiently.
Minimum of 2M plus A1 + A2 + A3

Achievement with Excellence
Discussion links the need for **diversity** in structure and function of animals in relation to a biological process to survive successfully in a range of environments. (Must compare and contrast between at least **2** animal groups.)
Minimum of 1E plus 2M plus A1 + A2 + A3