# Building rich learning experiences with Raranga Matihiko

## Context

Ohaeawai School is a small, 160 student, rural school situated in Ohaeawai in Northland. One of their Innovative Learning Environment (ILE) classes took part in the *Raranga Matihiko | Weaving Digital Futures* programme available through Waitangi Museum.

66 students from year 5-6 class spent two days at Waitangi Museum engaging in digital technologies curriculum content and learning about the Battle of Ohaeawai. To ensure this programme built on existing classroom content, the Raranga Matihiko facilitators spent time with the class teachers to create a learning programme that complemented what was happening in the class. Ohaeawai School is in the vicinity of the *Battle of Ohaeawai* and as the students knew little about this famous battle, the teachers 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 curriculum areas of 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 on design
- thinking of 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 programmes
- 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.

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



Ohaeawai Students learning from the Waitangi Treaty Ground Carvers.
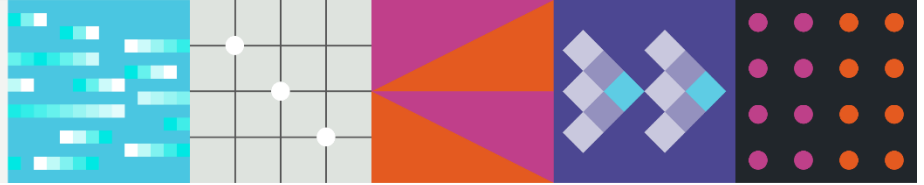
The exploration in the Museum and around the Treaty Grounds set the scene so students could develop their own particular focus around the Battle of Ohaeawai. A set of challenges were issued to the students to select from or to inspire their own ideas as they developed their focus.

- 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)



Ohaeawai Students exploring green screening and stop motion animiation.

Students started their work during their visit to the museum and developed 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. During the time in between, students continued on their inquiry, planning their work, storyboarding their scenes and gathering more information. Between visits, students had developed more understanding of the inquiry and also the technologies. The class teachers and facilitators purposefully planned this time to support student understanding of:
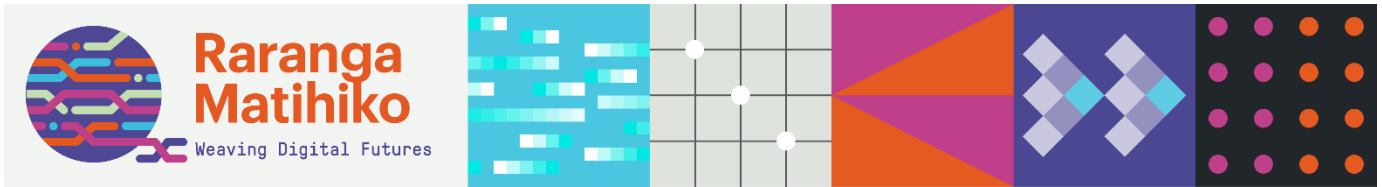
- the purpose of planning and creating work, and thinking about it in terms of their blogs and audience
- becoming familiar with a range of tools with many students changing the choice of tool they were intending to use
- teachers encouraged learners to make most of the tools available to them through their participation in Raranga Matihiko

Some of the work that has been created has been:
- creating traditional pa's using Tinkercad design software
- mapping the Battle of Ohaeawai using Tiltbrush Virtual Reality with students collaborating on the project, each adding in different elements such as grass, sky etc
- animations in google slides using Paint 3D
- 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 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 curriculum areas of Social Science (History), Languages and Technology while also linking to digital technology curriculum content. During this programme, literacy and numeracy skills were also further developed as student wrote and planned their work, programmed robots to move, developed algorithms, looked for patterns etc

By having a flexible approach and enabling students to work on an area of interest and skill set of their choice, student could not only support their own learning but showed evidence of transition between progress outcomes.

. In specific regard to the digital technologies curriculum content, learning occurred:
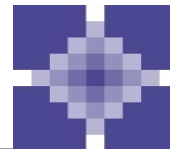
Students retelling the Battle of Ohaeawai.
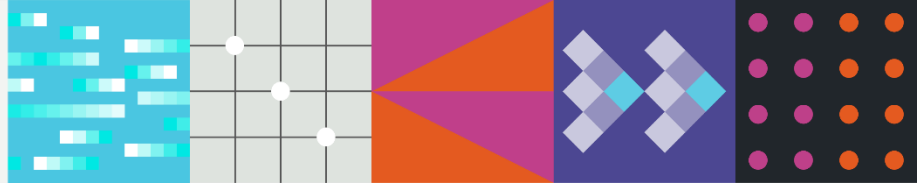
In specific regard to the digital technologies curriculum content, learning occurred:

| COMPUTATIONAL THINKING | |
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| PO1: 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, programme and develop movies identifying and correcting errors. |
| PO2: 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 of a variety of tools including storyboarding and planning ideas, programme 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 | |
| --- | --- |
| PO1: In authentic contexts and taking account of end-users, students participate in teacher-lead 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 able to select the best tool for the job. |
| PO2: 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 are able to demonstrate their confidence in choosing applications for purpose. |