



The following report gives feedback to assist assessors with general issues and trends that have been identified during external moderation of the internally assessed standards in 2024. It also provides further insights from moderation material viewed throughout the year and outlines the Assessor Support available for Digital Technologies.

Insights

92004: Create a computer program

Performance overview:

This standard involves developing a computer program to perform a task. The program needs to include selection and iteration, and use data stored in a collection and documented with comments. Evidence of both testing and debugging is also required to show that the program works as expected.

Evidence that met the requirements of the standard:

- showed the code and either allowed the code to be run or showed the program running as a screencast
- included specific inputs that had been tested and the results of the testing, including expected results and actual results
- gave examples of debugging as before and after screenshots, or descriptions of changes made to code either to fix issues in the program or to improve the program as a result of testing.

Practices that need strengthening:

A common issue was lack of debugging evidence. This could be provided as before and after screenshots or descriptions of changes made to code following testing or to improve the program.

Some assessment tasks focused on user testing. The focus of the standard is on testing to confirm that the program works for specific types of input: expected, boundary, and invalid. A final test should be done on complete code.

Programs should use the data that is stored in a collection.

For Merit, comments should clarify the purpose of code sections, including significant loops or any functions used. Comments are not expected to be on every line of code and the commenting style should be consistent throughout the program.

Boundary testing has also been an issue. Boundaries refer to the ends of ranges and are normally numeric. Testing should be carried out above, on, and below boundary values to confirm correct functioning of the program.

92005: Develop a digital technologies outcome

Performance overview:

This standard involves describing and developing an outcome using digital tools or techniques, and testing the outcome to show that it performs as intended. The complexity of the outcome should be appropriate for level 6 of the New Zealand Curriculum.

Evidence that met the requirements of the standard:

- described clearly the features and functions of the outcome to be developed which would enable the outcome to meet its intended purpose
- used tools or techniques beyond the basics within the chosen software
- tested the outcome against the set requirements and specifications to ensure it was fit for the purpose.

Strong evidence arose when individual projects allowed for a range of purposes and outcomes.

Practices that need strengthening:

There were two issues with the descriptions of requirements and specifications. Requirements describe things that need to be done or included in the outcome, while specifications are measurable criteria that are more technical. Requirements are not the same as resources such as hardware and software. Some students were unable to describe their outcomes well enough for fitness for purpose to be shown. Other students were heavily influenced in their descriptions by the assessment task. These issues could be addressed by providing students with authentic contexts and allowing them to choose their own users, purpose, and outcome.

Another issue was lack of evidence of tools or techniques. While some submissions provide screenshots, these need to be large enough for the moderator to read. Assessors could also document tools or techniques used in the marking schedule.

For Merit, students must provide evidence showing improvements made to the outcome from their own testing. Many submissions only documented improvements based on user feedback. Students should be encouraged to do their own testing and make improvements before trialling with others.

91896: Use advanced programming techniques to develop a computer program

Performance overview:

This standard involves the development of a program to perform a specified task. Evidence must show the use of at least two advanced techniques during the development. The standard requires a focus on testing and debugging the program and on documenting the code with comments.

Strong evidence was seen when code was able to be run, or screencasts confirmed function of the program. Testing evidence should be presented in an organised way that shows each input of the program being tested and whether expected outputs were generated or not.

Practices that need strengthening:

A common issue with this standard is the lack of boundary testing for Merit. The task must provide for boundary cases. Testing evidence should show details of inputs used to test that the program behaves correctly on and around boundaries.

Comprehensive testing is required for Excellence. Comprehensive testing should include details of invalid and unexpected inputs that have been tested. This testing helps to provide evidence that the program is robust.

91906: Use complex programming techniques to develop a computer program

Performance overview:

This standard involves the development of a program to perform a specified task. Evidence must show the use of at least two complex techniques during the development. The standard requires a focus on testing and debugging the program and on documenting the code with comments.

Strong evidence meant the code was able to be run, or screencasts confirmed function of the program. Testing evidence was presented in an organised way that shows each input of the program being tested and whether expected outputs were generated or not.

Practices that need strengthening:

A common issue with this standard is the lack of boundary testing for Merit. The task must provide for boundary cases. Testing evidence should show details of inputs used to test that the program behaves correctly on and around boundaries.

91907: Use complex processes to develop a digital technologies outcome

Performance overview:

This standard requires using recognised and appropriate project management tools to plan the development of a digital technologies outcome. The outcome is decomposed into components which are trialled and tested, and this information is used to ensure the outcome functions as intended.

Evidence that met the requirements of the standard used multiple project management tools and techniques in an authentic manner. For example, using Kanban boards alongside sprints and retrospectives, with screenshots documenting progress and updates. Version control software was used, with well named commits and appropriate comments.

Group projects with clear evidence of each student's contribution worked well. For example, by colour coding boards and tasks.

Practices that need strengthening:

A common issue with this standard is insufficient evidence of decomposing the outcome into smaller components and then trialling the components. Examples of components could include parts of a website or modules of a program.

For Merit, multiple components or techniques should be trialled effectively so the best option can be chosen.

The Assessor Practice Tool on Pūtake offers further support for this standard.

Submissions

Evidence needs to be presented in a way that is easily accessible for the moderator without having to unpack the evidence or install software. Ideally, all work should be provided as downloaded files, since anything live could be changed after the work is submitted.

For the programming standards, all submissions require digital copies of the source code, as well as other evidence prepared to meet the standard. For programs written in less commonly used languages, a video of the program being run is required for moderation. The video should include some voiceover or subtitles describing what is happening in the program. Students who are using more commonly used languages such as Python, Java, JavaScript and C# are also encouraged to use video evidence. Moderators need to see code in its editable format and a screencast of the program running.

For digital outcomes other than programs, editable files for the outcome and a screencast of the outcome functioning should be submitted as evidence.

Assessor Support

NZQA offers online support for teachers as assessors of NZC achievement standards. These include:

- Exemplars of student work for most standards*
- National Moderator Reports*
- Online learning modules (generic and subject-specific)**
- Clarifications for some standards*
- Assessor Practice Tool for many standards**
- Webcasts*

*hosted on the NZC Subject pages on the NZQA website.

**hosted on Pūtake, NZQA's learning management system. Accessed via Education Sector Login.

We also may provide a speaker to present at national conferences on requests from national subject associations. At the regional or local level, we may be able to provide online support.

Please contact workshops@nzqa.govt.nz for more information or to lodge a request for support.