NCEA Level 1 Digital Technologies & Hangarau Matihiko

Conditions of Assessment

EXPIRED

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General Information

This document provides guidelines for assessment against internally assessed standards. Guidance is provided on:
● appropriate ways of, and conditions for, gathering evidence
● ensuring that evidence is authentic
● any other relevant advice specific to an achievement standard.

NB: It is expected that teachers are familiar with additional generic guidance on assessment practice in schools published on the NZQA website. This should be read in conjunction with these Conditions of Assessment. The generic Technology conditions of assessment can also be used as guidance.

For All Standards

Internal assessment provides considerable flexibility in the collection of evidence. Evidence can be collected in different ways to suit a range of teaching and learning styles and a range of contexts of teaching and learning. Care needs to be taken to allow students opportunities to present their best evidence against the standard(s) that are free from unnecessary constraints.

It is recommended that the design of assessment reflects and reinforces the ways students have been learning. Collection of evidence for the internally assessed standards could include, but is not restricted to, a website, an inquiry, digital evidence (such as recorded interviews, blogs, photographs, digital imagery or video) or a portfolio of evidence. Clear guidelines to support students in understanding expectations of length and quantity when submitting evidence is important. The quality not quantity of student evidence is paramount.

It is also recommended that the collection of evidence for internally assessed standards should not use the same method that is used for any external standards in a programme/course, particularly if that method is using a time bound written examination. This could unfairly disadvantage students who do not perform well under these conditions.

A separate assessment event is not needed for each standard. Often assessment can be integrated into one activity that collects evidence towards different standards from a programme of learning. Evidence can also be collected over time from a range of linked activities (for example, in a portfolio).This approach can also ease the assessment workload for both students and teachers.

Effective assessment should suit the nature of the learning being assessed, provide opportunities to meet the diverse needs of all students and be valid and fair.

Where manageable, and after further learning has taken place, students may be offered a maximum of one further opportunity for assessment against an assessment standard within a year. The further assessment opportunity must use new/different assessment resource material.

Authenticity of student evidence needs to be assured regardless of the method of collecting evidence. This needs to be in line with school policy. For example, for an investigation carried out over several sessions, this could include teacher observations or the use of milestones such as meetings with students, journal or photographic entries recording progress etc.

Specific Information for Individual Internal Achievement Standards

Achievement Standard Number	91877 Digital Technologies & Hangarau Matihiko 1.1
Title	Develop a proposal for a digital outcome
Number of Credits	3
Version	1

The teacher provides opportunities for students to develop evidence for the standard by:
● assisting the student to identify a suitable issue/problem/opportunity within a suitable context
● ensuring digital resources and techniques provide sufficient rigour to meet level 6 curriculum requirements
● encouraging the student to undertake research from a range of sources including their own exploration and trialling, online research material/tutorials and other's feedback
● supporting the student to develop questioning skills and interacting with stakeholders
● assisting the student to locate resources
● conferencing with the student during the iterative process including the establishment of requirements and specifications.

Evidence for this achievement standard would be expected to be gathered from in and out of class activities over a period of time specified by the teacher. This standard provides an opportunity for teachers to pair with other standards that require an outcome. A digital outcome is a product that is developed using one or more digital device/s.

Examples of student developed digital outcomes that could come from this proposal are:
● a digital media outcome - web, print or other interactive visual media
● an electronics outcome - robots, wearable technology
● a computer system outcome - the design of a computer system to meet a client need

- a programming outcome - a computer program for a specific purpose or a computer game
- a data outcome - a database to structure, query and present information for a specific purpose
- any combination of the above. e.g a Web App integrating programming, media and data, a robot integrating electronics and programming or a video game integrating media and programming.

To support consistent proposal development, teachers could use a scaffolded document to assist in construction. It is important the proposal is succinct and not a lengthy document. Where a group approach is used, the teacher needs to ensure that there is evidence that each student has met all aspects of the standard.
Teachers must closely supervise stages of the development process in order to ensure authenticity of student work.

