# 2025 PROJECT SHOWCASE

TE HONONGA AKORANGA
COMET

# INTRODUCTION

***Kia ora! Mālō e lelei! We invite you to join us in celebrating the inspiring STEM journeys Tāmaki Makaurau Auckland's young people embarked on in 2025.***

In 2025, the STEM Alliance continued to demonstrate what is possible when young people are trusted with meaningful, real-world learning opportunities.

At schools and communities across Tāmaki Makaurau Auckland, students engaged in projects that connected science, technology, culture and place while addressing authentic challenges. These learning journeys show that when education is grounded in relevance and relationships, it becomes a powerful catalyst for lifelong success.

What stands out across this showcase is not the scale of investment but the depth of impact. With targeted support, strong partnerships and committed mentors, students moved beyond the classroom to become environmental monitors, designers, innovators and leaders in their communities.

Students saw themselves reflected in STEM pathways and began to understand how their learning can contribute to social, cultural and environmental wellbeing. For many, these projects were the first step toward imagining futures in industries they had never previously considered.

This work has been shaped through collaboration, trust and shared purpose. We are grateful to the partners who have walked alongside our schools and communities, and we remain open to working with others who share a commitment to equitable, relevant and future-focused learning.

**NOAH MEGGITT**
Strategic Lead – Māori Engagement & STEM Pathways
Te Hononga Akoranga COMET

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# WATER QUALITY

### WATERCARE + GREEN BAY HIGH SCHOOL

*What factors impact water quality in our urban environment and how can we improve it?*

## PROJECT SUMMARY

***In this real-world inquiry, 13 senior Māori and Pasifika students from Green Bay High School partnered with Watercare Central Interceptor (CI) and STEM Alliance Aotearoa to explore environmental sustainability and the science behind Auckland's water systems.***

Spanning two school terms, the project provided students with an 11-step journey into the water cycle, from testing water quality to understanding the complex infrastructure required to manage a city's water supply.

Through site visits to the Huia Water Treatment Plant and a tour of the Waitākere Dams, students moved beyond the classroom to see science in action. They operated water testing equipment and learnt firsthand about the filtration, cleaning and monitoring processes that ensure water is safe for the community to use.

Mentorship was a core element of the experience. Seven Watercare staff members trained as mentors and brought a range of perspectives to the project, including insights from their own non-linear career paths.

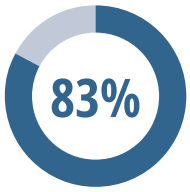
These interactions helped to dispel stereotypes about STEM professions and highlighted the various factors considered in urban planning, such as the logistics of building new pipes and Watercare's role in granting permissions for housing developments.

> ***I can see how STEM careers can help solve problems that matter to my community.***
>
> **GBHS STUDENT**

A standout feature of the project was the implementation of a tuakana–teina model. After gaining confidence in their own technical skills, the Green Bay High School students stepped into leadership roles to teach primary school students from Woodlands Park School how to test water quality. This approach reinforced the students' learning and demonstrated the value of serving and education their local community.

The initiative culminated in an Open Evening celebration at Green Bay High School, where students presented their research and findings to their whānau, teachers and Watercare mentors.

## KEY OUTCOMES




of students **REPORTED AN INCREASED INTEREST IN STEM** and are now more likely to pursue these subjects in the future.


of participants **GAINED AWARENESS OF NEW STEM CAREERS** and enjoyed the hands-on exposure to professional laboratory environments.

The project **SUCCESSFULLY SHIFTED STUDENT PERCEPTIONS**, helping them see how STEM is directly relevant to solving problems in their communities.

> ***This project has really highlighted how much potential there is for industry to make a genuine impact when it comes to engaging rangatahi with STEM. By showing them what's possible beyond the classroom … we can help spark interest, confidence and a sense of belonging.***
>
> **DR ANGELO TEDOLDI**, Lead Teacher, Green Bay High School

> ***This [project] made me reflect more on my own job and how it impacts the wider community.***
>
> **WATERCARE MENTOR**

*This project was made possible by*

Watercare


# NEURODIVERSE SENSORY SPACE

**MANUREWA WEST PRIMARY SCHOOL**

*How can student voice, empathy and STEM capability combine to create a therapeutic and inclusive sensory environment?*

## PROJECT SUMMARY

***In this student-led initiative, four Year 5 students from Manurewa West Primary School partnered with the Freemasons Foundation and Autism NZ to co-design a sensory classroom tailored to the needs of their neurodiverse peers.***

The project began as a response to the challenges faced by an increasing number of neurodiverse learners, for whom traditional classrooms can often become overwhelming.

