

**CURIOUS
MINDS**

HE HIHIRI I TE MAHARA



2023 SOUTH AUCKLAND PROJECT SHOWCASE



TE HONONGA
AKORANGA
COMET



MINISTRY OF BUSINESS,
INNOVATION & EMPLOYMENT
HĪKINA WHAKATUTUKI



2023 SOUTH AUCKLAND PROJECT SHOWCASE

Everyone has a question: what's yours?

*If you had MONEY and EXPERTS to help,
could you answer it?*



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INTRODUCTION

Kia ora and welcome to the 2023 Curious Minds South Auckland Project Showcase!

It is my pleasure to share with you our latest collection of success stories from recently completed projects.

Each year, our projects tackle real-world challenges that can, at first, seem very big and daunting. How do we produce food sustainably and affordably to feed a growing population? How do we mitigate the impacts of the climate crisis? How do we restore our natural environments so all species can thrive?

Curiosity is the foundation of learning. It drives students to question, explore, discover. The key to unlocking action in STEM is by guiding students to ask the right questions.

When young people follow their curiosity, they embark on a journey where the process of learning is as valuable as the outcome. Through this journey, they are exposed to exciting STEM ideas, pathways and role models. They develop critical thinking, teamwork, resilience and a passion for learning. As you'll see from our stories, students can come up with some pretty innovative ideas and solutions too!

Sadly, MBIE support for the Curious Minds South Auckland PSP will finish at the end of 2024. Even as we look back on the achievements of our past projects, my team and I already have many ideas for evolving the programme going forward.

The need for engaging, real-world STEM education is greater than ever. We thank and acknowledge everyone who has supported the PSP up to now and look forward to being able to continue on this journey together into the future.

Ying Yang, Project Manager
Curious Minds South Auckland

PROJECT CRITERIA

PARTICIPATORY SCIENCE PROJECTS MUST BE:

EDUCATIONALLY VALUABLE

Offer enduring educational value and two-way learning opportunities for those involved



SCIENTIFICALLY ROBUST

Tackle a research problem with STEM experts to generate new scientific and/or technological outputs

