2025 NCEA Assessment Report

Subject: Generic Technology

Level: 2

Achievement standard(s): 91358, 91359, 91360, 91363

General commentary

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 whose responses relied heavily on templates or whose technological practice was less student-led were awarded lower grades. Responses that exceeded the recommended report length typically included a significant amount of information not relevant to the assessment.

Report on individual achievement standard(s)

Achievement standard 91358: Demonstrate understanding of how technological modelling supports risk management

Assessment

The assessment was a digitally submitted report.

Commentary

Candidate submissions showed a positive trend away from reliance on case study information. Most candidates focused on their own technological practice, which enabled clearer identification of decision-making resulting from technological modelling (something that candidates responding to case studies often struggled with).

Successful reports typically began by defining technological modelling and identifying where it occurred in the candidate's practice or in a commercial context. Candidates who introduced the brief, specifications, and key stakeholders early provided essential context for understanding why particular modelling processes were selected.

A common weakness was the superficial description of stakeholders. Many candidates described stakeholders as "reliable," "honest," or "valuable" without explaining why. Stronger reports linked stakeholder input to expertise, credentials, or experience, and demonstrated how this informed modelling decisions.

Achievement was often limited when reports became procedural, documenting steps such as fabrication rather than focusing on insights gained through modelling and how these influenced product development. High-quality reports emphasised decision-making, i.e. what 'could' and 'should' happen, and showed how modelling shaped the evolving design.

Risk analysis was another area for improvement. While many candidates identified severity of risks, fewer addressed probability. Labelling risks without explanation restricted access to higher achievement levels.

Finally, overly rigid writing frames or restrictive units of work constrained candidates' ability to demonstrate authentic decision-making. High-level achievement required candidates to explain how and why decisions were made, moving beyond statements such as "the risk was reduced."

Grade awarding

Candidates who were awarded **Achievement** commonly:

- described a range of modelling activities and identified the type of risk being managed
- communicated the procedure carried out in their practice but did not adequately explain the information gained through modelling and how it influenced the concept
- made appropriate decisions related to technical feasibility but included only limited consideration of broader factors, i.e. 'should' decisions
- identified risks directly related to design but often identified severity without sufficient explanation of the implications
- made reference to consulting with stakeholders in general but were not explicit about which specific stakeholder was consulted
- used stakeholder feedback to validate decisions rather than to inform decisions.

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

- explained links between modelling methods, stakeholder feedback, and decisions made during outcome development
- established what specific wider factors (social, moral, environmental) they measured their judgements against when making 'should' decisions, early in their report
- understood and applied the criteria for 'could' and 'should' decisions clearly
- identified specific stakeholders and an end user, often providing the credentials of these stakeholders
- selected and targeted stakeholder feedback specific to different forms of modelling
- explicitly described different risks and explained their impacts in terms of severity and probability – although severity was often addressed more thoroughly than probability
- identified reliable and valid stakeholder evidence but did not always include relevant discussion.

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

- discussed and compared alternative ways the modelling could have been done and explained why the chosen method and resources were the most effective
- compared the reliability and relevance of the feedback given by different stakeholders
- frequently centred discussion around stakeholders and their credentials, reasoning why their opinion mattered
- used an iterative process in each of the modelling stages, showing how decisions made in one form of modelling provided authentic further development
- provided insight into why the evidence provided by modelling was valid and reliable by making links between different stages.

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

- described modelling processes in a procedural way rather than focusing on how they were used to manage risks and discuss decisions made as a result of modelling
- did not demonstrate understanding or misunderstood the ‘could’ and ‘should’ criteria
- provided little or no descriptions or explanations of specific risks (e.g. used vague phrases like "risk that it will not be fit for purpose")
- provided explanations that were arbitrary rather than based on modelling evidence
- used themselves as the primary stakeholder and did not relate modelling evidence to any other stakeholder groups.

Achievement standard 91359: Demonstrate understanding of the role of material evaluation in product development

Assessment

The assessment was a digitally submitted report.

Commentary

The majority of candidates began their reports by outlining the technological practice undertaken, which helped establish the nature of the design problem and its connection to material evaluation techniques. Most presented the design brief and performance specifications early, and some extended these specifications to identify required material attributes. This approach positioned candidates well to meet Merit and Excellence criteria. However, in some cases, excessive detail in this introductory section detracted from the focus of the report.

Candidates who had autonomy to select and apply material evaluation procedures within an authentic, personally relevant project generally achieved well. Successful candidates integrated knowledge of material properties, construction, and evaluation processes to make informed decisions and present coherent reports. In contrast, some reports described evaluation or testing processes without leading to a material selection decision, or tested only a single material, limiting achievement.

Candidates who approached the standard with a predetermined material choice or a restricted range of materials typically produced weaker evidence.

Many candidates attempted Excellence by adding a maintenance and disposal section at the end of their report. In most cases, this was descriptive rather than analytical, lacking the discussion required for Excellence. Those who achieved at this level demonstrated an understanding of the interplay between material selection decisions and the design and development of the product, with this integration evident throughout the report rather than confined to a single section.

