



MINECRAFT
EDUCATION EDITION

NGĀ MOTU EDUCATOR GUIDE

Developed by **CORE** EDUCATION
Tātai Aho Rau

KIA ORA

Welcome to Ngā Motu – The Islands.

Here your tamariki/students will explore a Māori universe, built in Minecraft.

They set out on their adventure from a waka/canoe, having arrived together at two small islands not far off the mainland of Aotearoa. They will interact with whānau from a small hapū/tribe in a pā/fortified village. From the moment they enter this land, students will be prompted to read, listen to and speak Te Reo Māori.

Their journey through the realms of Ngā Motu is guided by the accompanying game cards. In realm one, they use Te Reo Māori to explore ideas about their own whānau. In realm two, students learn more about wider Māori culture – whenua/land and whare/house. In the final realm, they work together to build a land – their own tūrangawaewae/place to stand.

As they work with each other in Ngā Motu and overcome wero/challenges, students open themselves to new ideas and possibilities. It empowers both Māori and non-Māori students to celebrate the unique Māori culture and the beauty of Aotearoa.

Te Reo Māori is framed by the cultural context of the world of Ngā Motu. Students also learn collaboration and interpersonal communication skills, along with the STEM subjects. It's an immersive experience grounded soundly in the New Zealand curriculum.

We hope you enjoy exploring Ngā Motu with your tamariki. This guide will support you in steering their learning journey.

Ngā mihi



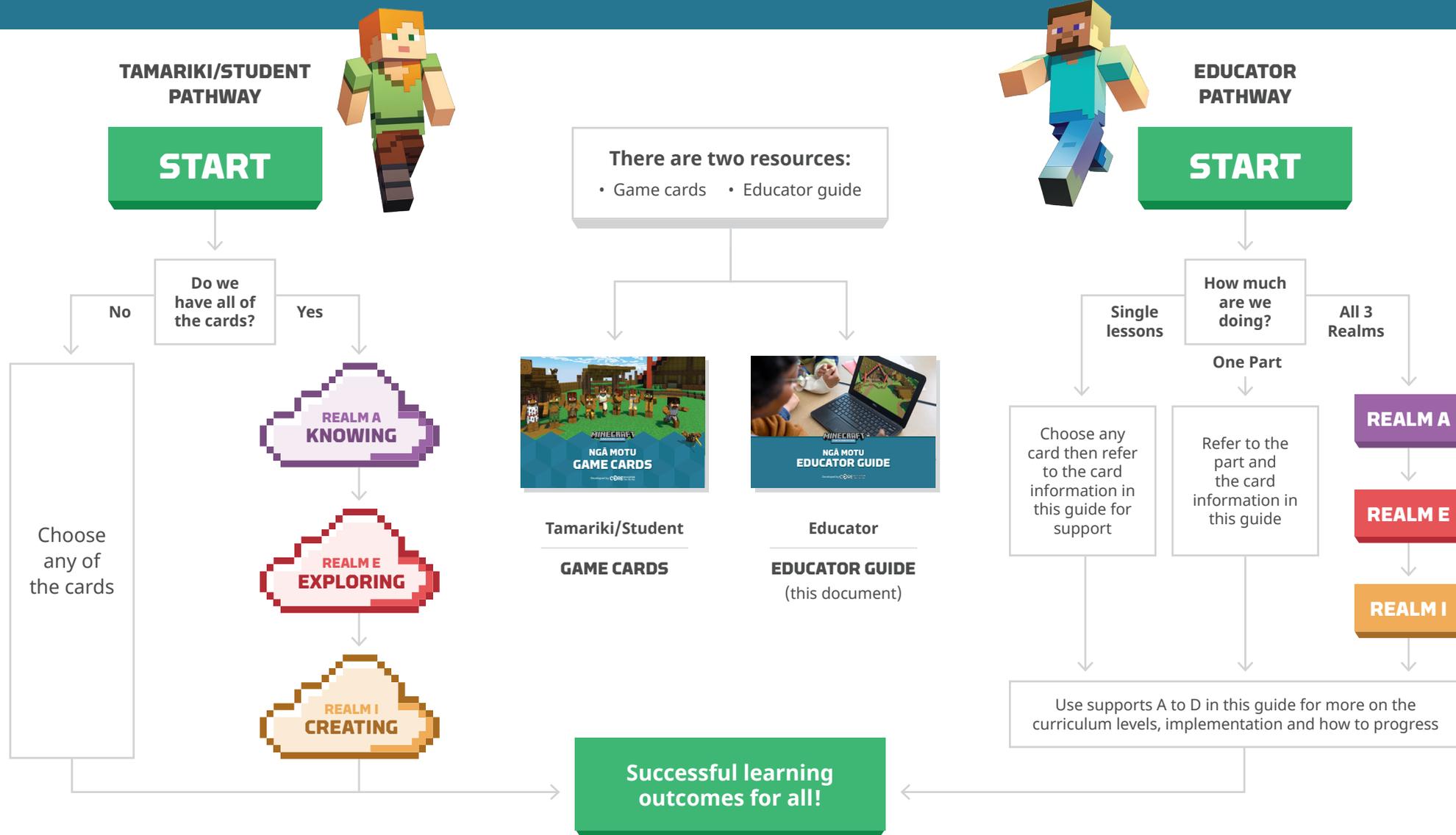
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This tool will support you to embed digital technologies authentically in your class.	
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This support will help you to understand the curriculum levels and which parts you can combine into a powerful learning programme.	
Curriculum Design Support D	Page 38
This tool will help you map which parts of the New Zealand Curriculum (NZC) you are designing learning for, so that your students experience a coherent and rich curriculum.	



This Minecraft: Education Edition of Ngā Motu was commissioned by Microsoft New Zealand, developed by Core Education and designed and built by Piki Studios.

HOW TO USE THESE RESOURCES



Q&A

Who is Ngā Motu designed for?

The learning programme is designed to support student achievement at NZC levels 3 and 4, but the Ngā Motu world and Game Cards can be adapted to a broad range of levels. The Ngā Motu Educator Workbook (starting on page 10 of this guide) provides specific performance expectations and curriculum alignment from Level 1 to 4.

What if they don't know how to use Minecraft: Education Edition?

Minecraft: Education Edition has many built-in instructions that help students navigate and interact in the world. The Game Card guides them through the specifics of Ngā Motu and sets them activities to complete. Learning is self-paced – each card has a wero (challenge) for students to achieve before they move on to the next.

Minecraft: Education Edition offers free resources to help students and educators engage in creative learning at education.minecraft.net. And [Minecraft Education Community Hub](#) is your place to learn how to get set up and start teaching with Minecraft: Education Edition.

How is the curriculum structured?

The Game Card deck is divided into three game realms, named A, E and I (after Māori vowels). Each card explores a different subject and builds on the learning from the previous topic. Two 'power up' cards provide additional activities and help to guide collaboration.

The structure is wrapped around the intent of the learning areas of Hangarau in Te Marautanga o Aotearoa (TMoA) and Technology in New Zealand Curriculum (NZC). See Curriculum Design Support B, page 26, for more detail.

What about my students who speak little Te Reo Māori?

Students who do not have strong Te Reo Māori can participate in lessons on pronunciation with virtual teacher Hinemoa and play games to become more confident. The Game Cards contain a quick reference glossary of common words and students can collect a personal glossary of Māori words in Minecraft: Education Edition as they discover new words and their meanings both in the game and by sharing with their classmates.

What else can my students do in Ngā Motu?

Visit the [Ngā Motu Minecraft: Education Edition lesson page](#) for further activities.



INTRODUCING THE GAME CARDS



QUICK START GUIDE

What is this?
A learning card deck that features in-game and out-of-game cultural learning **wero** (challenges) connected to the **Ngā Motu** world. Complete the deck to have fun while learning.

What is Ngā Motu?
Ngā Motu (The Islands) is a Minecraft: Education Edition world dedicated to learning about the indigenous language, culture and people of **Aotearoa**.
You'll need the Ngā Motu world to make the most of this card deck. You can download it for free from the Minecraft: Education Edition website: aka.ms/NGAMOTU-WORLD.

What are the realms?
Each of the learning cards fall into one of three learning realms named after the **Te Reo Māori** vowels:
A - Knowing (Purple)
E - Exploring (Red)
I - Creating (Yellow)

Which cards should I use first?