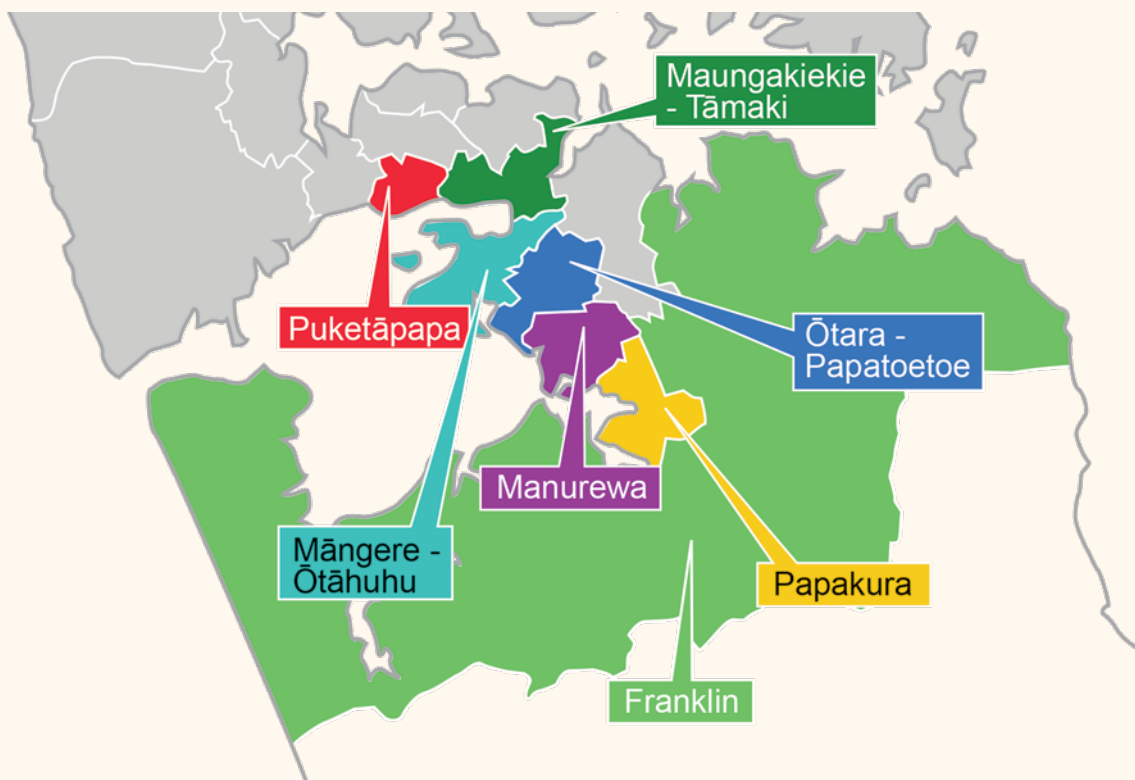


LOCALLY RELEVANT

Involve community members in research that is engaging, locally relevant and community driven



ELIGIBLE FUNDING AREAS IN AUCKLAND:



PROJECTS FUNDED (2023)



PROJECTS
FUNDED



YOUNG PEOPLE
ENGAGED



SCHOOLS
INVOLVED



ORGANISATIONS
INVOLVED



\$142,156

IN FUNDING DISTRIBUTED



HOURS OF STEM ENGAGEMENT

GROWING CONNECTIONS AND TEACHER CONFIDENCE

Since 2015, more than 8,000 students have participated in 93 Curious Minds South Auckland PSP projects. Our project evaluations show that these young people become more interested in STEM, more inquisitive and more engaged in learning. Another equally important outcome is the impact the projects have on educators.

A key function of the programme that Te Hononga Akoranga COMET has developed over the years is its focus on connecting and upskilling project partners, particularly teachers and community educators.

We understand that, by supporting our project partners to develop, they will gain valuable skills and confidence. Changes in teacher confidence and capabilities will influence many future cohorts of students, long after the project funding is spent.

In addition to sharing PLD opportunities, news and resources related to Curious Minds projects through our regular Curious Minds newsletters, we facilitated two noteworthy events in 2023:

CULTURALLY RESPONSIVE PEDAGOGIES IN STEM WORKSHOP

Led by Dr Sonny Natanielu and COMET's Kaitūhono Māori Noah Meggitt, this workshop shared insights on honouring students' cultural backgrounds and incorporating indigenous knowledge into science teaching practices.



[My highlight was the] kōrero from great presenters. Really touched my heart and [made me] look deeply into my teaching practice as a kaiako.

workshop attendee



2023 CURIOUS MINDS CONFERENCE

Held in MOTAT'S Aviation Hall and attended by more than 150 students, teachers and community stakeholders, this inspiring event celebrated the achievements of Curious Minds projects. The conference enabled students and teachers to experience the fun (and nerves!) of being a "scientist for the day" as they presented their research to their peers.



Here's a snapshot of what three of our 2023 Curious Minds educators have said about their projects, including how their experiences have enhanced their teaching practice.



Hajra Sheikh, teacher | Aorere Kindergarten

Kaiāwhina o te puna – Guardians of the creek (p 14)

Leading this project has opened up many doors for me to investigate different scientific topics and find creative ways to share the knowledge with our tamariki at the kindergarten. I have developed confidence in working collaboratively with scientists and the wider community to create a rich learning environment for our young learners.

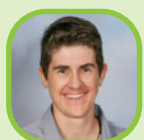
I have also strengthened my practices by participating in the BLAKE Inspire for Teachers programme. This PLD course has helped me scaffold my learning and become a collaborative investigator with the children to study more complex scientific topics related to our project.

Doug Johnson, science teacher | Waiuku College

Thrive – Smart, sustainable horticulture production (p 15)

This project has some of the latest technology for indoor growing, with industry standard equipment that will enable students to learn about the growing technology of hydroponics in the Primary Industry sector.

This has been one of the highlights of my teaching career as I can truly see the long-term benefits of this project. I couldn't have done it without the support of everyone involved.



Kimberley Sullings, teacher | Christ the King Catholic School

Pūtātara – A call to action (p 16)

I have seen how the hands-on, real-world learning of this kind of STEM approach can be hugely beneficial for all children.

