

STEM IT UP!



Words by
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Illustrations by
Chad Robertson

STEM IT UP!



Wassup guys!
My name is Toa. Are
your parents and
teachers asking you
what you want to be
in the future?

It's good to start thinking about it now so you know the right subjects to choose as you go through high school.

There's lots of exciting careers out there for you.
And the world is changing so quickly that new jobs
are being invented every day!

This book will give you some info about STEM careers.
"What's STEM?" you ask. Come check it out with me. You
might discover something that will change your life forever.

We're starting at the basketball courts where
I'm playing with my friends after school.

Lesssssgo!



SWISH!

Good idea. It's tiring beating up on you guys.

Wait til I make it to the NBA. Im gonna come back and jam on all yall!

You're the man, Sefo!

Let's take a break guys, I'm thirsty.

Ay? That last shot was the only one you made all day!



You think I can't make it? Steven Adams did.

Yeah, but Steven Adams ain't from around here. Nobody from here makes it big.

That isn't true, uso. Lots of successful people come from here.



What are you guys all thinking of doing in the future?

I'm gonna be an NRL player.

Air hostess.

You Tuber

What about you, Toa?

I'm not sure yet. But definitely something to do with STEM.

STEM? What's that?



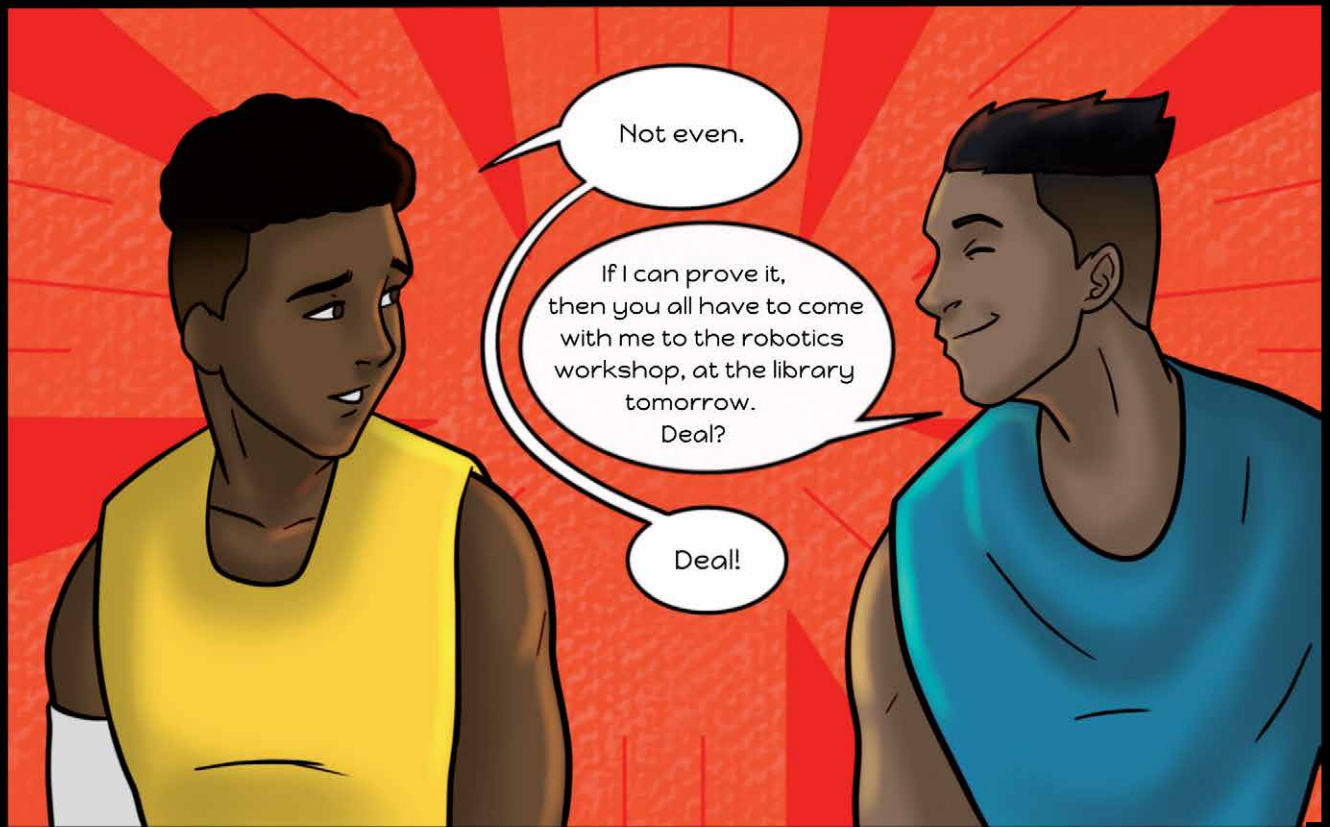
S.T.E.M.
Science, Technology,
Engineering and
Maths.