GLOSSARY

Māori	English
ākau	shore
Aotearoa	New Zealand
ātea	open area in front of the wharenui
atua	god/deity
awa	river
ana	cave
hapū	sub-tribe
iwi	tribe
kaitiaki	guardians
kirehe	animal
kupu	words
ngahere	forest
manuhiri	visitor/s
Māori	indigenous people of Aotearoa

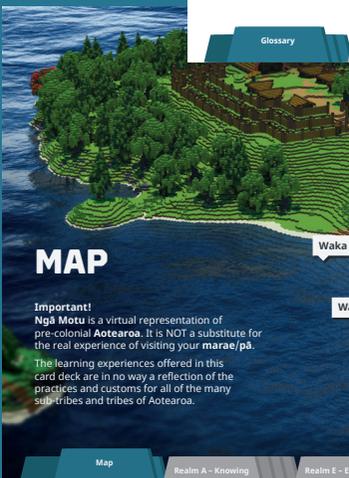
Māori	English
maunga	mountain
ngāi kirehe	fauna
Ngā Manu a Tāne	birds (Children of Tāne mahuta)
Ngā Motu	The Islands
pā	fortified village
Pākehā	New Zealanders of non-Māori descent
pēpēhā	tribal introduction
pōwhiri	welcome ceremony
puke	hill
repo	swamp
rohe	area
roto	lake
tāhuhua	sand dune
taonga	treasure

You'll find **Te Reo Māori kupu** (Māori language) highlighted throughout the game cards.
Use this card to find out what they mean.

Māori	English
tātahi	beach
tikanga	protocols
tipu	flora
Te Aitanga a Punga	insects, reptiles
Te Reo Māori	The Māori Language
tīpuna of Te Moana Nui a Kiwa	ancestors of the Pacific
waka	canoe
wero	challenge
whāitua	region
whakapapa	genealogy
wharekai	kitchen
wharenui	big house
whare	house
whenua	land

It's simple for students to get started

The Game Cards provide a quick guide for them to start exploring from. These resources support self-paced learning.

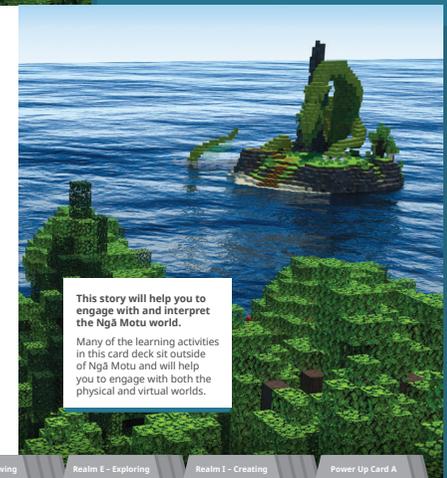


MAP

Important!
Ngā Motu is a virtual representation of pre-colonial **Aotearoa**. It is NOT a substitute for the real experience of visiting your **marae/pā**.
The learning experiences offered in this card deck are in no way a reflection of the practices and customs for all of the many sub-tribes and tribes of Aotearoa.

STORY

Welcome to **Ngā Motu!**
A tribe of people have arrived on a double-hull **waka** on Ngā Motu.
The people are hoping that they will be able to stay on Ngā Motu until they fix their **waka** and set sail again.
The islands are already inhabited by a tribe. How will the visitors engage with the inhabitants of these islands and make everlasting and healthy relationships with them?
There is much to learn about their customs and ways of life, and with the new visitors, more room is needed and new spaces and resources need to be created.
How will you do your part to help keep people warm and sheltered, and provide enough food?



This story will help you to engage with and interpret the Ngā Motu world.
Many of the learning activities in this card deck sit outside of Ngā Motu and will help you to engage with both the physical and virtual worlds.

What's the story?

Get your students excited about the adventure to come. You can read through the story together of how they have come to land on this unique world of Ngā Motu, to get their imaginations working before they dive in.

IN YOUR WORLD

REALM A
KNOWING

Aren't we so lucky to be in Aotearoa?

Aotearoa is a beautiful country, with unique tipu and kirehe that make up this place. It is like nowhere else on earth. What makes it so special?

WERO

Choose a favourite place that you enjoy and know well. The place could be inside or outside, big or small, near or far.

If it's possible to visit the place in person, sketch, photograph, video or capture an audio diary of what you see or experience.

If you can't go to the place in person, find out everything you can about it and store the information in one place.

Recreate your favourite place as a virtual communal space in Minecraft: Education Edition that others can enjoy being in.

Try to add the features of this place that make it feel great to be in and that show others why this space is precious to you.

YOU COULD LEARN:

- What is made by people and what is the natural world (Levels 1 & 2)
- That technology is people designing outcomes for other people for a purpose (Levels 1 & 2)

POWER UP CARD A

NGĀ MOTU VIRTUAL PŌWHIRI STEPS

STEP 1

The hosting group initiates by meeting your **manuhiri** at the **waka**, so that the visitors may then clearly see they are welcome to join the hosts. The visiting group waits on the waka. Once they view the hosts approaching the waka, they disembark.

STEP 2

From the shore line, the hosts guide the visitors to the **ātea** of the **pā**. Here you can gather in a circle in front of the **whareniui**, the hosts forming a half circle with their backs to the whareniui and the visitors on the other side of the circle, facing the whareniui.

STEP 3

The hosts commence by introducing themselves and also sharing some information about **Ngā Motu**. Explain what is on Ngā Motu and what happens here. Once all hosts have shared their **pēpēhā**, it is handed over to the visitors.

STEP 4

The visitors respond by sharing their **pēpēhā**.

STEP 5

At the completion of all of the **pēpēhā**, the hosts guide the visitors into the **wharekai** for a meal.



Story

Realm A - Knowing

Realm E - Exploring

Realm I - Creating

Power Up Card A

REALM A KNOWING

What's in this realm?

In Realm A – pronounced 'ahh' – students begin to explore the world of Ngā Motu. This connects with the Nature of Technology curriculum strand – they gain understanding of the big questions of why they are learning about this, including characteristics of technology and technological outcomes.

Learning topics

Wero/challenges

In your world. Think about a place you love. What makes it so special?

Recreate your favourite place as a virtual communal space in Minecraft: Education Edition that others can enjoy being in.

Nau Mai, Haere Mai. Learn about Māori culture from Ngā Motu and research pōwhiri.

Create your own welcome in a Minecraft: Education Edition world. **Power Up Card A** includes steps of pōwhiri.

Who's in my waka/canoe? Learn about the *Endeavour* arriving in Aotearoa. Learn about the stories of your classmates and their waka.

Create a waka/canoe in a Minecraft: Education Edition world that represents the cultures of your class.

Whānau. Research your family tree.

With the permission of your family, share with your class about your family tree. You could create a visual representation of it in Minecraft: Education Edition.

WHAT IS THIS WHENUA?

REALM E
EXPLORING



WERO

Find out about the location of your school, including the **tikanga** of the local people of the **rohe** that your school is situated in.

Make contact with your local **marae/pā** and find out how your class can arrange to visit and learn about the customs and practices of the **kaitiaki** of the lands your school is on.

In a new Minecraft: Education Edition world, create a visual representation of a local or school tradition that you have.

Try to include in your creation the reasons why you think you do these things.

Consider including these elements:

- What is the local area known as? **Māori** name (and **Pākehā** name if applicable)

- What is the local **iwi/hapū**
- What are the unique customs of your local area?
- Are there any **taonga** in your local area?
- Are there any **atua** connected with your land?

YOU COULD LEARN:

- To understand how the status of **Māori as tangata whenua** is significant for communities in New Zealand
- **Whakamana** (personal empowerment)
- **Whānau tangata** (integration of family)
- **Ngā hononga** (learning through responsive and reciprocal relationships with people, places, and things)
- **Mana Atūroa** (active exploration of the environment)
- **Mana Whenua** (affirming and extending links with the family and wider world) (From *Te Whāriki 2017*)



Story

Realm A – Knowing

Realm E – Exploring
What is this Whenua?

Realm I – Creating

Power Up Card A

REALM E EXPLORING

What's in this realm?

In Realm E – pronounced 'air' – students learn more about Māori culture. This connects with the Technological Knowledge strand, which involves technological modelling, technological products and technological systems. Extending learning to the real world, students research the history of the local people of the rohe/area where your school is located.

Learning topics

Explore Ngā Motu in detail. Understand and respect this world

What is this whenua/land? Learn about the place your school is in.

Te whare. The whare/house is one of the most important places for the indigenous people of Aotearoa.

Wero/challenges

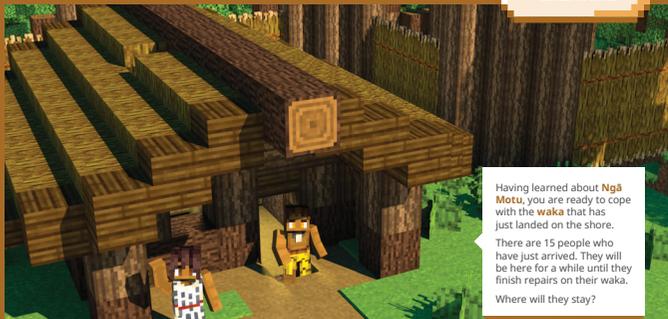
Create a presentation about what you see on Ngā Motu using the in-game camera.

In a new Minecraft: Education Edition world, create a visual representation of a local or school tradition that you have.

Make contact with your local marae and find out how your class can visit to listen to the narratives about the whare/house there.

