Raranga Matihiko

Weaving Digital Futures

E kore e taea e te whenu kotahi
ki te raranga i te whāriki
kia mōhio tātou ki ā tātou.
Mā te mahi tahi ō ngā whenu,
mā te mahi tahi ō ngā kairaranga,
ka oti tēnei whāriki.
I te otinga me titiro tātou
ki ngā mea pai ka puta mai.
Ā tana wā, me titiro hoki ki ngā raranga
i makere nā te mea,
he kōrero ano kei reira.

The tapestry of understanding
can not be woven by one strand alone.
Only by the working together of strands
and the working together of weavers
will such a tapestry be completed.
With its completion let us look at the
good that comes from it and, in time
we should also look at those stitches
which have been dropped, because
they also have a message.

Nā Kūkupa Tirikatene

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Foreword

For four years, the Raranga Matihiko | Weaving Digital Futures programme has led teacher professional development while working with ākonga and whānau.

The programme's focus is on students having access to rich digital technology learning while increasing teachers' confidence in delivering the new curriculum content.

This booklet summarises our work and provides practical examples of how digital technology learning can be integrated across curricula in classrooms. We hope you find it useful in planning your local curriculum.

We are living in a time like no other. Technological changes are fast-paced, impacting the way we communicate, learn, work, and engage with the world. They mean we can connect with others across the globe at the click of a button, making our world accessible in new ways. We need to use, create, collaborate, and communicate with technology, and be adaptable to rapid changes. Moore's Law[i] refers to the notion that each year the speed and capability of computers will increase and costs decrease, so they become more accessible and affordable. Increasingly, we need to be familiar with technologies so we can function in society – but equity and the digital divide is a very real issue.

The revising of the technology and hangarau learning areas in our curricula has been designed to ensure that students become 'capable and confident' creators and users of digital technologies[ii], so they can operate in and understand the world around them. It is the teaching and learning of computational thinking and digital technology skills, along with collaboration, creativity, and curiosity, that will support our students' development. Equipping students with the ability to work across a range of devices and programs, and to become fluent with computational thinking and computer science, will help support them now and in the future.

Tara Fagan
Project Director,
Raranga Matihiko | Weaving Digital Futures

[i] en.wikipedia.org/wiki/Moore%27s_law; John Shalf, https://royalsocietypublishing.org/doi/10.1098/rsta.2019.0061
[ii] www.beehive.govt.nz/release/new-digital-technologies-schools-and-kura

He kaupapa mahi ngātahi
A collaboration of educators

The school and kura programmes facilitated by Raranga Matihiko involve inquiry-focussed learning through a museum and gallery based approach.

Between 2018 and 2021, the programmes ran in Northland, Auckland, Waikato, Hawke's Bay and Wellington, over two days, with time between the two days for learning to continue in the kura. For more information about the programme visit our website *www.rarangamatihiko.com*. This booklet has been prepared to detail our approach.

The following list of Raranga Matihiko team members who have compiled this document, would also like to acknowledge the contribution of past facilitators, support staff and advisors. All have made this programme the authentic and meaningful learning experience we have been privileged to be a part of.

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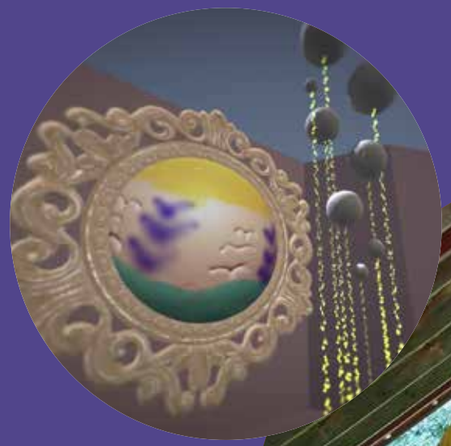
Kaupapa rapunga whakaaro
Philosophy of practice

Raranga Matihiko | Weaving Digital Futures has a philosophy of practice that is reiterated each year to keep the ideas and actions that underpin our kaupapa current.

It includes that:

- Every child has the right to participate in the programme.
- Every child's experience and input is welcomed and valued.
- Belonging and well-being is the whāriki from which the programme builds; everyone needs to feel safe and welcome in their environment.
- We approach learning with a bicultural lens and encourage all ākonga to engage in different perspectives in order to strengthen their learning and build understanding.
- We strive to ensure all ākonga experience success and recognise that success will look different for different learners.
- Our programmes are co-facilitated to maximise the teaching and learning experience.
- Everyone who attends the programme is a learner and a teacher. Whānau helpers, kaiako, and ākonga all explicitly participate in both roles.
- Collaboration is a key aspect of good learning and teaching.
- Curriculum integration and rich task design provide engaging learning experiences.
- We provide kaiako with the opportunity to see their ākonga and their strengths in new ways.
- We model our own teaching practice so kaiako can observe new skills and strategies.
- We encourage and model mistake-making to foster exploration and acceptance that making mistakes is a key part of learning.
- Every day we are offered opportunities to learn from others and improve our practice.
- Reflecting on our practice is an important and necessary part of developing as facilitators.



Marau ā-rohe
Local curriculum

One of the unique features of the New Zealand education system is the self-governance of its schools. This refers to both the running of individual schools and the development and delivery of local school curricula, based on the The New Zealand Curriculum (NZC).