They're the
worst.

None of
us are good
at those
subjects.

Pacific and Māori
people are experts at
STEM subjects,
guys.

Oh what!
I hate those
subjects!



Not even.

If I can prove it,
then you all have to come
with me to the robotics
workshop, at the library
tomorrow.
Deal?

Deal!

Let's start with Science. Science is about understanding our natural world.

Bro, you've lost me already!

Give him a chance, man!



I wish I learned Science like that at school.


Tokelauans can predict when a turtle will come ashore by studying the eggs it lays in its nest.

That's Science. Samoan gardeners study the soil to know which type of talo to plant. That's Science too.

Hardout!
My grandpa told me that in Niue, the elders sometimes ban fishing and swimming when they want fish numbers to grow. Are you saying that's Science?

That's so cool!


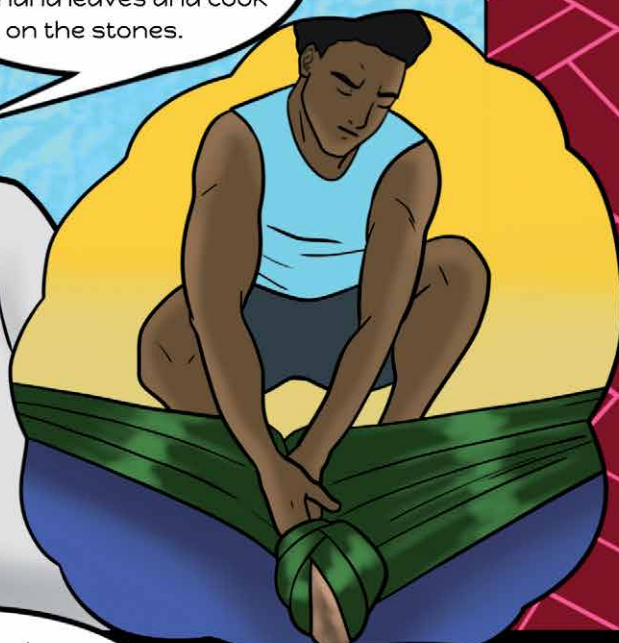





In a lovo. We put heated stones on the bottom of a pit. We wrap food in banana leaves and cook it on the stones.



Let's talk about Technology now. Technology is making things that help our world. How do Fijians cook food back home, Nemaï?



That's Technology. Sefo, your dad's a tattooist, right? What tools does he use?



We call the chisel an 'au. It's made of wood, turtle shell and bone. The mallet used to tap the 'au is called a sausau.





How do they make the ink?

From the soot of a candlenut tree. Then they mash it in this bowl called an ipu lama.