EXPLORE NGĀ MOTU

REALM I
CREATING



Having learned about Ngā Motu, you are ready to cope with the waka that has just landed on the shore. There are 15 people who have just arrived. They will be here for a while until they finish repairs on their waka. Where will they stay?

WERO

The long term visitors to the islands need somewhere to stay. Use the building plots and supplied resources in Ngā Motu to create a humble house. Think carefully about what your visitors might need and build a shelter that they would like to stay in.

Build a small **whare** that can provide shelter and a place for a fire that can accommodate a small group of 3-5 people. Once complete, share your creation with your classmates.

YOU COULD LEARN:

- To understand how the environment dictates your decisions; what to use and how to use it, and you predict how it will work (Level 3)
- To describe how the people and the place you are working with affects what you make (Level 3)
- To predict how the things you make affect the people and the place where they are used now (Level 3)



POWER UP CARD B

IN OUR WORLD

Consider using the inhabitants and surroundings of the location of your school as the context for your new land. The following steps could help you work together to achieve this:

STEP 1

Link the practices of the local people to your land, or create your own customs and practices.

STEP 2

Map your physical local area by paying special attention to the landscape. This could include mountains, hills, dunes, creeks, rivers, lakes, swamps, beaches, coves, caves, the bush, forests, flora and fauna that cover the terrain, and anything else that is part of it.

STEP 3

Form small teams that have a part they are responsible for creating.

STEP 4

Use a shared space to create your design for the new land.

STEP 5

Decide how you're going to keep track of the design and build processes to show to others. Some ideas include a class journal, blog, video, or storyboard, and the camera and portfolio.



Story

Realm A - Knowing

Realm E - Exploring

Realm I - Creating

Power Up Card B



What's in this realm?

Here in the final realm – I (pronounced 'eee') – students construct their own world, beginning with a small shelter and then working collaboratively to manage the environment and resources. This connects with the Technological Practice strand – understanding how to design and develop outcomes, including brief development, planning for practice and outcomes development and evaluation. **Power Up Card B** provides a guide to help students work together.

Learning topics

Wero/challenges

What we build. You are ready to cope with the waka that has just landed on the shore.

Use the building plots and supplied resources in Ngā Motu to create a humble house.

Now that you've experimented with creating shelters, it's time to really challenge your creativity!

Work together with up to 5 of your classmates to build a large meeting place in Ngā Motu.

Plan the management of the resources of a new land.

Work with your class to imagine how a new land could look and how it would be resourced.

Work collaboratively to build a new land.

Discuss as a class how you will work together and the roles you will need to successfully collaborate.

EDUCATOR WORKBOOK

Supporting Student Achievement at NZC Levels 3&4

New Zealand Curriculum-Technology learning area, Digital Technologies areas Computational Thinking for Digital Technologies (CTDT) and Designing and Developing Digital Outcomes (DDDO).

A key element of the resource design is the structure of the learning the students will experience is wrapped around the intent of the learning area 'intervention by design'.

The learning isn't seen just in silos – students move within the three strands as they grow in confidence and capability. In the digital technologies area, specific experiences appear at appropriate times as students work in authentic and local contexts, developing outcomes for end-users.

[Resource for getting Minecraft: Education Edition ready for use >](#)

Realms:

Knowing – connects with the 'why' – Nature of Technology strand, understanding the big questions and concepts of why they are learning about this.

Exploring – connects with the 'what' – Technological Knowledge strand, understanding the knowledge they will rely on and need in order to learn about this.

Creating – connects with the 'how' – Technological Practice strand, understanding how they will do the designing and developing of outcomes.

Add details here of	Resources: Student Card Deck Overview	Game Realms: A, E and I (after Māori vowels)
Who your students are, time allocated to learning, specific learning needs and connections to prior learning, connections to other learning areas, etc.	These can be done in any order as stand-alone learning activities. They can also be used sequentially (as shown here) as a more in-depth learning programme. <ul style="list-style-type: none">• What's in the deck?• Quick start guide• Te Reo Maori Glossary• Map• Story• Game cards• Power Up cards	A: (ahh) Knowing <ol style="list-style-type: none">1. In your world – about yourself2. Nau Mai, Haere Mai – about pōwhiri3. Who's in my waka? – about those around you4. Whānau – about your own family E: (air) Exploring <ol style="list-style-type: none">5. Explore Ngā Motu – about Māori culture through Ngā Motu6. What is this whenua? – about your surroundings7. Te whare – about virtual and physical whare I: (eee) Creating <ol style="list-style-type: none">8. What we build – build something small9. Build bigger – collaboratively build something bigger10. Manage our rawa – plan a whole land11. A new land together – build a whole land

HOW TO USE THIS WORKBOOK

Teacher notes – plan

How could I meet particular student needs at each step of learning?
What will I deliberately do to support this learning?
What strategies (evidence based) are most likely to help my students learn this?

Student activities

Teaching and learning sequence (We Are Learning Today).
How will I approach teaching what I'm hoping the students will learn?
What is important (and therefore worth spending time on), given where my students are at?

Performance expectations/ curriculum alignment

Intended and critical learning outcomes (these are the teacher-speak versions of the student "You will learn..." on the cards).

What am I hoping the students will learn today? Significant curriculum learning steps are highlighted in italics.

Learning outcomes – select from the range suggested below those that best fit your students.

Curriculum Key:
(Level 3 OD&E/CTDT PO1&2) =
(NZC Level – strand/component AO/Digital PO no).

For details on how you can support learning at curriculum Levels 1&2, refer to the curriculum design support resources (from page 26).

Teacher notes – reflect

Reflection/evaluation Follow up

- What will I change next time I do this?
- What happened as a result of the teaching and what are the implications for future teaching?
- Is there something I need to change?
- What are the next steps for learning?

Curriculum abbreviations key:

Strands:

NoT = Nature of Technology (Why)
TK = Technological Knowledge (What)
TP = Technological Practice (How)

Components:

NoT Strand:
CoT = Characteristics of Technology
CoTo = Characteristics of Technological Outcomes

TK Strand:

TM = Technological Modelling
TP = Technological Products
TS = Technological Systems

TP Strand:

BD = Brief Development
P4P = Planning for Practice
OD&E = Outcome Development and Evaluation

REALM A: KNOWING

Teacher notes – plan	Student activities	Performance expectations/ curriculum alignment	Teacher notes – reflect
	<p>1. In your world</p> <p>Session focus: Awareness and appreciation of yourself and your environment – Aotearoa</p> <p><i>Aotearoa is a beautiful country, with unique tipu/flora and kīrehe/fauna that make up this place. It is like nowhere else on earth. What makes it so special?</i></p> <p>Discuss with students what they appreciate and notice about Aotearoa. What makes this place unique? What are its features? Can they compare to any other countries?</p> <p>Lead the students through questioning to think about a place that is special to them. It is important to note the intent is for learning to happen in authentic contexts wherever possible.</p> <p>Encourage them to suggest ways to record observations by any method they feel is appropriate (sketching, photographing, videoing or voice recording an audio diary of what they see). If they can do this for themselves, allow some ‘free range’ exploring time to use any digital and non-digital devices available for this purpose.</p> <p>They may wish to take photos and gather/present on a slideshow, or cut images from local papers or magazines that show colours and images of what they see. As they use different tools and approaches, discuss how people design and make things for other people. The other people who students make things for are called ‘end-users’.</p> <p>Wero/challenge:</p> <p>Create a new virtual communal space in Minecraft: Education Edition that represents aspects of a place they know well. This could include the inhabitants, surroundings and location of their home or school in which they can hang out with their friends or classmates.</p> <p>This is an opportunity for the students to explore and trial the functions and features on offer in Minecraft: Education Edition. Encourage students to really consider the natural world as they recreate it in Minecraft: Education Edition.</p> <p>Ask students questions that get them to explore how the things that people make relate to the natural world in good and bad ways.</p>	<ul style="list-style-type: none">• Students understand that <i>technology is purposeful intervention through design</i>. This is the key performance expectation.• They begin to identify <i>how people design and make technological outcomes for a purpose</i> and that the impact of these outcomes on <i>both people and the environment</i> can be good and bad. (Level 1&2 CoT)• In authentic contexts and taking account of end-users, students use their <i>decomposition skills to break down simple non-computerised tasks into precise, unambiguous, step-by-step instructions</i> (algorithmic thinking). They give these instructions, identify any errors in them as they are followed and correct them (simple debugging). (Level 1 CTD T PO1)• 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. (Level 1&2 DDDO PO1)	

Teacher notes – plan

Student activities

2. Nau Mai, Haere Mai. About Pōwhiri

Session focus: Learn about Māori culture from Ngā Motu

Being new to Ngā Motu, your first task is to find out how to interact with the local people. What is the layout and what is in place to welcome newcomers? Once you understand this, it is now your role to simulate a welcome.

As this is the first session where students are in the Māori world Ngā Motu, check this world is downloaded on all their devices.

