Assessment Schedule – 2006

Biology: Describe diversity in the structure and function of plants (90463)

Evidence Statement

Question	Achievement	Achievement with Merit	Achievement with Excellence
1	**Description for EACH plant group that describes how the plant carries out the process through description of structures and associated functions.** ***Evidence may come from any part of the paper.*** **FOR EXAMPLE:** **Nutrition:** • large SA / vol ratio • leaf arrangement around stem – whorls, alternate, etc • structures of insectivorous plants, sundew, pitcher plants, • other. **Transport:** • mosses – no specialised cells for transport, rely on diffusion • ferns –transitional, have tracheids or simple conducting tissues • angiosperms – xylem vessels, more sophisticated etc • monocotyledons / dicotyledons – arrangement of vascular tissue, secondary thickening, etc • small plants, eg mosses have no specialised conducting tissue • other. **Transpiration:** • modified leaves; curled, reduced (stem also photosynthetic eg broom) • leaves absent, cacti • stomata; sunken, upper / lower leaf • deciduous plants / over-wintering • other. **Reproduction:** • *Mosses* Main plant gametophyte Produce antheridia and archegonia (at tips of gametophyte) Produce sperm (gametes) – Sporophyte attached to base of gametophyte produces spores, etc. • *Ferns*	**Explanation gives REASONS for how the plant carries out the process, linked to structures and function, in at least TWO named plant groups.** ***Evidence may come from any part of the paper.*** **FOR EXAMPLE:** **Nutrition** • large SA / vol ratio- to absorb max light and gases for photosynthesis • leaf arrangement increases SA exposed for absorption • insectivorous plants in environments. **Transport:** eg • thickening in xylem, no living contents • sieve tubes with companion cell • secondary thickening, functional xylem and phloem • mosses live in wet environments. **Transpiration:** • eg, curled leaves prevent transpiration because the inside of the leaf develops a high humidity which reduces the concentration gradient, therefore less transpiration • similar for sunken stomata. **Reproduction:** Eg *Mosses* • gametes flagellated in mosses, in wet environment • spores light, produced in large numbers carried by wind • photosynthetic gametophyte supports the sporophyte. *Ferns*	**A discussion of the REASONS for DIVERSITY of structures and functions that enable plant groups to live in their environment. Diversity in at least TWO plant groups.** ***Evidence may come from any part of the paper.*** As for Merit **PLUS** : A candidate must demonstrate an understanding of the general purpose of the overall process. A discussion of the reasons for diversity/differences shown across at least 2 plant groups. Eg a discussion of the evolutionary significance of the differences, the reduction in competition due to occupation of different niches/habitats/envts, the significance of the changes in the process related to the niche/habitats/environment., etc Compare and contrast at least 2 plant groups. **FOR EXAMPLE:** **Nutrition:** eg Significance of C3, C4 and CAM plants allowing occupation of different niches. Diversity linked to plant nutrition in environment. Shade plants vs light vs water. Insectivorous plants, nutrition linked to environment. **Transport:** Mosses remain as small plants – unable to conduct material over large areas, etc; large trees with efficient conducting tissue able to live in dry environments, etc. **Transpiration:** • adaptations linked to the

	Dominant phase – sporophyte Prothallus structure produces antheridia and archegonia Structure of sporangia – mechanism for release of spores • *Gymnosperms* Male / female cones Seed structure, etc • *Angiosperms* Wind pollinated Insect pollinated Specialisation of floral structure for fertilisation by specialised pollinator. • *Other*	• mechanism for release of spores • prothallus – antheridia release sperm swim to archegonia, etc *Gymnosperms* • location of cones • quantity of pollen produced • function of cones • seed structure for movement in air currents, etc.	environment • diversity in carrying out the same process in different environments. **Reproduction:** • significance of the increasing dominance of the sporophyte generation • the significance of the mechanisms to increase genetic variability within the species • complexity of floral structures relevant to increasing specialisation of pollination • sperm / flagellated gametes suitable in a wet environment • wind pollination suitable in windy environment when large numbers of the species are present, etc.

Judgement Statement

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Achievement	Achievement with Merit	Achievement with Excellence
Structure and function of THREE named plant groups described. Minimum of A1 + A2 + A3	Structure and function of THREE named plant groups described, and reasons for how the plant carries out the process linked to structure and function for TWO plants. Minimum of 2 × M *plus* A1 + A2 + A3	Structure and function of THREE named animal groups described, reasons for how the plant carries out the process linked to structure and function for TWO plants, *and* discussion of diversity to survive in environments. Minimum of 1 × E *plus* 2 × M *plus* A1 + A2 + A3