A local curriculum is reflective of and responsive to a community, its needs, and its aspirations for ākonga. It highlights what is important to each community.[iii] As these values change, a local curriculum changes. Local curriculum design and review is a journey, rather than a destination, and it requires kaiako to work with their local community to develop shared understandings of what teaching and learning will look like at school.[iv]

Engaging with the local community can happen in many forms, but not all types of approaches will work in every community, with everyone in a community, or work every time. NZC Online has a range of tools and approaches that schools might considerv when working with the community.

Each school's local curriculum is unique, however, as noted in the Ministry of Education's Local curriculum guide[vi], there are some key elements that indicate a local curriculum is well designed:

- **Principals and kaiako**, along with the community, can show what they want their students to learn and how their curriculum is designed to achieve this.
- **Learning is personalised and inclusive**, taking into account students' aspirations, interests, identities, languages, and cultures.
- **The long view is taken:** each student's ultimate learning success is more important than the coverage of particular achievement objectives. It is manageable and realistic.[vii]

With community involvement, schools will start developing a network of resources to support student learning. This provides richer opportunities for learning and an authentic context. Students, as with all of us, are more likely to engage in a task that is meaningful and relevant to them. A local curriculum also teaches learners about the issues and contexts they can access.

[iii] nzcurriculum.tki.org.nz/Curriculum-resources/NZC-Online-blog/Developing-a-local-curriculum
[iv] nzcurriculum.tki.org.nz/Strengthening-local -curriculum/Leading-local-curriculum-guide-series/Local-curriculum#collapsible2
[vi] nzcurriculum.tki.org.nz/Principles/Community-engagement/Tools retrieved 1 Sept 2020
[vii] Leading Local Curriculum Guide (blue) p5

Marau pāhekoheko
Curriculum integration

Raranga Matihiko takes the approach of curriculum integration. This enables connections to be made across subjects, linking learning areas[viii] to create a rich learning environment.[ix] Equally, it helps kaiako to work across the many areas of the NZC that need to be taught.

In Raranga Matihiko, digital technology learning is woven through the existing curriculum. The reason for this is two-fold: first, good learning rarely happens in isolation, or without context and purpose, and this applies especially when learning digital tools; second, the focus of a programme moves from tool-based learning to actively selecting the right tool to support learning as students gain expertise across a range of tools to support their thinking and learning.

Curriculum integration is most visible in our early childhood education curriculum, Te Whāriki,[x] where kaiako weave together principles and strands for our youngest learners. In our primary and secondary classes, it requires a shift in thinking from a subject-based approach to thinking about the whole curriculum, and when this happens, it has been shown to improve student engagement and achievement.[xi]

When planning for curriculum integration, we recommend starting with the overall outcome and then working backwards to the rich learning tasks and subject areas that will lead to the desired outcome. If this is new to you, we suggest starting small and trialling ideas that might work across two or more subject areas.

When we co-design programmes with kaiako, we start by focussing on their inquiry topic and designing a learning programme. The digital technologies concepts and tools that we introduce are one of the final parts of planning.

The example in the Appendix illustrates how we plan for an integrated curriculum approach.

[viii] Ministry of Education. The New Zealand Curriculum. Wellington: Learning Media, 2007

[ix] Fraser D, Aitken V, Whyte, B. Connecting curriculum, linking learning. Wellington: NZCER Press, 2013

[x] Ministry of Education. Te Whāriki: he whāriki mātauranga mō ngā mokopuna o Aotearoa Early Childhood Curriculum, 2017 www.education.govt.nz/assets/Documents/Early-Childhood/ Te-Whariki-Early-Childhood-Curriculum-ENG-Web.pdf

Whakaako-tahi
Co-facilitation

Co-facilitation underpins all the Raranga Matihiko programmes. Classes are delivered by at least two facilitators working in partnership and bringing a bicultural focus to the experience.

All facilitators are active in programme design and delivery; they work together to maximise the group learning experience, capitalise on their own strengths, and learn skills from one another.

This type of teaching model allows for a bicultural perspective with te reo Māori integration. Everyone has a richer learning experience and we exemplify and uphold the mana and importance of indigenous viewpoints and beliefs. As people of Aotearoa New Zealand, it is vital for us to understand learning from different perspectives, recognise the successes and strengths of all people, and of course, uphold Te Tiriti o Waitangi.

It is powerful for students to be able to interact with people, stories, and taonga that they feel connected to. Creating a safe environment for ākonga to express and appreciate their identity is also important for establishing relationships quickly: allowing students to feel seen and valued helps with this. Having Māori and English medium facilitators also means more adults are in the space to give every child the opportunity for direct engagement.

Co-facilitation is also helpful for those who have perhaps not had the opportunity to work in an innovative learning environment (ILE), work with digital technologies, or show their knowledge in new ways. Each student will have time talking and working with one of our team. We know that this style of teaching provides the class, kaiako, and whānau helpers with a variety of facilitation styles, and that a bicultural approach offers an enhanced learning experience.

Co-facilitation is also a great way to model collaborative working to students, who are in turn working together and developing essential teamwork skills. Co-facilitating classroom lessons may not be possible in your setting, but you may be able to find opportunities to bring classes together to explore and learn in a collaborative way.

