Assessment Schedule – 2008

Science: Describe the factors and processes involved in the evolution of New Zealand's plants and animals (90772)

Evidence Statement

Q	Achievement	Achievement with Merit	Achievement with Excellence
1(a)	Native to New Zealand / particular geographic area, and not found anywhere else.		
(b)	Arrived in NZ from Australia or islands in the Tasman Sea Rafted in / or seeds by birds / or seeds wind blown.		
(c)	Plants that could not tolerate high salt / winds / and low fresh water would not survive. OR general reference to not surviving coastal environmental pressures. OR reference to desirable traits being passed on.	Plants that could not tolerate high salt / winds and low fresh water would not survive AND their genes could not be passed on to the next generation. TWO explained or with general reference to environmental coastal pressures. (non-specific selection process). Explains for OR against selection pressure.	Plants that could not tolerate high salt / winds /and low fresh water would not survive AND their genes could not be passed onto the next generation AND the plants that could tolerate those harsh conditions passed their genes onto the next generation and so the species evolved. Explanation for AND against selection pressure.
(d)	ONE process described, eg: • Small population arrived from Australia with limited gene pool (founder effect). • Extreme environment of high salt and winds and low fresh water/coastal environment are selection pressures that mean plants that could survive these/ survive to pass their genes on to the next generation. • Over time this population has different genes from its original population and so becomes genetically isolated from the original population and so have new species.	Uses TWO processes to explain.	All THREE processes discussed and links made between all three to explain how the coastal *Hebe* evolved from the founder population.
2(a)	There were no predators on the forest floor OR there was no competition for food on the forest floor OR there was intense competition in the higher layer OR the presence of predators in the higher levels.	There were no predators on the forest floor AND / OR there was no other competition for the food, so the short-tailed bat developed its unique lifestyle there. Explains how this factor enables the bat to establish a new niche. (lack of competition leads to niche availability)	

(b)	Introduced species may compete for the same food sources / may be a predator for the short-tailed bat on the forest floor. OR Forest removal removes the habitat that the short-tailed bat feeds and lives in.	Introduced species may compete for the same food sources OR may be a predator for the short-tailed bat on the forest floor. AND Forest removal removes the habitat that the short-tailed bat feeds and lives in. AND identifies selection pressure. (Extinction only explained.)	Introduced species may compete for the same food sources AND may be a predator for the short-tailed bat on the forest floor. AND Forest removal removes the habitat that the short-tailed bat feeds and lives in. AND Successful bats will be able to overcome these problems and so be able to reproduce. Discussion will include effect of natural selection/reproductive efficiency / bottleneck to evolution.
3(a)	Mutation occurs in the sex cell OR a change in DNA.	Mutation occurs in the sex cell, which causes a change in phenotype or characteristic in the offspring. OR a change in the DNA of the gametes.	
(b)	Mutations are passed on to offspring and benefit offspring.	Mutations passed onto offspring and benefis offspring AND so reproductive efficiency increased, increasing frequency of gene in gene pool.	Mutations must be passed on to the offspring to affect gene pool. If mutation benefits the organism then it will increase reproductive efficiency, increasing the frequency of the gene in the gene pool. A combination of these processes over time will lead to a new species. Must have idea of this working over time/ or isolation to get E.

Judgement Statement

Achievement	Achievement with Merit	Achievement with Excellence
Total of FIVE opportunities answered at Achievement level (or higher). $5 \times A$	Total of FIVE opportunities answered with THREE at Merit level (or higher) plus TWO at Achievement level. $3 \times M + 2 \times A$	Total of FIVE opportunities answered with TWO at Excellence level plus ONE at Merit level (or higher) plus TWO at Achievement level (or higher). $2 \times E + 1 \times M + 2 \times A$