

CAREERS WITH STEM™

INDIGENOUS

Create your
dream career
in your own
hometown! **p3**

Tech + music
= DIY deadly
beats **p5**

Mission totally
possible! Space
gigs that don't
mean leaving
earth **p12**

**GOOGLE
SOFTWARE
ENGINEER**

CAREERSWITHSTEM.COM

SUPPORTED BY

Google

DIGITAL + ART + MUSIC + HEALTH + CONSERVATION + BUSINESS + SPACE

Acknowledgement of Country

We acknowledge the rights and ownership of the traditional owners of the land and pay our respects to Indigenous elders past, present and emerging. We also acknowledge the deep history of science and technology of the First Peoples of the Australian and Aotearoa nations.

STRONG STEM CONNECTIONS

We've been observing the environment we've been in for well over 60,000 years. And we've been able to live on a continent that is extremely fragile, with eco sustainable practices that not only allowed us to live well in society, but to generate and share knowledge and wealth.

We see ourselves as the co-creators of the very world we live in. We understand the importance of humans within that world, both our impact that's unpleasant, like our waste, and what it is that we need to create balance within a society. So it's not just us that live and thrive, but all life that lives and thrives. And that includes the inanimate. It includes things that people don't think live.

Stories are science. Stories tell us what happened before and what happens in the future. Every song, every dance is about hard science when you understand what they're singing about. Even when they talk about the creation stories, there is the level of scientific information in those that is incredible.

We need to be the scientists who are responsible for our own industry. Every plant, every animal, every rock, every seed we know about. And we even know about the ones that aren't native to this continent and we're able to figure out how to work with them as well.

Keeping language strong is important in maintaining Indigenous Knowledge Systems: to lose language can mean



AUNTY JOANNE SELFE
NGARA YURA PROJECT OFFICER, PROGRAMS
JUDICIAL COMMISSION OF NSW

that we can lose the knowledge of a whole life cycle of an insect. For the young ones at school, my message is, I don't care if you're into make-up, or baking, or keeping the universe clean and free of garbage, there is science behind all of that. And if you remember that, you know why a cake rises when you stick it in the oven. You know the properties that make that occur. That's science. It's every part of our life. Aboriginal people see the world in a way that's different. We see ourselves as connected. We need a journey where we walk together and where the rest of the world understands and our own country starts to value what it is that we've got. — Aunty Joanne Selfe



ROBIN HAPI
CHAIR, MĀORI ECONOMIC
DEVELOPMENT ADVISORY BOARD,
TRUSTEE, PŪHORO STEM ACADEMY

Wherowhero ana te puāwai a Pōhutukawa Papaki mai te tai o Rāwhiti Nau mai ngā hihiri o Tama Ngā hihiri o Hine Raumati Taurikura e!

As we release this inaugural issue during the time of sunshine and celebration, I reflect on the teachings of our tipuna (ancestor) Hine Raumati, one of the two wives of Tama-nui-te-rā (the Sun). Throughout the year, Tama-nui-te-rā travels between his two wives, Hine Takurua and Hine Raumati, and this helps us understand seasonal change. Hine Raumati resides on land and supports all of the various kai (food) that grows on Papatūānuku (Earth Mother). In traditional times, our tipuna used their knowledge of Hine Raumati to guide their various tasks, from catching kahawai and kōura (crayfish), to cultivating and harvesting crops. Our cultural narratives have been passed down from generation to generation and as result, many of these pastimes and their associated practices remain alive today.

Our tipuna were expert scientists and had a deep metaphysical or spiritual connection to Ranginui (Sky Father) and Papatūānuku. This meant that their relationship and interactions with the environment led to certain tikanga (customs) and behaviours that influenced their very existence. While we may live in a very different environment now, mātauranga Māori or Māori knowledge systems continue to have a significant influence on how we behave and what we do today.

To our young people, I encourage you, as you explore STEM, to also equally explore and embrace your own traditional knowledge systems. This will vastly improve your understanding and relationship with the world and will have a profound impact on your ability to innovate. Our indigenous knowledge is powerful and requires leaders like yourselves to build on the knowledge left by your ancestors so that your descendants too will benefit from your legacy. Kia māia, kia toa, whāia ngā huarahi hei painga ki tō whānau; be brave, be strong and pursue those paths to benefit your whānau.

**RATIMA
HAURAKI
KOROU APPRENTICE**
**DOMINIC
LEYLAND-PAYNE
KOROU APPRENTICE**

Careers in the community: supporting ahi kā

THE KOROU GROUP (TE WAIROA REGION) ARE CREATING DIGITAL BUSINESS AND TRAINING OPPORTUNITIES WHERE IT MATTERS MOST — RIGHT AROUND THE REGION WHERE THEY LIVE AND WORK

You come in chasing that one dream, and they open your eyes to all these other possibilities. — *Dominic Leyland-Payne, Korou apprentice*

The Korou Group started out as a group of local businesses who joined forces to create an innovative new apprenticeship program. Our apprentices are paired with professionals, and learn a whole range of skills including creating digital content, post production, game development, animation and adding after effects to existing content.

While apprentices are with us, they have the opportunity to gain some qualifications, but more importantly, experience and a show reel — a CV of their work — which will allow them to pursue a career in the industry. Full-time paid employment is new for many of our rangatahi (young people) so they are learning life skills, how to communicate in work environments and how to work

as a team. Seeing their growth over the 12-month apprenticeship is amazing. A big focus over this time are our classes in te reo Māori (Māori language) and waiata (song), which help ground our apprentices in their culture.

With our strong connections as Māori to nature, there is room to learn about how STEM features in the natural world, and from there to create and deliver that content to the world — in a sense, combining our heritage with technology, our passion for our community and building new futures for ourselves and our whānau.

STEM is such a broad area, so our advice is to find something that you like to do and roll with it. Whatever you love — the sea, animals, creating digital content, dancing, telling stories — there is a way to incorporate that into STEM. The options are limitless.

— *Lee Grace and Eric Stark, General Managers, Korou Group*
korou.co.nz

SCIENCE TECHNOLOGY ENGINEERING MATHS

What is STEM?

STEM jobs are growing 1.9 times faster than other jobs, and they may not be what you think. Using the STEM + 'X' formula, where 'X' is your passion or an opportunity, discover how to connect technology with music, maths with art, science with business, engineering with health outcomes and many more.

What is your passion?