The students' confidence went up, and the development of their teamwork, leadership and other soft skills was also huge. This is an area I am looking into for PLD for myself so I can continue this and enhance it.

Read on to find out more about these and other projects in the following Case Studies.



CASE STUDIES



HOMEGROWN TARO AND PLANTAIN

ŌTĀHUHU COLLEGE

What's the best way to grow affordable, nutritious taro at home?

To introduce horticulture studies at Ōtāhuhu College, teachers created a garden where students could learn to grow, experiment and enjoy plants and edible crops. Over three years, 74 horticulture students worked on the garden, with many others helping out at regular working bees and whānau open days.

The students researched the Japanese taro with the intention of promoting its adoption as a backyard crop to save families money and extend their diet.

As part of this research, the students experimented with different types of organic and traditional fertilisers to analyse the best conditions for growing taro.

As the project progressed, participants learnt many aspects of horticultural science, including botany, planting, composting, mulching, fertiliser, biochar and pest control.

The students also built fences, used netting and tools, designed parts of the garden and solved challenges, all whilst growing their independence and self-motivation.

A highlight for the students was the opportunity to meet with local horticulturalists. They were especially encouraged by a visit from ethnobotanist Peter J Matthews from the National Museum of Ethnology in Osaka, Japan.

As lead teacher Malcolm McAllister explains, it was "so valuable having a real expert and enthusiast to advise us. Peter condensed his 30 years of research into 25 minutes and pitched the content perfectly to a Year 10 audience."

The students were fascinated to learn about human evolution and migration movements, particularly around how taonga crops historically travelled across Asia and the Pacific Ocean.

Despite significant disruptions from COVID-19 and the out-of-school growing seasons of their plants, students persevered to make their garden a success.

When crops were damaged by grazing pūkeko, the students worked together to solve the problem with hand-made netting and gates, demonstrating impressive teamwork and problem-solving skills.

This project has been a true community collaboration, supported by a range of local businesses that donated equipment, resources and time to help transform a once overgrown patch of land into a thriving garden.

It has created an exciting living legacy that Ōtāhuhu College will continue to use for science and horticulture learning for years to come.



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I was surprised by how little students knew about where their food came from. Teaching students and whānau how to grow their own crops could have significant benefits for the community in terms of costs, culture and practical skills.

Malcolm McAllister, teacher
Ōtāhuhu College

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HEALTHY PEOPLE, HEALTHY ENVIRONMENT

ROSEHILL COLLEGE

What's in our rubbish, and what can we do to reduce our waste?

Thirteen eco-conscious students at Rosehill College embarked on an investigation to understand how much waste was being generated at school and what they could do about it.

First, the students conducted a 24-hour waste audit by collecting, categorising and comparing the weight of different types of rubbish. Whilst there were several areas for meaningful waste reduction across the types of rubbish collected, the students found that food waste was the major culprit.

They decided to set up composting stations in the school shed including Hungry Bin worm farms and bokashi bins. Traditional worm farms struggle to process meat scraps, egg shells and dairy products, so the students wanted to test whether "pre-fermentation" using bokashi bins could help break down these food wastes so they could be added to the worm farms.

To test their theory, the students set up one Hungry Bin using the traditional feeding method of worms and soil and the other with fermented bokashi bin compost added. From their observations, it was clear to the students that the worm farms with the bokashi fermented food scraps produced more "worm juice" and had more worms present. All food scraps were successfully digested, and the worms were happy!

This project empowered students to follow a scientific process, and the resulting innovation means the school now has a composting system that can process all its food waste, substantially reducing the waste that goes to landfill.



TE WAIHANGA KĒMU TOITŪTANGA – DESIGNING SUSTAINABILITY GAMES

INSTITUTION OF CIVIL ENGINEERS + TE KURA KAUPAPA MĀORI Ā ROHE Ō MĀNGERE

How can we gamify climate action?

The climate crisis is a big issue facing our communities. As engineers and technologists are at the forefront of tackling climate change, the Institution of Civil Engineers (ICE) launched a pilot project to show rangatahi what engineers can do and inspire climate action in the community. To achieve this, they used an innovative approach of “gamifying” sustainability education.