Achievement Standard Number	91878 Digital Technologies & Hangarau Matihiko 1.2
Title	Develop a design for a digital outcome
Number of Credits	3
Version	1

The teacher provides opportunities for students to develop evidence for the standard by:
- ensuring that there is an identified digital outcome with a clear purpose and defined end users
- ensuring digital resources and techniques provide sufficient rigour to meet level 6 curriculum requirements
- assisting the student to generate and explore a range of design ideas
- supporting the student to develop questioning, critical thinking and self-reflection skills
- supporting students in how to gather and use research information effectively
- supporting students in how to gather and use feedback effectively
- supporting students to understand appropriate and relevant implications
- conferencing with the student.

Evidence for this achievement standard would be expected to be gathered from in and out of class activities over a period of time specified by the teacher. It is recommended that evidence be presented in a portfolio format. A portfolio could include a variety of media (for example, written notes, annotations, blog entries, video, graphics, photographs, podcasts, interactive mindmaps and other online presentations) in any format.

It is recommended that teachers give an indication of portfolio length as guidance. It is important to focus on quality not quantity of information in the portfolio.

A *digital outcome* is a product that is developed using one or more digital device/s.

Where a group approach is used the teacher needs to ensure that there is evidence that each student has met all aspects of the standard.
Teachers must closely supervise stages of the development process in order to ensure authenticity of student work.

Achievement Standard Number	91879 Digital Technologies & Hangarau Matihiko 1.3
Title	Develop a digital outcome to manage data
Number of Credits	4
Version	1

The teacher provides opportunities for students to develop evidence for the standard by:
● ensuring that there is an identified digital outcome with a clear purpose and defined end users. The purpose and end user may be provided by the teacher or developed by the student
● ensuring digital resources and techniques provide sufficient rigour to meet level 6 curriculum requirements
● providing learning opportunities to understand data integrity and testing procedures
● assisting in the refinement of reflective and inquiry questions
● encouraging the students to self reflect and undertake ongoing evaluation including interaction with end users where appropriate
● supporting students to understand appropriate and relevant implications
● conferencing with the student and supporting them during the development process.

Evidence for this achievement standard would be expected to be gathered from in and out of class activities over a significant period of time specified by the teacher.

Student evidence needs to clearly communicate the student's development and iterative practices leading to the digital outcome. Guidance as to the amount of evidence and what is appropriate to submit will be required.
Where a group approach is used the teacher needs to ensure that there is evidence that each student has met all aspects of the standard.
Teachers must closely supervise stages of the development process in order to ensure authenticity of student work.

Achievement Standard Number	91880 Digital Technologies & Hangarau Matihiko 1.4
Title	Develop a digital media outcome
Number of Credits	4
Version	1

The teacher provides opportunities for students to develop evidence for the standard by:
● ensuring that there is an identified digital media outcome with a clear purpose and defined end users. The purpose and end user may be provided by the teacher or developed by the student
● ensuring digital resources and techniques provide sufficient rigour to meet level 6 curriculum requirements
● assisting in the refinement of reflective and inquiry questions
● assisting the student to locate resources and explore a range of materials/components
● providing learning opportunities that show how to apply design elements effectively
● supporting students to understand appropriate and relevant implications

- encouraging the students to self reflect and undertake ongoing evaluation including interaction with end users
- conferencing with the student and supporting them during the development process.

Evidence for this achievement standard would be expected to be gathered from in and out of class activities over a significant period of time specified by the teacher.

Evidence could be presented in a portfolio format. A portfolio could include a variety of media in any format.

A portfolio is an *organised* collection of student evidence that clearly communicates the student's development and evaluation practices leading to a digital outcome.