Te wāhi ako
The learning environment

It is important to set the environment for our visitors. Ensuring that our classroom is in order, with the tools and resources we need at hand, prepares us for our day of teaching and allows more time to focus on the needs of students.

Showing manaaki, not only for students but the accompanying adults as well, is another priority. Everyone functions more efficiently when they feel welcomed and comfortable: this sets us up for a successful day of learning. We know that for some, coming into a new environment can be intimidating, so we want everyone to feel comfortable and safe while they are with us.

When our students arrive, we:

- **establish the tikanga of our whare**

  how we should act and respect the new places we might be in, and why this is important for ourselves and also those around us

- **karakia to set us up for our learning and to provide protection**

  if the class has their own karakia from school then we encourage them to lead us, otherwise we will provide one

- **share any safety information for the spaces we are working in**

- **make introductions**

  encourage everyone in the space to introduce themselves; this can help everyone feel comfortable around new people

- **outline the day**

  and what people can expect to be doing while they're with us.

One of the key principles in our classes is the belief that everybody is a learner. Of course, the students that come to the class expect to learn, but we are also explicit about the adults, kaiako, and helpers engaging in the learning as well. We also encourage the students to be recognised as experts: many of them have expansive technological knowledge and it is powerful for a student to be asked by an adult to teach them. We encourage the philosophy that everyone is a lifelong learner, and everyone has knowledge that they can share with others.

Whakawhanake kaupapa
Developing the kaupapa

All Raranga Matihiko programmes are bespoke: they are developed individually for each class we work with.

In the design stage and before the class visit, we work closely with kaiako to discuss and formulate a topic or an area of learning they wish to focus on. Topics have ranged from classroom interests, individual inquiries, to kaupapa embedded in the school's local curriculum. Once a topic has been decided on, facilitators outline a teaching and learning programme that highlights the integration of at least three curriculum areas. As our facilitators develop the programme, it is shared and iterated with the class kaiako to ensure it has a strong and effective design for student learning.

When introducing the topic to students we take into consideration:

- students' prior knowledge, including previous in-class learning
- the targeting of a particular or specific need
- the importance of the topic to the learners and their communities.

A key part of making kaupapa and lesson content full and rich is the use of the knowledge and expertise of others in our team and at different sites. We use a wide range of understandings and skills from our communities, for example, from people who can offer a more in-depth discussion on a particular topic. Our different sites can contribute different resources (art, tāonga, artifacts, and stories) to support student learning.

With most classes, we use online brainstorming tools when introducing a topic in order to collate information. It is then shared with the kaiako so they can access it before their second visit, or so they can continue their mahi back at school.

Some ways kaiako can replicate this sharing of knowledge:

- invite experts, including whānau and community experts, into the kura
- share videos, images, artifacts, and artworks
- integrate literacy (School Journals, and so on).

Ngohe kore rorohiko
Unplugged activities

Unplugged activities are hands-on, practical and fun learning games or tasks, which often use physical materials and occur without the use of computers or digital technology. These activities promote computational thinking to help ākonga understand fundamental concepts, apply them in context, and develop key vocabulary.

What is computational thinking? As a starting point, we can think of computational thinking as simply breaking down a problem or challenge into steps.

A more detailed explanation uses the following steps:

- **decomposition** – break the problem down
- **pattern recognition** and identifying important details
- **abstraction** – bring other knowledge to the problem
- **algorithm** – design a step-by-step solution.

We see computational thinking around us every day in things like recipes and instructions. We apply it in classrooms when we use step-by-step instructions or learning intentions to scaffold learning for students. Computational thinking is in all the things we do in the classroom which require our students to apply logical steps or instructions.

Many kaiako are already using unplugged activities without conscious planning, through tasks that involve strategic thinking or simply creating patterns in classroom games. It is easy to create ways to include computational thinking across the curriculum, for example, have students design a fitness circuit or PE warm-up activity where they make and then give instructions to other ākonga. The next step here would be to apply some of the language and patterns of digital technologies within these instructions and to include these activities as a deliberate act of teaching.

Unplugged activities can be a great solution for overcoming accessibility issues, especially for schools or learners who may have limited access to devices. Unplugged activities provide a great space for developing computational thinking skills, without being limited by the lack of devices and they also allow the Digital Technologies learning to continue while taking a break from the screen.

Many commercially produced games such as ‘Connect Four’ and ‘Guess Who’ can also be used to help children develop computational thinking skills.

In some of our Raranga Matihiko classes, we model computational thinking by simply following a set of instructions to introduce ourselves. This enables us to integrate an authentic classroom experience with digital technologies concepts, by presenting the format to the students as an algorithm.

When shown, students usually recognise this image as code blocks and are quick to understand the steps.

At Raranga Matihiko we have developed a range of unplugged computational thinking activities which we use with our classes. Many of these, along with recorded webinars on the topic are available from our website.

Te wā rāwekeweke
Tutū Time

We recognise the importance of giving learners sufficient time to explore newly introduced digital tools, which is why we incorporate dedicated Tutū Time into our programmes. We see Tutū Time as similar to play-based learning, in that the real value for students occurs through conversations, hands-on learning, and experimentation.