Students will be engaging with an NPC (non-player character) called Tiani about pōwhiri. You may need to support students to find out and document the steps.

Wero/challenge:

Support students to design a virtual pōwhiri to welcome visitors arriving in a world they've created. They're asked to consider how to give information about the pōwhiri so that they know what to do/what their role is. (Level 3)

They can create their own NPC and use the code builder to get the agent to act out part of the welcome. (Level 4)

An outline of steps of a pōwhiri are on Power Up Card A.

As they do this, they'll have to look at how they've broken down the process into smaller simple steps. This is known as sequencing and introduces students to algorithmic thinking, one of the essential elements in understanding computer science.

Encourage the students to find out more information about sequencing and algorithms and compare it to the virtual pōwhiri they have created and the coding activities if they've chosen to do them.

Performance expectations/ curriculum alignment

Teacher notes – reflect

- Students are able to *describe or show their design ideas to others*. They can describe and *explain their main features/ attributes*, choose materials and resources to make the design and make evaluative statements as to how well the model represents their local area. (Level 3 OD&E)
- Students can describe verbally or using models/drawings how they've *broken down a process into simple step-by-step instructions*. They can describe any issues they experienced when coding artefacts/objects in their new island and can say how they corrected them (de-bugging) (Level 3 CTDT PO1&2)
- In authentic contexts and taking account of end-users, students decompose problems into step-by-step instructions to create algorithms for computer programs. They use logical thinking to predict the behaviour of the programs and they understand that there can be more than one algorithm for the same problem. They develop and debug simple programs that use inputs, outputs, sequence and iteration (repeating part of the algorithm with a loop). They understand that digital devices store data using just two states represented by binary digits (bits). (Level 4 CTDT PO3)

REALM A: KNOWING

Teacher notes – plan

Student activities

3. Who's in my Waka? About those around you

Session focus: Am I being a responsible host/visitor? Customs in Aotearoa expect certain behaviours when being a host or a visitor.

In the year 2019, Aotearoa experienced Tuia 250 – First encounters. This event remembered the arrival of Captain Cook on the HMS Endeavour. For the indigenous people of Aotearoa (Māori), it stirred up many emotions.

Investigate the history of Aotearoa and what happened to the indigenous people, Māori, when Cook arrived. In ways that suit the needs of your students, ask questions such as: What happened? How did Cook approach their arrival at this new island or lands? Who were some key figures in the first encounters? Who are the local people in the accounts and what is their version of these events? Can we put ourselves in the shoes of both Cook and Māori? What can we learn from this? What happened when the *Endeavour* arrived in Aotearoa? Who were some key people in the first encounters? Who were the local people and what is their version of these events? What can we learn from this?

Wero/challenge:

As students explore the different waka in Ngā Motu and talk to the people, encourage them ask questions such as: Why are they designed the way they are? What more can you find out about the double-hull and single-hull designs?

Extension: Research the different ways people travelled to Aotearoa. Inquire how the design of the waka/canoe/ship made it possible for people to travel further than before. You could make model boats and test how different materials (card, plastic, newspaper, foil) behave in water and how their shape affects how they float. Design an imagined waka in a Minecraft: Education Edition world that represents the many cultures and histories in your classroom.

Extension: Together, discuss possible methods and create a data system (tally chart, spreadsheet, etc.) to gather the backgrounds of the people in your class. What criteria will you use? Who has lived in a country other than Aotearoa? Whose parents/grandparents lived in a country other than Aotearoa? How many countries are represented by the people in our class? How many nationalities are in Aotearoa? How can we find this out? Ask questions such as which data/information is the input? What information do we look for as the output? What does this data system tell us?

Performance expectations/ curriculum alignment

Teacher notes – reflect

- Students understand *how society and environments impact on and are influenced by technology in historical and contemporary contexts and that technological knowledge is validated by successful function contexts* and that technological knowledge is validated by successful function. (Level 3 CoT)
- Students achieve this by exploring how the waka (transport technology) made it possible for people to travel to new lands and how historic events influences people in making decisions about their lives today and in the future.
- *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. (Level 1&2 DDDO PO1)

Teacher notes – plan

Student activities

4. Whānau. About your own family

Session focus: Your whakapapa/ancestors, those who have gone before you, have made you who you are today.

When we are in daily contact with whānau, grandparents, uncles, aunts, cousins, it is easy to feel connected. What about those who are not with us? Either those who have passed or who live in a different land. Are they any less important to who we are?

Wero/challenge:

Students are challenged to research and map their family tree. Support them to find ways to gather information such as: Who is linked to who, what do you know of them (some information may be either very emotional or confidential, so this task requires patience and understanding along with courage), where they lived, etc.? When considering how to do this, encourage a variety of methods to solve this challenge.

They might like to record in a scrapbook or on a digital device. A good way to start off is to have a very large area that they can easily plot and move around names and information so that a big picture reveals itself. Because this information is special to your students, with the permission and endorsement of family, have them share with the class whatever they would like to share. It is okay to share as little or much as feels appropriate. As they do this, students may encounter some challenging and joyful feelings. Be ready to allow this as much as the students can manage.

Some questions that can help with considering the feelings of themselves and others: How did researching your family tree make you feel? Why? What did you find difficult? How did you cope with the challenges? How do the indigenous people of Aotearoa represent their family tree? How might this make them feel and why?

Performance expectations/ curriculum alignment

- Apply new understanding of culture – people and place – by incorporating the unique characteristics of a family tree into a humble dwelling. They can describe the physical and functional characteristics of the dwelling and how successful it is at showing the key parts of the family tree. (Level 3 BD)
- Students can identify how they have been both *creative and critical* in what they have produced. (Level 4 CoT)
- Students can say why and how their activities (tech practice) have *changed for both people and place, both negatively and positively*. (E.g. how DNA technology has led to improvements in how people trace and build their family tree). (Level 4 OD&E)

Teacher notes – reflect



REALM E: EXPLORING

Teacher notes – plan

Student activities

5: Explore Ngā Motu. Learn about Māori culture through Ngā Motu

Session focus: So that I can respect this new place, do I fully know and understand this new Ngā Motu world?

Understand and respect this world. Oceans, land, people, flora and fauna are the gifts to be used and respected to sustain life for all. The islands of Ngā Motu are a rich ecosystem that provide these gifts.

Within the Ngā Motu world are many native animals and fauna and flora. Guide the students to take their time to inquire, explore and play with the many activities that are here. As they do this, guide them to find out who and what resides in this world. What information is being shared about them? What else might you need to rangahau/seek out, research, investigate? Why might those particular flora and fauna be present in the world? Why not other types?

Wero/challenge:

Students are challenged to suggest a way to collect this information so that it can be shared with others who have not experienced the Ngā Motu Minecraft: Education Edition world.

Some ways this could be captured:

- They can use the camera and portfolio (in-game) to create an out-of-game resource (PDF using the portfolio export feature)
- Recorded video of in-game footage with voiceover.

Once collected, encourage the students to find new ways of collating and presenting this information with a focus on the needs of the end-user. A good strategy for this is to ask the students to imagine they are explaining the Ngā Motu world to an alien.

This **Pixar YouTube clip** can be a useful and engaging way to approach how important the design of clear, non-verbal communication (how to make decisions, resilience, etc., all while focusing on someone else) is when trying to achieve an outcome.

Performance expectations/ curriculum alignment

- Students can describe the *physical and functional nature* (what it looks like and what it does) of this environment.
- They can describe the attributes (broad features) of an environment and *identify those which are key* for them to make decisions about how they might understand this new place so they can describe it to others. (Level 3 OD&E)
- 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.* (Level 4 DDDO PO2 – first half of PO2)

Teacher notes – reflect



Teacher notes – plan

Student activities

6. What is this Whenua? About your surroundings

Session focus: Understand the importance of how the place where people are influences how they interact, their rules and customs.

What is our story? What makes us unique? How can you and your class learn about the customs and practices of the guardians of the whenua your school sits on? Find out about the location of your school. What is its history? What is unique about the land that it sits on?

Find out about the tikanga/history of the local people of the rohe/location that your school is situated in.

Make contact with your local marae/pā. Find out how your class can learn about this place. Maybe arrange to visit and learn about the customs and practices of the kaitiaki/guardians of the lands your school is on. Once you have gathered this information, decide together how you could present this to other groups/classes in your school.

Wero/challenge:

In a new Minecraft: Education Edition world, create a visual representation of a local (whānau, school, classroom or group) tradition that you have.

Try to include the reasons why you think you do these things.

Some questions to help:

- What is the local area known as? Māori name (and Pākehā name if applicable)
- What is the local iwi/hāpu?
- What are the unique customs of your local area?
- Are there any taonga/treasures in your local area?
- Are there any atua/deities/gods connected with your land?