Guidance as to the amount of evidence and what is appropriate to submit will be required. The focus should be on quality not quantity. Teachers need to be clear as to what students should submit.
This evidence may be generated from discussion, group work, decision making and/or reflection, teacher observation of procedures and the presentation of the final product.

Where a group approach is used the teacher needs to ensure that there is evidence that each student has met all aspects of the standard. Teachers must closely supervise stages of the development process in order to ensure authenticity of student work.

Achievement Standard Number	91881 Digital Technologies & Hangarau Matihiko 1.5
Title	Develop an electronics outcome
Number of Credits	6
Version	1

The teacher provides opportunities for students to develop evidence for the standard by:
- providing appropriate contexts and scenarios in which the required understanding, skills and knowledge can be developed
- ensuring that the specifications for the electronic environment have been determined prior to the procedures being carried out. These may be teacher-given or developed in negotiation with the student
- providing learning resources and suggesting additional sources of information which can be used to develop the required understanding, skills and knowledge
- providing formative feedback on the students initial attempts to demonstrate the required understanding, skills and knowledge
- ensuring digital resources and techniques provide sufficient rigour to meet level 6 curriculum requirements
- providing opportunities for students to develop understanding, skills and knowledge.
- supporting the student to develop a level of reflective practice that allows them to critique their own work in relation to the required understanding, skills and knowledge.

Evidence for this achievement standard would be expected to be gathered from in and out of class activities over a period of time specified by the teacher. Evidence for the understanding, skills and knowledge relating to basic concepts could be generated by annotated photographs, diagrams, short video clips, or code snippets that demonstrate understanding, skills and knowledge and explain decisions made by the student. This evidence will be presented in any media that clearly communicates the student's

understanding, skills and knowledge relating to basic concepts used in the design and construction of electronic environments.

The intention of the standard is that learners construct an electronic outcome from basic components. Pre-configured robots that do not have a range of components from which learners can test and choose a range of outcomes are not suitable.

The specifications need to be agreed to prior to the implementation of interfacing procedures. They may be teacher-given or developed in negotiation with the student.

Teachers must closely supervise the generation of the evidence in order to ensure authenticity of student work.

Achievement Standard Number	**91882 Digital Technologies & Hangarau Matihiko 1.6**
Title	Develop a computer system
Number of Credits	4
Version	1

The teacher provides opportunities for students to develop evidence for the standard by:
● providing students with the opportunity to explore computer systems in order to identify computer hardware, associated peripherals and system software
● providing opportunity for students to explore the purpose of components and their characteristics, especially in relation to end-user requirements of the computer system.
● assisting in the refinement of reflective and inquiry questions related to the understanding of procedures and protocols associated with basic computer systems.
● providing resources to enable students to work within manufacturer guidance and other relevant codes of practice and regulations
● conferencing with the student and supporting them during their installation, configuration, troubleshooting and testing procedures.

Evidence for this achievement standard would be expected to be gathered from in and out of class activities to be completed by students over a period of time specified by the teacher. This evidence may be generated from discussion, group work, research, decision making and/or reflection and will be presented in any media that clearly communicates the student's understanding of common components of basic computer systems. Where a group approach is used the teacher needs to ensure that there is evidence that each student has met all aspects of the standard.

Quality not quantity of evidence is important and teachers need to ensure enough guidance is given to ensure there are clear expectations as to the amount of evidence required.

Teachers must closely supervise the generation of the evidence in order to ensure authenticity of student work.

Achievement Standard Number	91883 Digital Technologies & Hangarau Matihiko 1.7
Title	Develop a computer program
Number of Credits	4
Version	1

The teacher provides opportunities for students to develop evidence for the standard by:
- providing resources to enable students to independently construct flexible and robust basic programs that include using actions, conditions and control structures
- supporting students to set out program codes clearly and to document programs with comments, including how to specify variables and their data types
- providing opportunity for students to specify procedural structures that combine actions, conditions and control structures that constitute well-structured logical solution to tasks, which have no unnecessary duplication or repetition
- providing opportunities for students to develop functions, methods or procedures
- providing opportunities for students to store data in a collection (e.g. list, array or dictionary
- supporting students to comprehensively test their programs in an organised way, for expected and relevant boundary cases.
- conferencing with the student and supporting them during the development process.

