

2024 NCEA Assessment Report

Subject:	Science
Level:	1
Achievement standard(s):	91922, 91923

General commentary

These assessments took place during the first year of full implementation for the new Level 1 standards. The achievement standards focus on the nature of science and not specific subject content.

Report on individual achievement standard(s)

Achievement standard 91922: Describe features of science that have contributed to the development of a science idea in a local context

Assessment

Online digital examination at the end of the year, consisting of a single question with several parts.

Commentary

Candidates who performed at higher levels made clear connections between the resource information and the features of science.

Candidates who provided answers on features of science that were not relevant to the question could not receive credit for this information.

Candidates who started their response based on one science idea and completed their response on a second idea did not read the instructions and were not awarded credit for evidence related to the second science idea.

Many candidates repeated or rephrased the information from the resource material with little understanding of the features of science demonstrated. Some candidates did not refer to the resource material in their answers, which limited their achievement.

Candidates were most successful when they wrote well-structured answers focused on the features of science, backed up with clear examples from the resource material.

Grade awarding

Candidates who were awarded **Achievement** commonly:

- identified features of science they were talking about and gave an example from the science idea or context chosen
- described how varied perspectives contributed to the science idea (e.g. generating different ideas that hadn't been considered)

- described how linking new evidence to existing theories contributed to the science idea (e.g. inspiring Dr Currie to investigate further)
- described how interpreting patterns and interactions contributed to the science idea (e.g. stating that identifying patterns enabled scientists to make predictions about the future pH levels of the ocean)
- described how the development and use of technology contributed to the science idea (e.g. enabling researchers to take images of the brain to look for changes that may cause illnesses such as Parkinson's)
- described how using specific language, symbols, and conventions contributed to the science idea (e.g. allowing accurate communication of findings to other scientists).

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

- explained the significance of varied perspectives (e.g. outlining how different scientists had different expertise and experiences, allowing them to verify or challenge the procedure or conclusions)
- explained the significance of linking new evidence to existing theories (e.g. describing how Dr Currie made measurements of ocean pH, which she was able to link to Dr Keeling's findings to show that increasing atmospheric CO₂ was also having an effect on the ocean)
- explained the significance of interpreting patterns and interactions (e.g. showing scientists there is an interaction between atmospheric CO₂ and ocean pH, which warrants further investigation)
- explained the significance of the development and use of technology (e.g. MRI scans enabling scientists to link brain structure to health outcomes so they can better understand the causes of diseases such as Parkinson's)
- explained the significance of using specific language, symbols, and conventions (e.g. explaining how shared meaning of technical words enabled scientists from around the globe to compare and confirm their findings and show that reducing ocean pH was not just a local issue)
- explained the significance of two or more features of science to the science idea.

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

- examined the significance of at least two features of science with examples drawn from the resource material and explained how the features of science worked together to further develop the science idea
- examined how varied perspectives from different scientists encouraged scientists to verify and expand their existing ideas by collecting new evidence
- showed that new evidence should be verified by a range of scientists with different perspectives to ensure that a valid approach was used and that conclusions were accurate
- demonstrated understanding that new technologies enabled measurements that couldn't previously be made, and that these measurements could be used to find patterns and potential causes for things like increasing ocean acidification or diseases like Parkinson's
- examined how science language, symbols, and conventions enabled scientists to precisely explain measurements and findings derived from new technologies so that they could be verified and validated by other scientists.

Candidates who were awarded **Not Achieved** commonly:

- either identified features of science from the resources OR described how they contributed to the science idea without giving examples from the resource
- confused "varied perspectives" with "varied participants" when referring to the Dunedin Study resource
- linked each of the features of science to, for example "accuracy", without demonstrating understanding of their significance to the science idea

- talked about features of science contributing to a theory or conclusion being “proven”, misunderstanding the tentative nature of science
- identified interactions as being between scientists or participants, rather than interactions between variables (e.g. atmospheric CO₂ and ocean pH)
- stated that technology makes data collection more reliable or accurate without recognising that data collection must always be reliable and valid
- identified “existing models, theories, and ideas” as previous measurements taken earlier in the Dunedin Study, rather than existing theories or models (e.g. the causes of illnesses).

Achievement standard 91923: Demonstrate understanding of science-related claims in communicated information

Assessment

The assessment consisted of a submitted report, based on choosing two claims from a supplied resource booklet then applying the skills from the standard. It was marked holistically as a single question.

Commentary

The assessment required candidates to describe:

- two claims
- the source of each claim
- the purposes of the communicated information
- or explain / examine the science language or conventions that support each claim.

However, numerous candidates only provided evidence for three of these four aspects, or only wrote about one claim. This limited candidates’ achievement, despite demonstrating a good understanding of the other aspects.

Many candidates did not use the resource material as intended and instead rewrote the source material, undertook additional research, or used their own knowledge to evaluate the claim. This meant that they often did not meet the requirements of the standard.

Several candidates showed that they knew how to structure their response to gain an Excellence grade but did not provide the evidence to explain or examine how the convention or science language supported the claim.

Grade awarding

Candidates who were awarded **Achievement** commonly:

- clearly stated the claims, sources, and purposes, and described the science language or conventions they identified in the claims in their own words
- attempted to use logic, their own prior knowledge, or research to prove or disprove claims, rather than analysing the language and conventions found in the resources provided.

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

- correctly named the conventions they were writing about (i.e. purposefully selecting from the resource material)
- explained how a singular convention or use of language supported each claim and made the claim seem more or less reliable
- structured their work clearly, writing about one idea at a time, with clear links back to the claims being made
- gave examples and reasons why the conventions or language impacted on the validity of the claim.

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

- considered a range of different conventions or language in each claim
- demonstrated critical thinking and good awareness of how research works when analysing the resources, which supported them to avoid “red herrings”
- evaluated their thought processes in examining the validity of the different facets of the claim
- compared and contrasted the effects of the language or conventions used in each claim.

Candidates who were awarded **Not Achieved** commonly:

- wrote about the claim’s product or content and not the claim itself
 - restated resource material with minimal changes
 - used logic or their own knowledge of the topic to refute claims, rather than the material provided
 - wrote about only one claim and not the required two
 - described the source, claim, and language or conventions but did not identify the purpose of the communicated information
 - wrote a report on the topic rather than providing the required details from the questions
 - listed words they considered scientific without linking them to their impact on the claim’s trustworthiness
 - did not identify the conventions they were writing about (e.g. peer review).
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