To tutū is to be mischievous or disruptive and while these are not behaviours we want students to display in class, there are certain elements of this mindset that aid in the enhancement of learning through play. We want ākonga to actively take risks in their learning, to explore without the fear of failure, and to see 'failures' as 'first attempts in learning'[xii] – because these are just as important as successes.

We rarely focus on the topic during these tutū sessions, so students are able to explore new tools and have time to figure out what works without any pressure to produce a final product.

Tutū Time is normally introduced on the first day of the programme. Depending on the size of the class, one facilitator will usually work with half the students, while the others explore the grounds, museums, or galleries.

In the classroom, students are given a quick demonstration of the apps and programs, which are already set up at stations around the room. This initial introduction does require students to sit, listen, and observe as the tools are demonstrated, but it is done as quickly and as efficiently as possible. The ākonga are then divided into small groups of about two to three, to rotate around the stations where they investigate each digital tool. Kaiako and parent helpers are also encouraged to support or join in.

Students leave the first day of Raranga Matihiko having explored six or seven digital tools that are often brand new to them. We find that the learning at this time is immense and rangatahi have usually had so much fun that they will continue to explore and create in their own time, returning with improved skills on their second visit. This form of explorative learning also helps ākonga make their own decisions about choosing the best tool for the job, an important part of moving through the digital technologies progress outcomes, and vital to students becoming creators of digital content, as opposed to just being consumers.

[xii] Dr. APJ Abdul Kalam
https://economictimes.indiatimes.com/news/politics-and-nation/dont-rest-after-victory-failure-just-an-attempt-at-learning-a-p-j-abdul-kalam/articleshow/48249644.cms?from=mdr

Taputapu matihiko
Digital tools

At Raranga Matihiko we like to use digital tools for authentic learning experiences across the curriculum, and we encourage learners to think about selecting the best tool for the job.

There are many digital tools available for students to use, and it is important to focus not only on what a tool can do, but how we can use it to show our learning or reach a goal. We also need to consider the usability and management of the tool for classrooms and its suitability for students.

The selection below shows some of the facilitators' favourite tools, but keep in mind that digital tools change, develop, and even become obsolete.

If you are interested in finding out more about these apps, websites, or programs, check out the Raranga Matihiko website where you can find instructional videos on how to use some of them. There are also helpful tutorials and examples for both kaiako and students on YouTube or the Instructables website.

Wā Whakamahere
Brainstorming and planning

Popplet is a free online brainstorming and planning tool. At Raranga Matihiko we use it with our classes for their projects. It is a collaborative tool, so by sharing it with the kaiako on their first visit, the class can continue to grow their ideas back in their classroom. A versatile tool, aside from brainstorms, Popplet can also be used in the classroom by students as a graphic organiser or to share learning.

Whakahoahoa Ahunga Toru
3D Design

SculptGL is a 3D digital sculpting program. Students can carve, shape, and colour digital clay to create 3D objects, which can then be downloaded for 3D printing or uploaded for use with other programs (for example, Tilt Brush or Sketchfab). You can either use the web app or download a standalone version for your device.

Paint 3D is a Microsoft program so unfortunately not readily available to everyone. This program allows students to paint and draw with various brushes, and also to combine 3D shapes and add stickers and textures. Students work with a stylus on a touch screen computer. These artworks can then be downloaded and combined with other programs (for example, Tilt Brush or Pixlr.com).

Tinkercad is a computer assisted design (CAD) program. It is free although users need to create an account. Alternatively, kaiako can create a class account and manage their students by assigning each a 'project' labelled with their name. Completed designs can be shared, downloaded, 3D-printed, or uploaded into other programs like Tilt Brush for virtual reality (VR).

Sketchfab is a platform to publish, share, discover, and buy and sell 3D, VR, and augmented reality (AR) content. We use Sketchfab because it allows Raranga Matihiko students, their kaiako, and communities to view their 3D creations (with or without VR headsets) at any time, even after they leave our learning spaces.

Ao Whakaranu
Augmented reality

These apps allow students to explore augmented reality in a fun, safe way. Both have free versions as well as more advanced paid versions.

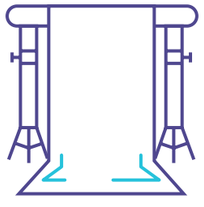
Quiver brings colouring pages to life – the augmented reality colouring app creates engaging, immersive colouring experiences for people of all ages.

Merge Cube lets you 'hold' digital 3D objects, enabling a new way to learn and interact with the digital world. After constructing the cube, students can use Merge Cube apps to view a range of learning aids and fun stuff.

Ao Mariko
Virtual reality

Tilt Brush is an effective tool for bringing a class collaborative project together. During Tutū Time each child is assisted to explore a virtual world. After donning the headset they find themselves inside a cartoon style virtual world where they can travel by teleporting, draw or write their name, sprinkle some stars, and explore all the other Tilt Brush VR tools. It is always a highlight for our students and motivates them to create other objects for uploading into their class collaborative project during their second visit. A whare created in Tinkercad can be uploaded to Tilt Brush so that students can walk right inside!

