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**Internal Assessment Resource**

**Digital Technologies | Hangarau Matihiko Level 1**

This resource supports assessment against Achievement Standards 91878 and 91879[[1]](#footnote-1)

**Standard title:**  Develop a design for a digital outcome (3 credits)
Develop a digital outcome to manage data (4 credits)

**Credits:** 7

**Resource title:** Hauora/wellbeing challenge

**Resource reference:** Digital Technologies | Hangarau Matihiko 1.2A\_1.3A 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 | December 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/ākonga 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. |

**Internal Assessment Resource**

**Achievement standard:** 91878 and 91879

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**Teacher/Kaiako guidelines**

The following guidelines are supplied to enable teachers/kaiako 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 standards. 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 is an integrated assessment activity supporting a project approach that assesses against two achievement standards.

Students are required to develop an effective design for a digital outcome for a defined purpose and end users **and** develop a refined digital outcome to manage data.

This activity requires students to develop an outcome to structure, organise and query data related to hauora/wellbeing, as well as develop a design to address how they can effectively present their data as an infographic.

Alternatively, the data could be presented through a web page, video, animation, customised slide deck, or document (e.g. poster, interactive PDF, pamphlet, customised report generated from within a database application). The selection of method for presentation of the data will depend upon the focus of the teaching and learning programme.

Teachers could extend this assessment to include achievement standard 91880 *Develop a digital media outcome,* to assess the outcome for presenting the data. Teachers must ensure the rigour of the digital media outcome meets the requirements of AS91880.

Teachers could also choose to integrate achievement standard 91877, *Develop a proposal for a digital outcome,* as part of a larger assessment project.

The context of this resource is to enable the understanding of hauora/wellbeing through collection and presentation of personal data related to hauora/wellbeing such as:

* Healthy eating - (e.g. what are we eating, how much are we eating, when are we eating?)
* Hydration - (e.g. how much water do we drink each day, how much sugar is in our drinks, how much caffeine are we consuming?)
* Activity - (e.g. how much are we moving, how much time is spent playing sport, how much time is spent sitting in front of a device, how much time is spent outdoors?)
* Sleep habits - (e.g. how much do we sleep, do we have regular bedtime and wake-up hours, what devices are used at bedtime, how much time before bedtime is device free?)

From the above contexts (or one of their own choice), students need to determine **how** they will gather appropriate data and **who** they will gather it from, e.g. whanau, class groups, sports teams etc. If working in class groups, each group could focus on one particular context (e.g. hydration) and pool their data. Each individual student must still develop their own outcome to manage and present the data.

In this assessment activity, students will:

* develop a means to gather and structure their data in such a way that it will allow the data to be effectively entered into a database application (e.g. use of a spreadsheet, stand-alone database application or any other online web based tools such as an online form)
* develop a structured database to store, query and organise the data that they have gathered from their chosen hauora/wellbeing context (for the purpose of this assessment, the database may be flat file)
* research and generate a range of design ideas, define the purpose and audience and choose a final design for their infographic
* present the information from their database effectively in an infographic.

**Conditions/Ngā Tikanga**

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

The combined credits (i.e. 7) for the achievement standards indicates that approximately 70 hours needs to be allocated for teaching, learning (in and out of the classroom) and assessment in a programme of study. Students should have a minimum of three specific checkpoints with their teacher as they work through this assessment task. For example, one at the end of the initial proposal, one when they have developed their database, and one when they have developed their design.

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: newspaper extracts, and/or notes from textbooks.

**Internal Assessment Resource**

**Achievement standard:** 91878 and 91879

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**Student/Ākonga instructions**

**Introduction/Kupu Arataki**

This assessment activity requires you to identify and investigate an issue or a problem in a wellbeing context. You need to develop a refined digital outcome to manage data (a database) relating to the issue **and** develop an effective design to present the data as an infographic in a way that will help address the issue.

You are going to be assessed on how effectively you develop a design for your digital outcome and on the quality of your outcome to manage and present your data (the database).

**Task/Hei Mahi**

1. Choose one or more context(s) related to wellbeing that you will focus on for this assessment. Some suggestions are given below. You can choose your own but will need to check this out with your teacher.

* Healthy eating - (e.g. what are we eating, how much are we eating, when are we eating?)
* Hydration - (e.g. how much water do we drink each day, how much sugar is in our drinks, how much caffeine are we consuming?)
* Activity - (e.g. how much are we moving, how much time is spent playing sport, how much time is spent sitting in front of a device, how much time is spent outdoors?)
* Sleep habits - (e.g. how much do we sleep, do we have regular bedtime and wake-up hours, what devices are used at bedtime, how much time before bedtime is device free?)

2. Formulate a question, or questions that you will investigate.

3. Gather data that relates to your chosen context - you will need to:

* gather appropriate data
* define the purpose and the end-users of your infographic
* decide who you will gather it from, e.g. your whanau, a class group, a sports team, etc. It is important that you select a group of people to collect your data from, in order to have enough data to make your infographic meaningful (e.g. range of ages and gender). If working in class groups, form a team within your class that will focus on one particular context (e.g. hydration) and pool your data
* develop and present your own individual outcome and design

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 ethics is. Describe the ethical issues that relate to your outcome. What might you need to include in your outcome to ensure this is addressed?
* Describe what aesthetics is. Describe the aesthetic elements that relate 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?