Performance expectations/ curriculum alignment

- Understand how the status of Māori as tangata whenua/people of the land is significant for communities in New Zealand.
 - Whakamana/personal empowerment
 - Whānau tangata/integration of family and community
 - Ngā hononga/learning through responsive and reciprocal relationships with people, places and things
 - Mana aotūroa/active exploration of the environment
 - Mana whenua/affirming and extending links with the family and wider world
From *Te Whāriki* (2017)
- If this is new learning for your school, or you want to expand what you already do, consider how the values listed above might align with your school's values.

Teacher notes – reflect

REALM E: EXPLORING

Teacher notes – plan

Student activities

Performance expectations/ curriculum alignment

Teacher notes – reflect

7: Te Whare. About virtual and physical whare

Session focus: Understand that the whare/meeting house is one of the most important places for the indigenous people of Aotearoa.

The whare represents an ancestor of importance or significance within the area, sub-tribe and tribe. There are also many stories explaining the shape, structure and naming of a whare.

Students need to experience the importance of a whare. You could arrange to visit the marae/pā to listen to the narratives of the house(s).

Support students to understand the cultural expectations around visiting marae/pā. Offer guidance how to question respectfully about why things are the way they are in the whare: What is in this whare and why is it this way? Why is the whare positioned the way that it is? What are the structural features (how it's been built) and what materials have been made? How does it personify the ancestor(s)?

Students will be gathering their observations in many areas as they investigate the authentic context of the whare. Guide the students to investigate and find answers.

See what digital methods you could use to record findings in a visual form with supporting notes (and what the protocols are for doing this while you're there, or if you could do it back at school).

As they do this, encourage students to distinguish between the physical features (how they look), the functional features (what they do) and those features that have both a physical and a functional nature. Suggest a comparison between this whare and the students' own homes they live in. What differences in physical/functional features do you notice here?

Students can describe the *physical and functional attributes/features of the whare/meeting house* (what it looks like and what it does) and how these affect how it is *fit for purpose* (how good it is). (Level 3 CoTo)

Students can describe and explain *how and why people have changed the way they make outcomes* (whare in this case) and how these have *affected both people and place, negatively and positively*. (Level 4 OD&E)

Teacher notes - plan

Student activities

Wero/challenge:

Visit the whareniui on Ngā Motu. What structural features do you notice? What materials have been used? Why is this? Use the camera and portfolio to record the features and the significant role they play in the whare.

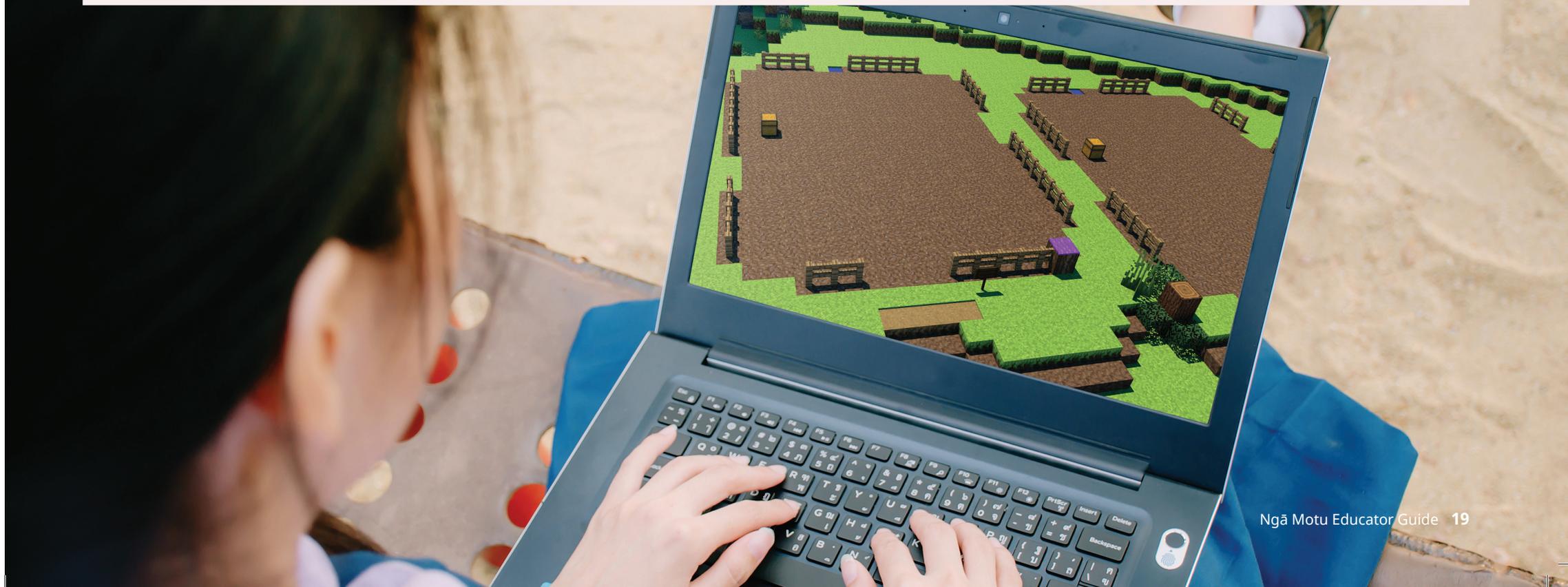
Guide the students to describe and show how the physical and functional features of the whare they've explored affect how good the whare is at doing its job (fitness of purpose).

Develop a timeline of how houses have changed in Aotearoa over time and support students to give their reasons behind the nature of the houses: how the houses are made, what materials they are made from and the effects (good and bad) on the people who use them and the place where they are.

Performance expectations/ curriculum alignment

Teacher notes - reflect

- Students can explain possible physical and functional attributes for a technological outcome (the whare) when provided with intended user/s, a purpose and relevant social, cultural and environmental details to work within. (Level 4 CoTo)



REALM I: CREATING

Teacher notes – plan	Student activities	Performance expectations/ curriculum alignment	Teacher notes – reflect
	<p>8: What we Build. Start Small</p> <p>Session focus: The structures we need to survive.</p> <p><i>Having learned about Ngā Motu, you are ready to cope with the waka that has just landed on the shore. There are 15 people who have just arrived. They will be here for a while until they finish repairs on their waka. Where will they stay?</i></p> <p>Wero/challenge:</p> <p>Students build a small whare that can provide shelter and a place for a fire that can accommodate a small group of three to five people.</p> <p>This can be as creative, innovative or as far-fetched as they like. Encourage really innovative, far-fetched and creative solutions to this first ‘create’ challenge.</p> <p>To support the ability to visualise and trial their concepts/design thinking, students may want to build a physical model in card/plasticine/Lego bricks/other materials, or they could use digital 3D modelling software such as Tinkercad or Autodesk Inventor to work out how it could look and methods of construction before they go into Minecraft: Education Edition.</p> <p>As they are developing their outcomes, encourage students to apply technical vocabulary: <i>physical and functional attributes</i> and how these attributes help the concept be <i>fit for purpose</i>. Prompt students to continue to think about both how the people using it and the place where it is influences what is built.</p> <p>Students could use code builder functions to instruct the non-player character (NPC) to create a house in their Minecraft: Education Edition world.</p> <p>Resources for code builder:</p> <p>Code Builder for Minecraft: Education Edition ></p> <p>Code builder tutorial ></p>	<ul style="list-style-type: none">• Students can describe <i>how the people and place influenced what they made, how they planned it, how they selected resources and how they knew it was going to be successful or not.</i> (Level 3 OD&E)• Students can describe how people and place <i>influence how technology advances and how these advances develop and change over time.</i> (Level 3 CoT)• Students can describe how their outcomes (products and systems they made) <i>could impact the people and place of Ngā Motu over time.</i> (Level 3 CoT)• In authentic contexts and taking account of end-users, students <i>give, follow and debug simple algorithms in computerised and non-computerised contexts.</i> They use these algorithms to create <i>simple programs involving outputs and sequencing</i> (putting instructions one after the other) in age-appropriate programming environments. (Levels 2&3 CTD PO2)	

Teacher notes – plan

Student activities

9: Build bigger. Work collaboratively to build something bigger

Session focus: Explore what the possibilities are in Minecraft: Education Edition

Now that your students are increasing their Minecraft: Education Edition capabilities and becoming more familiar with the needs of the inhabitants and visitors to Ngā Motu, now is the opportunity to really challenge their skills and creativity.

Wero/challenge:

The students' Minecraft: Education Edition world needs a large whare/house to accommodate and shelter all the tangata/people.

Their challenge is to build a large whare together in classroom mode – up to five classmates together. Support students to research what the different roles are so they can design a team of builders. Roles can then be given so that each person in the team contributes in a fair way to the construction of a more sophisticated shelter that can house 15-20 people.

This is one of the biggest challenges for students in this learning programme. The students will explore many ways to approach this and all pathways are valid if they are moving towards the goal of creating a more sophisticated whare/house.