P04 Be creative

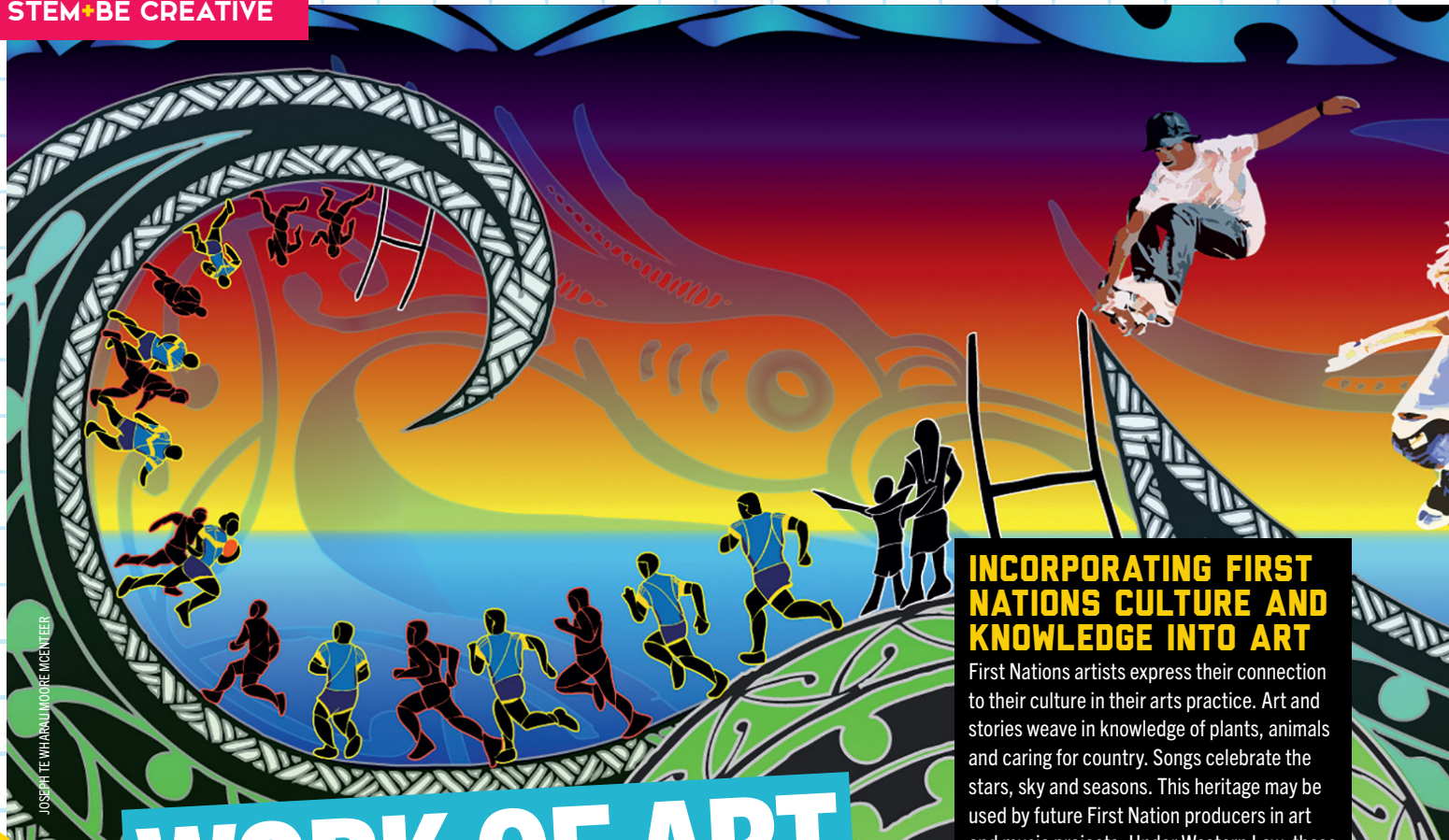
P08 Meet STEM stars

P10 Build healthy communities

P12 Reach for the stars

P14 Look after the land

P17 Start a business



JOSEPH TE WHARAU MOORE MCENTEER

WORK OF ART

Dreaming of a creative career? Here's why you should stick with STEM

If you're set on working in the world of arts, but are wondering how STEM fits in, read on. Artists use STEM skills all the time. Think: digital technology to make music or artworks, 3D printing for cutting-edge fashion, designing websites, creating awesome movie special effects, or coming up with cool ways to present data visually. Not to mention all of the STEM roles that work behind the scenes in the arts industry — like sound engineers, digital animators, science communicators and lighting designers. — Gemma Chilton

INCORPORATING FIRST NATIONS CULTURE AND KNOWLEDGE INTO ART

First Nations artists express their connection to their culture in their arts practice. Art and stories weave in knowledge of plants, animals and caring for country. Songs celebrate the stars, sky and seasons. This heritage may be used by future First Nation producers in art and music projects. Under Western Law, these projects may create copyright works and material which the artist will own. First Nation artists should ensure they know their rights and manage their projects that represent stories of heritage. They should also seek the prior informed consent from Indigenous knowledge holders, give attribution and respect the integrity of the information shared. The Australia Council for the Arts has a guide, *Protocols for using First Nations Cultural and Intellectual Property in the Arts* to assist people working on Indigenous projects. — Terri Janke and Charisma Cubillo

JOSEPH TE WHARAU MOORE MCENTEER DIGITAL ARTIST + DESIGNER

In school, I was told off for drawing in my maths book and seemingly not paying attention. I gravitated towards technology, design and creative activities, so rather than fight the current I just went with it.

I found uni even more of a struggle because part of me just wanted to get out there and make stuff. Formal education pathways are not for everyone, however I strongly believe that learning, unlearning, research and self-education are the most fundamental and pivotal skills for your future. I now work for myself as an artist and a designer, using the

latest digital technologies like VR and 3D printing, infusing my own background in Māori design.

It's important Indigenous people are better represented in STEM as we have natural knowledge and intuitive insight to bring to the table. Indigenous people's greatest strength is the inherent spiritual connection with the natural world and perceived realities. This allows us to tap into a whole other wavelength of creativity, imagination, human connection and understanding, which can help heal the world.

My advice is that whatever you're dreaming of doing, keep at it. Your talent is there, often we just need to quieten the mind and the ego to unleash it.

READ LOTS OF BOOKS AND LEARN TO SELF STUDY

ENJOY FAILING FAST AND IDENTIFYING THE LESSONS IN IT

LEARN HOW TO BUILD AND WORK WITH A TEAM TO ACHIEVE AN OBJECTIVE

PARTICIPATE IN SHORT COURSES THAT SUPPORT AND BUILD YOUR SKILLS



See Joe's work at
tewharau.com



Electives checklist

Choosing high school electives?
These subjects will set you
on the right path to a career
in STEM + Arts:

- ✓ Computer science
- ✓ Maths ✓ Media
- ✓ Design



Listen to Mad Proppa Deadly's
"You Mob" bit.ly/MPDyoumob

NATE WEATHERALL

HIP HOP ARTIST, MAD PROPPA DEADLY

Growing up on Gumbaynggirr country in Armidale, music was always around me. My great grandparents were both musicians, they used to tour around Australia — my great grandfather even taught Slim Dusty a few things.

We used to travel to the Tamworth Country Music Festival almost every year with the whole mob and my aunties and uncles would have a band set up and do some busking, they were all pretty talented.

When it came time for me to have a go at it, I really took to the digital stuff. I started making beats and loops using all the programs and wrote my first few raps back in the early 2000s.

Now as well as making my own music I run workshops around New South Wales as Mad Proppa Deadly. We've fitted out a caravan into a mobile music learning hub so we can get into the communities and provide kids free access to learn the digital audio workstation and make beats in their own time too.

Music and dance and art is embedded in our culture. One of our main goals is connecting these storytellers to this modern-day technology.

There's so much more to working in music than being a huge rap star or something. You could be a producer, the sound guy at a festival — there are a lot of pathways into music, and the main thing is to be consistent and work at it and really focus on yourself and what you have to offer.

ARTIST / MENTOR,
BEYOND EMPATHY

PROFESSIONAL DEVELOPMENT GRANT 2020
RECIPIENT, AUSTRALIA COUNCIL FOR THE ARTS

FOUNDER / MANAGING DIRECTOR, MAD PROPPA
DEADLY INDIGENOUS CORPORATION

CREATING MEANINGFUL DESIGN

Freedom to be creative in physical and digital space has led **Hori Te Ariki Mataki** to create a thriving design business based in Māori tūpuna (ancestors)

Ariki Creative is a kaupapa Māori creative agency specialising in multimedia design that harnesses the heritage of Māori tūpuna. Founded in 2007 by Hori Te Ariki Mataki, it combines digital and physical design that takes cultural thinking to animation and creates designs that stem from an Indigenous point of view.