Over two terms, the student leaders followed a design thinking process, beginning with a 'tuning-in' phase to research materials and identify which factors help students feel calm and safe.

The students documented their evidence in Google Docs and used a drone to capture aerial footage for planning the external safety fencing and specialised play areas.

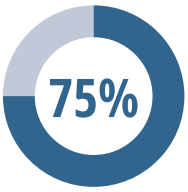
A defining feature of the project was moving from online research to direct empathy. Students devised and conducted face-to-face interviews with specialists and teachers experienced with neurodiverse learners to deepen their understanding of sensory needs. This research directly informed their creation of chewable sensory tools, such as necklaces and bracelets.

The students explored the potential of 3D printing these tools using specialised, medical-grade plastic to improve hygiene and reduce the spread of germs in the classroom.

In the final stages, the students took full ownership of the budgeting and procurement process, even planning a trip in the school van to purchase the items on their finalised shopping list.

To foster a wider culture of inclusion, they developed an awareness presentation on Autism Spectrum Disorder (ASD). After presenting to experts from Autism NZ, the students refined their work to use identity-first language (e.g. "autistic people") and replaced outdated symbols with more respectful visuals, such as rainbows and infinity signs.

## KEY OUTCOMES




of participants (3 out of 4) **REPORTED FEELING MORE CONFIDENT IN SCIENCE** and now see STEM as being relevant to their daily lives.


of students **EXPRESSED A DESIRE TO PARTICIPATE IN SIMILAR COMMUNITY-FOCUSED STEM PROJECTS** in the future.

**INCREASED TECHNICAL LITERACY:** Students gained practical experience with 3D prototyping, drone operation and digital presentation.

The project **IS A 'BLUEPRINT' FOR OTHER SCHOOLS**, demonstrating how students can lead redesign projects to improve wellbeing and belonging.

> ***It was great that the students [could] see the connections between STEM subjects and real life.***
>
> **SHEENA LAING**, Lead Teacher, Manurewa West Primary School


> ***I can see science and technology as [being] more relevant to my life.***
>
> **MWPS STUDENT**

*This project was made possible by*

FREEMASONS FOUNDATION

# TE AUAUNGA MARAMATAKA

**GLASGOW CONTRACTORS + MT ROSKILL CAMPUS SCHOOLS**

*How can maramataka help biodiversity in Te Auaunga Oakley Creek?*

## PROJECT SUMMARY

***In 2025, students from Dominion Road School and Mt Roskill Primary, Intermediate and Grammar Schools joined forces for the Te Auaunga Maramataka Project, a place-based inquiry to reconnect with their local stream, Te Auaunga Oakley Creek.***

The initiative provided students with hands-on STEM experiences centered on environmental monitoring and restoration. Through fieldwork, students gained practical skills in water chemistry, learning how to conduct tests for nitrates and pH levels to assess the health of the awa.

A core goal of the project was to validate how weaving mātauranga Māori with western science can support environmental stewardship. By using the maramataka (Māori lunar calendar) as a framework, students moved beyond discrete scientific data points to observe seasonal indicators such as bird migration and plant flowering.

Experts from Glasgow Contractors and Boffa Miskell worked alongside the students, serving as visible role models. Oliver Ferrick from Glasgow Contractors played a particularly impactful role, demonstrating that environmental construction and monitoring are viable professional pathways. His involvement even led to a potential internship opportunity for a participating student.

The project thrived on a tuakana–teina model, where senior secondary students took leadership roles, guiding their younger primary and intermediate peers through the scientific testing process. This collaborative approach allowed the older students to revisit and reflect on their own learning while building strong connections across the different school levels on the Mt Roskill campus.

> ***I've learnt how we need to take more care and restore our awa.***
>
> **YEAR 12 MRGS STUDENT**

## KEY OUTCOMES

**61%**

of students **REPORTED AN INCREASED INTEREST IN STEM** after participating in the project.