Useful resources to support problem solving:

[Build with the agent >](#)

[Introduction to Minecraft: Education Edition Webinar >](#)

Extension:

Students who are growing in confidence can select from these extension options.

- Create a meeting place in a new world and make it suitable for 50+ people to meet in.
- Use Blockbench to create custom blocks for the meeting place and import them into Minecraft: Education Edition for use when building.
- Use TinkerCAD or Fusion 360 to 3D digitally model a printable version of your co-constructed meeting place.

Performance expectations/ curriculum alignment

- By creating support for the people, students begin to understand how they can be instrumental in expanding 'human possibilities' by using their own and other's design and creativity to solve authentic problems. (Level 4 CoT)
- Students can provide examples of 'breakthrough' innovative ideas that made new things possible (e.g. how their house design gave more room for eating and being together in the warm than was first thought). (Level 4 CoT)
- Students can describe the many different skills they have used and the disciplines (subjects) they used in creating their outcomes. (Level 4 CoT)
- In authentic contexts and taking account of end-users, students *decompose problems into step-by-step instructions to create algorithms for computer programs*. They use *logical thinking to predict the behaviour* of the programs and they understand that *there can be more than one algorithm for the same problem*. They develop and debug simple programs that use *inputs, outputs, sequence and iteration* (repeating part of the algorithm with a loop). They understand that digital devices store data using just two states represented by binary digits (bits). (Level 4 CTD T PO3)

Teacher notes – reflect

REALM I: CREATING

Teacher notes – plan

Student activities

Performance expectations/ curriculum alignment

Teacher notes – reflect

10: Manage our Rawa. How can we be sure we have enough... for long enough?

Session focus: Having studied and recorded the Ngā Motu environment, it's your role to plan the management of the resources of a new land.

Wero/challenge:

Students build an understanding of what is required in ecology systems, including those of the indigenous people of Aotearoa.

Students are challenged to start planning how they can manage their resources, considering the number of people and the time the resources have to last for.

Students can do this individually, or Power up card B provides steps to help them work together.

Understanding an ecology system is a very big question.

So that students understand the many connected parts of a big system, start by looking at small and familiar systems. For example, one of the first technologies for humans was fire. Lead the students in activities to think about the system of a fire, ask questions around how fires begin and end, what keeps the fire going and what the purpose of the fire is.

Pose next-stage questions such as: What resources are needed before we start the fire? What goes into the system (these are the inputs)? How do we light the fire? What is happening when the spark turns into a flame? This part of the system is the transformation process because it transforms inputs into outputs (firewood and a spark into a fire).

These transformation processes are called 'black boxes', as we don't usually know what's happening. The process usually involves scientific principles that we experience every day and take for granted. To understand this transformation process, have students investigate and research what the science of combustion is and how it occurs.

- 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. (Level 4 DDDO PO2)
- Students understand that technological systems (the fire) have inputs, controlled transformations and outputs. (Level 1 TS)
- Students understand that there are relationships between the inputs, controlled transformations and outputs occurring within simple technological systems. (Level 2 TS)

Teacher notes - plan

Student activities

So what is it we want as an end result? This is called the output – what the system is designed to produce.

Once we have our fire going, how do we keep it going? Why do we need to keep adding firewood? Why does the fire need to be sheltered from the rain? This maintenance part is called system control and feedback.

Support the students to identify other systems around them and apply the input-process-output-feedback labels to what is happening. Ask what is the system of a door/a phone/a human body.

A visual diagram like this one can help understanding

Systems thinking diagram



Guide students through researching solutions to the following questions: Who and what will be in the world? How will the cultures of the people in the world be represented? How will the land be made to suit its inhabitants? What shelters will be needed and how will they be built? What food and resource gathering and storage systems will be needed? What light and warmth sources will be needed?

Performance expectations/ curriculum alignment

Teacher notes - reflect

- Students can describe what 'black box' refers to within a technological system and the role of particular black boxes within technological systems. They can identify possible advantages and disadvantages of having black-boxed transformations within particular technological systems. They can describe the components and how they are connected, as well as how they allow particular systems to be technically feasible and socially acceptable. (Level 3 TS)
- Students understand how technological systems employ controls to allow for the transformation of inputs to outputs. (Level 4 TS)

REALM I: CREATING

Teacher notes - plan

Student activities

11: A New Land Together. Build a new land

Session focus: Work collaboratively to build your Aotearoa ecosystem

Now students know how their new land has to work, their final challenge is to collaborate with their group/classmates to build it.



Performance expectations/ curriculum alignment

- Students can describe how the people and place (their environment) influenced what they made, how they planned it, how they selected resources and how they knew it was going to be successful or not. (Level 3 OD&E)
- Students can describe how people and place influence how technology advances and how these advances develop and change over time. (Level 3 CoT)
- Students can describe how their outcomes (products and systems they made) could impact the people and place of Ngā Motu over time. (Level 3 CoT)
- By creating support for the people of Ngā Motu, students begin to understand how they can be instrumental in expanding 'human possibilities' by using their own and others' design and creativity to solve authentic problems. (Level 4 CoT)
- Students can provide examples of 'breakthrough' innovative ideas that made new things possible (e.g., how their house design gave more room for eating and being together in the warm than was first thought). (Level 4 CoT)
- Students can describe the many different skills and disciplines (subjects) they used in creating their outcomes in Ngā Motu. (Level 4 CoT)

Teacher notes - reflect

Teacher notes – plan

Student activities

Wero/challenge:

Students will work collaboratively with their group/class to build a new land. Before they start, they will need to discuss as how they will work together, divide up the jobs that need doing and the roles needed to successfully collaborate and create this new land.

Support students to consider and research to understand roles such as:

- Project leaders
- Information finders (researchers)
- Resource gatherers
- Architecture experts
- Design experts
- Landscaping experts
- And anything else they can identify as needed

Students will need support to reflect on prior learning so that they can apply it here and reach a successful outcome. The main parts of prior learning that will be useful here are:

- The plans they made when completing the Manage our Rawa card.
- The knowledge they acquired about Ngā Motu and the various ways in which people live in community.
- How to know when they have been successful in creating the new land.

Performance expectations/ curriculum alignment

- *In authentic contexts and taking account of end-users, students decompose problems into step-by-step instructions to create algorithms for computer programs. They use logical thinking to predict the behaviour of the programs and understand that there can be more than one algorithm for the same problem. They develop and debug simple programs that use inputs, outputs, sequence and iteration (repeating part of the algorithm with a loop). They understand that digital devices store data using just two states represented by binary digits (bits). (Level 4 CTDT PO3)*
- *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. (Level 4 DDDO PO2)*

Teacher notes – reflect

CURRICULUM DESIGN SUPPORT A - CURRICULA

Where are we learning? In Aotearoa, New Zealand

This tool will support you to embed hangarau matihiko/digital technologies authentically across your kura/school. Key to the resource design – the structure of the learning is wrapped around the intent of the learning areas of Hangarau in Te Marautanga o Aotearoa (TMOA) and Technology in New Zealand Curriculum (NZC).

Read the information below and fill out the right-hand column with your own notes. This will show you how the curriculum can guide you, so that you (teachers/kaiako, decision makers, tumuaki/leaders) can be sure that the design of your local kura/school curriculum achieves the learning outcomes that you and the curriculum intend.

Curriculum parts	Te Marautanga o Aotearoa Intent/Purpose of Hangarau	New Zealand Curriculum Intent/Purpose of Technology learning area	How do we ensure the intention of the learning area gets into our classrooms?
<p>Essence of the learning area:</p> <ul style="list-style-type: none"> • What sets it apart from the others? • What makes it unique and important for students to understand? 	<p>The essence of hangarau is expressed within the following verse.</p> <p>From the technological practices of our tūpuna/ancestors, to technological processes and practices in contemporary society, our ancestors have laid the foundations for success and achievement.</p> <p><i>Tikina atu i tuawhakarere I te ao kōhatu Ngā mōhiotanga o rātou mā Hei kawē i a tātou i roto i te ao tūroa Kua takoto kē te whāriki i rarangahia e rātou Wānangahia tuakina kia tau Rangahaua kia maumahara Manakohia kia whiwhi ai Te mātauranga Māori motuhake</i></p> <p><i>Take hold of the knowledge of our ancestors To carry us in this contemporary world. The foundations have already been laid. Discuss, debate, in order to understand Research, to remember Practice, to retain The essence of Māori knowledge</i></p>	<p><i>Kaua e rangiruatia te hāpai o te hoe; e kore tō tātou waka e ū ki uta.</i></p> <p>Technology is intervention by design. It uses intellectual and practical resources to create technological outcomes, which expand human possibilities by addressing needs and realising opportunities. Design is characterised by innovation and adaptation and is at the heart of technological practice. It is informed by critical and creative thinking and specific design processes.</p> <p>Effective and ethical design respects the unique relationship that New Zealanders have with their physical environment, and embraces the significance of Māori culture and world views in its practice and innovation.</p> <p>Technology makes enterprising use of knowledge, skills and practices for exploration and communication – some specific to areas within technology and some from other disciplines. These include digitally aided design, programming, software development, various forms of technological modelling and visual literacy (the ability to make sense of images and the ability to make images that make sense).</p>	

