

**Internal Assessment Resource**

**Digital Technologies | Hangarau Matihiko Level 1**

This resource supports assessment against Achievement Standard 91882**[[1]](#footnote-1)**

**Standard title:** Develop a computer system

**Credits:** 4

**Resource title:** A computer for the family room

**Resource reference:** Digital Technologies | Hangarau Matihiko1.6A Version 2

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| This resource:* Clarifies the requirements of the achievement standard
* Supports good assessment practice
* Should be subjected to the school’s usual assessment quality assurance process
* Should be modified to make the context relevant to students in their school/kura environment and ensure that submitted evidence is authentic
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| Date version published by Ministry of Education | November 2019 Version 2To support internal assessment from 2020 |
| Authenticity of evidence | Teachers/Kaiako must manage authenticity for any assessment from a public source, because students may have access to the assessment schedule or student exemplar material.Using this assessment resource without modification may mean that students’ work is not authentic. The teacher may need to change figures, measurements or data sources or set a different context or topic to be investigated or a different text to read or perform. |

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**Teacher/Kaiako guidelines**

The following guidelines are supplied to enable teachers to carry out valid and consistent assessment using this internal assessment resource.

Teachers/kaiako need to be very familiar with the outcome being assessed by the achievement standard. The achievement criteria and the explanatory notes contain information, definitions, and requirements that are crucial when interpreting the standard and assessing students/ākonga against it.

**Context/Te Horopaki**

This resource requires students to develop a refined computer system using appropriate tools, procedures and protocols. The students are given a scenario for development of the computer system, including the purpose and end-user of the computer system.

During the development of the computer system, students are required to assess the end-user needs to investigate, explain and justify components needed for their system. They then develop the computer system and troubleshoot and diagnose any issues with the system. Students should provide evidence of their development process, troubleshooting and testing procedures. Evidence can be provided through a variety of media including written documents, annotated images, diagrams, or video.

It is expected that students will have opportunities beforehand to practise the procedures and protocols required to set up hardware, software and peripherals on a computer system.

**Conditions/Ngā Tikanga**

Where a group approach is used, the teacher needs to ensure that there is opportunity for each student to provide evidence for all aspects of the standard.

The 4 credits for the achievement standard indicates that approximately 40 hours needs to be allocated for teaching, learning (in and out of the classroom) and assessment in a programme of study. You may want to give students guidance on appropriate style and format for their evidence portfolio.

This achievement standard does not assess format or style.

Conditions of Assessment related to this achievement standard can be found at <http://ncea.tki.org.nz/Resources-for-Internally-Assessed-Achievement-Standards>

**Resource requirements/Ngā Rauemi**

Students will need access to the web, digital devices and information from a variety of sources, such as: manufacturer manuals for components and equipment.

Each student will require the following (teacher-given or negotiated with student):

1. Computer parts to build a basic computer system (personal computer, Raspberry Pi or other depending on the computer parts given to students)
2. Tools e.g. anti-static straps, anti-static bags, screwdrivers
3. Operating system e.g. Linux, Windows, Android (students choose depending on requirements).

**Additional information/He Kōrero Atu**

Many students will have phones they can use to take photographs of their work, but it may be necessary to provide a camera in the classroom for student use.

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**Student/Ākonga instructions**

**Introduction/Kupu Arataki**

This assessment activity requires you to develop a refined computer system for your family room. The family requires the computer to be able to access the internet, run office type applications and run simple games. The family uses Skype to talk to other family members and they need to print out school work.

You are going to be assessed on how fit for purpose your completed computer system is. You may work with others on this task, but you need to produce evidence that you can develop a computer system by yourself.

**Task/Hei Mahi**

Some members of your family are not very confident in using computers but need to have access to e-mail, the Web, Netflix and YouTube. They also like to listen to music and play Solitaire or other 2D games. Contact with family overseas through Skype or other web applications is also required. The family needs access to software for creating basic documents such as spreadsheets, presentations and word processing. They will need to be able to print documents, emails and homework.

You will have access to a range of computer components to select from that are available at school.

**You will:**

1. Analyse your family’s needs and decide what type of computer system would suit them best.
2. Identify and describe the relevant implications that are the most important for your outcome. You should identify the implication, say what it means and what this might mean for your outcome. For example, you could:
* Describe what future proofing is. Describe how future proofing relates to your outcome. What might you need to include in your outcome to ensure this is addressed?
* Describe what usability and functionality are. What does this mean in relation to your outcome? What might you need to include in your outcome to ensure this is addressed?
* Describe what ethics is. Describe how ethics might relate to your outcome. What might you need to include in your outcome to ensure this is addressed?

You will need to consider addressing these implications during the design, development and testing of your outcome.