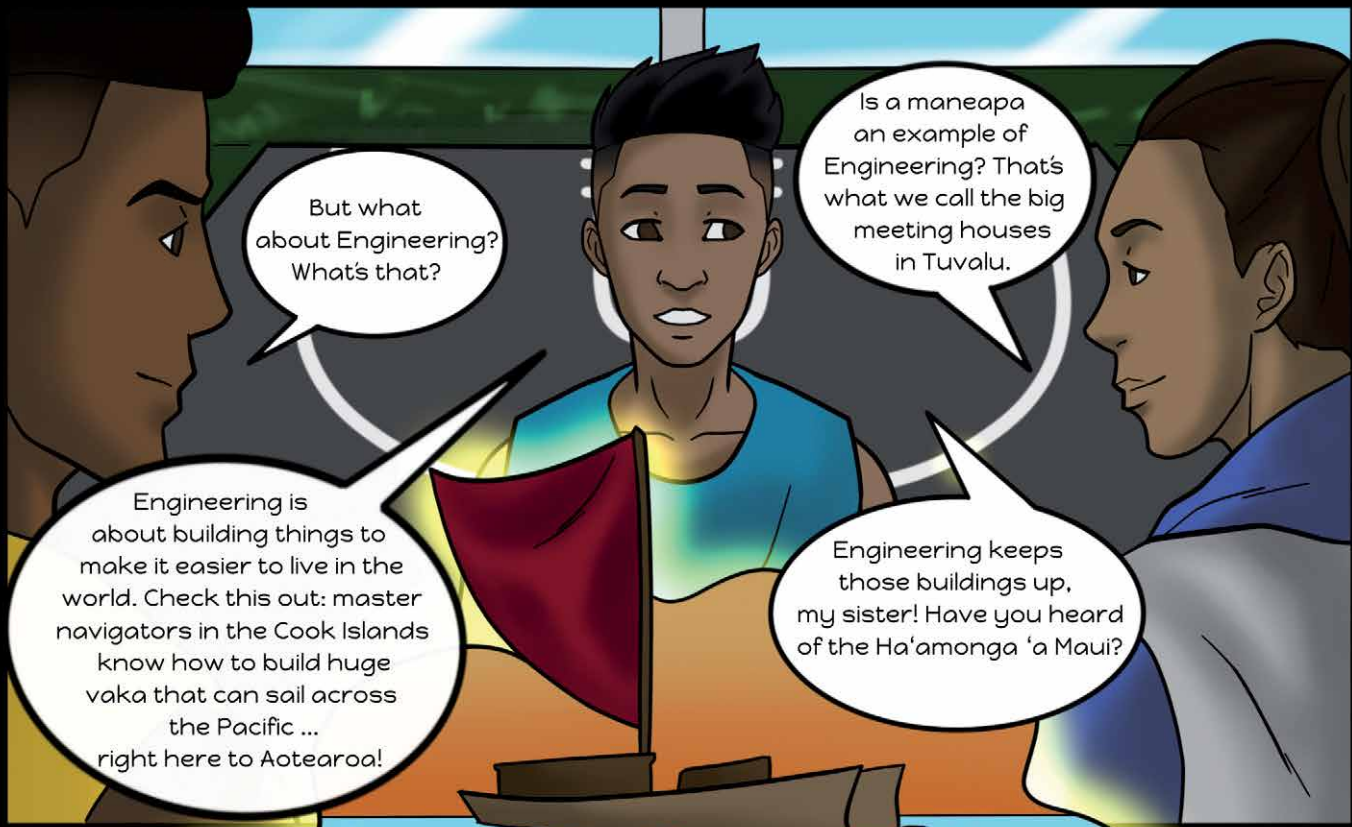


This guy and his knowledge of Samoan technology!

In Tokelau they catch birds with a net called a heu manu. It's made of the bark of a fau tree. They swipe the net along coconut fronds and scoop the birds up!

Our people are technology experts!



