2015 NCEA Assessment Report

Biology Level 1 90927, 90928, 90929

Part A: Commentary

Successful candidates wrote clear, concise and accurate answers, using appropriate biological language and attempted to answer all of the questions.

Candidates gaining Achievement, Merit, or Excellence correctly responded to the key words in the questions and addressed all bullet points, where provided with the question.

Candidates achieving higher results seemed well prepared for the questions. Many candidates included examples in their answers that directly linked to the biological ideas or concepts. This helped to demonstrate their understanding by adding depth and detail to their responses.

Some candidates limited their level of achievement by providing responses that were not directly linked to the question or by providing responses that were simplistic and not at L6 of the NZC. Other candidates did not answer the question, did not respond to all parts of the questions or provided a pre-prepared answer that did not specifically address the requirements of the question.

Part B: Report on standards

1. Assessment Report for 90927: Demonstrate understanding of biological ideas relating to micro-organisms

Achieved	Candidates who were assessed as Achieved commonly: • drew labelled diagrams of microbes • described exponential growth of bacteria • identified water/warmth/nutrients are requirements for fungal growth • defined anaerobic as without oxygen • identified oxygen as a key reactant in aerobic respiration • named extra-cellular digestion • stated that viruses need host cells for reproduction • described the reproduction cycle for one microbe • interpreted experimental data correctly.
Not Achieved	Candidates who were assessed as Not Achieved commonly: • labelled genetic material as a nucleus in bacteria and viruses • mixed up cell wall with cell membrane • labelled cell wall on virus • used air in description of aerobic respiration instead of oxygen • referred to the virus as a cell • described budding instead of binary fission • gave a broad range for optimal temperature (e.g. 20^0C -60^0C) • described decomposers/saprophytes as pathogens • identified antibiotics as preferred treatment for viral infections.
Achieved with Merit	Candidates who were assessed as Achieved with Merit commonly: • provided an explanation of all stages of extra-cellular digestion • included details such as cell elongation, and pinching of membranes as part of binary fission • explained the different stages of the lytic cycle • explained the importance of sealing containers to reduce microbial competition • explained microbial processes affected by temperature and oxygen • outlined aerobic respiration's impact in release of energy/production of heat • provided specific examples in their explanations.

Achieved with Excellence	Candidates who were assessed as Achieved with Excellence commonly: • included a specific named example in the virus diagram (e.g. Adenovirus, HIV, Tobacco Mosaic Virus) • linked temperature to enzyme activity • linked absorbed products of extra-cellular digestion to reactants for respiration, reproduction and growth. • specified the action of antibiotics on bacterial cell walls and named cell processes • linked the products of extracellular digestion with toxin production and its affects • connected the growth rate of bacteria to supply of reactants for respiration • made links between microbial production of nitrate and carbon dioxide, and the growth of plants/photosynthesis.
Standard specific comments	Many candidates seemed to lack depth of knowledge on nutrient cycles, specifically the nitrogen cycle which is a part of explanatory note 9 of the Achievement Standard 90927.

2. Assessment Report for 90928: Demonstrate understanding of biological ideas relating to the life cycle of flowering plants

Achieved	Candidates who were assessed as Achieved commonly: • described biological ideas relating to the processes involved in the life cycle of flowering plants, including: pollination, fertilisation, seeds and fruit, germination, photosynthesis and growth • described the structure and function of components involved in the plant processes • described the products or outcomes of plant processes • described the effect of environmental factors on the plant processes • used correct biological terminology as required at L6 of the curriculum.
Not Achieved	Candidates who were assessed as Not Achieved commonly: • used incorrect or limited biological terminology • confused plant processes e.g. the environmental factors required for photosynthesis and germination • provided information unrelated to the question • provided incomplete or incorrect information • provided responses below L6 of the curriculum.
Achieved with Merit	Candidates who were assessed as Achieved with Merit commonly: • provided relevant examples to support their responses • explained plant processes, plant structures and their function • provided reasons to support and link their descriptions.
Achieved with Excellence	Candidates who were assessed as Achieved with Excellence commonly: • provided multiple links between explanations • provided in-depth responses supported by multiple justified examples to illustrate their ideas • linked the structures and their functions involved in plant processes to the importance of the processes in the life cycle of the plant • linked the process of germination to all parts of the seed and at least three environmental factors • discussed of the change in the dry mass and the live mass of a plant in the process of seed germination • linked plant structures to the process of photosynthesis and the growth of the plant.
Standard specific comments	Candidates who were able to achieve in this standard generally had a good understanding of the terminology used in the life cycle of flowering plants as prescribed in the Achievement Standard.

3. Assessment Report for 20929: Demonstrate understanding of biological ideas relating to a mammal as a consumer

Achieved	Candidates who were assessed as Achieved commonly: • described the names and functions of teeth • described where salivary amylase and pepsin were produced • described the differences in the digestive systems in two mammals, particularly regarding the lengths • described the function of enzymes • described the function of the villi and microvilli.
Not Achieved	Candidates who were assessed as Not Achieved commonly: • did not use the specific key terms or did not attempt all the questions • had answers which where completely off the topic (e.g. talking about assimilation when the question was about digestion in the small intestine) • did not answer all parts of the question.
Achieved with Merit	Candidates who were assessed as Achieved with Merit commonly: • made links between the structure and function of parts of the digestive system • made links between teeth structure and their function • demonstrated in-depth understanding of the effect of pH on enzyme performance • explained the need for extended time as a reason for the difference in length of mammalian digestive systems • explained the functions of the three pancreatic enzymes and bile • demonstrated in-depth understanding of the products that enter the capillary and the lacteal and the uses of the products of digestion • understood what the question was asking and kept to the topic not including extra unrequired or incorrect information.
Achieved with Excellence	Candidates who were assessed as Achieved with Excellence commonly: • had a thorough knowledge of the topics being asked about in the questions • demonstrated comprehensive understanding by comparing the structure and function of parts of the digestive system for different consumer types in relation to their diets • displayed an overall outstanding understanding of the entire process of digestion and how they linked together • made links between the specific functions of specific enzymes and the effects of pH on their reaction rate, in the different body pH situations, e.g. explained what happens to salivary amylase as it moves from the mouth to the stomach, rather than explaining generally about how different pH's effect enzyme activity • were able to make comprehensive comparison between the two mammalian digestive systems especially in respect to why the systems where different, linking the differences to the time the food needs to be inside the organism for digestions to occur and / or the existence of structures within the organism for the bacterial assistance needed to digest the tough cellulose • demonstrated comprehensive understanding of the links between the digestive system, circulatory and respiratory systems • made multiple links between what happened to the monomers produced during digestion, how and where they were absorbed, how they were transported to the body cells and what each named monomer is used for to aid the survival of the organism.
Standard specific comments	Candidates who achieved well in this standard were able to make links between the various aspects of the standard demonstrating understanding of the big picture in relation to mammals as consumers.