1. Decide what software, hardware and peripherals you need to build a computer system for your family. Make sure you consider hardware and software compatibility issues as well as their requirements – in terms of cost, size, ease of use and upgradeability.
2. Explain the purpose and function of each part and component chosen. Justify why you have chosen the specific parts and components.
3. Install an appropriate operating system.
4. Accurately use appropriate tools, procedures and protocols to install and configure selected hardware, software and peripherals to ensure the outcome is fit for purpose for your end user(s).
5. Test, troubleshoot and diagnose given installation or configuration issues.

**Hand in**

1. Provide evidence of the process and procedures used in creating the computer system. This must include evidence of how you have improved the computer system through the development and testing process. You may use annotated photos, videos and/or screen dumps to support your evidence. Check with your teacher how much evidence you need to provide.
2. Provide evidence of how you have addressed relevant implications that you described. For example, how have you ensured your computer system is easily usable for members of the family that are not confident using the computer system, or how have you addressed privacy issues given that several members of the family will be using the computer system.

**Assessment schedule/Mahere Aromatawai: Digital Technologies | Hangarau Matihiko** **91882 – A computer for the family room**

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| **Evidence/Judgements for Achievement/Paetae** | **Evidence/Judgements for Achievement with Merit/Kaiaka** | **Evidence/Judgements for Achievement with Excellence/Kairangi** |
| The student has developed a computer system which involves:* using appropriate tools, procedures and protocols when installing and configuring hardware, software and peripherals for a purpose and end-user

**For example (partial evidence):***The student assembled a working computer from the collection of parts they selected, using standard best practice procedures and ensuring that the computer met the end-user requirements.**They produced a screen dump of the BIOS settings and the Device Manager (Windows).**The student was observed using correct protocols during installation of hardware, such as wearing an earthing wrist strap.** undertaking a range of appropriate testing procedures, diagnosing and troubleshooting to identify and resolve given installation and configuration faults

**For example (partial evidence):***When problems presented themselves during the assembly process, the fault indicator (e.g. beep codes) were identified and the fault resolution was documented.* *All software updates were correctly configured and run (e.g. system software updates, anti-virus configuration, and regular updating).**To achieve the above results, the student needed prompting from their teacher and peers about some details (e.g. ESD procedures, how to access the BIOS, how to determine the correct device driver). For example, the student identified that beep codes were indicating an error, but they had to ask about checking their interpretation of the beep code (e.g. whether it was for a minor error such as a video error or for a RAM).** investigating the parts and components (hardware and software) to be used in the computer system

**For example (partial evidence):**The student investigates how much RAM is required to run the typical applications and what type of operating system will be suitable for a family computer. * describing relevant implications

**For example (partial evidence):***The following end - user considerations are...**usability - for my computer this means... the ease of access and/or use of a outcome. A outcome is not usable or unusable; its features, together with the context of the user (what the user wants to do with it and the user's environment), determine its level of usability.**The examples above are indicative samples only* | The student developed an informed computer system which involves:* using information gained from testing procedures, diagnosing and troubleshooting, to inform development and to improve the quality of the computer system

**For example (partial evidence):***The student opened several required applications and noted that the computer was running slowly with a noticeable lag time. They decided to add more RAM to improve usability.** explaining the basic purpose and function of the parts and components (hardware and software) used in the computer system

**For example (partial evidence):***The student chose a vertical mouse because his little brother finds it easier to use.* *They chose a 250GB solid state hard drive because the OS and application only needed 70GB and the drive was faster.** addressing relevant implications

**For example (partial evidence):***Because this is for a family with little experience/confidence in using computers they created all the necessary shortcuts on desktop, and changed the defaults to a larger font size etc. They added an alternative mouse for the younger children to use easily.**The examples above are indicative samples only* | The student has developed a refined computer system which involves:* accurately using tools, procedures and protocols when installing and configuring hardware and software to ensure the outcome is fit for purpose

**For example (partial evidence):***The student evaluated all of the BIOS to identify possible errors rather than going backwards and forwards fixing problems or configuring parameters.* *They used zip ties and wire looms to ensure the assembly is neat and tidy to minimise chances of errors and improve reliability.** justifying the choice of parts and components (hardware and software) used in the development of the computer system

**For example (partial evidence):***The student selected to set up access to Google Applications and download Google Drive to the desktop, because it was free and would also allow the children to access their school work both at home and at school. The student also set up an automated backup system with a portable hard drive so that family data wasn’t accidently lost.**The examples above are indicative samples only* |

Final grades will be decided using professional judgement based on a holistic examination of the evidence provided against the criteria in the Achievement Standard.

1. This achievement standard is derived from both *The New Zealand Curriculum* and *Te* *Marautanga o Aotearoa.* [↑](#footnote-ref-1)