ICE teamed up with Te Kura Kaupapa Māori ā Rohe ō Māngere (TKKM ō Māngere) to lead rangatahi on a guided enquiry on climate and sustainability issues that saw them designing their own educational board games to teach others about climate action.

Supported by engineers and researchers from the University of Auckland, students explored a wide range of climate issues and solutions. They used these learnings to design a game raising awareness of flooding risks and impacts on community. To provide a local context, they cheekily called their game “Floodopoly”.

This game design process empowered rangatahi to create their own ecosystem to develop problems and envision various solutions. The use of game play enhanced the

engagement with content learning and highlighted the students’ skills in creative problem-solving and storytelling.

This project was a fantastic learning opportunity for ICE, as they now look to create more engineering-related educational modules for schools. Their experience working with TKKM ō Māngere highlighted the importance of role models helping to break down complex scientific concepts and making them more relatable to students.

“ *Working with the industry partners is pretty good. You learn a lot of things. Sometimes I’m always in the middle of understanding and not really there until I actually do more hands-on stuff.*

Tushay Takimoana, year 11 student
TKKM ō Māngere





A SPOONFUL OF SUGAR

TANGAROA COLLEGE

How does fructose digestion vary in Pasifika peoples? Can exercise aid digestion?

Fructose is a common sugar found in fruits and juices. Whilst fructose absorption has been widely researched in the past, there has never been specific research involving young Pasifika people. A group of year 10–11 students at Tangaroa College sought to fill this gap.

Working alongside University of Auckland scientists, the students designed a scientific experiment to evaluate metabolism using a “fructose load” test. This ambitious research project sought to understand whether people digest fructose differently, and if exercise could help to improve digestion.

“ [The students understand] some of the hurdles that occur in science research: the preparation needed, volunteers not [being reliable], results not as expected and the need to modify your experimental design.

Chandar Dewan, HOD Science
Tangaroa College



Analysis of the test data found that there were no differences between Pasifika and other adolescents. Surprisingly, no students identified as having fructose malabsorption. This was contrary to the reported 20% prevalence of malabsorption in the general population.

The students developed the hypothesis that fructose malabsorption may not be detectable in adolescents but could develop and be detected later in life. To this end, they redesigned their experiment to see if they could test for higher malabsorption rates in older people.

This project exposed students to the complete scientific process: hypothesis, experimental design, data collection, analysis, conclusions and redesign.

Students thoroughly enjoyed the process, and of the 16 initially involved in 2022, 15 said they would continue the science option in the following year with strong interest in a science career.

Scan or click on the QR code at right to watch a video about this project.





eDNA MONITORING OF WAOKAURI CREEK

AORERE COLLEGE

How can we use eDNA technologies to help us understand and restore Waokauri Creek?

At Aorere College, a transformative ten-year project is underway to restore the Waokauri Creek, a stream once choked by weeds and invasive species. This project has ignited passion and purpose among the school's Year 9 students, 44 of whom participated in a research project to understand the creek's biodiversity.

Using the relatively pristine Tōtara Park for comparison, the rangatahi set out to evaluate the state of their creek and find out what could be done to improve its biodiversity.

Guided by dedicated kaiako and science partners from Auckland Council's Sustainable Schools team and Wilderlabs, the students used innovative environmental DNA (eDNA) monitoring to identify species present in the water and assess the overall health of the awa.

The eDNA sampling found evidence of concerning pests such as rats, rabbits, possums, mice, non-native ducks and mosquito fish in the awa. It also showed several

taonga species were present, including īnanga; giant and banded kōkopu; and longfin and shortfin tuna.

Students were surprised to find the DNA of snapper and kahawai, two fish species that would not be expected to live in an urban stream environment at all! They deduced that it was likely someone had been dumping fish frames nearby, and that's how the fish DNA made its way into the stream. This was a fantastic example of students learning to critique evidence and look for alternative explanations.

The use of eDNA techniques inspired the students and showed them how science and technology innovations can help scientists better understand the natural environment.

Combining these results with conventional monitoring gave the ākonga confidence that their eDNA techniques were accurate. They were particularly excited when they observed tuna and kōkopu months after the eDNA results had indicated these fish lived in the water.



