

# 2024 NCEA Assessment Report

<b>Subject:</b>	Digital Technologies and Hangarau Matihiko
<b>Level:</b>	2
<b>Achievement standard(s):</b>	91898, 91899

## General commentary

This year, candidates' overall performance in response to the given questions was higher than in the previous few years.

While the use of generative AI, alongside other published materials and online resources, is encouraged during preparation, relying on it solely for rote learning may diminish learners' authentic voices and lead to marginal assessment responses.

## Report on individual achievement standard(s)

### Achievement standard 91898: Demonstrate understanding of a computer science concept

#### Assessment

The assessment provided candidates with an opportunity to broaden their understanding of essential computer science topics relevant to modern society. Candidates were asked to explain selected computer science topics by considering underlying algorithms, practical applications, and social impacts.

Candidates had a choice of answering questions on artificial intelligence (AI), computer security, or error control. There was an even spread amongst the topics chosen to answer. Candidates did equally well on all topics.

Some candidates used subject-specific language successfully. This was particularly apparent in the artificial intelligence question about chatbots, where terms such as 'natural language processing' were used.

Candidates who attempted all questions were advantaged.

#### Grade awarding

Candidates who were awarded **Achievement** commonly:

- provided responses based on acceptable computer science (CS) knowledge, demonstrating a basic level of understanding. Some answers, however, were partial responses or demonstrated a degree of confusion. Other answers were adequately prepared, showing a reasonable grasp of CS concepts
- responses were generally broad and lacked consistent in-depth CS knowledge

- in some cases, the candidate approached one or more questions from an unexpected angle; while their answers did not fully address the specifics of the questions, they still showed a reasonable level of understanding
- when multiple examples were expected for a given CS concept, candidates often provided only one example, resulting in partial answers
- the use of CS terminology and explanations of concepts was generally correct across most responses, though occasional minor errors led to partial answers
- attempted all questions, but lacked depth in several areas; sometimes it was their response to the later questions that allowed them to gain an Achievement grade.

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

- read all questions first, and chose their topic based on what would enable them to show a breadth of understanding
- showed a breadth of CS knowledge with two or more examples for most questions, although some responses contained one or two partial statements
- clearly demonstrated their viewpoints using solid CS knowledge when responding to relevant Merit-level questions, for example:
  - (for artificial intelligence): demonstrated an in-depth understanding of future-proofing or ethical issues relating to AI, with multiple specific examples
  - (for error control): demonstrated an in-depth understanding of future-proofing issues relating to barcodes, QR codes, or error control on the Internet, with multiple specific examples
  - (for computer security): demonstrated an in-depth understanding of future-proofing issues against computer security threats or ethical concerns relating to data privacy, with multiple specific examples.

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

- demonstrated both depth and breadth of CS understanding throughout the questions
- comprehensively responded to all questions by giving multiple examples with well researched facts, rather than relying on guesses or unsupported assumptions
- were able to demonstrate comprehensive CS knowledge by linking different aspects of CS topics when appropriate
- provided clear, logical, and focused responses to almost all questions being asked, not deviating from the topic discussed
- justified responses effectively, while keeping them easy to follow and logically sound
- consistently used correct CS terminology, enabling concise yet comprehensive answers
- incorporated accurate historical CS facts in some responses, further strengthening their discussion points.

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

- made a statement, but did not support it with examples to demonstrate their understanding
- provided answers which lacked in detail and technical vocabulary (particularly evident in responses to the artificial intelligence questions)
- did not provide technical details of the topic (for example, neural networks for artificial intelligence)
- did not discuss machine learning or other techniques used by chatbots and/or driverless cars.

## **Achievement standard 91899: Present a summary of developing a digital outcome**

### Assessment

The assessment was completed as a Digital Technologies Common Assessment Task.

### Commentary

Candidates who prepared well for their assessments tended to do well. It is important to read the previous year's Assessment Report and the current year's Assessment Specifications as part of this preparation. Each year what is being assessed changes, and the information in these helps guide candidates in their preparation.

This standard requires candidates to present a summary of developing a digital outcome. When the candidate has produced a physical outcome, they need to make sure they discuss the digital component of it.

Candidates should be working at Level 7 of the New Zealand Curriculum. Outcomes should be advanced and the skill level evident. Candidates who completed a digital outcome at this level enjoyed success in this standard, and those who attained a higher grade had a project that had sufficient depth for them to show their knowledge, understanding, and process, to meet the requirements. Often this was through a larger project that used a range of the standards to work through a design/development process. Their understanding of developing an outcome was often extensive, and this allowed them to reach the Merit and Excellent criteria. Where projects were not at this level, responses were often repetitive or lacked detail.