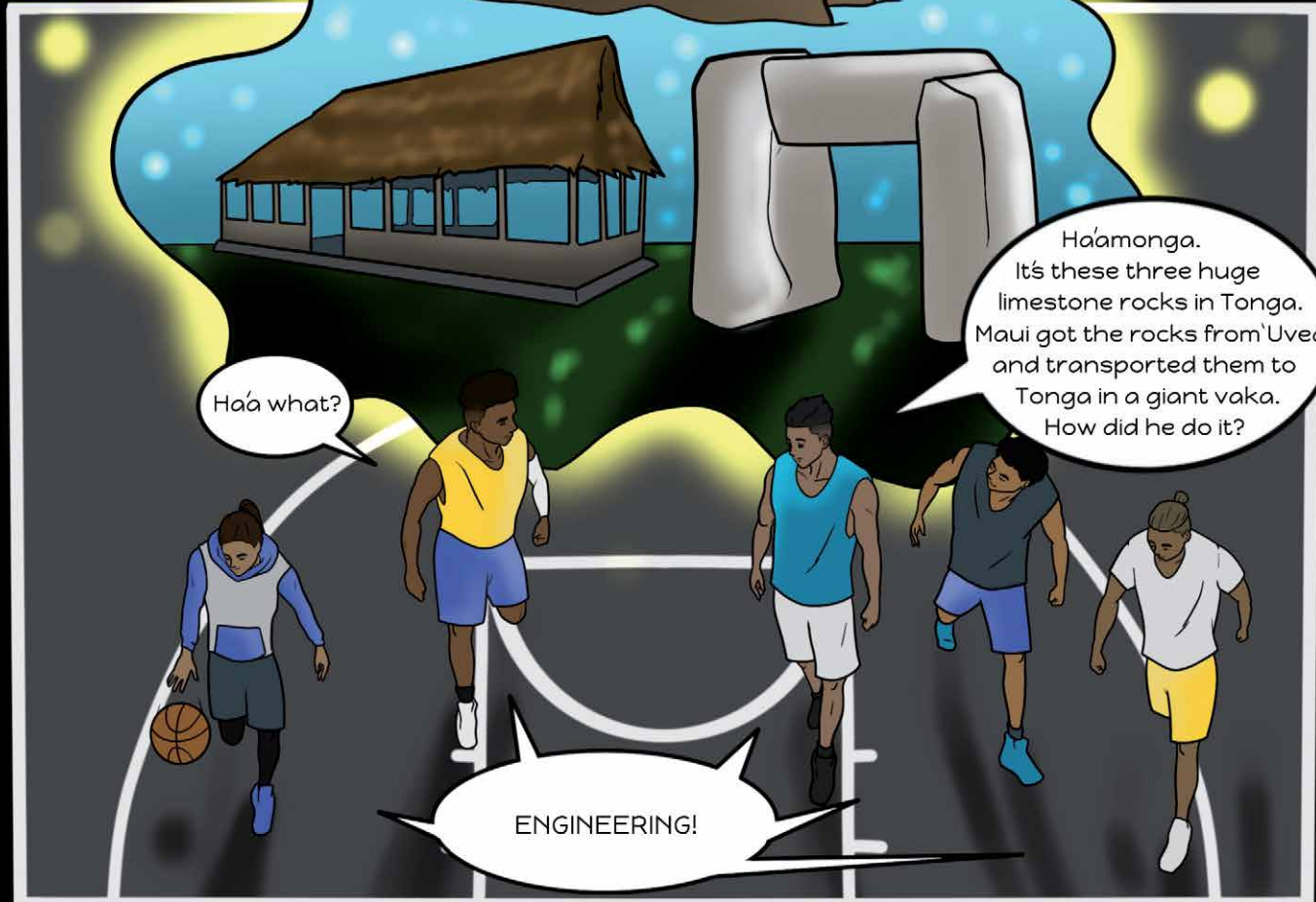


But what about Engineering? What's that?

Is a maneapa an example of Engineering? That's what we call the big meeting houses in Tuvalu.

Engineering is about building things to make it easier to live in the world. Check this out: master navigators in the Cook Islands know how to build huge vaka that can sail across the Pacific ... right here to Aotearoa!