“Because I had a background in illustration, animation artistry and carving, I put together a pitch for the local community’s logo that combined these elements — I think it took three weeks and I got \$100 — but it was the start, and the community still uses the logo today,” says Hori. He has since grown the business to a staff of 17 and is training up the next generation in digital skills through internships and outreach to schools.

“A lot of the work we were getting was about taking traditional Māori elements and stories and bringing them into a modern context, like corporate branding and interior

HORI TE ARIKI MATAKI
DIGITAL CREATIVE

design. I could see the benefits around my job were in acquisition, and I needed to replicate my skills in others so I could grow the business.” The team now work with other businesses as an incubator of Māori digital creative excellence, and gained a government grant of more than \$250,000 for this and the digital apprenticeships they offer.

Their work can be seen from the coastal highway through Kaikōura, a beachside park at Brighton, the Otago Museum, and in websites and apps.

Hori’s aim is to use tech to communicate cultural and social values. “Māori have traditions around respecting people and their whakapapa (genealogy), but the digital era is like the Wild West. We want to build something that has the same narrative our traditional stories had around how to behave and how to treat each other in a new form. That’s what we’re doing with the grant, so kids can read these stories much like they would read about Māui.”

Ariki Creative design at the
Christchurch bus interchange

DIPLOMA OF MAORI STUDIES,
ARA INSTITUTE. FORMERLY CPIT

BACHELOR OF GRAPHIC DESIGN
(ANIMATION). ARA INSTITUTE

FOUNDER / DESIGNER,
ARIKI CREATIVE

CO-FOUNDER,
TE AO HANGARAU



@jade_mikaela

MIXED REALITY STORYTELLER

ENVIRONMENTAL SCIENTIST AND CABROGAL WOMAN
MIKAELA JADE IS EMPOWERING PEOPLE TO TELL
THEIR STORIES USING AUGMENTED REALITY TECHNOLOGY



MIKAELA JADE
ENVIRONMENTAL
SCIENTIST + TECH
FOUNDER

Growing up on my traditional country in the Dharug-speaking nations of Sydney, I always felt a connection with the landscape, and I decided to study a degree in environmental biology at University of Technology, Sydney.

Since graduating, I worked with the National Park Service for 21 years. I went into planning and strategy to work out how we can show people the best experiences in the parks while also making sure the environment and cultural heritage are protected.

It was 2012 when I first saw Augmented Reality (AR) at the University of Canberra. That night an idea came into my head — what if we used mobile technologies to view holograms of Traditional Owners telling stories of our cultural places?

Around that time I moved to Kakadu when my partner became the park manager there and I realised the problem I was facing



about not fully understanding the stories on my own country was being faced by other Aboriginal and Torres Strait Islander people around Australia.

So from Kakadu we built this application called Indigital Storytelling. We had to learn how to use drones to do photo mapping of cultural places so we could use image recognition technologies for the AR to see the sites, then we had to work with developers to help us build the app.

We built it and it was very popular — we ended up at the United Nations in New York, talking about the work we'd done!

While it was beautiful content and created a lot of impact, it was too expensive. I partnered with Microsoft and Telstra to look at how we reshape workflows so it doesn't cost so much money for people to use the technology to tell stories and preserve language.

We ended up building a platform that empowers other people to create their own content. My dream is to make sure the 400 million First Peoples around the world have access to a digital future.

BACHELOR OF ENVIRONMENTAL BIOLOGY
(COASTAL AND MARINE SYSTEMS), UTS

PARK RANGER

FOUNDER AND CEO,
INDIGITAL

MASTERS OF APPLIED
CYBERNETICS, ANU



6 STEM Stars

These 6 peeps bust all of the STEM stereotypes

#1

MARU NIHONIHO
GAME DEVELOPMENT FOUNDER,
METIA INTERACTIVE

NGĀI TAHU, TE WHĀNAU Ā APANUI
AND NGĀTI POROU



@MaruNihoniho

As Māori, I am inspired by my culture and motivated to learn more about my heritage. Making games that incorporate Te Ao Māori (the Māori world view) is a great connection to my culture. We have a lot of stories to tell that are unique and we can tell those stories with an authentic voice. As a gamer I would love to play games that feature Māori stories — this is why I am making Guardian Maia as it incorporates the Māori world in a fictional way but holds onto the important elements of our culture. Guardian Maia is my way of introducing all players to Te Ao Māori. If you want to get into business or tech, and you're passionate about it, do it. Tell your stories, make your innovative ideas come to life and design your future.

Guardian Maia Gameplay
trailer: bit.ly/GMGameplay



@aleishaamohia



#2

ALEISHA AMOHIA
SOFTWARE DEVELOPER, CATALYST IT
TE ĀTIHAUNUI-Ā-PĀPĀRANGI

I find that my work in open-source software fits nicely alongside Māori values, which revolve around openness, collaboration, teamwork and the sharing of ideas and resources. I also have the honour of working with other Māori in tech who inspire and teach me every day.

There will be times that being Indigenous in this industry is difficult and exhausting. My advice would be to find your people, your community and lean on them. I love the work I do, but I stick around for the amazing people I get to do that work alongside.

#3

CELESTE CARNEGIE
PROGRAM DIRECTOR, INDIGITEK
BIRRIGUBBA + SOUTH SEA
ISLANDER WOMAN



What's a typical day in your job?

C: My job is to engage with communities and support them to build platforms using emerging and existing tech.

T: I work for the Young Indigenous Women's STEM Academy so a big part of my role is working with Indigenous women across all age groups and having those conversations around how STEM can look in our communities. A typical day for me includes engaging in exciting yarns with my team and communities and being around different people like scientists and technologists and hearing about their work, so it's always very interesting!

STEM sisters

Tessa and Celeste Carnegie work to promote the participation of women and Indigenous youth in STEM through non-profit Indigitek and Australia's national science organisation, CSIRO.

Were you into STEM at school?

Celeste: We were both very sporty at school. I was a netball player, so that was always my career path. I never thought that technology was an option for me.

Tessa: This is my first job working in STEM fields. At school I really liked social sciences and my favourite subject was English.

PROGRAM FACILITATOR, NATIONAL
CENTRE OF INDIGENOUS EXCELLENCE

INDIGENOUS STEAM PROGRAM PRODUCER,
MUSEUM OF APPLIED ARTS AND SCIENCES

PROGRAM PRODUCER,
GIRL GEEK ACADEMY

#4

TAMINA PITT
SOFTWARE ENGINEER, GOOGLE
WUTHATHI + MERIAM WOMAN

While I was studying computer engineering at uni I did three internships at Google. I never thought I would end up working there and had no idea what kind of role I wanted for my future. The internships really solidified my desire to be a software engineer. I've been working with the Google Maps team for about a year now. My team is responsible for delivering the directions experience when you use Maps, which involves writing code and design docs.

I was really into maths and science as a kid. I chose engineering as I thought it was a great way to create new technology and use your skills to solve problems. Graduating from uni was one of the hardest things I've done, but it's also one of my biggest accomplishments. Wearing the Aboriginal and Torres Strait Islander sash when I graduated made me feel really proud.



@taminap

#5

COREY TUTT
FOUNDER, DEADLY SCIENCE
KAMILAROI MAN



@corey_tutt

I want to inspire and I want to learn and grow with my culture into the future. I hope to see more Indigenous people in STEM and leading the way. I also want to tell our story so the rest of Australia can see how gifted and wonderful we are. Deadly Science provides STEM resources to remote schools. deadlyscience.org.au/

Read more:
bit.ly/CwSTEMCorey

#6

TESSA CARNEGIE
ACADEMIC COORDINATOR, CSIRO
BIRRIGUBBA + SOUTH SEA
ISLANDER WOMAN



Tech jobs sound like they're more people-oriented than you might think...