To find out more about eDNA monitoring for your local stream, contact your local Sustainable Schools advisor or visit the EPA website by scanning or clicking on the QR code at left.



" *It's interesting to see that there are some physical science jobs that are outside. That is the type of job I want.*

Campbell, student
Aorere College



" *We found some taonga species ... which you wouldn't expect to see in a stream that looks like ours.*

Haereata-Rose, student
Aorere College



The students' scientific exploration did not stop here, however. They also used a 3D printer to help visualise the molecules they encountered in their samples and even had a go at extracting the DNA themselves!

For lead teacher Aidan Kiely, the project saw the students *"successfully weaving together mātauranga Māori and science ... through discussions of kaitiakitanga and the importance of the interconnectedness of species, large and small."*

Kiely's highlights include the ākongā presenting a mihi of one species from both scientific and te ao Māori perspectives; and several students sharing their findings at whānau hui, spreading awareness and fostering a sense of guardianship of the Waokauri.

Overall this project spurred the participants to contribute meaningfully as they could see the value of their work reflected in the improving health of their creek.



This project was featured in volume 102 of the Education Gazette. Scan or click on the QR code at right to read the article.





KAIĀWHINA O TE PUNA – GUARDIANS OF THE CREEK

AORERE KINDERGARTEN

What creatures are living in our awa?

The kaiako of Aorere Kindergarten envision a learning community where every child's pepeha is acknowledged, and tamariki are supported to develop close connections to their maunga, awa, moana and local histories.

The first step on the kindergarten's journey involved introducing tamariki and their whānau to the local Waokauri Creek and its inhabitants.

The kindergarten partnered with science educators from Whitebait Connection, Manukau Beautification Trust and Auckland Council's Sustainable Schools team. These experts provided different learning experiences for the tamariki — from looking at tiny creatures with microscopes to using special charts to identify fish and macroinvertebrates — to help them find out what makes a stream's habitat healthy.

The tamariki identified a wide range of species in the Waokauri, including damselfly, freshwater shrimp, snails and worms. Although this diversity demonstrated that the awa is reasonably clean, the tamariki did also find rubbish and pests such as mosquito fish.

Tamariki used the rubbish collected from the creek to create an art display, highlighting their learnings about creating healthy habitats for eels and other creatures. This artwork was displayed at the Auckland Botanic Gardens, winning both second place and the People's Choice Award at the Beautification Trust Eye on Nature Art Competition.

A community stream clean-up was organised to help remove rubbish and pest plants. The tamariki were aided by students from nearby Papatoetoe West School and Aorere College to restore and protect the waterway connecting all three schools — a great example of a tuakana-teina relationship in action.

Through this project, tamariki developed an appreciation for how their hauora (well-being) is connected to the hauora of Papatūānuku. They learnt how interconnected the ecosystem is and developed scientific vocabulary to describe their environment.

This project served as an inspiring springboard for the kindergarten to continue working with its community partners to expand learning in the future.



THRIVE – SMART, SUSTAINABLE HORTICULTURE PRODUCTION

YOUTHTOWN + WAIUKU COLLEGE

Can we build a carbon-neutral, modular vertical hydroponic garden for growing vegetable crops?

The south Auckland region of Waiuku is known for its primary industries and food production. Students at Waiuku College were interested to know if vertical farming could make horticulture smarter and more sustainable. With support from Youthtown mentors and science partners, twenty-three students set out to build a carbon-neutral hydroponic garden from scratch.

The students researched, designed and built a hydroponic growing system, complete with solar panels, rainwater collection tanks and pumps for self-sufficiency. They then planted seeds and measured the growth of vegetables.

“ *The hydroponic system is working great, and we are all learning more about growing hydroponically. Such a great resource!*

Doug Johnson, horticulture teacher
Waiuku College



Along the way, the students tackled various problems such as algae growth, pest control and adjusting the pH to create optimal growing conditions.

From the data they collected, the students concluded that, with proper light, pH, and electrical conductivity, their self-sustaining garden was a success and could contribute greatly towards more environmentally sustainable methods of food production.