Some candidates focused heavily on material testing procedures without drawing conclusions or explaining decisions about suitability. Others produced procedural accounts of fabrication rather than material evaluation. Both approaches limited candidates’ ability to meet the standard and restricted achievement.

Grade awarding

Candidates who were awarded **Achievement** commonly:

- explained the relationship between the performance specifications of the product and the performance properties of the materials being tested
- described knowledge relating to the material's composition or structure
- described relevant and safe testing and trialling techniques used to evaluate a material's performance and judge its suitability
- utilised knowledge of material properties to develop a shortlist for material evaluation
- communicated the procedure carried out, but often did not clarify the reasons for using specific methods
- made decisions or judgements about a particular material relative to the performance specifications.

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

- explained the relationship between the performance specifications of the product and the performance properties of the materials being tested
- described knowledge relating to the material's composition or structure
- described relevant and safe testing and trialling techniques used to evaluate a material's performance and judge its suitability
- utilised knowledge of material properties to develop a shortlist for material evaluation
- communicated the procedure carried out, but often did not clarify the reasons for using specific methods
- made decisions or judgements about a particular material relative to the performance specifications.

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

- discussed the relationship between the evaluation of materials, selection decisions, and the product's design
- embedded these considerations throughout the report as a natural part of the discussion, rather than adding an 'Excellence section' at the end
- undertook authentic practice where material selection decisions were genuinely based on the results of the evaluation and knowledge of material properties
- discussed how maintenance and disposal (sustainability) impacted on their material decisions for the outcome
- continued to test and trial until product specifications were met.

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

- framed their material evaluation as a justification for a pre-determined choice, presenting testing to validate a final product rather than inform material selection
- submitted incomplete reports
- did not identify performance specifications or failed to connect them to material properties
- used significant amounts of online information without putting it into their own words to demonstrate understanding.

Achievement standard 91360: Demonstrate understanding of redundancy and reliability in technological systems

Assessment

The assessment was a digitally submitted report.

Commentary

The quality of candidate responses was generally good, with many students demonstrating a sound understanding of redundancy and reliability in technological systems. However, some confusion persisted between technological systems and organisational systems, e.g. people making backup copies of data or having a second pilot in an aircraft.

Grade awarding

Candidates who were awarded **Achievement** commonly:

- selected an appropriate technological system or systems to report on
- described the application of redundancy to a specific technological system
- described the application of reliability to a specific technological system
- had a clear understanding of redundancy as duplication of function
- had a clear understanding of reliability as consistency of function
- provided clear evidence using technical details.

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

- explained why decisions regarding redundancy were made in the development of a specific technological system
- explained why decisions regarding reliability were made in the development of a specific technological system
- made explicit links betweem the development stages of a specific technological system, redundancy, and reliability.

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

- extended their explanations into discussions by suggesting alternatives and comparing and contrasting
- gave clear reasoning about decisions made during the design of a system to enhance either automated or human required maintenance.

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

- demonstrated a limited understanding of what a system is
- demonstrated an incomplete or incorrect understanding of the meaning of redundancy
- wrote in general terms about redundancy and / or reliability without linking it to a specific technological system
- demonstrated an imprecise understanding of a technological system
- reproduced technical detail without linking it to redundancy or reliability.

Achievement standard 91363: Demonstrate understanding of sustainability in design

Assessment

The assessment was a digitally submitted report.

Commentary

Reports were strongest when candidates wrote with a clear, independent voice, explored life cycle analysis (LCA) and innovation in depth, and articulated the tensions, priorities, and compromises within the design process. This year, however, a noticeable number of reports, particularly those focused on product-based hard materials, showed signs of heavy templating. In several cases, reliance on templates constrained candidates ability to reach the higher grades.

Grade awarding

Candidates who were awarded **Achievement** commonly:

- demonstrated an understanding of the three pillars of sustainability and how LCA can reveal opportunities for design intervention
- used a case study to identify areas for improvement, though the depth of analysis was often limited
- acknowledged innovation as an important approach to strengthening sustainability outcomes but generally needed to develop this aspect further to lift overall performance

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

- clearly outlined the three pillars of sustainability and demonstrated their interrelationships using a Venn diagram
- explained how LCA is carried out and how its findings inform the focus of design interventions
- explained LCA and its role in improving sustainability: most students used a well-developed case study, identifying intervention points and highlighting some innovations.

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

- demonstrated a deep understanding of sustainable design through detailed analysis of both a case study and their own practice
- clearly identified the key competing priorities and compromises that needed consideration
- structured their explanations by systematically addressing each priority or compromise
- connected their decisions to sustainable design principles and the three pillars of sustainability, offering well-reasoned justification for their choices.

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

- described the design process or their decisions but did not link these to sustainability
- did not show how LCA supports designers in identifying points within the design cycle that require intervention or improvement
- omitted discussion of innovation and its role in sustainable design.