C: Technology is just the tool, it's not the outcome. Our strengths are really engagement — it is a skill set.

T: It's a big part of STEM. In order to research and to form inquiries you need to be able to work with people.

Why should there be more young Indigenous people and women in STEM?

T: I think the perspectives are different.

C: They're male, pale and stale! We're the complete opposite.

T: The great thing about STEM and the pathways into STEM is that it can look different from person-to-person and the roles are so varied across industry.

C: Many products, software and apps that we use weren't built by us and with us in mind. If you look at Artificial Intelligence, it's very important to have different perspectives built into the algorithms behind this. If it doesn't include us, then it doesn't include our perspectives, and that's dangerous.

How can STEM create jobs for Indigenous youth?

C: Right now we don't know what the jobs are. STEM education builds narratives around those jobs.

T: It's also an opportunity to create jobs for yourself and create your own pathways because it's an industry of innovation. You can create what you want your job to look like.

— Heather Catchpole

bit.ly/STEMsistas

ASSOCIATE DEGREE OF BUSINESS
ADMINISTRATION, AUSTRALIAN
CATHOLIC UNIVERSITY

CLIENT ENGAGEMENT OFFICER,
AUSTRALIAN TAX OFFICE

ACADEMIC CO-ORDINATOR,
CSIRO

Emergency! STEM roles in health are spreading... fast

You don't have to be a doctor to land a job in health. There are loads of cool, alternative STEM opportunities that can make just as much of a difference

In an era where 78% of us are hitting up Dr Google for health-related information, it's no secret that cutting-edge developments in healthcare have revolutionised the way we seek, consume and use medicine. Gone are the days when scoring a health role meant doing an epic medical degree and suiting up in scrubs. There's loads of room in medical practice and research for scientists, tech professionals, engineers and even maths grads.

Here, we look at exciting opportunities in STEM + medicine, and prescribe you with out-of-the-box health pathways that are just as good for your community as they are your career. — Cassie Steel

HEALTH CRUSADER

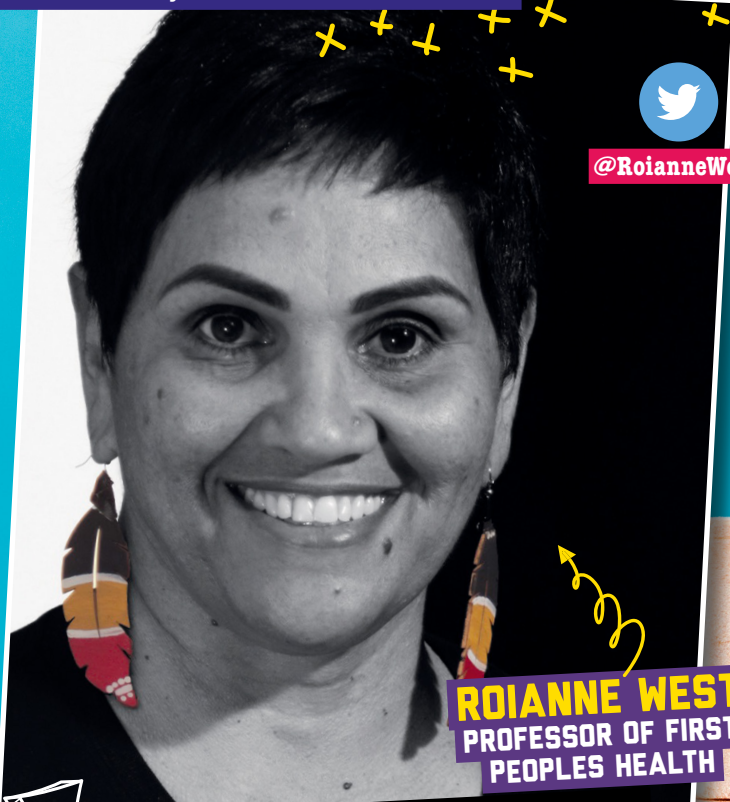
ROIANNE WEST IS A KALKADOON WOMAN SMASHING BARRIERS IN INDIGENOUS HEALTH

I started out as a health worker with the local Aboriginal health service 25 years ago. My brother, twin sister and I are third-generation registered nurses, but we are the first generation that is university trained. We inherited a legacy of making a difference to health outcomes from Mum. It is more than a job for us, it is our cultural obligation.

My role as CEO of The Congress of Aboriginal and Torres Strait Islander Nurses and Midwives is to represent our members and lobby for the issues that prevent people from coming into nursing and midwifery, completing their degrees and staying in the workforce once they graduate.

One of the most rewarding things in my career has been helping people switch from thinking they cannot work in health to seeing the possibilities that are out there. Walking into a ward and connecting with your people so they feel safe in a place where, historically, people have not felt safe makes a world of difference.

I did not do really well in school and wasn't strong in science, so I had to work a lot harder. But I am passionate, determined and driven. Aboriginal health is a great way to give back to your community. As a registered nurse, I have worked in hospitals, universities, health services, policy, and even the forensics unit. Take every opportunity that's thrown at you and go for it.



ROIANNE WEST
PROFESSOR OF FIRST PEOPLES HEALTH

Australia is approaching a nursing shortage crisis of about 85,000 nurses by 2025, growing to 123,000 nurses by 2030.*

THE NEXT-GEN DOCTOR'S KIT

Sure stethoscopes will always come in handy, but these days health experts need a long list of 21st century skills and gear to do their thing. If health is your calling, you may need to become fluent in one or all of the following:

Skills:

- Coding • Engineering • Data analytics • Research
- Problem-solving • Virtual Reality (VR) • Robotics
- Programming • Biomechanics

Stuff:

- VR tech • Software • Artificial Intelligence (AI)
- Holographics • Data Telehealth capabilities

BACHELOR OF NURSING.
DEAKIN UNIVERSITY

MASTER OF MENTAL HEALTH NURSING.
UNIVERSITY OF SOUTHERN QUEENSLAND

PHD. JAMES COOK
UNIVERSITY

FOUNDATION PROFESSOR AND DIRECTOR OF
FIRST PEOPLES HEALTH UNIT. GRIFFITH UNIVERSITY

CEO, THE CONGRESS OF ABORIGINAL AND TORRES
STRAIT ISLANDER NURSES AND MIDWIVES

HELPING HAND

MAHONRI OWEN IS CREATING BRAIN CONTROLLED PROSTHETICS FOR AMPUTEES

I haven't always been a student with the best grades, but I always wanted to do something to help people. After high school I wasn't sure how I was going to do this, but I liked physics and maths so I jumped into a mechanical engineering degree.

I had a two year [missionary] experience during my undergrad in South Africa which taught me how I can use what I have to help other people. I came back with renewed energy for engineering and started a Masters project about brain-controlled prosthetics — literally *Star Wars*-type stuff. I've had to learn coding, neuroscience, biomechanics, mechatronics and a real melting pot of disciplines. I took signals from the brain, and learnt what they meant. I then used them to control mechanical devices — in this case a prosthetic hand. The next step is to get them developed, marketed and to people so we can hopefully improve people's lives, specifically amputees. With only 2% of the STEM workforce in New Zealand made up of Māori or Pacific Islanders, it wasn't until even a few years ago I realised that it's alright for me to be a Māori doctor in engineering and that I should feel comfortable there. Keen to get into a similar field? Just know that it's ok to be Māori and it's ok to be a doctor in engineering! **TEDx: bit.ly/MahonriTedX**

MAHONRI OWEN
DOCTORAL RESEARCHER,
UNIVERSITY OF WAIKATO

Er, what should I study?

