Pilot Assessment Schedule – 2023

Chemistry and Biology: Demonstrate understanding of genetic variation in relation to an identified characteristic (92022)

Assessment Criteria

Achievement	Achievement with Merit	Achievement with Excellence
Demonstrate understanding *of genetic variation in relation to an identified characteristic* involves: • describing the source and the nature of genetic variation using an identified characteristic • describing a purpose for identifying genetic relationships through the use of a gene tracking methodology.	***Explain*** *genetic variation in relation to an identified characteristic* involves: • explaining how and why the genetic variation occurs using an identified characteristic • explaining how the purpose for identifying genetic relationships through the use of a gene tracking methodology is met.	***Evaluate*** *genetic variation in relation to an identified characteristic* involves: • evaluating findings when genetic variation has been identified and tracked for a purpose.

Cut Scores

Not Achieved	Achievement	Achievement with Merit	Achievement with Excellence
0 – 2	3 – 4	5 – 6	7 – 8

Evidence

Achievement	Achievement with Merit	Achievement with Excellence
Demonstrates understanding of genetic variation, making some reference to their chosen species and characteristic, which may include (simple ideas): • definition of phenotype and genotype • definition of mutation • definition of sexual reproduction • description of how meiosis produces genetically unique / different gametes (e.g., during meiosis chromosomes swap genetic material and are randomly sorted into the gametes) • description of how sexual reproduction produces variation - random fertilisation of genetically different gametes • describes a relationship between genotype and phenotype in the chosen characteristic • definition of genetic variation / genomic variation • description of genetic marker / how they are used • genetic variation is important for survival of a population • try to breed kākāpō that are as genetically different as possible.	**Explains** how and why genetic variation occurs, in relation to an identified characteristic, AND uses a gene tracking methodology to explain how the purpose of identifying genetic relationships is met. **In part A:** **Explains** genetic variation arising from sexual reproduction and mutation, with examples from a named species and/or characteristic, and may include: • how mutation can lead to variation in the gamete / next generation including inheritance of mutations (e.g., gametic vs somatic) • how processes in sexual reproduction can lead to variation in the gamete / next generation • how genetic variation (in genotypes) leads to differences in phenotypes of the chosen characteristic **In part A or B** • explains how genetic variation contributes to survival of a population or species / why genetic variation is important (or contrary). **In part B** • how knowing genetic relationships informs the breeding programme.	**Discusses** the **importance** of genetic variation to the population / species by using data about the characteristic / gene and providing links between relevant ideas, by: • (part A) evaluating findings when genetic variation has been identified and tracked for a purpose of identifying genetic relationships • (part A or B) evaluating the effect of genetic variation on resilience in biological systems by linking sources of variation to effect of variation on population / species • (part B) evaluating the effectiveness of the genetic tracking by linking the purpose to the findings (the genetic differences) • (part B) making logical recommendations for next steps for conservation, given the genetic findings. Uses **comprehensive evidence** for both parts (a) and (b). Discussion of one part may be inconsistent at E7.

N1	N2	A3	A4	M5	M6	E7	E8
Limited / partial attempt to describe ONE point at Achievement.	Genuine attempt to describe TWO points at Achievement.	Fulfils the intent of the assessment criteria for Achievement, including **descriptions** of THREE points for Achievement, at least one for each part.	Fulfils the intent of the assessment criteria for Achievement, including **descriptions** of FOUR points for Achievement, at least one for each part.	Fulfils the intent of the assessment criteria for Merit, including **explanations** of TWO points for Merit, at least one for each part.	Fulfils the intent of the assessment criteria for Merit, including **explanations** of THREE points, including at least one for each part.	Fulfils the intent of the assessment criteria for Excellence, including **evaluation** of at least ONE point from Part A and ONE point from Part B (one may be inconsistent).	Fulfils the intent of the assessment criteria for Excellence, including evidence for ALL points at Excellence.

N0 = No response; no relevant evidence.

Appendix: Marker determination of validity of evidence

Professional judgement

The marker will determine a grade using their professional judgement based on a holistic examination of the evidence provided.

Demonstration of understanding

A response must use information to **demonstrate understanding**. The marker must exercise professional judgement to decide if it does so. The following guidance is provided to assist in making this professional judgement.

- A response **demonstrates understanding** if it can be described wholly or substantially by one or more of the statements in the **left-hand column**.
- A response **does not demonstrate understanding** if it can be described wholly or substantially by one or more of the statements in the **right-hand column**.
- If a response is comprised of both used and reproduced information, the marker must decide if it meets the standard **when the reproduced information is ignored**.

Evidence of <u>use</u> of information	Evidence of <u>reproduction</u> of information
Prompts and / or questions have been provided and the candidate has responded to these. The response uses information relating to the standard, the prompts, or questions.	Information is presented that does not relate to the prompts.
Information from the candidate's practice, performance, research, the practice of others, and or teaching, is related to the candidate's experiences.	Information is presented in isolation from the candidate's experiences.
The response shows understanding that could be expected to come from a course of instruction derived from Level 6 of *The New Zealand Curriculum*.	Little or nothing is offered to suggest the information is related to a course of instruction at Level 6 of *The New Zealand Curriculum*.
Information is presented in the candidate's own voice.	Information is not in the candidate's voice. The word choice, sentence structure, sentence length, punctuation etc. are not what a candidate could be expected to produce.
Referenced complex research information unchanged by paraphrase is related to other information in a manner that constructs meaning.	**Unreferenced** complex information is presented as though it is the candidate's own work.

In general, the marker will exercise the following judgement:

N1	N2
The response does not include enough evidence to show understanding, and / or is substantially reproduced with little mediation by candidate.	The response is substantially produced by the candidate but demonstrates little understanding. One part of the required response may be completely missing, or several parts may be weak.

Where doubt exists as to whether evidence has been produced, mediated, or used by the candidate, the doubt must be exercised to the benefit of the candidate.