Engineering keeps those buildings up, my sister! Have you heard of the Ha'amonga 'a Maui?



Ha'a what?

Ha'amonga. It's these three huge limestone rocks in Tonga. Maui got the rocks from 'Uvea and transported them to Tonga in a giant vaka. How did he do it?

ENGINEERING!



See, I proved that our people are STEM experts. You all have to come to the robotics workshop. That was the deal.

Nah, wait a minute. You're forgetting something.

The letter M. Maths.

I don't know anyone who's good at Maths.



This is too easy! Alisi, what do you call the pictures and designs on a Tongan ngatu?

One of the oldest kupesi is the black-and-white triangles called the manulua. Are there any other shapes that you see on ngatu?

Kupesi.

Circles, diamonds, hexagons....

That's Maths!



When my nana gets together with the other Cook Islands mamas to make tivaivai, I think they use Maths.

They calculate how many leaves and flowers they'll need to cut out and sew.

And they create symmetrical designs that connect perfectly like a jigsaw puzzle.

How?



The meanest Maths!

The inati tradition in Tokelau is all about Maths. When the men go out and catch fish, they divide it equally among all the families.





Sign me up
for that
workshop, brada!

Me too!

Wow!,
Pacific
people are
STEM experts.

Now what are
you doing?

I'm gonna show you some other cool things you can do with STEM.







SCIENCE

In **Science** we try to understand our natural world. We ask questions, make predictions, and do experiments. We investigate!

COOL JOBS THAT USE SCIENCE INCLUDE:

- Marine biologist
- Astronomer
- Food science technician
- Forensic scientist
- Electrician
- Pilot
- Astronaut
- Veterinarian
- Dentist
- Music therapist
- Midwife
- Optometrist
- Sports physician
- Surgeon
- Zoologist
- Medical technician



Scan your phone over the code to watch each person in action



THESE PACIFIC PEOPLE ARE STEMMING IT UP IN SCIENCE!



CAPTAIN CONSTANTINE ZOMBOS – PILOT

“STEM subjects are important and awesome!”

DR LUPE TAUMOEPEAU – VASCULAR SURGEON

“A career in medicine is fulfilling, challenging and a way to serve the community.”



HELEN WOOLNER – CHEMICAL SCIENTIST

“Science is about discovering new things.”



AMY MASLEN MILLER – PLANT PATHOLOGIST

“Pacific people are the OG’s of Science.”