Curriculum parts	Te Marautanga o Aotearoa Intent/ Purpose of Hangarau	New Zealand Curriculum Intent/Purpose of Technology learning area	How do we ensure the intention of the learning area gets into our classrooms?
	<p>Students develop hangarau skills and knowledge by way of discussion, research, experimentation, trial and error methodologies and hands-on experience.</p>	<p>Students experience being a technologist through a values-driven area of learning. They design for equitable outcomes by considering people and place in inquiry/project-based authentic learning contexts. Learners develop understanding and capabilities in transforming information, materials and energy.</p>	
Purpose	<p>Hangarau teaching and learning programmes will be purposeful. The learning programmes will empower students to develop hangarau knowledge and skills. To do this, students should begin with a Māori world view to technology and make the appropriate adaptations for contemporary technology challenges. Students will focus on the values, skills and knowledge of their own world, as well as those modelled by our ancestors. Hangarau learning experiences will validate Māori knowledge and skills within a global society.</p>	<p>With its focus on design thinking, technology education supports students to be innovative, reflective and critical in designing new models, products, software, systems and tools to benefit people while taking account of their impact on cultural, ethical, environmental and economic conditions.</p> <p>The aim is for students to develop broad technological knowledge, practices and dispositions that will equip them to participate in society as informed citizens and provide a platform for technology-related careers.</p> <p>Students learn that technology is the result of human activity by exploring stories and experiences from their heritage, from Aotearoa/New Zealand's rich cultural environment and from contemporary examples of technology. As they learn in technology, students draw on and further develop the key competencies.</p>	
Learning Area Structure	<p>There are two strands: Concepts of Technology and Technological Practice. From these two strands fall five key learning areas. They are Food Technology, Biotechnology, Structures and Mechanisms, Digital Technologies, and Electronics and Control Technology.</p> <p>Students will explore and investigate properties of materials within each context of learning. They will also consider processes and production systems within technologies. These are reflected in the designs and plans produced by students.</p>	<p>The technology learning area has three strands: Technological Practice, Technological Knowledge and Nature of Technology. These three strands are embedded within each of five technological areas:</p> <ul style="list-style-type: none"> • Computational thinking for digital technologies. • Designing and developing digital outcomes. • Designing and developing materials outcomes. • Designing and developing processed outcomes. • Design and visual communication. 	

Principles	Te Marautanga o Aotearoa Principles	New Zealand Curriculum Principles	What are our kura/school and community principles?
	<p>The learner is the centre of teaching and learning</p> <p>The school-based curriculum will:</p> <ul style="list-style-type: none"> • Affirm the learner • Support the learner’s physical, moral, mental and emotional wellbeing • Provide experiences that enable learners to reach their potential across each learning area • Strive to develop the knowledge, skills and attitudes that enable competent learners 	<p>Future focused</p> <p>The curriculum encourages students to look to the future by exploring such significant future-focused issues as sustainability, citizenship, enterprise and globalisation.</p>	
	<p>The learner achieves their potential</p> <p>The Curriculum identifies, affirms and acknowledges the learner’s pursuit through a range of learning environments. Accordingly, experiences should be provided that:</p> <ul style="list-style-type: none"> • Engage the learner • Develop the desired competencies, attitudes and values • Enable the learner to achieve learning outcomes appropriate to their level of ability • Are inclusive and responsive to the learning needs and ways of learning of each individual learner 	<p>High expectations</p> <p>The curriculum supports and empowers all students to learn and achieve personal excellence, regardless of their individual circumstances.</p>	
	<p>School, whānau, hapū, iwi and community will work together</p> <p>The Curriculum encourages the establishment of relationships between the school and whānau that focus on learning. Therefore, the kura-based curriculum should:</p> <ul style="list-style-type: none"> • Ease the pathway for whānau to participate in all school teaching and learning programmes • Include experiences outside of the school that are relevant to the whānau and community • Nurture the language and customs of whānau, hapū and iwi 	<p>Te Tiriti o Waitangi</p> <p>The curriculum acknowledges the principles of Te Tiriti o Waitangi (Treaty of Waitangi) and the bicultural foundations of Aotearoa/New Zealand. All students have the opportunity to acquire knowledge of Te Reo Māori me ōna tikanga.</p>	

Principles	Te Marautanga o Aotearoa Principles	New Zealand Curriculum Principles	What are our kura/school and community principles?
	<p>Environmental health is personal health</p> <p>This Curriculum endorses a place for the school, the family, the community, the hapū and iwi groups to focus on the place of the student in their own world. Therefore, the school-based curriculum supports:</p> <ul style="list-style-type: none"> • A sustainable environment • Learning pathways that enable the learner to engage purposefully with the environment • Holistic teaching programmes • Learner engagement with their environment 	<p>Cultural diversity</p> <p>The curriculum reflects New Zealand’s cultural diversity and values the histories and traditions of all its people.</p>	

Vision	Te Marautanga o Aotearoa Vision	New Zealand Curriculum Vision	What is our kura/school and community vision?
	<p>This section summarises the most important qualities and characteristics of a graduate of Māori-medium education.</p> <p>Through the school working together with its community, whānau, hapū and iwi, graduates of Māori-medium schools will achieve:</p> <p>High levels of educational and socio-cultural success</p> <ul style="list-style-type: none"> • Reaching their full potential • Experiencing academic success • Living confidently and proudly as Māori • Competent to support whānau, hapū, iwi and community • Participating in the Māori world and advocating a Māori world view • Confidence in being Māori facilitating relationships with other peoples and other cultures • Understanding their role within whānau, hapū, iwi, community and wider society 	<p>Our vision is for young people who:</p> <ul style="list-style-type: none"> • Who will be creative, energetic and enterprising • Who will seize the opportunities offered by new knowledge and technologies to secure a sustainable social, cultural, economic and environmental future for our country • Who will work to create an Aotearoa/ New Zealand in which Māori and Pākehā recognise each other as full Treaty partners and in which all cultures are valued for the contributions they bring • Who, in their school years, will continue to develop the values, knowledge and competencies that will enable them to live full and satisfying lives • Who will be confident, connected, actively involved, lifelong learners 	

Vision	Te Marautanga o Aotearoa Vision	New Zealand Curriculum Vision	What is our kura/school and community vision?
	<p>A wide range of life skills</p> <ul style="list-style-type: none"> • Confidence to pursue their own lifelong learning pathways • Able to contribute to and participate positively in the community • Respectful of others including children, their peers and elders • Living successful and fulfilling lives • Multi-skilled • Possessing the skills required for entry into their university of choice <p>A wide range of career choices</p> <ul style="list-style-type: none"> • Having the skills and knowledge needed to enter their career of choice • Able to pursue their own pathways • Having a range of career choices 		

Values	Te Marautanga o Aotearoa Values	New Zealand Curriculum Values	What are our kura/school and community values?
	<p>Values are beliefs and principles that govern behaviour and are deeply embedded within a person or group. Values and attitudes are a key part of what a learner learns through their experiences in their wider environment. The values of the school and the whānau shall be reflected in the school-based curriculum.</p> <p>This section summarises some of the most important values and attitudes to be gained by learners in Māori-medium settings.</p> <p>The principles of the Curriculum reinforce the need for schools, whānau, hapū, iwi and community to work collaboratively to determine their own values and attitudes.</p>	<p>Values are deeply held beliefs about what is important or desirable. They are expressed through the ways in which people think and act.</p> <p>Every decision relating to curriculum and every interaction that takes place in a school reflects the values of the individuals involved and the collective values of the institution.</p> <p>The values on the list below enjoy widespread support because it is by holding these values and acting on them that we are able to live together and thrive. The list is neither exhaustive nor exclusive.</p>	

Values

Te Marautanga o Aotearoa Values

- Individual learners develop values and attitudes that provide confidence through integrity, generosity of spirit and peacefulness; which give a clear sense of personal identity, a high level of personal awareness and self-worth; of empathy and regard for friends and for the school whānau; which lead to a desire to participate in all school learning activities, whether by contributing ideas, reading or listening; which grow an enduring respect for the value of education; of understanding, awareness and aptitude in all learning as a guide into the contemporary world; which help them to identify and understand their own personal values and beliefs.
- Knowing traditional Māori values. The learner understands the values of their whānau, hapū and iwi, enabling access to the Māori world; is generous and caring for visitors; knows their identity and origins; knows their genealogy and whakapapa links; works cooperatively with peers and in groups.
- Understanding the values of the wider world. The learner acknowledges people, regardless of who or where they are or their appearance; the learner is respectful of the mana and spirituality of each person and each whānau and their attitudes and values, even if these differ from their own.