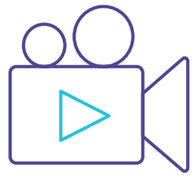
Ārai Kākāriki
Green screen



Do Ink is a paid iPad app. At Raranga Matihiko we generally prefer to use freely available apps and programs, but this is well worth the one-off price as it can be used in conjunction with many other apps, as well as having standalone merits. During Tutū Time, students explore existing green screen effects but we soon find them creating their own hilarious videos and photographs, often involving headless students and invisibility cloaks. In the classroom, the possibilities for creating are endless!

Nekehanga Komutu
Stop motion video

Creating stop motion videos is a great way for students to share their learning. There are several platforms available as apps or online. Most allow students to add soundtracks, credits, and other effects. These are just two of our favorites.



ClapMotion is stop-motion software that allows you to create your own animation by simply clapping your hands. ClapMotion is an ideal tool for the classroom and home, developing project-based thinking, teamwork skills, and creative abilities.

Cloud Stop Motion is another stop motion creation tool that allows kaiako to make a class account to manage their students. A free version gives enough storage for kaiako to trial a project with their students. After that, kaiako would need to sign up for a paid account (or use another platform!) Completed projects in Cloud Stop Motion can be downloaded as an MP4 for easy file management and 'app-smashing'.

Tuhiwaehere
Coding

Scratch is a block coding program that students can use to create and to share their learning. There is lots of support and tutorials available online. With help, even beginners will soon be using conditional formatting to create more sophisticated coding algorithms and achieve higher designing and developing digital progress outcomes! Check out Scratch Jnr for younger year levels or those needing more visual and less text-based coding options.

Microbit introduces students to how software and hardware work together. It has an LED light display, buttons, sensors, and many input-output features, which when programmed, interact with students and the world. Students can design, create, and test real-world tools, such as alarms, monitors, counters, displays, and many more.

Wonder Workshop Dash Bots are our preferred choice of ākonga-friendly robots, although there are many different types of robots now available that use block coding programming and are suitable for busy classrooms. The Dash Bots have lots of character and appeal and are programmable through the Wonder Workshop apps on iPads or smartphones. The robots help rangatahi learn the basics of robotics and coding at home or in classroom settings.

App-smashing is the use of multiple apps to create projects or complete tasks. Students 'mash' their work, created across two or more apps, to develop a more complex piece of work.

Waimarama
Terrace School
TKKM-o-Te Wairoa
TePohue
TKKM-o-Te Ara Hou
Otane
Parkside Christian School
Bridge Pa
TeAute College
TeAwa
Omahu
Hastings Girls High
Peterhead
William Colenso
Teen Parent Unit
Te Tipu Wenua-o-Paharakeke
TKKM-o-Ngati Kahungungu-ki-Heretaunga
Heretaunga Intermediate
Riverslea
Mahora
Hastings Intermediate
Tamatea
Irongate
Flaxmere Primary
Richmond
Mayfair
Te Whare Tapere
Kimiora
Raureka
Wairoa College
Maraenui
Mangatereterei
Hukerere
Ebbett Park
Camberley
Marewa
Pakipaki
Meeanee

Te Ara Whanui
Reorua Newtown
Te Kura Maori o Porirua
Mana College
Levin East
Pomare
Holy Family
Fairfield
Tui Glen
Avalon Intermediate
Koraunui
Wainuiomata Intermediate
Linden
Levin North
Titahi Bay North
Natone Park
Arakura
Porirua College
Petone Central
Rangikura
Naenae College
Ngatitoa
Levin
St Anne's
Poriruа
St Peter Chanel Catholic School
Wellington Seventh Day Adventist
Randwick
Te Kura ā-iwi o Ngāti Kauwhata
St Pius X
Maraeroa
Masterton Primary
Maoribank
Otaki
Postgate
Ngāti Kotahitanga
Epuni
Carterton
Pukeatua Primary
Ratastreet
Windley
Corinna
TKK o Wairarapa
Taita Central
Avalon Primary
Glenview
North Street
Dyer Street
Kapiti
Newtown
Konini Primary
Russell
Naenae Intermediate
Levin Intermediate
TKKM o Manawatu
Lakeview

Horotiu School
Te Kura-o-Waharoa
Melville Intermediate
Te Kura-o-Ngaati Haua
TKKM-o-Te Ara Rima
Nawton School

Ahipara
Manomaku School
TKKM o Taumarere
Northland College
Opua
Kawakawa Primary
Paihia
Hukerenui
Kaikohe Intermediate
Karetu
Te Rangi Aniwaniwa
Raurimu Ave
Mangonui
Kaikohe Christian School
Talpa
Paparore
Whangarei Intermediate
Totara North
Hikurangi
Te Kura o Hato Hohepa te Kamura
Matauri bay
Bay of Islands International Academy
Morningside
Oruaiti
Kaitaia Abundant Life School
Kaitaia College
TKKM o Kaikohe
Tikipunga Primary
Kaikohe East
Oturu
Bay of Islands College
Whau Valley
Kaingaroa
Pompallier primary
Umawera
Broadwood Area School
Te Kapehu Whetu
Manaiaview Primary
Ohaeawai Primary
Kaitaia Intermediate
Te Kura o Waikare
Rawene