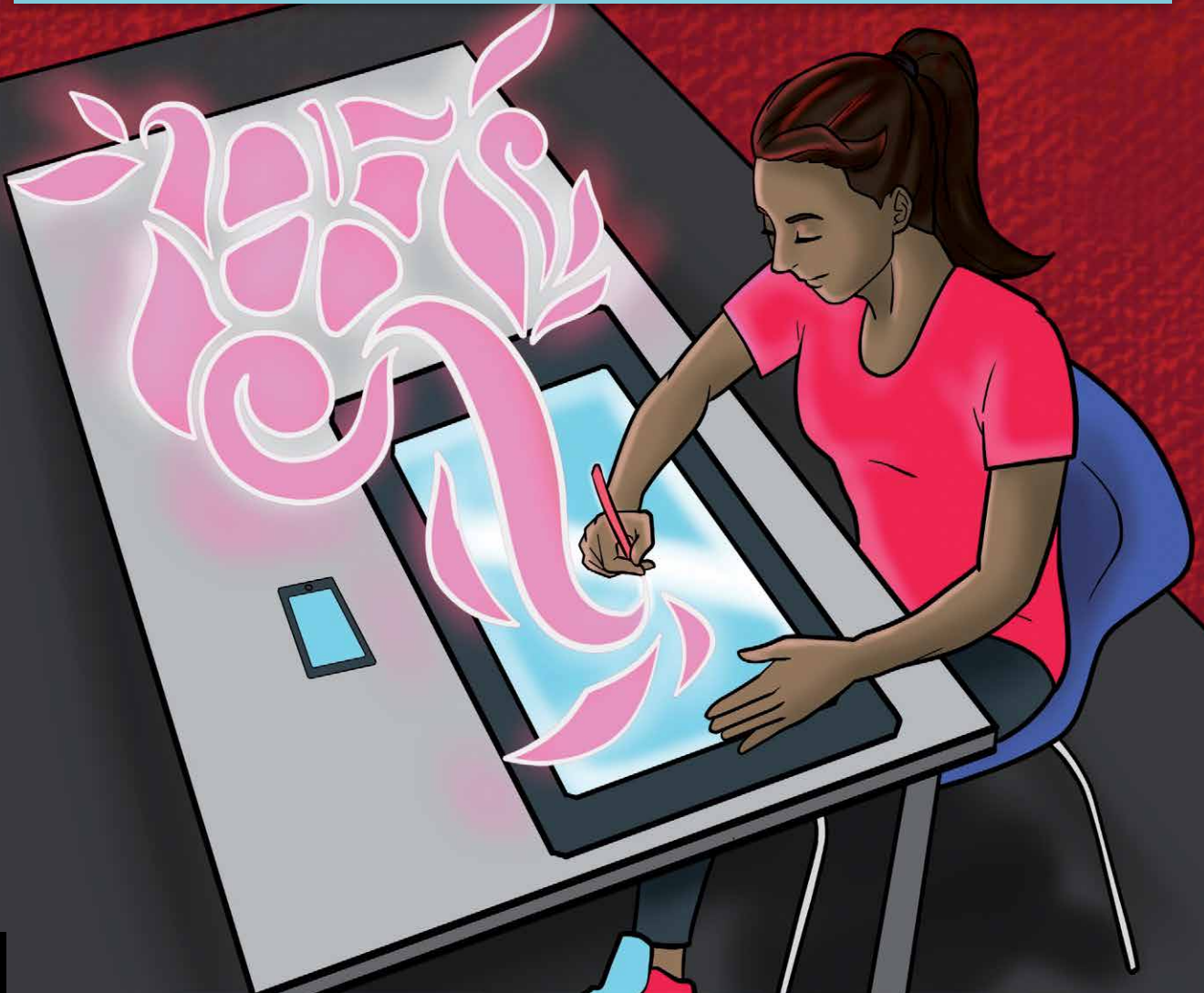


TECHNOLOGY

In **Technology** we make things that benefit our world. We use tools, create products, and try things out. We invent!

MEAN JOBS THAT USE TECHNOLOGY INCLUDE:

- Coder
- App maker
- Game designer
- Computer technician
- Information security
- Website creator
- Designer
- Animator
- Illustrator
- Music producer
- Film maker
- Data scientist



Scan your phone over
the code to watch each
person in action



THESE PACIFIC PEOPLE ARE STEMMING IT UP IN TECHNOLOGY!



JASMIN GEORGE HEWETT – COMPUTER PROGRAMMER

“Don’t be afraid to dream big
and be creative with what you
dream about.”

KEU IORANGI – TECH ACTIVATOR

“Pacific people have
been innovators since way
back in the day.”



RIO HUNUKI-HEMOPO – GAME DESIGNER

“I love bringing my culture
and history into the world
of game design.”



ALI COWLEY – COMPUTER ANIMATION

“STEM subjects help you
create cool worlds with
your artistic skills.”

