2022 NCEA Assessment Report

Mana Tohu Mātauranga o Aotearoa
New Zealand Qualifications Authority

Subject: **Digital Technologies**

Level: **2**

Standards: **91898, 91899**

Part A: Commentary

Candidates are expected to know the information signposted in the Assessment Specifications.

There was some evidence of repetition in candidate responses which could have been prevented if candidates read all of the questions before starting the assessment.

Part B: Report on standards

91898: Demonstrate understanding of a computer science concept

Examination

Candidates generally did well in the current format with a mostly equal spread of answers submitted across the three options. Of the responses submitted, fewer candidates chose complexity and tractability.

Observations

Many candidates did not seem to fully read the questions, for example one question asked why a firewall is needed at the point of entry and on individual computers. Very few candidates explained both.

Overall, candidate responses were weakest in their understanding of artificial intelligence.

It was advantageous when candidates correctly used and explained computer science terminology.

Some candidates annotated their answers with images created using drawing tools. This practice is generally discouraged as when it is done well it may suggest an external image has been copied into the assessment, which is a breach.

Candidates who had “real world” experience, such as having an expert speak to them or making a visit to mentors, tended to demonstrate greater understanding of computer science concepts.

Markers are aware of the Computer Science Field Guide and all the commercial resources available. While these are excellent resources, candidates who went beyond them tended to excel.

Grade awarding

Candidates who were awarded **Achievement** commonly:

- attempted all parts of their selected question and demonstrated a breadth of understanding in their responses
- used a variety of examples from current digital technologies.

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

- repeated information throughout their answers
- gave very short answers that were not at Level 7 of the New Zealand Curriculum
- wrote a considerable amount without demonstrating understanding
- gave only one example when asked for multiple steps or issues
- gave answers that did not match the question.

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

- developed unique ideas
- provided good arguments to support either a positive or negative impact for Question Two (c).

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

- gave full, appropriate, detailed answers to all parts of their chosen question
- demonstrated a breadth of knowledge in their answers
- gave an answer to part (d) that covered multiple aspects of the issue and went into depth on key points.

91899: Present a summary of developing a digital outcome

Examination

This standard requires candidates to present a summary of developing a digital outcome. Where a candidate produced a physical outcome, they needed to make sure they discussed the digital component of it.

Candidates should be working at Level 7 of the New Zealand Curriculum and their projects need to go beyond simply using existing online generation tools and platforms to put together an outcome. For example, they should be writing their own code and creating their own branding by creating logos and including these in their outcomes. They should be taking their own photographs and creating their own media content. While candidates are not expected to create the whole digital outcome from scratch, it is not acceptable at Level 7 of the curriculum to only use a Wix or Google site, an app or website design in Adobe XD, a basic logo, a poster or brochure using existing material or web-generated images, or infographics using Canva, with no other original content in the outcome.

Observations

Candidates who attained higher grades presented completed projects that had sufficient depth for them to show their knowledge, understanding, and process. Projects which were not at this level exhibited responses which were often repetitive or lacked detail.

Candidate responses need to specifically address their digital outcomes, especially the requirements. They must provide specific information about what decisions were made and their consequences. They must not make broad generalisations about conventions, testing, and feedback.

It is important for candidates to show their understanding of how relevant implications impacted their outcome at more than just at a surface level, beyond functionality and aesthetics. It should be clear how these have influenced decisions made during the development of the outcome, not only in the final outcome. Candidates who focused on developing components of their digital outcomes, rather than only content choices, did well.

Candidates who had freedom to complete a project based on their interests or had freedom regarding how their outcome would look, with some say in the requirements and specifications, created projects where they better understood the choices and decisions they made. Candidates whose projects followed a tight template, worked through an existing step-by-step resource, or who completed one of the internal outcome standards (in particular the database or programming standards), often showed little understanding of the development process and their own personal decision-making, met a requirement only because they were told they had to, and did so by including it in the final outcome.

There has been an increase in fictional briefs, particularly for website outcomes, which tended to have requirements that relate to the achievement standard. The requirement to include the supplied text and images or use the advanced technique of javascript recurred in these scenarios, and because of this candidates had no reasoning as to why it was needed other than ‘because I was told to’. This could be addressed by having a requirement such as to deliver the supplied content in an engaging way, which could relate back to the javascript used to create a feature, colours to reflect the theme, or the layout and structure of the HTML, etc.

Candidates with larger projects that worked through a design / development process tended to achieve higher grades. Their understanding of developing an outcome was often extensive and this enabled them to meet the criteria required for Merit and Excellence. These candidates sourced their own content rather than using only what was provided to them, which allowed them to discuss it in a meaningful way. This discussion included how it met the requirements of the outcome, addressed relevant implications, and complimented the design, etc. Those who had worked on smaller projects with limited digital components tended to receive lower grades as they did not have the depth of knowledge required to support their answers.