Kickstart your health career by considering some of the following high school electives:

- ✓ Science (Physics, Biology)
- ✓ Computing applications
- ✓ Design Technology
- ✓ Maths

MASTER OF ENGINEERING (BRAIN CONTROLLED PROSTHETICS) (HONOURS), UNIVERSITY OF WAIKATO
STAKEHOLDER RELATIONSHIPS MANAGER, POUHORO STEM ACADEMY

BACHELOR OF ENGINEERING (MECHANICAL) (HONOURS), UNIVERSITY OF WAIKATO
PHD ENGINEERING (MECHATRONICS, ROBOTICS AND AUTOMATION ENGINEERING), UNIVERSITY OF WAIKATO

FAMILY TIES

INSPIRED AND SUPPORTED BY THEIR WHĀNAU (FAMILY), DOCTORS JASON TUHOE AND JAMIE-LEE RAHIRI ARE BOTH PASSIONATE ABOUT MĀORI HEALTH



JASON TUHOE + JAMIE-LEE RAHIRI
DOCTORS

My journey began at Hato Paora College where I became interested in health due to the experiences of ill health within my own whānau. At that time, the only science subject that was taught was biology — the rest (physics and chemistry) was by correspondence. I pretty much had to teach myself how to light a Bunsen burner and set my tripod up. I finally applied for medicine after completing the Certificate in Health Sciences at the University of Auckland under the Māori and Pacific Admission Scheme. My whānau has been (and continues to be) my main source of inspiration. I completed my training in General Practice and have been practicing as a GP for seven years and am also involved in training doctors to become GPs. I am passionate about Māori health and challenging the health system to provide better care for our people.
— Jason Tuho

As a young girl in Tokoroa I loved visiting my doctor for check-ups. I was raised by my mother who was hardworking and always ensured I had educational opportunities. We left Tokoroa and came to Tāmaki Makaurau where my mum completed a Bachelor of Sport Science. Seeing her go to uni and many of her lectures inspired me to pursue my dream of becoming a doctor.

I was heavily involved in competitive waka ama (outrigger canoes) and it was here I met one of my mentors, Dr Matire Harwood. We both took part in the NZ Waka Ama Worlds campaign in 2008 and also medalled! Through her guidance I began to work towards gaining university entrance and applying for medicine at the University of Auckland. I have been so fortunate to continue my journey with Matire who recently supervised my PhD in surgery. I am currently working towards becoming a surgeon and am passionate about Māori health in surgery. — Jamie-Lee Rahiri

OUT OF THIS WORLD STEM CAREERS

Next-gen space careers aren't just reserved for astronauts headed to Mars

When we hear the words 'space career' we often jump to the stereotype — an astronaut working out of a space station and talking to mission control via an impressive headset. But what if we told you that getting skilled up in astrophysics or aerospace engineering could land you a job working in the Australian outback or mapping the Milky Way... from your laptop? — Cassie Steel

Mission Totally Possible

Houston, there is no problem. Choose from these high school electives to get started in space careers:

- ✓ Physics ✓ Chemistry
- ✓ Maths (Unit 3 or 4)
- ✓ Computing applications
- ✓ Earth and Space Science
- ✓ Environmental Science

PAULINE HARRIS ASTROPHYSICIST

RONGOMAIWAHINE.
NGĀTI RAKAIPAKA
+ NGĀTI KAHUNGUNU



I've always been into science, so after high school I went straight to Victoria University of Wellington (VUW) to do a degree in maths and physics, and then went overseas before starting a Masters at the University of Canterbury.

At Canterbury, my Masters was in cosmology — the origin and development of the universe — and specifically looked at inflation in cosmology [universe expansion after the Big Bang]. I followed that with a PhD in which I worked on detecting neutrinos [particles tinier than an atom] with a telescope in Antarctica.

These days I'm teaching within the Science and Society program at VUW, where I talk about climate change, science and mātauranga Māori (Māori knowledge and ways of knowing), and issues within science that are important to our culture. I am the chairperson of the Society of Māori Astronomy Research and Traditions (SMART), there, I am dedicated to the collation and the revitalisation of Māori astronomical star lore and Maramataka (the Māori lunar calendar).

One of the highlights of my job is the fact that I sometimes work with kids, creating astronomy programs. I love watching how the Māori kids really engage with the people that we hire and our volunteers, because these people are able to talk about the stars and talk about our mātauranga Māori in a way that is specific to our people.

BACHELOR OF SCIENCE, VICTORIA
UNIVERSITY OF WELLINGTON

PHD, UNIVERSITY
OF CANTERBURY

LECTURER, VICTORIA
UNIVERSITY OF WELLINGTON

CHAIRPERSON OF THE SOCIETY OF MĀORI
ASTRONOMY RESEARCH AND TRADITIONS

KIRSTEN BANKS ASTROPHYSICIST + SCIENCE COMMUNICATOR

WIRADJURI WOMAN



I wasn't great at science and maths when I was younger, but I always had an interest in the sky. In high school, a light bulb went off, and I started to understand the language of the universe (maths) and fell in love with solving problems. Now in my spare time I solve puzzles on an app — which is basically how science research works.

On a typical work day I can be found at my computer looking at stellar data trying to understand what's going on in our Milky Way. Being an astrophysicist though, I work at night too. When I'm observing stars my '9am to 5pm' is more like '4pm to 6am' and I drink lots of tea to stay awake.

Bringing together Western and Indigenous science has given me a great perspective on the universe. Indigenous people are our first astronomers, so our astronomical knowledge runs deep — it's in our blood. Astronomy in Australia would benefit greatly from providing a more inclusive and open space for Indigenous people to join in academia.

PHD (ASTROPHYSICS)
UNSW

TEACHING ASSISTANT.
PHYSICS, UNSW

ASTRONOMY GUIDE.
SYDNEY OBSERVATORY

BACHELOR OF SCIENCE
(HONOURS) (ASTROPHYSICS)
UNSW



@AstroKirsten

**PROFESSOR
RANGI MĀTAMUA**
FIFTH GENERATION
MĀORI ASTRONOMER
TŪHOE MAN



I think that across the world, people are becoming increasingly interested in Indigenous knowledge bases and the associations and connections they have with the environment and the rest of the world.

We had a web series in the Māori language on our site, 'Living by the Stars', that has been viewed over one million times, and we now have about 30,000 people following the Facebook page. It's having a real impact. I never thought that I'd been in a position to influence that many people. It's been really good.

I've always been part of the wider purpose to share traditional Māori knowledge of astronomy with the general population and to be part of disseminating the information, making it accessible and meaningful to people today.

The traditional knowledge of Māori astronomy is not an isolated study; it's not just astronomy but it's relevant to hunting, fishing, farming and history. It's very holistic, and is relevant to all people.

You don't traverse that expanse of ocean in myths and legends and live and thrive here in the country without science — it is embedded within our cultural perspective and understanding, and has a richness that is full of stories. From an Indigenous point of view, science has no benefit unless it's shared and used.