For Youthtown lead Viv Stark, the project gave "students an appreciation and better understanding of STEM and all facets of it." Furthermore, participants gained "a better understanding and awareness, when looking at pathways and options, [that] STEM subjects may not be as intimidating."

The project has created a resource that can be used for years to come, with plans to expand the learning with automated sensors and controls as well as more links to local primary industries.



PŪTĀTARA – A CALL TO ACTION

CHRIST THE KING CATHOLIC SCHOOL

What causes flooding and how can we minimise its impacts on people and communities?

The 2023 summer floods caused severe damage and disruption across Tāmaki Makaurau Auckland, prompting Christ the King Catholic School to embark on a year-long enquiry project to understand what caused the flooding and how future flood risks and impacts could be mitigated.

The 24 Year 5–6 students worked alongside Allan Leahy, a senior stormwater engineer with the Auckland Council Healthy Waters team, to understand how stormwater flows through our cities, including the primary system (drains and pipes) and secondary system (flood plains and overland flow paths). They conducted site walkovers and interviews with people impacted by the flooding.

Students were then introduced to the concept of “water sensitive design” (WSD), an approach that seeks to mimic nature, help manage flood flows and protect people and buildings from flooding. They were able to see this engineering design in action on site visits to Albany Lakes and Hobsonville Point, two new urban developments that have been designed with WSD in mind.

In groups, ākonga used Lego blocks, Tinkercad and 3D printing, to show what improvements they would like to see in their school and neighbourhood. They created

model neighbourhoods with careful consideration of WSD elements, like settlement ponds; depressed roundabouts; water collection tanks; green roofs; downpipes and outlets; tree pits; and energy dissipators.

The project culminated in a celebration evening at the school attended by whānau and community stakeholders. Students presented their models and felt great pride in sharing their ideas for a safer, more resilient community.

The hands-on and real-world approach with the field trips and working alongside professionals in the field was awesome. Putting some 'power' into the children's hands and allowing them to guide the learning worked really well.

Kimberley Sullings, teacher
Christ the King Catholic School



" Pūtātara means that we need to help others in our community and also the environment. It gives us a voice to share our ideas too.

Madonna, student
Christ the King Catholic School



" We want to help and encourage the use of WSD infrastructure and more greenery around us so it can be left there for our future generations. It will help prevent future flooding disasters from happening.

Wyatt, student
Christ the King Catholic School



Pūtātara is a kete of resources for place-based, inquiry-led sustainability and global citizenship education. Find out more by scanning or clicking on the QR code at right.





INVESTIGATING EELS IN SOUTH AUCKLAND'S WATERWAYS

WHITEBAIT CONNECTION (MOUNTAINS TO SEA CONSERVATION TRUST)

Where have the longfin eels gone?

The scientists at Whitebait Connection aren't just keen on whitebait. They're keen on eels too! With this project, they sought to determine the preferred habitat of the tuna kūwharuwharu (longfin eel) with an eye toward restoring the mauri of Auckland's waterways and helping longfin tuna survive in an increasingly urban habitat.

Over a 12-month period, an impressive 366 young people from across south Auckland surveyed longfin eel populations and stream health in the Pāhurehure, Puhinui, Wairoa and Waiuku river catchments as well as at Onehunga Peoples Garden. Participating groups came from Ardmore, Manurewa South, Mayfield, Patumahoe, Papatoetoe Central and Valley Schools along with Little Guys Early Learning Centre.

Collaborating with freshwater ecology specialists and mātauranga Māori experts, the tamariki caught and released eels and other fish. They also assessed the health of each stream by counting the fish, measuring the water quality and studying the macroinvertebrate populations.

After analysing the data collected during these surveys, the tamariki determined that longfin eels prefer small streams

with deep pools, native forest cover and plenty of native fish and macroinvertebrates. Their data is now stored in NIWA's Fish Database and will be available to support future freshwater conservation efforts.

Puna Posimani from Manurewa South School puts the project's success down to how Whitebait Connection *"provided amazing sessions to prepare our students on the theoretical side [and] allowed them to make the practical connections on the field trips, which they absolutely loved!"*



Eels are a charismatic species that appeal to many. Researching them was an effective way to connect people with their local awa.