Candidates were prompted to give specific examples linking to the digital components, yet most responses were still very broad. When candidates explained their answers and gave one example with specific detail their responses were clear, succinct, and non-repetitive.

Some candidates struggled to understand what the digital component of their project was and gave information about aspects other than their outcomes.

The development process can include research, design, and development, or just the 'sprints' of the development.

Candidates who worked as part of a group should ensure their report focuses clearly on the digital component they individually contributed to the project. Each student should work on a separate digital component. For instance, if they created the models / graphics for a game then this aspect is what they should be writing about. They should give specific examples of the models they had to create, how they made them, whether they needed to have animations, how they tested by exporting / saving the models in certain formats for the programmer to then incorporate into the game, and any issues they had to address.

It was noted that some candidate responses followed the same theme / topic and developed the same outcome. At times these pre-structured responses lacked depth.

Grade awarding

Candidates who were awarded **Achievement** commonly:

- summarised how they developed a digital outcome
- created a digital outcome with a purpose
- briefly and clearly described their digital outcome and its purpose
- explained the software used to create their digital outcome
- briefly explained their specific design process with details of what they did in each stage, rather than listing the steps of a particular generic design process
- explained one or two decisions that were made during the development of the outcome. For example, which experts to work with (when and why), how they managed their project, the design process they followed, the testing and trialling they did with certain people or groups, and specific tools and techniques used within their chosen software to develop the digital component
- (when working as part of a team / group) focused on the project as a whole and used terminology such as "we" and "us" rather than focusing on the digital component they individually contributed to the project
- created a digital outcome that used suitable software but was not at Level 7 of the New Zealand Curriculum.

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

- created an outcome that breached legal / copyright laws
- did not create the digital components of their outcome themselves
- wrote about a digital outcome that had limited scope
- did not describe the digital outcome they created and / or its purpose

- did not write about the software used to create the digital component but rather software they used to manage the development, for example Trello or software used in the internal assessment (Google Docs, Microsoft Word, Microsoft PowerPoint, etc.)
- did not provide a response about their development process
- did not understand the development process or did not explain the decisions they worked through in the development process
- described the non-digital part of their outcome but not the digital part.

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

- gave specific examples and explained how they were included in the digital component
- discussed how their digital outcome met two requirements
- explained requirements specific to their context, conventions, end-users, and stakeholders, rather than requirements of the Achievement Standard, requirements that related to the development process, or requirements that are a necessity to create that type of outcome
- explained why their requirements were important outside of achieving a particular outcome in their assessment
- discussed how their digital outcome addressed relevant implications of (two of) end-user considerations, legal implications, or future-proofing:
- end-users:
    - understood who their end-users were and what requirements linked to end-user implications within their project, giving examples that were different to the requirements
    - gave examples in the digital component that were informed by what end-users needed from research, surveys, industry standards, conventions, existing outcomes, and initial designs with feedback, using end-users to test and trial in development sprints or with a minimal viable product and acting on feedback, etc.
- future proofing:
    - displayed a clear understanding of the difference between making an outcome future-proof and making it functional
    - gave examples that related to their media type, e.g. future-proofing in print by having very high DPI, labelling layers, and organising assets, or in video by using 4k resolution and labelling clips in the editor
    - explained how their content could be continuously updated, the file storage, and the infrastructure supporting the technology rather than simply labelling it as "evergreen".
- legal implications:
    - explained how they sourced content that was legal to use, rather than stating that it was "copyright-free"

    - explained how they sourced content outside of that provided to them in their assessment
    - explained about further legal implications other than solely copyright implications, and elaborating by including intellectual property and how this was addressed.
- discussed different examples to show how they met the criteria of the requirements and the implications
- understood what functionality was in their digital component and gave specific examples.

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

- worked through a structured development process to create an authentic outcome
- when evaluating both of the decisions made during the development process, made it clear whether the decisions were an advantage or disadvantage, and the effect / impact they had on the outcome
- explained a situation in which they had more than one option available to them, which option they chose and why, and what specifically changed about their outcome based on that decision
- made links between the satisfaction of the end-users and the use of materials, tools, software, testing, feedback, and the performance and / or quality of the outcome
- understood the aspects they learnt during the process and how these impacted on the overall development process
- included examples that related back to the digital outcome and how they had created it, supported by specific examples
- considered their development process and explained changes they would make to it rather than changes they would make to their outcome
- considered changes to their development process beyond applying more effort and better time management
- wrote about different examples when discussing what they could have done differently to improve the outcome, thereby building on their prior comments and not merely repeating answers provided in their evaluations.