**50%**

of participants **EXPRESSED SIGNIFICANTLY HIGHER CONFIDENCE IN THEIR SCIENTIFIC ABILITIES.**

**100%**

of students **ENJOYED MEETING STEM MENTORS AND VISITING PROFESSIONAL LABORATORY ENVIRONMENTS.**

The project **FOSTERED CULTURAL STEWARDSHIP**, with student proposals for school-led restoration days and more rubbish bins to protect the mauri (life force) of the awa.

> ***It was great to see the older students gain confidence in the process and theory behind what they were trying to achieve. The ability for them to engage and teach others has been a great benefit.***
>
> **DAVID SYME**, Lead Teacher, Mt Roskill Grammar School

> ***The leadership shown by some of the Year 12 students amazed me.***
>
> **OLIVER FERRICK**, Mentor, Glasgow Contractors

*This project was made possible by*

Glasgow CONTRACTORS

BOFFA MISKELL

Friends of Oakley Creek Te Auaunga


# LOCAL MAUNGA

**SYLVIA PARK SCHOOL**

*He aha ngā pūrākau ka whakamōhio mai i ngā maunga? If our maunga could share, what stories would we hear?*

## PROJECT SUMMARY

***In this cultural and scientific inquiry, 28 students from Years 3–7 at Sylvia Park School explored the geological and historical narratives of their local volcanic landscape, partnering with the GHD Foundation and specialists from VAKA and Auckland Museum.***

The project followed a structured STEM inquiry framework — Ignite, Explore, Sort & Synthesise, Create and Celebrate — to help ākonga connect with the four peaks of Maungakiekie, Maungarei, Ōtāhuhu and Mutukāroa.

Students engaged in hands-on earth science through a visit from the Auckland Museum Volcano Van, where they simulated eruptions and studied the physical processes that shaped the Auckland isthmus.

These scientific investigations were enriched by a place-based guided walk up Maungakiekie with the Tūpuna Maunga Authority, allowing students to ground their classroom research in the physical environment.

A significant feature of the initiative was the fusion of digital technology with traditional pūrākau (stories). Working with VAKA, students participated in 3D printing workshops where they designed and produced tangible taonga and volcanic models.

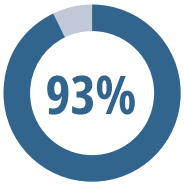
This process not only built spatial reasoning and visual literacy but also allowed students to express their cultural heritage through modern engineering. The tuakana–teina approach was central to these sessions, as older students guided their younger peers through the complexities of digital design and problem-solving.

The project's impact extended beyond the students to the wider community and the local Kāhui Ako. Ākonga developed a legacy learning kit, including a large double-sided puzzle and inquiry plans, to be shared with neighbouring schools.

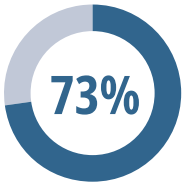
The journey concluded with a professional presentation at GHD's Auckland office, where students confidently showcased their 3D-printed artefacts and research findings to industry professionals and their whānau.

Overall, this project nurtured creativity, strengthened social connections and fostered a deeper sense of pride in local heritage.

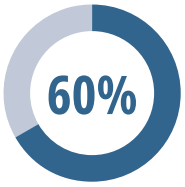
## KEY OUTCOMES




of students **REPORTED FEELING MORE CONFIDENT IN SCIENCE** after participating in the project.




of participants **GAINED SIGNIFICANT CONFIDENCE IN USING DIGITAL TECHNOLOGY** and now see STEM as being relevant to their daily lives.




of students **EXPRESSED AN INCREASED INTEREST IN STEM-RELATED STUDIES OR CAREERS** in the future.

**COMMUNITY ENGAGEMENT:** Whānau reported a surge in student pride and curiosity at home, with many students researching their heritage and local geological history outside school.

> ***I really enjoyed learning about volcanoes and the maunga around the school because learnt how they got their names and how long ago they erupted.***
>
> **SPS STUDENT**


> ***It's great to see the kids learning more about the land they live on and [connecting] with their country.***
>
> **WHĀNAU MEMBER**


*This project was made possible by*

GHD Foundation

STEM ALLIANCE AOTEAROA
GROWING A COMMUNITY UNITED BY SCIENCE

STEM Alliance Aotearoa is an initiative of Te Hononga Akoranga COMET, 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.

TE HONONGA AKORANGA
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