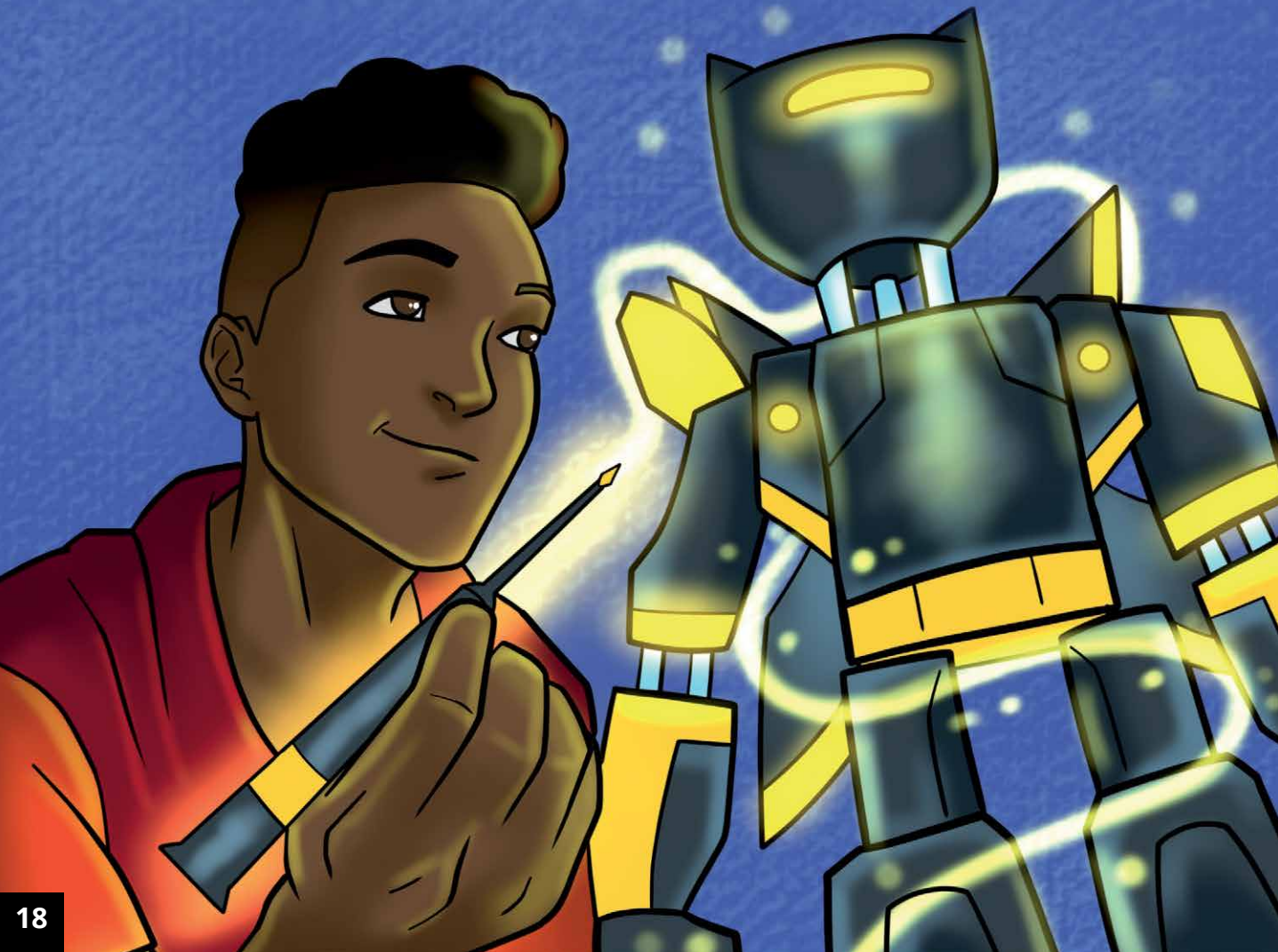


ENGINEERING

In **Engineering** we find out how things work in our world. We design and build, test things out and solve problems. We innovate!

SWEET JOBS THAT USE ENGINEERING INCLUDE:

- Aerospace engineer
- Architect
- Racing car engineer
- Special effects engineer
- Landscape designer
- Robotics creator
- Sound designer
- Toy engineer
- Biomedical engineer
- Transport engineer



Scan your phone over
the code to watch each
person in action



THESE PACIFIC PEOPLE ARE STEMMING IT UP IN ENGINEERING!