In general, responses were at a surface level and didn't give a well-rounded insight into the outcome developed. For example, there were a high number of responses focused on having a navigation bar, using a good colour palette, having no bugs, making sure links were working, etc. There is so much more that can be discussed, and by using better examples this will allow students to go into the depth required.

There were a number of responses that used software not suitable or the outcome was not at Level 7 of the NZ Curriculum, for example: Wix, Thinkable, Adobe XD, Canva, a poster, brochure, simple program, 3D model with no purpose, or NFT.

Candidates who had freedom to complete a project based on their own choices and interests had a project where they understood the choices and decisions they made.

Candidates whose projects followed:

- a class-given brief such as Maunga Club, Pizza Program, Pupuke Kāhui Ako, Julies Party Hire, a number of School Booklets), or
- a tight template or an existing step-by-step resource, or
- the completion of one of the internal outcome standards (in particular the database, programming, or electronics)

showed little understanding of the development process. They were unable to demonstrate their own personal decision-making and meet requirements, because they were 'told what to do'. Their outcome was based on a prescribed context and there was no room for candidate voice and choice.

The cultural and ethical responses demonstrated that candidates understood what these considerations are and why they are important. Some candidates struggled to apply them authentically within their own project.

Whilst it was great, the candidates could say what they didn't include. More successful candidates were able to discuss what was included in their outcome to meet the cultural/ethical considerations. For example, instead of stating how the text or imagery wasn't racist, sexist, discriminatory, etc, they

discussed and gave specific examples of the language or images used to make sure it was inclusive and suitable to the context of their outcome.

In particular, one question that should be asked when students are choosing their own direction is 'Just because you can, should you?'. Often when candidates created a first-person shooter game, the ethical discussion was around not showing gore or blood to make it okay to create/play, rather than around the type of game they had chosen.

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

Candidates who worked as part of a team/group should ensure their report focuses clearly on the digital component they individually contributed to the project.

Teachers and candidates need to understand the intent of "explain", "address", "discuss", and "evaluate" as used in the Achievement Standard, noting that these words may not be used in the assessment itself.

## Grade awarding

Candidates who were awarded **Achievement** commonly:

- summarised how they developed a digital outcome
- described the outcome they created and its actual purpose
- used suitable software to develop their outcome
- explained how they used a software tool and the technique to create a component of their digital outcome
- explained how undertaking research and/or design led to a decision about the development of the digital outcome
- lacked in-depth discussion of requirements and gave specific examples
- defined cultural and/or ethical factors, rather than giving an explanation of how they were considered in the outcome or didn't understand what these were in the context they chose
- focused on working as part of a team or group; candidates focused on the project as a whole and used terminology like "we"/"us", rather than focusing on the digital component they individually contributed to the project
- followed a very structured program of teaching and learning, with a common theme/topic and everyone developing the same outcome.

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

- stated an authentic contextual requirement that created an opportunity for an in-depth discussion with specific examples relating to the digital components, rather than simply stating the requirement as 'Functionality' or 'Aesthetics'
- stated one requirement that was important and discussed what was implemented in their digital outcome to meet this requirement
- stated one requirement that was influenced by feedback and discussed the digital component as it related to the requirement, who gave feedback, the feedback received, and the changes made to the component based on the feedback
- discussed how their digital outcome addressed relevant implications of cultural and/or ethical factors, what needed to be considered, and how this was included within their outcome, rather than what wasn't included.

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

- worked through a structured development process to create an authentic outcome that they were genuinely interested in

- identified a digital component that was tested, and evaluated the impact testing had on the digital outcome
- evaluated the overall performance of the final outcome and supported this conclusion with specific examples
- 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
- included examples that related back to the digital outcome and how they had created it, supported by specific examples.

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

- omitted evidence that related to one or more of the assessment criteria for Achievement
- did not produce an outcome where they created the digital components themselves
- produced a digital outcome that used suitable software, but was not at Level 7 of the NZ Curriculum
- produced an outcome that breached legal/copyright laws
- chose to write about a digital outcome that had limited scope
- produced an outcome that was a class task, heavily scaffolded with a fake client and brief
- described the non-digital part of an outcome, but not the digital part
- did not describe the digital outcome they created and/or the purpose
- did not write about a software tool and the technique used to create a digital component
- did not do any research and/or designing, and so the decision didn't relate to the direction of the outcome and its development.