**Kate McKessar, project lead
Whitebait Connection**



NEW & ONGOING PROJECTS

2023

KAITIAKI O MAUNGAKIEKIE ROYAL OAK PRIMARY SCHOOL

Eco-warriors at Royal Oak Primary School continue to investigate the effectiveness of predator control on native bird populations at Maungakiekie / One Tree Hill. Using innovative birdsong monitors, the school is analysing the type and number of birds present. Observations over time are expected to help build a picture of the impacts of predator control efforts on bird numbers.

OPERATION CRYSTAL PALACE MANUREWA INTERMEDIATE SCHOOL

Ākonga at Manurewa Intermediate School are using engineering design thinking to develop solutions for automating their school greenhouse (aka "the Crystal Palace"). The first challenge they faced was turning a rundown old greenhouse (previously used for storage) into a functional, climate-controlled environment. With the newly renovated greenhouse, students have a space where they can grow vegetable seedlings and native tree plantings as well as conduct science experiments on plant biology.

TE KETE ROKIROKI A WHAKAOTIRANGI MOUNT ROSKILL GRAMMAR SCHOOL

Although Puketāpapa once hosted extensive kūmara cultivation, recent yields from Mount Roskill Grammar School's māra kai were poor and inconsistent. In this project, students get to the root of the problem by investigating various soil compositions, landscapes and traditional cultivation practices to determine which variables will help improve their vegetable crops. Students are conducting fair test experiments to analyse which soils provide the best yield, and they hope to expand their gardens in the future.

WAAHI WHAKATAA – A PLACE TO REST VAKA LTD + EDMUND HILLARY SCHOOL

More than 100 Edmund Hillary students in Years 7–8 are working together to promote hauora, calm and well-being by designing a new play area inspired by local Māori histories and stories. STEM experts from VAKA are guiding the taura through the design process, including how to use 3D modelling and printing technology for prototyping.

Once they have a suitable design, the students test materials, cost it out and prepare a business case to present to the school's senior management team and community stakeholders.

2024

REWILDING AUCKLAND CHRIST THE KING CATHOLIC SCHOOL

Christ the King Catholic School is tackling native wildlife decline with a two-part project. Year 3–4 students are building butterfly habitats and learning about the role of insects in the ecosystem. Meanwhile, Year 5–6 students are working to turn an underused part of the school field into an ephemeral wetland and māra hūpara (traditional play space). This project aims to provide a haven for wildlife, inspire the community to be environmental guardians and encourage tamariki to be active and inquisitive in the natural environment.

EXPLORING THE MARINE ENVIRONMENT AUT + AORERE COLLEGE

AUT is leading a unique research project in partnership with Aorere College that aims to ignite a passion for marine science in students. Joining a research expedition on an AUT vessel in Mahurangi Harbour, the rangatahi used cutting-edge technology to analyse data and learn about ocean health. This project extends beyond research, as the taura will share their findings with their whānau and collaborate with primary schools to foster a more ocean-literate community. Overall, the project aims to highlight the importance of technology in understanding marine and climate issues.

INVESTIGATING STORMWATER POLLUTION IMPACTS TREAD LIGHTLY CHARITABLE TRUST

Pt England, Reremoana and Weymouth Schools have joined forces on a citizen science project to combat coastal pollution led by Tread Lightly. Taura are collecting and analysing litter data from their schools and nearby coastlines, collaborating with experts to understand the impact of marine pollution and design solutions to prevent litter from entering waterways. Tread Lightly hopes this initiative will empower students to be advocates for change and spark a movement for cleaner coastlines.

HOW INDIGENOUS ENVIRONMENTAL PRACTICES INFLUENCE HAUORA

AORERE COLLEGE

Aorere College seeks to reconnect Māori and Pasifika rangatahi with their cultural roots and the environment through a series of activities aligned with the maramataka. Taura will collaborate with Pacific Vision Aotearoa to explore the impact of the maramataka on hauora through a series of activities including planting a community garden and waka ama. This project aims to strengthen cultural identity through exploring mātauranga Māori and equip the taura with knowledge for a healthier lifestyle.

