

Assessment Report

Level 3 Biology 2017

Standards [91603](#) [91605](#) [91606](#)

Part B: Report on Standards

91603: Demonstrate understanding of the responses of plants and animals to their external environment

Candidates who were awarded **Achievement** commonly:

- used the scenario in their descriptions
- used correct terminology
- fully described key elements
- made an attempt to describe an adaptive advantage using the scenario provided.

Candidates who were assessed as **Not Achieved** commonly:

- lacked a breadth of knowledge across the standard
- were unable to identify processes correctly
- seemed less well prepared for plant-based questions.

Candidates who were awarded **Achievement with Merit** commonly:

- explained, in depth, why the behaviour or response provided an adaptive advantage for the organisms in the scenario.
- went beyond basic descriptions and gave reasons how or why the behaviours or responses happened
- explained the survival advantage of isolated costs & benefits.

Candidates who were awarded **Achievement with Excellence** commonly:

- focused on the question rather than the bullet points, and were clearly familiar with the nature of the Achievement Standard
- made accurate reference to the resource material and integrated it into their discussions
- discussed the significance of the various processes in terms of adaptive advantage, but also understood the mechanisms of the processes.

Standard specific comments

Questions required candidates to link responses with the adaptive advantages and survival in their niche and to determine the link between adaptations and survival advantage.

Candidates who had reviewed the definitions and vocabulary could have gained at least an achieved grade.

91605: Demonstrate understanding of evolutionary processes leading to speciation

Candidates who were awarded **Achievement** commonly:

- defined key evolutionary terms correctly
- identified the correct evolutionary pattern
- made descriptions without linking to the examples given in the questions.

Candidates who were assessed as **Not Achieved** commonly:

- incorrectly identified the pattern
- confused key evolutionary terms
- did not reference the resource material in the question.

Candidates who were awarded **Achievement with Merit** commonly:

- explained key evolutionary terms and linked these terms to the examples
- explained the patterns with reference to how they may have arisen
- identified selection pressures from reading the reference material, and were able to expand on these further in their answer.

Candidates who were awarded **Achievement with Excellence** commonly:

- discussed how allopatric speciation leads to adaptive radiation using the names of the Moa given and the geographical isolating events that have occurred in NZ
- discussed that the different structures of the beak of the Moa means a different diet and allowed different species to live in the same area as it reduced competition
- linked mutation (as the source of new alleles and occurring by chance) and natural selection (as the passing of the favourable alleles) to the development of a co-evolution relationship
- linked analogous features to the examples given in the resources and thus as a result of the same selection pressures those features were selected for and passed on.

Standard specific comments

Key ideas of speciation need to be known by candidates, including definitions.

Candidates must relate their answer to the context of the question.

Parallel evolution was commonly identified as the pattern of evolution in Question 3. However, this is not assessed in this standard.

91606: Demonstrate understanding of trends in human evolution

Candidates who were awarded **Achievement** commonly:

- described the changes in the hands from A. ramidusto H. neanderthalensis
- described the changes in the environment during this period
- described the adaptive advantages of freeing the hands and/or bipedalism
- defined biological and/or cultural evolution, or the difference between them
- described the biological evolution of the skull and/or the pelvis
- described the replacement and/or multiregional theory (with correct hominin(s) named)
- described that mtDNA is maternally inherited and Y chromosomes are paternally inherited
- recalled facts but were not able to link them clearly to the question.

Candidates who were assessed as **Not Achieved** commonly:

- repeated the information in the question and/or resource without adding any further background knowledge
- lacked the detail required for the correct biological terminology at this level incorrectly identified hominin species
- submitted answers that did not relate to the question.

Candidates who were awarded **Achievement with Merit** commonly:

- related the two parts of the questions eg environment change linked to evolution of the hand/ bipedalism; cultural evolution such as tool use linked to consequences for the brain and skull
- explained the evidence to support the replacement and multiregional theories including the challenges associated with fossil evidence
- explained how selection pressures drive the processes of cultural and biological evolution
- answered all questions by completing most of the bullet points.

Candidates who were awarded **Achievement with Excellence** commonly:

- discussed the stem of the question with well-chosen points of discussion in concise writing (with no “brain dumping”), and a comprehensive knowledge and understanding of the concepts in all questions
- discussed and linked the adaptive advantages to the survival rate for the species through successful reproduction passing on the favourable traits to the next generation
- discussed the effect of positive feedback and/or trade-offs relevant to selective forces and adaptive advantages
- compared the replacement and multiregional theories by discussing the similarities and differences in the range of scientific evidence that is used to support these theories.

Standard specific comments

Forested land did not change to flat/bare ground/desert and nor did the temperature warm in the Miocene ice age.

All primates have opposable thumbs and/or big toes – the opposable thumb did not just evolve with bipedalism.

Some candidates were too vague with their statements. For example, in their description of the environment, they just referred to the environment changing without giving specific details.

More emphasis needed to be placed on learning key terms, for example the definitions of biological and cultural evolution, and showing in-depth understanding of the challenges using fossils as evidence to support dispersal theories.

Biology subject page

Previous years' reports

[2016 \(PDF, 0KB\)](#)

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