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

Provide evidence of how you addressed the relevant implications that you identified and described in the process of developing the outcome. For example:

* How have you addressed ethical or intellectual property issues?
* How have you ensured that your outcome is usable and functional for your end users?
* How have you ensured that your aesthetic elements are appropriate for your end users and have enhanced usability?

How have you ensured that your aesthetic elements are appropriate for your target audience and have enhanced the presentation of your data to make it meaningful?

4. Develop a database to structure, organise, query and present data related to your chosen question(s). The structure of the database needs to allow you to record, organise and query the data.

5. Populate the database with enough data that will allow you to present the data effectively. Ensure you have enough data from a range of people in your selected group (e.g. age groups and gender).

6. Generate meaningful information from your data through the effective use of queries, sorts, filters and/or summary calculations, and/or the charting/graphing tool.

7. Apply data integrity and testing procedures to ensure your data has been stored correctly and that your queries, sorts, filters or calculations are producing accurate results.

For organising and structuring, data fields are created, appropriate field sizes, specific data types and calculations. Data is entered and tested and checked against against the database fields. For example, list box, combo box for repetitive data.

You should be testing the data against the outcome and evidencing what improvements you have made.

You must include evidence of improvement through repeated cycles of
trialling and testing during the design, development and testing process. For example:

* Trialling and improving - efficiently entering data
* Testing - desk checks to make sure that the filters and calculations work as expected and making improvements.
* Testing against expected outcomes to make sure that data is val.id and making improvements
* Trialling and improving table structures
* Trialling and improving queries
* Trialling and improving various layouts for text and images in input and output forms
* Trialling and improving the functionally of input and output forms

8. Generate three design ideas on how you want to present this data, taking into account the question(s) you are investigating and your end users. To help, you will need to research infographics and design ideas related to hauora/wellbeing. Look at infographic examples and wellbeing websites for ideas. For example:

<https://visual.ly/community/infographic/health/10-tips-better-sleep>

<https://visual.ly/community/infographic/health/there-enough-water-your-diet-stay-hydrated>

<http://www.nutritionfoundation.org.nz/nutrition-facts/nutrition-a-z/Fluid>

<http://www.health.govt.nz/our-work/preventative-health-wellness/physical-activity>.

Select the best design that will allow you to display your data and describe the appropriateness of your selected design.

Seek feedback from a variety of relevant people about your ideas. Use this feed back to improve your chosen design.

Present the final design and explain how the design meets the relevant implications you described earlier for example:

* Is the data presented and summarised effectively and clearly?
* Are your design ideas effective at presenting the findings of your research? How do you know?

Annotate your design ideas with feedback to help inform the refinement of your design. Think about what needs to change and why.

10. Consider all the information you gained from the research, feedback and design process. Use this evidence to justify the final design choice.

Evidence could contain, feedback from other end users, sketches of how the design will look in its intended location, a concise explanation of how the design meets the purpose and the needs of the end users of the info-graphic .

11. Create an infographic based on your chosen design to present information related to the data you collected and analysed.

12. Submit your database and any relevant planning, and evidence of development of your design ideas for the infographic.

You are going to be assessed on how well you:

* gather, structure, organise, query and present data for a purpose and end user
* apply an iterative process through the development and testing phases of your outcome to improve the quality and functionality of your outcome
* address relevant implications
* ensure the presented data is fit for purpose and meets end-user requirements
* use research and feedback to guide the development of your design ideas
* take into consideration relevant implications; and
* justify, with evidence, that the chosen design is suitable for the purpose and end users.

**Assessment schedule/Mahere Aromatawai: Digital Technologies | Hangarau Matihiko** **91878 – Hauora/wellbeing challenge**

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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 design for a digital outcome which involves:* defining the purpose and end users for the digital outcome

The student has defined the purpose of their infographic in reference to the data that they have collected. They have defined the end users for infographic.**For example (partial evidence)***The problem is that overseas drivers are coming into New Zealand and causing 6.2% of fatal car accidents… is an easy and effective way for overseas drivers to learn about New Zealand roads and to always drive on the left.**The end users are tourists to New Zealand who are driving on our roads. Research shows that…** researching and generating a range of design ideas

The student has researched and annotated a range of infographics and ideas on how to present data regarding hauora/wellbeing.* have developed a range of design ideas and presented those as annotated sketches or low-fidelity mock-ups.
* have presented different colour combinations, font combinations and ways to represent data through imagery or visual illustrations.