Evidence for this achievement standard would be expected to be gathered from in and out of class activities to be completed by students over a period of time specified by the teacher. The evidence for this standard might be one aspect of a larger integrated or a standalone project. The form of this evidence will vary with the type of project.

Quality not quantity of evidence is important and teachers need to ensure enough guidance is given to ensure there are clear expectations as to the amount of evidence required.

This evidence may be generated from discussion, group work decision making and/or reflection, teacher observation of procedures and the presentation of the basic computer program. The evidence generated will collectively demonstrate the student's ability to develop a computer program. Where a group approach is used the teacher needs to ensure that there is evidence that each student has met all aspects of the standard.

Teachers must closely supervise stages of the construction process in order to ensure authenticity of student work.

Achievement Standard Number	91884 Digital Technologies & Hangarau Matihiko 1.8
Title	Use basic iterative processes to develop a digital outcome
Number of Credits	6
Version	1

The teacher provides opportunities for students to develop evidence for the standard by:

- providing task(s) which allow students to plan a digital outcome and identify and address a problem, need, opportunity or interest
- providing opportunities for students to understand how to decompose tasks appropriately
- providing opportunities for students to understand different planning approaches, techniques and software
- providing learning opportunities for students to understand what is meant by good iterative processes and how to effectively use information to improve outcomes
- supporting students with testing and trialling
- allowing for learning experiences that support understanding with implications

Evidence for this achievement standard would be expected to be gathered from in and out of class activities to be completed by students over a period of time specified by the teacher.

The evidence for this standard might be one aspect of an integrated assessment activity. The form of this evidence will vary with the type of project.

Quality not quantity of evidence is important and teachers need to ensure enough guidance is given to ensure there are clear expectations as to the amount of evidence required.

This evidence may be generated from discussion, group work decision making and/or reflection, teacher observation of procedures and the presentation of the digital outcome. The evidence generated will collectively demonstrate the student's ability to use basic iterative processes to trial and test components to develop a digital outcome. Where a group approach is used the teacher needs to ensure that there is evidence that each student has met all aspects of the standard.

Teachers must closely supervise stages of the development process in order to ensure authenticity of student work.

Achievement Standard Number	**91885 Digital Technologies & Hangarau Matihiko 1.9**
Title	Demonstrate understanding of searching and sorting algorithms
Number of Credits	3
Version	1

The teacher provides opportunities for students to develop evidence for the standard by:
- providing task(s) which allow students to describe and carry out searching and sorting algorithms
- support understanding in explaining the relationship between searching and sorting algorithms
- allowing learning opportunities that support students understanding discussing real-world usage and implications of searching and sorting algorithms
  providing tasks that students can investigate the cost of searching or sorting algorithms with different data sets.
- teachers need to provide different data sets that allow for different sizes, sorted, unsorted and inverse order.

Evidence for this achievement standard would be expected to be gathered from in and out of class activities to be completed by students over a period of time specified by the teacher.

The evidence for this standard might be one aspect of an integrated assessment activity. The form of this evidence will vary with the type of project.

Quality not quantity of evidence is important and teachers need to ensure enough guidance is given to ensure there are clear expectations as to the amount of evidence required.

This evidence may be generated from discussion, group work decision making and/or reflection, teacher observation of procedures and the presentation of the searching and sorting algorithms. The evidence generated will collectively demonstrate the student's understanding of searching and sorting algorithms. Where a group approach is used the teacher needs to ensure that there is evidence that each student has met all aspects of the standard.

Teachers must closely supervise the generation of evidence in order to ensure authenticity of student work.