KARINA KAUFUSI – **STRUCTURAL ENGINEER**

“STEM subjects are exciting because they help us understand how things work.”

JAYDEN KEY – **CIVIL ENGINEER**

“Pasifika people bring fresh and new ideas to the table.”



ENGIE MATENE – **SOFTWARE ENGINEER**

“Pacific people have a unique way of thinking that adds value to technology.”



BERNADETTE ROBERTSON – **ELECTRICAL ENGINEER**

“Don’t be afraid to step out of your comfort zone!”



MATHS

In **Maths** we study the patterns and relationships between things in our world. We observe, calculate and find solutions. We connect!

SEKI JOBS THAT USE MATHS INCLUDE:

- Video game designer
- Photographer
- Accountant
- Data analyst
- Banker
- Business person
- Musician
- Mechanic
- Builder
- Investigator
- Special effects creator
- Statistician



Scan your phone over the code to watch each person in action



THESE PACIFIC PEOPLE ARE STEMMING IT UP IN MATHS!



LISA TAI
– DATA ANALYST

"STEM subjects help you think logically and problem solve."

TUAKANA METUARAU –
LECTURER IN DIGITAL FOUNDATIONS

"Pacific people add another voice to the creative world. Take the STEM challenge!"



PELETI OLI-ALAINU'UESE
– BUSINESSMAN

"Now that I run my own business, I know how important Maths is!"



MALAKAMU LAKATANI
– MUSICIAN

"Pacific people are clever at Maths."



WHY IS STEM IMPORTANT FOR PACIFIC AND MĀORI YOUNG PEOPLE?

STEM IS PART OF OUR DAILY LIVES

We use Science to make delicious meals and crazy coloured slime. We use Technology to build worlds on Roblox, and sound systems out of sirens. We use Engineering to make tree huts and go karts. We use Maths to plan family trips overseas and to save for those new Air Jordans.

STEM WILL BE PART OF OUR FUTURE

There are lots of careers in STEM fields and new careers are being invented every day! These careers are usually highly paid. People in these careers help us when we experience challenges such as pandemics or natural disasters. People in STEM careers create products the world has never seen before.

STEM IS FUN

In STEM subjects we try out new ideas. We 3D print the parts of a robot, put it together and programme it to do things on its own. We design new products like 'otai made from low fat yogurt, watermelon, coconut milk, mango and pineapple. We invent new video games like Toa the Pacific Warrior!

FIND OUT MORE

Are you leaving school soon and need ideas for what to do next?

- Check out this helpful site: <http://schoolleaver.nz/>

Need a scholarship to help pay for further study?

- This site lists university, polytechnic and wānanga scholarships you can apply for: <http://schoolleaver.nz/money/scholarships/item/36-scholarship-information-and-databases>
- Here's a place to find Government scholarships: <https://www.govt.nz/browse/education/tertiary-education/scholarships-grants-and-awards/>

The Ministry for Pacific Peoples has scholarships for Pacific students to pursue STEM subjects:

- <https://www.mpp.govt.nz/community-funding/toloa-tertiary-scholarships-3/>

Parents, families, schools and providers – do you have a STEM project that might excite Pacific young people? You can get support for your project here:

- <https://www.mpp.govt.nz/community-funding/toloa-kenese-fund/>
- <https://www.mpp.govt.nz/community-funding/toloa-community-fund/>

Need information or support about NCEA and/or other New Zealand qualifications?

- Please visit: <https://www.nzqa.govt.nz/> and/or ring NZQA on 0800 697 296
- You can also check out our NCEA ma le Pasifika Facebook and Instagram pages



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READING LIST

Read about Pacific STEM warriors in books by the Reading Warrior, David Riley:

Pasifika Heroes series

<https://readingwarrior.com/product-category/pasifika-heroes/>

Wahine Toa series

<https://readingwarrior.com/product-category/wahine-toa/>