TKKM-o-Kotuku
TKKM-o-Manurewa
Point England
Massey Primary
Papatoetoe West
Onepoto
Onehunga Primary
Ranui Primary
Bruce Mclaren
Mangere Bridge
Manurewa West
Oranga
Weymouth Primary
Glenavon
TKKM-o-Puau te Moananui-a-Kiwa
Wiri Central
Kedgley Intermediate
Mcauley High
Haypark
Papatoetoe East Primary
Newton
Birdwood
Te Kura Māori-o-Ngātapuwae
Sir Douglas Bader Intermediate
East Tamaki
Sir Edmund Hillary Collegiate
Southern Cross Campus
Te Papapa
Royal Oak Intermediate
Mayfield
TKKM-o-Mangere
Wymondley Road
Nga Iwi
Avondale Primary
Prospect
Tamaki Primary
May Road Primary
Papatoetoe North
Kelvin Road
Rosebank Primary
Rise Up Academy
TKKM-o-Hoani Waititi
Robertson Road
Panama Road

Āku mahi rangatira
Celebrating the learning

Whether during or after a unit, at the end of the term or year, or at any point it seems valuable, learning can be celebrated. It is important to recognise the achievements students have made – to motivate them and so they feel a sense of accomplishment and pride in their work.

Acknowledging the ākonga as individuals and as members of a team supports their achievements across both roles, and it is important this is done at different stages: while finishing a project or piece of work is a great achievement, there are probably steps taken in learning along the way that are just as valuable. Recognising the process is as important as recognising the end product.

Ensuring that all students recognise their achievements and feel successful is fundamental. While curriculum milestones are obviously important, there can be many other steps that students take in their learning. Students who learn differently, are neurodivergent, or who have varied needs may struggle to see their strengths and ways that they can be successful in certain systems of learning or against learning rubrics. Sometimes the jumps between levels are too large or there may be other skills that are developed that don't necessarily fall into set categories. It is vital that we help ākonga to see all of the progress they have made and that all progress, in whatever form, is valuable. This reinforces that their accomplishments are noticed and celebrated, and this can take many forms.

Celebrations

A great motivator of success is students knowing their published work will be on display: intentional recognition of the completion of a project validates their accomplishment.

This might involve:

- peer-sharing
- class celebrations
- school assemblies
- presentations to whānau and wider communities.

Reporting

An essential part of teaching life! Using visual examples of mahi ākonga in reporting to whānau, school, communities, and governing organisations provides clear examples of learning, and can involve:

- student portfolios
- student reports
- parent-kaiako interviews
- the school
- the Ministry of Education.

Sharing

Validate learning by providing opportunities for students to see their close communities interacting with projects and completed work, through, for example:

- class blogs
- the school website
- social media
- digital technologies communities
- repository websites like Sketchfab.

In print

Give value to completed mahi and create physical momentos of learning to use and share in the classroom, at home, or out in the community:

- publish e-books as hardcopy editions
- 3D print objects for use, fundraising, or gifts
- convert 3D objects to use with a laser cutter.

Creative sharing ideas

What does celebration look like?

Images
Take screenshots of student work and use www.remove.bg to delete the background and:

- make achievement certificates
- make postcards and send to other classes, whānau, and schools
- use images on class calendars and task and birthday boards
- create literacy resources – sentence starter images, mini dictionaries, or magnetic storyboards
- build a class bank of images students can use in their digital publishing
- print on labels and use as incentive and praise stickers.