New Zealand Curriculum Values

Students will be encouraged to value:

- Excellence, by aiming high and by persevering in the face of difficulties;
- Innovation, inquiry and curiosity, by thinking critically, creatively and reflectively;
- Diversity, as found in our different cultures, languages and heritages;
- Equity, through fairness and social justice;
- Community and participation for the common good;
- Ecological sustainability, which includes care for the environment;
- Integrity, which involves being honest, responsible and accountable and acting ethically; and
- To respect themselves, others and human rights.

The specific ways in which these values find expression in an individual school will be guided by dialogue between the school and its community. They should be evident in the school's philosophy, structures, curriculum, classrooms and relationships. When the school community has developed strongly held and clearly articulated values, those values are likely to be expressed in everyday actions and interactions within the school.

What are our kura/school and community values?

CURRICULUM DESIGN SUPPORT B - FOUNDATIONS

Why do I need this?

This shows 'WHY' – why powerful learning builds a positive school culture and bridges the gap between what is required (curriculum) and what you see in the classroom.

- **Positive learning culture** (what you see)

- ✓ Collaboration
- ✓ Values and ways of being for themselves and others
- ✓ Critical thinking
- ✓ Authentic/Community/Locally focused
- ✓ Problem Solving
- ✓ Resilience
- ✓ Creativity/Design
- ✓ Empathy

- **Powerful learning programmes designed with digital learning activities that support learning outcomes described in progress outcomes (POs)**

- **Start from the ground up**

- **Strong learning foundations = front of curriculum**

- **Vision, values, key competencies (KCs), principles, strands, learning area outcomes and achievement outcomes (AOs)**





What do I do next?

Review 1: What are **our** foundations?
Discuss and review in your teams.

Review 2: Are our classroom learning programmes powerful? Know what the levels ask for so that you can identify key learning and the steps between levels, enabling you to support your students to progress in the classroom.

Discuss with your team/colleagues the curriculum mapping visual tool (Support C, next page) to help you plan your local curriculum for powerful learning.

CURRICULUM DESIGN SUPPORT C - CURRICULUM MAPPING



What is this?

- A Digital Technologies learning programme consists of two key ingredients: the strands (AOs) and the Digital Technology areas (POs)
- Strands (AOs) + Digital (POs) = DT Learning Programme
- This support will help you to understand the curriculum levels and which parts you can combine into a powerful learning programme.

QUICK START GUIDE

Curriculum-aligning levels:

Technology and digital learning outcomes – how do students progress across levels?

	Strand – Nature of Technology Component – Characteristics of Technology (CoT)	Tech Area – Computational Thinking for Digital Technologies (CTDT)	Tech Area – Designing and developing digital outcomes (DDDO)	What could the learning look like?	
L1	CoT NZC Level 1 AO1 – Intervention by design – know that people make technology.	CTDT NZC Level 1 PO1 – Algorithmic thinking.		Learning at Level 1 Students start to connect people as the creators of technology, as they begin to experience the design process themselves. Students discover algorithms and systems as new ways of thinking in real situations as they follow the teacher.	
L2	CoT NZC Level 2 AO2 – How technology that people make affects/relates to people and place and how technology changes over time.	CTDT NZC Level 2&3 PO2 – Creating algorithms. Begin to understand systems outputs and sequencing.		DDDO NZC Level 1 to 3 PO1 – Following teacher – how to design and develop digital outcomes. Know that humans make digital outcomes, begin to understand systems inputs and outputs.	Learning at Level 2 Students start to show they know <i>how</i> people make technology and what the effects of that are on people. They see changes in technology and how it can do more things. As they see examples of what programs can do and identify errors, they build confidence in testing and trialling possibilities.
L3	CoT NZC Level 3 AO3 – How people and place, historical and contemporary contexts affect technology and why these outcomes change over time.			Learning at Level 3 Students begin to show they know why people make technology and what the effects of that are as the technology becomes more sophisticated. As they experience success and failure as they attempt to get their programs to do more, they build confidence in being a designer, knowing about computer science and how systems work and becoming resilient when things go wrong.	
L4	CoT NZC Level 4 AO4 – How technology can change people. The detail of thinking involved and the different knowledge and skills needed to create outcomes.	CTDT NZC Level 4 PO3 – Know that the purpose of an algorithm, is to create a computer program. Developing systems thinking.	DDDO NZC Level 1 to 3 PO2 – Beginning to create their own unique digital outcome. Understanding their impact on people. Apply systems thinking.	Learning at Level 4 As students become more comfortable in the role of a designer, they accept their design successes and failures as equally important to the outcome doing what they intended.	

Curriculum Levels Step-ups

The significant learning steps in the levels and progression unpacked

Key:

Red: the aim of the learning outcome

Bold: key kupu/words

Highlighted: Step-ups for each level

NZC Levels	Strands Achievement Objectives	Technological Areas: Digital Progress Outcomes	
	<p>Strand: Nature of Technology (good to start with the 'WHY')</p> <p>Component: Characteristics of Technology NZC Level 1-4</p>	Computational Thinking for Digital Technologies (CTDT)	Designing and Developing Digital Outcomes (DDDO)
L1	<p>*Outcomes can be a product and/or a system.</p> <p>NZC Level 1</p> <p>Students will: Understand that technology is purposeful intervention through design.</p> <p>What this could look like in your classroom: Learners watch clips showing how a person/groups design, plan and create an outcome.</p>	<p>Algorithmic Thinking</p> <p>Progress outcome 1 NZC Level 1&2</p> <p>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 give these instructions, identify any errors in them as they are followed and correct them (simple debugging).</p>	*Outcomes can be a product and/or a system.
L2	<p>NZC Level 2</p> <p>Students will: Understand that technology both reflects and changes society and the environment and increases people's capability.</p> <p>What this could look like in your classroom: Learners begin to demonstrate they understand how outcomes that people create, relate to nature and people.</p> <p>They understand and can give examples of outcomes changing over time as technology advances and how this is both good and bad for people, wider society and the environment.</p>		<p>Following teacher - how to create digital outcome. Begin to develop digital capabilities</p> <p>Progress outcome 1 spans NZC Levels 1-3</p> <p>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.</p> <p>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.</p>

NZC Levels	Strands Achievement Objectives	Technological Areas: Digital Progress Outcomes	
L3	<p>NZC Level 3</p> <p>Students will: Understand how society and environments impact on and are influenced by technology in historical and contemporary contexts and that technological knowledge is validated by successful function.</p> <p>What this could look like in your classroom: Learners can describe how people and place influence what people make, their planning, how they select resources (materials/ software) and how they test outcomes. They can say why an outcome (car/ phone) changes over time and how these changes have affected the natural world.</p>	<p>Creating Algorithms</p> <p>Progress outcome 2 NZC Level 3</p> <p>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.</p>	
L4	<p>NZC Level 4</p> <p>Students will: Understand how technological development expands human possibilities and how technology draws on knowledge from a wide range of disciplines.</p> <p>What this could look like in your classroom: learners can say how technology changes people mentally and physically in the short and long term. They begin to see the creative and critical thinking aspects of what others make. They begin to see the different skills and knowledge used in technology and how these help with decision making.</p>	<p>Know that the purpose of an algorithm is to create a computer program</p> <p>Begin to use features of systems</p> <p>Progress outcome 3 NZC Level 4</p> <p>In authentic contexts and taking account of end-users, students decompose problems into step-by-step instructions to create algorithms for computer programs. They use logical thinking to predict the behaviour of the programs and they understand that there can be more than one algorithm for the same problem. They develop and debug simple programs that use inputs, outputs, sequence and iteration (repeating part of the algorithm with a loop). They understand that digital devices store data using just two states represented by binary digits (bits).</p>	<p>Beginning to create their own unique digital outcome. Understanding their impact on people Begin to understand and apply systems thinking</p> <p>Progress Outcome 2 NZC Level 4</p> <p>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.</p> <p>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.</p>

CURRICULUM DESIGN SUPPORT D - COVERAGE

What is this?

This tool will help you map which parts of the New Zealand Curriculum (NZC) you are designing learning for, so that your students experience a coherent and rich curriculum. The table below shows how the Ngā Motu Learning Programme is mapped to the Technology learning area and Digital Technologies areas.

You can create your own simple charts to see at a glance how your teams are covering the curriculum requirements of each learning area across your kura/school.

NZC Levels		NZC L1			NZC L2			NZC L3			NZC L4			NZC L5		NZC L6	NZC L7	NZC L8
Approx year	0/1	2	3	4	5	6	7	8	9	10	11	12	13					
Digital tech areas	CTDT POs	✓		✓		✓		✓										
	DDDO POs	✓		✓		✓		✓										
Nature of tech strand	CoT	✓		✓		✓		✓										
	CoTo					✓		✓										
Tech practice strand	P4P																	
	BD					✓												
	OD&E					✓		✓										
Tech knowledge strand	TM																	
	TP																	
	TS	✓		✓		✓		✓										



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