

2024 NCEA Assessment Report

Subject:	Materials and Processing Technology
Level:	1
Achievement standard(s):	92014, 92015

General commentary

Both standards require candidates to reflect on independent choices made in relation to their design or feasible outcome. Candidates whose response demonstrated an authentic viewpoint or reflected their own technological practice were more likely to be awarded the higher grades. In contrast, candidates who appear to have based their response on templates that differed from the guidance in the assessment task, or whose technological practice appeared less candidate-led, tended to struggle.

Report on individual achievement standard(s)

Achievement standard 92014: Demonstrate understanding of sustainable practices in the development of a Materials and Processing Technology design

Assessment

The assessment was a digitally submitted report.

Commentary

Interpretations of ‘sustainable practice’ varied quite widely amongst the responses. In some exam centres, the ability of candidates to make independent design choices appears to have been restricted by the design brief. In order to reach the higher grades, candidates require opportunities to independently refine / evaluate the use of sustainable practices in the development of their design. If their ability to consider alternatives is limited, candidates may struggle to meet these criteria.

Several candidates saw ‘sustainable practice’ as a means to use leftover materials from previous projects. This also often limited achievement by restricting the ability of candidates to consider alternatives. The economising of resources was also sometimes mistakenly interpreted as cost saving. Candidates would state that they had used materials and resources because they were free. The intent of the standard is that the economical use of materials should be interpreted as using and / or wasting a reduced quantity of materials.

Some exam centres either failed to incorporate sustainable practices at all, or only just barely scraped through with a very superficial explanation or understanding of sustainable practices in design development. Several of these candidates had little to no research of sustainable practices evidenced in their response.

Grade awarding

Candidates who were awarded **Achievement** commonly:

- described a design and attempted to list specifications relating to the design, though specifications were not always made explicit or defined
- identified the end user (person / whānau / community)
- identified and described materials / components used in the design
- showed evidence of some / limited research into sustainable practices
- identified suitable alternatives or suitable options but never explained why one was better than the other in terms of sustainable practice
- considered equipment use
- identified at least one improvement to the design
- showed evidence of receiving feedback from at least two stakeholders
- used recyclable or scrap / waste materials, but sometimes failed to consider the deeper sustainability of the full range of materials and techniques in their projects
- described what they did and used, rather than applying sustainability in an ongoing, developing process.

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

- explained how research into sustainable practices influenced their material / component choices
- described how kaitiakitanga, in the context of applying sustainable practices for the environment, guided the development of their design
- identified and / or explained more than one improvement to the design for an end user (person / whānau / community)
- described how feedback from at least two stakeholders was considered in the development of their design
- explained how materials were used economically and / or explained how waste materials were disposed of
- explained the rationale behind making their projects increasingly sustainable throughout the design process.

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

- researched and evaluated material / component choices
- considered alternatives to help inform and justify decision-making about materials
- evaluated how kaitiakitanga, in the context of applying sustainable practices for the environment, guided the development of their design
- explained with detail any relevant improvements to the design for the end user (person / whānau / community)
- justified design decisions, even if they were less sustainable
- explained how feedback from at least two stakeholders was considered in the development of the design
- demonstrated a deep understanding of sustainable practice and its effects, both locally and globally
- placed their design within the larger global context of sustainability
- iteratively considered multiple viewpoints of sustainability throughout their design process
- minimised or eliminated project waste.

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

- focused on the design process rather than sustainable practices
 - focused on the testing of materials and techniques of the design rather than sustainable practices
 - made little or no link to the application of sustainable practices
 - demonstrated little or no knowledge of sustainable practices
 - showed no research into sustainable practices
 - failed to get feedback from at least two stakeholders
 - undertook projects that were overly prescribed, which gave minimal / no scope to make their own decisions
 - submitted a design project without considering sustainability or kaitiakitanga
 - described a design project without any reference to, or consideration of, sustainability.
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Achievement standard 92015: Demonstrate understanding of techniques selected for a feasible Materials and Processing Technology outcome

Assessment

The assessment was a digitally submitted report.

Commentary

The overall performance demonstrated a good understanding of the standard, however, there were several areas where improvements could be made. Many candidates appear to have based their response on the previous year's assessment task, which related to a previous version of the standard. This limited candidates' ability to achieve higher grades. There was also a tendency to focus on physical rather than functional attributes, and many failed to adequately explain the chosen functional attributes.

There was frequent confusion between materials and techniques, with some materials misidentified as techniques, and often a lack of correlation between techniques and the attributes being assessed. Stakeholder feedback was often from peers rather than end users or experts. In several cases, candidates provided excessive or unnecessary information, resulting in superficial responses.

Despite these challenges, there were some innovative projects, and a clearer understanding of the standard's intent will help candidates perform better in future assessments.

Grade awarding

Candidates who were awarded **Achievement** commonly:

- described the design and its intended environment
- described at least one functional attribute for the feasible outcome
- listed and described at least two techniques trialled in relation to the functional attribute identified
- compared and selected the technique for the feasible outcome
- provided some evidence of techniques trialled against the functional attributes
- described the techniques selected for the use in the feasible outcome.

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

- provided clear evidence of techniques trialled against the functional attributes
- explained the functional attributes essential for a feasible outcome
- incorporated feedback from appropriate stakeholders (i.e. end users or experts)
- explained how the feedback informed the improvement of the feasible outcome
- demonstrated understanding of the trialling undertaken in relation to the identified functional attributes
- explained how the feedback from stakeholders was considered while selecting the techniques for the feasible outcome.

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

- consistently used two stakeholders throughout the decision-making process for at least two functional attributes and two techniques trialled for each functional attribute
- submitted well-structured reports that clearly identified their functional attributes and techniques
- showed clear decision-making and how the techniques helped them make informed decisions
- justified their decision-making in relation to the overall desired outcome.

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

- did not describe the design and its intended environment
 - did not provide enough evidence of the functional attributes
 - did not describe or explain techniques trialled against the functional attributes
 - provided work that contained no discussion of techniques in relation to an attribute, instead submitting what may have been a copy of work from their portfolios, a diary-like account of making their outcome; or identified techniques but stated that they were carried out at the teacher's instruction
 - compared the properties of materials to select the most appropriate materials for a feasible outcome rather than focusing on the techniques they applied through their investigation (e.g. different flours or sugars; American buttercream vs cream cheese icing; oil vs varnish, wood vs metal, cotton vs satin)
 - named the techniques they trialled but did not describe these techniques in relation to the functional attributes.
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