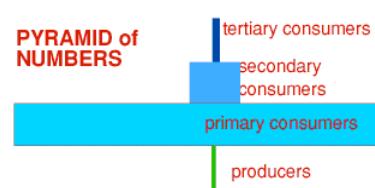


Assessment Schedule 2008**Biology: Describe concepts and processes relating to ecology (90461)****Evidence Statement**

Q	Achievement	Achievement with Merit	Achievement with Excellence
ONE (a)	<p>Describes succession as the change in species /community composition over time</p> <p>OR</p> <p>Describes the difference between primary succession and secondary succession (eg. gap regeneration).</p>	<p>Explains the difference between primary and secondary succession.</p> <p>Primary succession is where (pioneer) species colonise and modify a sterile environment (ie. no plants at all) whereas secondary succession occurs after a disturbance (eg: fire, flood) removes existing vegetation.</p>	
(b)	<p>Describes the key role of tree lupins in increasing the levels of nitrates / nitrogen in the food chain / community / soil.</p>	<p>Explains that Nitrogen fixation enhances the ability of lupins to make proteins, which are essential for the growth of the plant. Protein is passed on in the food chain and enhances growth in community.</p> <p>OR</p> <p>Explains the role of lupin as a pioneer species which acts to change abiotic/biotic factors in the community to allow for further succession.</p>	<p>Discusses the role of lupins in making nitrogen available to the community to make proteins. The increased nitrate levels produce changes in abiotic/biotic factors allowing for further succession.</p>
(c)	<p>Names an appropriate habitat eg. river, stream, lake or swamp edge, mountain, rocky shore, sand dune.</p> <p>AND</p> <p>Describes zonation as the division of an ecosystem into distinct zones / bands / regions / horizontal layering that experience similar abiotic conditions</p> <p>OR</p> <p>the variation of an abiotic factor along an environmental gradient.</p>	<p>Explains that the pattern is due to different tolerance of species to a named abiotic factor that is appropriate to the habitat eg: exposure to air, salinity, temperature etc.</p>	

TWO	<p>Describes any THREE of the four zones correctly:</p> <p>A – Population growing slowly / lag phase B – Population growing exponentially / rapid / logarithmic growth. C – Population growth is slowing / or begins to level out. D – Population is (more or less) constant / fluctuates around an average size or number / equilibrium / stabilising.</p>	<p>Explains any THREE zones correctly:</p> <p>A - Population increases as reproduction gets under way. Often starts slowly because there is a shortage / limited number of reproductive individuals. B – This stage represents the maximum growth rate under optimal environmental conditions / the birth rate exceeds the death rate. C – Environmental resistance sets in (due to some limiting factor). D – Birth rate and death rate balance each other around the carrying capacity of the habitat / ecosystem. Peaks occur when the population growth exceeds a critical resource, causing a decline below the carrying capacity. The cycle continues / oscillates.</p>	
THREE (a)	<p>PYRAMID of NUMBERS</p>  <p>The pyramid of numbers must show 4 levels and indicate that the number of producers is less than the number of primary consumers. (Accept appropriate species to each level rather than the terms in the diagram above.)</p>		
(b)	<p>Describes biodiversity as the number of different species in a region / area</p> <p>OR</p> <p>Gives reason(s) for the biodiversity level in ONE of the habitats (natural or managed).</p>	<p>Explains that the biodiversity in a managed / pine forest will be low because there is only 1 dominant species which provides limited resources to the community. However, the biodiversity in a natural forest will be high because there are more dominant species which provide more resources to the community.</p> <p>Must provide reason(s) for the difference in biodiversity in BOTH natural and managed forests.</p>	

(c)	<p>Describes the differences in ecological niche of the insects eg.</p> <ul style="list-style-type: none"> • insects feeding in different areas • insects have different diets • adaptation of feeding method <p>OR</p> <p>Gause's Principle is described (does not have to be named).</p> <p>OR</p> <p>Indicates that the insects do not compete.</p>	<p>Explains the differences in ecological niche in terms of Gause's Principle OR reduced competition eg.</p> <ul style="list-style-type: none"> • There are many different insects in the forest because some feed on the bark and some feed on the leaf litter etc. So, their niches do not overlap and Gause's Principle does fit here. • The insects don't have the same niche. They might feed at different times, such as nocturnal, and never meet up so there is no interspecific competition between the insects. • The different insects all have different niches and so they do not compete with each other. 	<p>Discusses the differences in ecological niche in terms of Gause's Principle AND reduced competition</p>
-----	--	---	---

Judgement Statement

Achievement	Achievement with Merit	Achievement with Excellence
<p>Total of FOUR opportunities answered at Achievement level or higher.</p> <p>$4 \times A$</p>	<p>Total of at least FIVE opportunities answered with THREE at Merit level or higher.</p> <p>$3 \times M + 2 \times A$</p>	<p>Total of at least FIVE opportunities answered with ONE at Excellence level and TWO at Merit level or higher.</p> <p>$1 \times E + 2 \times M + 2 \times A$</p>