@Livingbythestars

@professormatamua

MASTER OF ARTS, VICTORIA
UNIVERSITY OF WELLINGTON

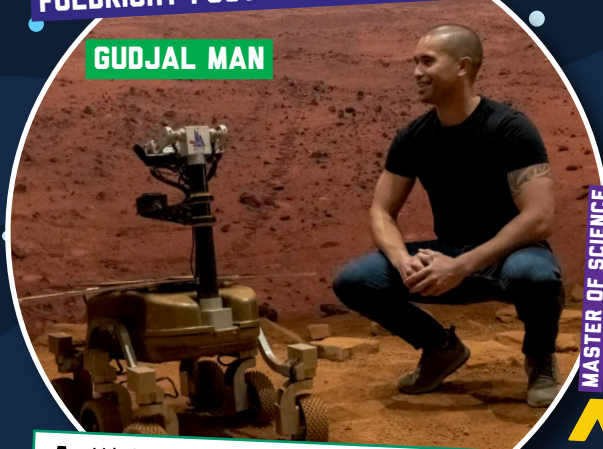
PHD, MASSEY
UNIVERSITY

ASSOCIATE DEAN POSTGRADUATE /
TE ARA TĀTARA, WAIKATO UNI

PM PRIZE AND CALLAGHAN MEDAL
FOR SCIENCE CONTRIBUTIONS

AUTHOR, MATARIKI,
LIVING BY THE STARS

TUI NOLAN
QUANTITATIVE SCIENTIST +
FULBRIGHT POSTDOCTORAL FELLOW
GUDJAL MAN



MASTER OF SCIENCE
(HONOURS), UTS

FULBRIGHT POSTDOCTORAL FELLOW,
CORNELL UNIVERSITY, USA

BACHELOR OF SCIENCE (HONOURS)
(PHYSICS), UNIVERSITY OF SYDNEY

EARLY CAREER DEVELOPMENT FELLOWSHIP, JUMBUNNA
INSTITUTE FOR INDIGENOUS EDUCATION AND RESEARCH

As I kid I was seriously into dinosaurs, but developed an interest in physics and astronomy in high school. I did a Bachelor of Science (Physics) at the University of Sydney, but eventually became more interested in the maths side, which led to a PhD in Mathematical Statistics at the University of Technology, Sydney.

I'm based out of Cornell University in New Jersey, USA, working on developing an algorithm for interpreting large volumes of data from astronomical observations, trying to analyse the growth of the universe from stellar observations.

Mornings you'll find me doing research and algorithm development, the middle of my day is for emails and meetings and I use the afternoons to cover any further ideas that I can gain from reading scientific literature.

With more Indigenous representation, we will be able to provide the benefits of STEM to those Indigenous communities that need them the most. This will include better education, employment opportunities and greater access to health facilities.



@KarlieNoon

**THE COOLEST PLACE I'VE
WORKED IS IN CENTRAL AUSTRALIA
ON ARRERNTJE COUNTRY ON THE 142
MILLION-YEAR-OLD IMPACT CRATER,
TNORALA. HEARING ITS TRADITIONAL
STORY WAS ONE OF THE MOST
INCREDIBLE EXPERIENCES IN MY LIFE.
I SPENT HOURS LYING IN THE MIDDLE
OF THE CRATER, LOOKING UP AT THE
ASTONISHING SKY."**

— KARLIE NOON, ASTRONOMY AMBASSADOR
AND GAMILARAAY WOMAN
READ KARLIE'S CAREER PROFILE AT
CAREERSWITHSTEM.COM



Caring for Country

As traditional land owners, Indigenous people have deep expertise in land management

NGURRARA WOMEN RANGER
COORDINATOR. KIMBERLEY
LAND COUNCIL

WORKING ON COUNTRY
RANGER. KIMBERLEY
LAND COUNCIL

RANGER ADMINISTRATION
OFFICER. KIMBERLEY
LAND COUNCIL

Fire management, plant and animal surveys and teaching traditional languages is all in a day's work for the Ngurrara Rangers in the Kimberley region of Western Australia.

"There is heaps of stuff that the rangers do," says women ranger coordinator Chantelle Murray. "We all learn new stuff every day in this job and that is the best part about it." A big part of the rangers' work is merging their traditional knowledge with Western techniques to take care of over 77,000 square kilometres of country, from feral animal management to conserving biodiversity.

One project is exploring how jilas (living waterholes) and jumus (soakwater waterholes) connect with groundwater systems. Working in partnership with Shell and the Ngurrara Traditional Owners, the rangers use stories and songs from elders to help them locate these waterholes so they can gather data about water quality and quantity.

The rangers are also conducting plant and animal surveys along the Canning Stock Route,

**CHANTELLE
MURRAY**
WOMEN RANGER
COORDINATOR



CASS HUNTER
INDIGENOUS SOCIAL-ECOLOGICAL
RESEARCHER. CSIRO

I've always had strong family ties to Far North Queensland, which is where I'm working and raising my family. My parents and grandparents grew up in the region — my grandparents are both Kuku Yalanji and my grandmother is from Mabuiag Island in the Torres Strait.

Being a researcher was not something I set out to do. At high school I wasn't inspired by experiments with Bunsen burners and writing lengthy reports. Instead, I wanted to be a park ranger because I could work outdoors and help protect the environment!

BACHELOR OF ENVIRONMENTAL
SCIENCE. GRIFFITH UNIVERSITY

FISHERIES STOCK ASSESSMENT MODELLING
PROJECT (HONOURS). UNIVERSITY OF QUEENSLAND

QUANTITATIVE MARINE SCIENCE. TASMANIAN AQUACULTURE
AND FISHERIES INSTITUTE. UNIVERSITY OF TASMANIA

INDIGENOUS SOCIAL ECOLOGICAL
RESEARCHER. CSIRO

At the end of grade 12 my dream of wearing a ranger uniform and cruising around in a 4WD changed when I stumbled across a CSIRO Indigenous cadetship program in Brisbane. The cadetship was my stepping stone from life as a student to that of a researcher.

Completing a PhD in Quantitative Marine Science was the most challenging time of my life but at the same time my skills grew so much because it pushed me out of my comfort zone. I got the word 'spirit' tattooed on my foot as a constant reminder of what it took to complete. It is an experience that shapes you and stays with you for life!

I'm currently working in the space of Coastal Indigenous Livelihoods, and helping to set up a new Indigenous Science and Engagement program at the CSIRO. It will focus on co-developing opportunities and undertake cutting edge science by — and with — Aboriginal and Torres Strait Islanders. I'm particularly interested in mapping out the questions involved with setting up a community-run enterprise in the blue economy. Keen for a career as a research scientist? Be adaptable and resilient and make sure you find a mentor!



Ngurrara rangers protecting bilbies
bit.ly/ninufest



BLENDING TWO WORLDS PAINTS A CLEARER PICTURE OF HOW WE CAN PROTECT OUR COUNTRY

an 1,850-km track that runs from Halls Creek to Willuna. Ngurrara manage 10 wells in their area. "Our partners help us with the science stuff, like identifying animals, and we bring the cultural knowledge that we already have," says Chantelle. "Blending these two worlds paints a clearer picture of how we can protect our country and the threatened species within our land."

When she isn't out on country, Chantelle is helping the women rangers develop their career goals and connect them with mentors that can help them take the right steps. "Having that mentoring really helped me see outside the box and learn more," she says. — *Gemma Conroy*



BRADLEY MOGGRIDGE
 KAMILAROI WATER SCIENTIST

Yaama, I am a proud Murri from the Kamilaroi Nation (north-west NSW), now living in Canberra on Ngunnawal Country. My cultural water (gali in Kamilaroi) place is Boobera Lagoon.

As a scientist, my expertise is in Kamilaroi and Indigenous cultural values of water and the environment. Gali or water is always going to be a key topic for Australia as it is the driest inhabited continent on Earth. But much of our water policy was developed through colonial settler laws, without consultation with Aboriginal people or without using or even considering traditional knowledge — with thousands of generations of observation of this dry old continent.

My career path as a scientist started early with my many questions needing answers, and as a dux of geology after my HSC, I was off. I changed from geology to environmental science at university when I no longer felt morally comfortable undertaking exploration for uranium on someone else's country and in a national park.