**For example (partial evidence)***1L jugs of water, water bottles, or cups to represent how much they drink each day or a pie graph showing a day’s water consumption per age bracket.** selecting a chosen design, and describing the appropriateness of that chosen design

The student has chosen a final design for their infographic that displays data based on their hauora/wellbeing context. They have provided a concise statement about the appropriateness of the chosen design in relation to the data about the end users.**For example (partial evidence)***I have designed the infographic to offer 3 different languages English, German, and Chinese. This is appropriate because it will cover the majority of tourists that come into New Zealand.** describing relevant implications

The student has described relevant implications such as the target audience and end user considerations, the aesthetics of the infographic, social, cultural and ethical considerations when designing the infographic and copyright issues.**For example (partial evidence)***Usability is about how easily the end user can accomplish tasks. It deals with issues like making the data easy to use and appropriate for the end users and purpose.**The examples above are indicative samples only****Database***The student has developed a digital outcome to manage data which involves:* using appropriate tools and techniques to structure, organise, query and present data for an audience

**For example (partial evidence):**The student has created a database to store and organise the data related to their selected hauora/wellbeing context. They have:* named fields appropriately
* used appropriate data types and data formatting
* created at least one query which demonstrates selection of a subset of the table data
* performed a sort or filter of the data
* summarised the data (through queries, formulae, functions or graphs/charts) for use in the infographic
* created an infographic to effectively present a summary of the data collected for the hauora/wellbeing context.
* applying appropriate data integrity and testing procedures

**For example (partial evidence):**The student has checked that:* the information has been imported correctly into the database and there are no duplicate or blank records
* filters and queries display expected results
* summary calculations produce the correct results
* the graph/chart displays the information clearly and accurately.
* describing relevant implications

**For example (partial evidence):**The student has:* described the relevant implications in relation to creating a infographic in relation to the hauora/wellbeing context.
* aesthetics - Color, Shape, Pattern, Line, Texture, Visual weight, Balance, Scale, Proximity and Movement. Using these elements well will help us achieve good visual aesthetics.
* intellectual property - refers to who owns ideas, patents, and work that they have created.

*The examples above are indicative samples only* | The student has developed an informed design for a digital outcome which involves:* using feedback to improve the design

The student shows how the design of the infographic has been changed and refined through the use of feedback.**For example (partial evidence):***The student has changed their font and colours of their design based upon feedback from members of the target audience. They have added in graphics of sunshine to represent the amount of time spent outdoors after feedback from another member of the target audience.** explaining how the design meets relevant implications

The student has explained how they plan to use only imagery/visual illustrations that they have created themselves or those from the open-clip art library to respect intellectual property.They have explained how a design with modern and crisp fonts will appeal to high school students (their target audience).The student has explained why the larger size and limited amount of text was selected to ensure readability and how the visual impact of the information when their infographic poster is displayed on walls in the student common room meets the requirements of the usability implication..The student explained how the feedback from a diverse range of people including different cultures and gender to ensure the feedback was balanced and not gender specific*The examples above are indicative samples only****Database***The student has developed an informed digital outcome to manage data which involves:* using information from testing procedures to improve the quality and functionality of the outcome

**For example (partial evidence):**They have improved their infographic with modern and crisp fonts to appeal to high school students (their target audience). The large font size and limited amount of text was applied to ensure readability and visual impact of the information when their infographic poster is displayed on walls in the student common room.* structuring, organising and querying the data logically

**For example (partial evidence):**The student has:* named fields in a consistent style
* used appropriate data types and data formatting, for example including validation, suitable field sizes, use of masks
* summarised the data (through the use of well-constructed queries, formulae, functions or graphs/charts) for use in the infographic.
* addressing relevant implications

**For example (partial evidence):**The student has ensured that the database is stored securely in their network/cloud drive and that personal data in the database is not accessible to others.They have ensured that data displayed in the infographic would not make any single participant’s data be recognisable.*The examples above are indicative samples only* | The student has developed an effective design for a digital outcome which involves:* justifying, with evidence, that the chosen design is suitable for the purpose and end users

**For example (partial evidence):***The student annotates their chosen design to justify selection of content and aesthetic elements. Their annotations clearly link to the research they have completed on infographics, the refinements they have made based upon feedback from the end users, and a reflection on how the infographic will meaningfully and effectively present the data from their hauora/wellbeing context that has been developed for the intended purpose and in relation to end users.**The examples above are indicative samples only****Database***The student has developed a refined digital outcome to manage data which involves:* iterative improvement throughout the design, development and testing process

***For example (partial evidence):***The student has created a sample data gathering questionnaire and tested it with a few classmates before sending it out to all the members of their group. They improved the questionnaire after realising a key piece of data was not being clearly asked for.The student has made iterative changes to their database formatting and queries as they have developed their outcome.They have tested different versions of their infographic design to determine which one has the most effective and meaningful presentation of the data.* presenting the data effectively for the purpose and to meet end-user requirements

**For example (partial evidence):**The student has ensured that the data was being collected in such a way that it was able to be effectively analysed and summarised (e.g. multi-choice, drop down lists, check boxes). There are no grammatical or typographical errors. The imagery/visuals are not pixelated and accurately represent the data. The layout demonstrates effective application of design principles.*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. Achievement standards 91878 and 91879 are derived from both *The New Zealand Curriculum* and *Te* *Marautanga o Aotearoa.* [↑](#footnote-ref-1)