INVESTIGATING URBAN LIGHT POLLUTION IMPACTS

MARAETAI BEACH SCHOOL + SKYLABS NZ

Maraetai Beach School has partnered with Skylabs NZ to combat light pollution on the Pōhutukawa Coast. Tamariki will measure light pollution levels and assess the impact on the environment, health and astronomy. This data will guide strategies for building community awareness and creating solutions for sustainable lighting reduction. The school hopes to ignite students' passion for science through stargazing events, telescope training and talks from inspiring scientists, ultimately empowering them to advocate for dark sky preservation.

TE AITANGA PEPEKE (THE INSECT WORLD)

ROBERTSON ROAD SCHOOL

Robertson Road School is transforming its grounds into a vibrant outdoor classroom and 'urban ark' for native biodiversity. This project aims to teach students about sustainability through hands-on activities, like monitoring the weather with a solar-powered station and creating a haven for native plants and pollinators. Taura will also explore mātauranga Māori alongside scientists and local marae. The project will extend beyond the schoolyard, cultivating the tamariki as ambassadors for sustainability.

GAMIFYING ECO-NUTRITION

MANUREWA INTERMEDIATE SCHOOL

Manurewa Intermediate students are tackling lunchboxes full of unhealthy snacks and wasteful packaging in this innovative design project. The taura are exploring eco-nutrition by analysing their lunches and considering both food nutrition and environmental impact. They'll then turn this knowledge into action by co-designing a game that engages their peers and whānau to discover eco-nutrition for themselves. This project empowers students to be change-makers, using technology to create a ripple effect throughout the community.

EDIBLE SENSORY GARDEN

PASIFIKA EARLY LEARNING

A new garden project at a Māngere East aoga amata (preschool) aims to foster a love of healthy eating for its children, utilising a framework of learning through play. Through designing and planting a sensory garden filled with edible plants, the project will teach students about biology, nutrition and self-care. Families will be involved in creating home gardens and participate in cooking classes, fostering self-sufficiency and new knowledge. The aoga also plans to connect with other centres to create a network of green learning spaces. This community-focused project, partnering with local organisations, aims to cultivate both healthy tamariki and a greener future.

KAI 2 (KAITIAKI ACTION AND INVESTIGATION)

TĀMAKI COLLEGE

This project seeks to tackle the issue of waste in the Tāmaki community, finding innovative and sustainable solutions to the dual challenges of high food wastage and pollution. Students have completed a waste audit to identify the key waste streams in their school. They are now working with mentors to develop solutions around waste separation, upcycling waste materials, food waste, rainwater harvesting and sustainability education. The project aims to foster a sense of ownership and belonging, enabling students to contribute meaningfully towards the liveability of their region.

GARDENING WITHOUT SOIL

JAMES COOK HIGH SCHOOL

This project explores hydroponics as a space-saving and efficient way to grow vegetables in Auckland, where housing density and vegetable prices are on the rise. Taura have set up a hydroponic system alongside a traditional soil garden to compare crop growth and investigate the viability of hydroponics for urban community gardens.

KĀINGA HAUORA – POKEPOKEA AI (HEALTHY HOME – MOULD)

TE ARARATA STREAM TEAM + I AM MĀNGERE

This student-led community project is investigating the prevalence of mould in flood-damaged homes in Māngere and Ōtara. Over 150 tamariki and rangatahi are participating in this research, collecting bedroom swab samples from homes affected by the 2023 Auckland Anniversary floods. They will compare these to samples from non-flooded homes to see if any flood-related pathogens are present. The project aims to collect data that will inform planning around remediation efforts and be a catalyst for increasing the standard of healthy homes in south Auckland.



Te Hononga Akoranga COMET is an independent charitable trust championing better and fairer education, skills and lifelong learning for all Aucklanders. We provide high quality and effective research, project development and leadership for cross-sector initiatives and action.

The participatory science platform is currently operating in south Auckland, Taranaki and Otago. It is an initiative under A Nation of Curious Minds, a government programme to encourage all New Zealanders to get involved with science and technology.

A Nation of Curious Minds is coordinated by the Ministry of Business, Innovation and Employment.

For more information, visit [CURIOUSMINDS.NZ](https://www.curiousminds.nz)



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