3D objects and coding projects

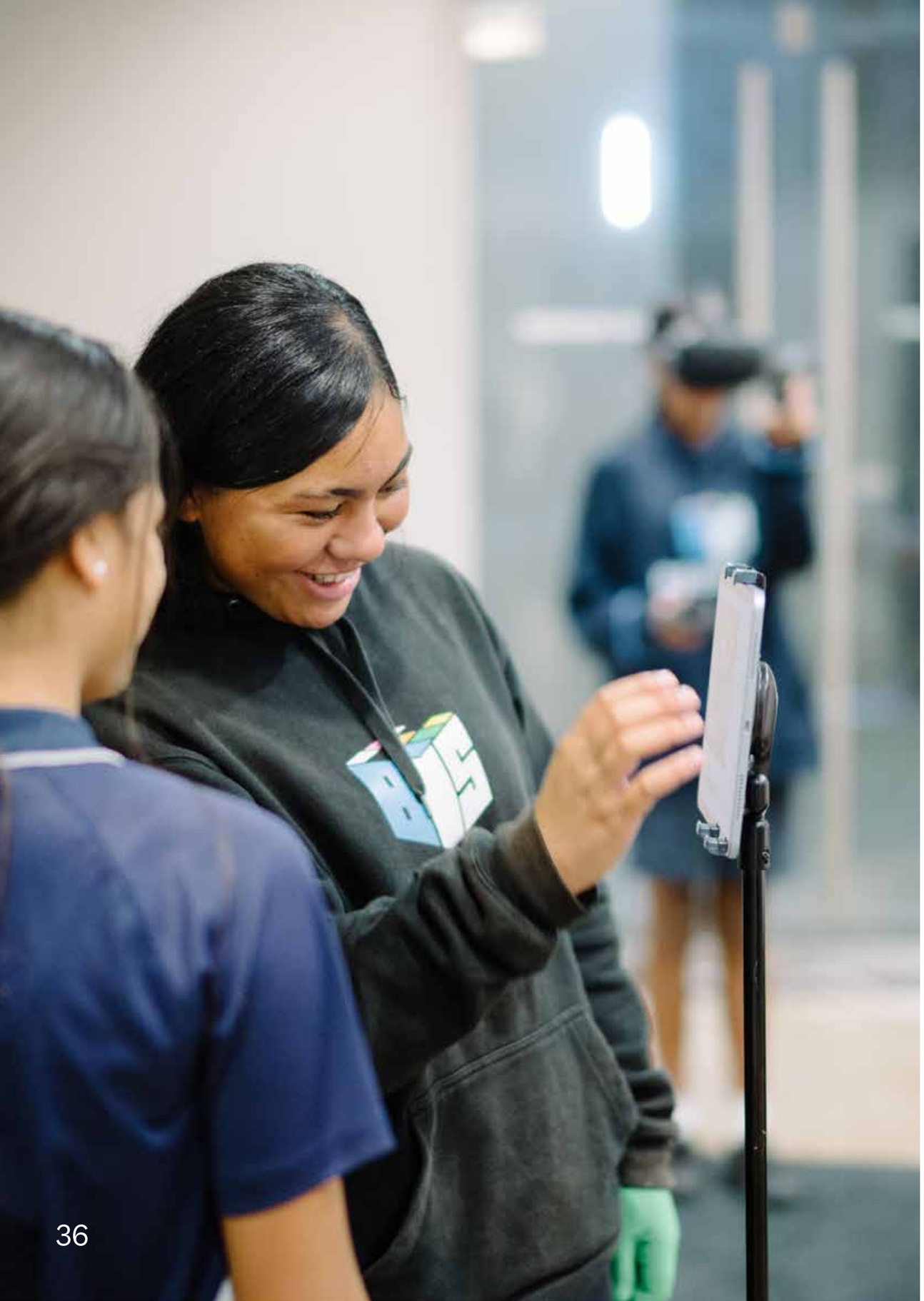
- Upload 3D files to Sketchfab and send links home on certificates, emails or texts.
- Host a viewing day for whānau to show them how to access and navigate the Sketchfab and Scratch websites.
- Host a 'game day' for other classes to experience coded projects.
- Construct Google Cardboards for whānau to view students' 3D objects with.
- Give live presentations at assemblies.

3D printing

- Use a 3D printer or laser cutter to bring digital object creations to life for:
- fundraising – keyrings, bag tags, coasters, models, and so on trophies and medals
- gifts or rewards
- maths resources created to replace beans, counters, and so on.

Print digital books for:

- class libraries
- home reading
- birthday gifts and recognition awards.



He mihi maioha
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We couldn't have made such an impact on our participating schools and communities without the invaluable support of Te Tāhuhu o te Mātauranga | The Ministry of Education. Special mention goes to Tranzit New Zealand, our transport providers and the bus drivers who made the Raranga Matihiko experience one to remember for many rangatahi. We must also pass on a profound appreciation to Eat my Lunch, our kai providers, who understand the value of removing the barrier of food insecurity from a child's learning opportunities.

To everyone who has had input into the Raranga Matihiko program, we thank you all.

Nā te whānau o Raranga Matihiko.

Āpitihanga
Appendix: Exemplar

Ohaeawai School

Context

Ohaeawai School is a small, 160-student, rural school in Ohaeawai, Northland. One of its ILE classes took part in the Raranga Matihiko | Weaving Digital Futures programme available through Waitangi Museum. Some 66 students from Years 5–6 spent two days at Waitangi Museum engaging in digital technologies curriculum content and learning about the Battle of Ohaeawai. To ensure the programme was built on existing classroom content, the Raranga Matihiko facilitators spent time with the class kaiako to create a learning programme that complemented what was happening in the class. Ohaeawai School is near the site of the Battle of Ohaeawai, and as students knew little about this famous battle, kaiako decided understanding and retelling this battle would be their inquiry focus for the term.

Learning

The learning objective was to explore how the same event is remembered differently by different people, with links to the curriculum areas Social Science (History), Languages, and Technology. The learning was specifically designed to support digital technology curriculum content with a focus on:

- algorithmic thinking – giving and following instructions, creating algorithms
- debugging – finding errors, problem-solving, and iterating design
- thinking about the requirements of the end-user – who would be interacting with their creation and what would their needs be?
- storing and retrieving their work from cloud-based programs
- identifying input-process-output as they entered code and saw what happened
- becoming familiar with a range of tools and building knowledge to confidently select the best tool for the job.

During this programme, literacy and numeracy skills were also further developed as students wrote and planned their work, developed storyboards and plans, programmed robots to move, developed algorithms, looked for patterns etc.

Pre-learning activities prior to the visit to Waitangi would have supported student learning about the context of the Battle of Ohaeawai along with some key ideas from the digital technologies curriculum content which would have enabled the students to have some prior knowledge on which to build. The facilitation team have reflected on how this will be built into all future programmes to support learners so they have familiarity of terms and context for their learning.