I completed a Masters in hydrogeology and groundwater management which allowed me to research Aboriginal peoples' knowledge of and relationship with groundwater. This included how the ancient water of the Great Artesian Basin recharges in north-eastern Australia and moves slowly, deep underground, for two million years, discharging from springs in the southern basin in Kamilaroi country.

This became the basis for the Aboriginal knowledge and groundwater part of the Australian curriculum 'Wet Rocks'.

There is growing recognition of the importance of embedding Indigenous knowledge into science managing our natural resources. I have been given a great platform to further tell my story through being awarded the CSIRO Aboriginal and Torres Strait Islander STEM Professional Career Achievement award for 2019 and also ACT Tall Poppy of the Year for Science 2019.

I led the only Aboriginal water unit in Australia — the Aboriginal Water Initiative within the NSW government. I was recently appointed as Associate Professor in Indigenous Water Science while also completing my PhD at the University of Canberra and behind that, as always, I will do what's best for Kamilaroi people to ensure the impact I have is culturally sound. I have been lucky to travel across the country and listen to some of the oldest water stories as well as travel the globe telling my water stories and journey, raising the voice of Kamilaroi.



@bradmoggo

ACTING PRO VICE-CHANCELLOR
 INDIGENOUS, UNI OF CANBERRA

INDIGENOUS WATER RESEARCH
 SPECIALIST, CSIRO

PHD CANDIDATE,
 UNI OF CANBERRA

MASTER OF SCIENCE,
 UNIVERSITY OF
 TECHNOLOGY, SYDNEY

BACHELOR OF SCIENCE,
 AUSTRALIAN CATHOLIC
 UNIVERSITY



THE BUSINESS OF SUSTAINABILITY

Jason Mika (Ngāi Tūhoe, Whakatōhea, Ngāti Awa and Ngāti Kahungunu) is working to conserve and protect the ocean

THE CHALLENGE IS HELPING EVERYONE ON THE JOURNEY

Jason has had many stepping stones to get to where he is today, a senior lecturer at Massey University's School of Management and Director of Te Au Rangahau, and project leader for Whai Rawa, Whai Mana, Whai Oranga; a project focused on establishing and growing an Indigenous-based marine economy.

Jason started out studying management at Waikariki Polytechnic, and continued his studies at the University of Waikato and later at Victoria and Massey. At one point he thought he might become an economist, but he realised his real interest lay in management and entrepreneurship. With strong ties to his Māori heritage, it seems inevitable that he would find a way to blend his management skills with Māori knowledge.

One concept that is firmly at the front of his mind is that of kaitiakitanga; our responsibility to provide guardianship for our natural resources, and our people. Applied to his recent work with Sustainable Seas, that means our responsibility for

ensuring a sustainable future for fisheries and ocean-based businesses and the wellbeing of our oceans and people.

One of the first objectives was to understand what an economic model based on kaitiakitanga might look like. To do this, he explores what this concept might mean in modern times, and reaches out to Māori businesses that are already implementing this guardianship approach.

"Part of the challenge is helping everyone along on the journey," Jason says. Which has meant taking into account Māori and Pākehā (non-Māori New Zealander) knowledge, the aspirations and values of all involved groups, and to explore and develop Māori theories of sustainability and value. Applied to the marine economy, this has the potential to have long-term positive impacts on Māori lives now and into the future.

Jason hopes that this research leads to the development of models that can be applied more broadly, to other businesses: "It has the potential to be a universal concept." One which could see a sustainability approach towards our environment help business and people to thrive. — Cassie Hart

COMPUTER STUDIES + BUSINESS STUDIES.
WAIARIKI POLYTECHNIC

BACHELOR OF
MANAGEMENT STUDIES.
UNIVERSITY OF WAIKATO

MASTER OF PUBLIC
POLICY (MERIT).
VICTORIA UNIVERSITY

DOCTOR OF PHILOSOPHY.
MASSEY UNIVERSITY

UNDERSTANDING KAITIAKITANGA

The traditional concept of kaitiakitanga is part of a complex, social, cultural, economic and spiritual system that has been established through long association of iwi (tribe) and hapū (clan) with land and waters. To understand kaitiakitanga is to have an understanding of te ao Māori perspectives of relating to the world around us.

Kaitiakitanga has been described as guardianship or protection. The basic meaning of 'tiaki' is to guard, but depending on the

context in which it is used, it also means to preserve, keep, conserve, nurture, protect and watch over. The prefix 'kai' with the verb 'tiaki' denotes the agent of the action of 'tiaki'. Therefore, a kaitiaki is a guardian, keeper, preserver, conservator or protector. The addition of 'tanga' denotes preservation, conservation and protection.

Kaitiakitanga is based on traditional Māori world views and includes the conservation, replenishment and sustainability of the environment. It is about safeguarding the future.

More Mātauranga Māori: bit.ly/ScienceLearn



Watch the full interview:
youtube.com/c/careerswithstem



LIAM RIDGEWAY
 CO-FOUNDER AND DIRECTOR.
 NGNY, INDIGITEK, INDIGIGIG

I am co-founder of Ngakkan Nyaagu (NGNY) an Aboriginal owned digital agency; Indigitek, an Aboriginal and Torres Strait Islander community of people in tech; and IndigiGig, a startup that finds Indigenous talent in the gig-economy and connects the talent with corporate Australia to deliver online services to their projects and internal requirements.

When you've never run a business before, you stumble your way through the journey! I found that my first business just wasn't connected enough to community. I think one of the key things about being an entrepreneur is being 100% bought into the idea that you have.

**Gumbaynggirr &
 Wakka Wakka man**

Taking care of Business

Want to work for yourself? Here's how

Startups (new businesses) are growing faster than ever before: at one of the highest rates in the world in Australia and also in Aotearoa (New Zealand), where businesses with less than 20 employees create 28% of the country's annual wealth. Big tech businesses like Atlassian and Xero are some major homegrown success stories. Four entrepreneurs share their success.

**ONE OF
 THE KEY THINGS
 ABOUT BEING AN
 ENTREPRENEUR
 IS BEING 100%
 BOUGHT INTO
 THE IDEA THAT
 YOU HAVE"**

TOP TIPS FOR BEING AN ENTREPRENEUR

Adele: "It's important to remember that there is never just one way to do things."

Lesley: "Have a yarn with someone who is doing it. Do your research to make sure that your idea is going to connect to the market."

Liam: "You have to be so resilient about the fact that you're willing to take it from start to finish, no matter what it takes."

Ngāti Kahungunu, Tūhoe & Ngāti Maniapoto woman

ADELE HAUWAI SOCIAL ENTREPRENEUR

I didn't go about learning things in what is considered the typical fashion. As someone with mental health challenges, and who has dealt with epilepsy for 27 years, I have experienced the stigma of not being like others. It has given me an awareness that many people are struggling with invisible challenges.

While a lot of the work I do involves technology, I am most interested in the social entrepreneurial perspective — all my work is focused on helping communities and whānau (extended family), on making the world a better place.

At present my main focuses are SeeCom, which merges sign language and technology; Mana Digital, empowering whānau through technology; and Healing Innovation Hub which is creating holistic health and wellbeing resources.

My work is geared to helping others to grow and improve. I blend Māori concepts and language with tech, as this keeps our culture and people alive and growing.

Learn sign language!
see.com.co.nz



DEGREES IN BUSINESS,
SPECIAL EDUCATION, AND
SIGN LANGUAGE

FOUNDER/CEO OF SEECOM
AND TALK MEDICINE

HEALING INNOVATION
HUB CEO BOARD MEMBER

MANA DIGITAL BOARD
OF DIRECTORS

LESLEY WOODHOUSE CEO, WINGARU EDUCATION

While working for the NSW Government, I saw all these communities who were making fantastic resources that would end up just sitting on shelves. I thought that if we could get these kinds of resources into schools, we could help create leaders who would be able to work with Aboriginal people to find solutions.