During the two days at Waitangi Museum the students learnt about the Battle of Ohaeawai. Starting on the Museum grounds, the students learnt about:

- early navigators such as Kupe and the techniques they used for navigation
- early interactions between Māori and Europeans
- events leading up to the signing of the Treaty of Waitangi
- events following the signing of the Treaty of Waitangi including the Battle of Ohaeawai

This exploration of the museum and the Treaty Grounds set the scene for students to develop a focus that related to the Battle of Ohaeawai. A set of challenges were issued to students, to select from or to inspire their own ideas:

- Create and describe how your weapon is superior to the weapon of your enemy (using iMovie)
- Train your warriors in the use of the taiaha or other weapons (Stop Motion Animation of figures/weapons, green screen)
- Create a map of the battle site and the closer surroundings both from the Māori and the British view (geographical and cultural maps). Add relevant images and descriptions (Google Maps, Robotics by programming robot to bring equipment from your base to the battle)
- Imagine you are a TV news presenter in 1845; give us a segment for the evening news on the battle. Make sure you look at both sides. (Green Screen, Movie Making)
- Read some of the accounts from Māori wahine and from settler women about the wars in the North. How are they feeling about the war? Illustrate these feelings. (3D scanner and sketchFab)

Students started their work during their visit to the museum, developing prototypes as they trialled ideas and explored different tools. When the Raranga Matihiko facilitators visited the school, bringing the digital technologies, students further developed their projects. Students continued to plan their work, storyboard their scenes, and gather more information. Thus, between visits, students developed more understanding of the inquiry and also the technologies. The class kaiako and facilitators purposefully planned this time to support student understanding of:

- the purpose of planning and creating work, and thinking about it in terms of their blogs and audience
- becoming familiar with a range of tools with many students changing the choice of tool they were intending to use
- teachers encouraged learners to make most of the tools available to them through their participation in Raranga Matihiko

As well, kaiako encouraged learners to make the most of the tools available to them through Raranga Matihiko.

The students' work included:

- creating traditional pā using Tinkercad design software
- mapping the Battle of Ohaeawai using Tilt Brush VR, with students collaborating on the project, each adding in different elements such as grass, sky, and so on
- animations in Google Slides using Paint 3D
- a television question-and-answer session with 'callers' phoning in with questions about the Battle of Ohaeawai and a student answering the questions, which involved green screen and movie-making software
- recreating the battle by programming the scene using robotics; this battle was videoed and edited to include a voice-over.

Curriculum links

The learning objective was: Social Science and how the same event is remembered differently by different people, with links to the curriculum areas Social Science (History), Languages, and Technology, while also linking to digital technology curriculum content. Literacy and numeracy skills were also developed as students wrote and planned their work, programmed robots to move, developed algorithms, looked for patterns, and so on.

By having a flexible approach and enabling students to work on an area of interest and a skill set of their choice, students not only supported their own learning but also showed evidence of transition between progress outcomes. With specific regard to the digital technologies curriculum content, learning occurred as set out in this table.

Computational thinking

Progress Outcome 1:
In authentic contexts and taking account of end-users, students use their decomposition skills to break down simple non-computerised tasks into precise, unambiguous, step-by-step instructions (algorithmic thinking). They will give these instructions, identify any errors in them as they are followed, and correct them (simple debugging).

- Students are able to break down stories into small chunks as they develop them.
- They are able to work together as they map, program, and develop movies, identifying and correcting errors.

Progress Outcome 2:
In authentic contexts and taking account of end-users, students give, follow, and debug simple algorithms in computerised and non-computerised contexts. They use these algorithms to create simple programs involving outputs and sequencing (putting instructions one after the other) in age-appropriate programming environments.

- Students are able to evidence their understanding as they use a variety of tools, including storyboarding and planning ideas; program robots; use movie-making and stop motion animation tools, along with editing work – as they create algorithms using both digital and non-digital tools.

Developing and designing digital outcomes

Progress Outcome 1:
In authentic contexts and taking account of end-users, students participate in teacher-led activities to develop, manipulate, store, retrieve, and share digital content in order to meet technological challenges. In doing so, they identify digital devices and their purposes and understand that humans make them. They know how to use some applications, they can identify the inputs and outputs of a system, and they understand that digital devices store content, which can be retrieved later.

- Students demonstrate their ability to save, upload, and store their work in a Google Drive.
- They are able to show knowledge of a range of digital tools and select the best tool for the job.

Progress Outcome 2:
In authentic contexts and taking account of end-users, students make decisions about creating, manipulating, storing, retrieving, sharing, and testing digital content for a specific purpose, given particular parameters, tools, and techniques. They understand that digital devices impact on humans and society and that both the devices and their impact change over time. Students identify the specific role of components in a simple input-process-output system, and how they work together, and they recognise the 'control role' that humans have in the system. They can select from an increasing range of applications and file types to develop outcomes for particular purposes.

- Students demonstrate how they consider who will be accessing their work (end user) and design their work appropriately.
- They are able to show their understanding of their role in producing the input and process, and how that leads to the output. Through their discussions and work they are able to demonstrate their confidence in choosing applications for purpose.

Ngā tohutoro
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Raranga Matihiko

Weaving Digital Futures

E kore e taea e te whenu kotahi ki te raranga i te whāriki kia mōhio tātou ki ā tātou

The tapestry of understanding cannot be woven by one strand alone