Wingar Education is all about making Aboriginal content more accessible. Our early and primary school products are all digital, so kids can login wherever they are. We also offer cultural awareness training for workplaces and people can access information on everything from Aboriginal astronomy to the science behind didgeridoos.

Being able to preserve that knowledge for future generations is really important. I am proud that we are making an impact on how Australia values Aboriginal people and culture.

Get the full story:
CareerswithSTEM.com/
indigistEM



BACHELOR OF LAWS,
UTS

PROJECT OFFICER,
UTS

SENIOR PROJECT OFFICER, NSW
DEPARTMENT OF EDUCATION

CEO, WINGARU
EDUCATION

Darug
woman



@wingaru_education

Ngā Rauru & Te Ātiawa woman

MIRIANA LOWRIE CEO + FOUNDER, ICENTRE. CUSTOMER ONBOARDING AND AUTO DECISIONING SOFTWARE

My path into the tech industry began when I started looking for a way to solve a particular pain point I had personally experienced.

I'm passionate about enabling businesses to have a great experience when onboarding with a new supplier and agreeing trade credit terms, 'onboarding and ordering in minutes' essentially.

So I thought, how about someone facilitates a way better digital experience? That someone turned out to be me. I'm doing

this because I hate filling out application forms, but I know to apply for credit requires this necessary step! Painful as it is.

When I really started looking into the problem, I discovered that it went so much deeper than I'd ever thought possible and began to see how tech could be a game changer. It's so easy to get stuck in a rut of doing things the way you've always done them, but it's crucial in business to keep innovating, finding new and better ways to do things.

The journey of a tech founder is a constant and difficult one, but it's also infinitely rewarding as both a learning experience and a lifestyle.



@miriana_lowrie

BACHELOR OF BUSINESS,
AUCKLAND UNIVERSITY
OF TECHNOLOGY

STRATEGY AND PLANNING
MANAGER, ASB BANK

FOUNDER AND
CEO, I CENTRE

Get started in STEM!

Cut out this page and pop it somewhere handy for reference



FOLLOW UP!

Connect with these peeps to help you on your STEM journey:

STALK STEM SOCIALS

Get inspo from an edu-tech entrepreneur
@MikaelaJade

Load up on fun space facts with
social savvy astrophysicist
@astrokirsten

Keep up-to-date on all
things Deadly Science
with @corey_tutt

Fill your feed with stars by following

@KarlieNoon

Keep connected with the Indigenous STEM
community with @IndigiTek

Load up on digital opportunities with @Indigital

For all things career and mentoring hit up
@careertrackers

Celebrate the Māori community's
STEM achievements and potential via
@Puhorostem_academy

LOL along with Māori astronomer
@JoshKirkley

Load up on Indigenous astronomy knowledge
@Livingbythestars

Seek out academic support from
@te_rau_tauawhi

Be inspired by pathways and stories from
@curiousmindsnz

Follow a STEM-centric museum with strong
roots in Māori culture @TePapa

Look out for jobs at
@MaoriPacificJob

Find study options

Hit up your careers advisor for tertiary study options, or check out online resources like tafecourses.com.au, gooduniversitiesguide.com.au and studyinnewzealand.govt.nz. Most grad schools host annual open days where you can ask ALL the questions, so signing up to their newsletters is a great way to receive reminders.

Uni not for you? Bagging a three-year Bachelor's degree isn't the only way to kickstart a career in STEM! There are loads of alternative pathways that equip grads with the immediate skills needed to land a job.

Vocational Education and Training (VET) focuses on equipping grads with the practical skills needed to:

- join the workforce for the first time
- rejoin the workforce after a break
- upgrade skills in their chosen field
- move into a different career
- enter higher education

VET may be completed via off-the-job institutions such as TAFE and Institutes of Technology and Polytechnics, but also through apprenticeships and traineeships, where qualifications are completed alongside paid employment in a real workplace environment.

You can also find a heap of private colleges and short courses, including free coding courses. Check out a list of hackathons, coding resources and more here CareerswithSTEM.com.au/coding-resources/

CAREERS
WITHSTEM.COM

Google

INDIGITEK

AATEA

PŪHORO
he waka eke noa

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We acknowledge the Traditional Owners of country throughout Australia and recognise their continuing connection to land, waters and culture. We pay our respects to their Elders past, present and emerging. We acknowledge the rights of all Indigenous peoples and their connection to their traditional lands.

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Seek out scholarships

There are 986 scholarship opportunities for Aboriginal and Torres Strait Islander students in Australia RN. Some particularly cool STEM examples?

- The University of Melbourne DST scholarships for Indigenous students in STEM
- CSIRO Indigenous STEM Education Project
- The University of Notre Dame's Aboriginal Health Science Pathway Scholarship
- The University of South Australia's Gavin Wanganeen Aboriginal STEM scholarship
- The University of Melbourne Telstra Technology & Innovation Scholarships

Massey University's Pūhoro STEM Academy supports Māori to study and enter careers in STEM. You can also check out financial support through:

- Tūwharetoa Settlement Trust STEM Scholarships
- Māori Education Trust: Postgraduate Scholarship (STEM)
- The University of Auckland Pacific Academic Excellence Scholarship

More great resources

Australian Computing Academy aca.edu.au

Children's Ground Childrensground.org.au

CORE Education core-ed.org

CS Unplugged CSUnplugged.org

Deadly Science deadlyscience.org.au

Hangarau Matihiko hangaraumatihiko.tki.org.nz

National Centre for Indigenous Excellence ncie.org.au

Tech Girls Movement Foundation techgirlsmovement.org

DISCOVER MORE

#1 Indigitek

Indigitek is a community of Aboriginal & Torres Strait Islander people who are continuing a proud tradition of Indigenous innovation and entrepreneurship in science, technology, engineering and mathematics. Get involved with the community, events and programs. indigitek.org.au

#2 Pūhoro STEM Academy

Launched in 2016, Pūhoro was developed in response to national low engagement of Māori in STEM-related career pathways that subsequently leads to lower numbers of Māori representation in science and technology industries in Aotearoa. Pūhoro seeks to change this space and recognises that a STEM workforce is required for an innovation-focused future society.

puhoro.co.nz

#3 Careers with STEM

CareerswithSTEM.com is packed with pathway info, practical next steps and quizzes to find role models and career ideas. Discover how you can combine STEM with your passion, sign up for our newsletters and follow us on socials to catch employment opportunities and industry news. Oh, and memes. CareerswithSTEM.com

#4 Young Indigenous Women's STEM Academy

For Year 8 Indigenous women in Blacktown, Penrith or Central Coast (NSW), or Perth (WA) interested in science, technology, engineering and mathematics: join the Academy to succeed in an exciting STEM career and become part of a deadly network of Indigenous women. bit.ly/IndigAcademy

#5 Victorian Indigenous Engineering Winter School

The Victorian Indigenous Engineering Winter School is an exciting program for Year 10, 11 and 12 Indigenous students that will expand your perspective on engineering. Find out more about the 2021 program here: eng.unimelb.edu.au/engage-with-us/indigenous/views

Find a mentor

Bagging a real-life mentor you can bounce ideas off is a great way to get ideas and support. Your careers advisor or local uni and TAFE outreach programs can be a great resource when looking for someone to connect with. You can also connect through AIMEmentoring.com or Te Puni Kōkiri tpk.govt.nz/en

