

# NZ NEW ZEALAND iSf SCIENCE FESTIVAL

8-18 JULY 2021 SCIFEST.ORG.NZ #NZSCIFEST

FAMILY PROGRAMME



# WELCOME



Nau mai haere mai!

On behalf of the city of Dunedin I would like to welcome you all to the 13th New Zealand International Science Festival.

Now more than ever, the evolving nature of science is critical to our understanding of the world, to exploring new frontiers in search of breakthroughs which positively impact our people and planet.

Dunedin is proud to be the home of the only science festival in the country, a perfect fit given our status as a city of science, innovation and education.

It is one of the city's premier events, embracing and celebrating the city's identity, with many attendees from around the country expected to share in the festivities.

This year the festival will explore all things science for all ages. From the mysterious outer limits of the universe, to the marvellous inner workings of robotics, with all the weird, weighty and wonderful stuff in between.

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Tēnā koutou, tēnā koutou, tēnā koutou katoa,

Since way back in the 90's the festival has been committed to inspiring and engaging people of all ages and backgrounds with the role science plays in our daily lives and the massive contribution it makes. Now more than ever science needs to provide a guiding light during particularly challenging times. In that context, we're proud to bring you a captivating program with hundreds of ways to discover how our world (or galaxy!) ticks.

When people are presented with science in a way that is accessible, inspiring and enthralling, they engage with it, they love it, and more importantly, it opens up an entirely new universe for them. This reconnects us to our world and allows us to experience it through a new lens. Our theme this year is Reconnect. Through this festival we want to reconnect with nature, with science, and with each other.

As always, this festival would not be possible without supporters and partners who share and embrace our vision. In particular, we thank the University of Otago, the Dunedin City Council, and the Otago Community Trust. We also extend a big thank you to our other supporters who allow us to craft a programme full of so many amazing events that will ignite imaginations.

We also need to acknowledge the incredible commitment and passion of our event partners, presenters and volunteers. We are always amazed by how awesome they are and their passion for engaging the public in science. Thank you!

Finally, we would like to thank you, our audience, our community. You are the reason why the festival is here. This year there are more ways than ever to immerse yourself within the festival so we urge you to take the first step and read on!

On behalf of the Festival Executive & Management team, we invite you to enjoy the wonders of science!

Bridget Irving, President

Dan Hendra, Festival Director

Aaron Hawkins  
Mayor of Dunedin



# HOW TO USE THIS GUIDE

## KEY

### AGE RECOMMENDATION

- ALL AGES
- KIDS (4-8)
- TWEENS (9-12)
- TEENS (13-17)
- ADULTS (18+)

- WHEELCHAIR ACCESSIBLE
- BOOKING REQUIRED
- FREE EVENT

PRICE LISTING (WHERE APPLICABLE)  
ADULT/CONCESSION/CHILD OR  
ADULT/CHILD/FAMILY PASS



This programme is actually two programmes in one! It can be easily separated into both a 'Family Programme' and a 'Grown-up Programme' (p13-20)! Give it a try!

**HUGE**  
ACTIVITIES CENTERFOLD  
AND COLOURING  
COMPETITION ON PAGES  
12 & 21!

# DIRECTOR'S TOP 10



OUR MOON: THEN, NOW AND BEYOND



CODE VR & GAMING CENTRE



BIG SCIENCE SHOW!



BANG! SCIENCE SHOW!



TINY RUINS UNDER THE MOON



SCICOMM STUDENT FILM PREMIERE



OPENING NIGHT: SCIENCE IN THE SPOTLIGHT



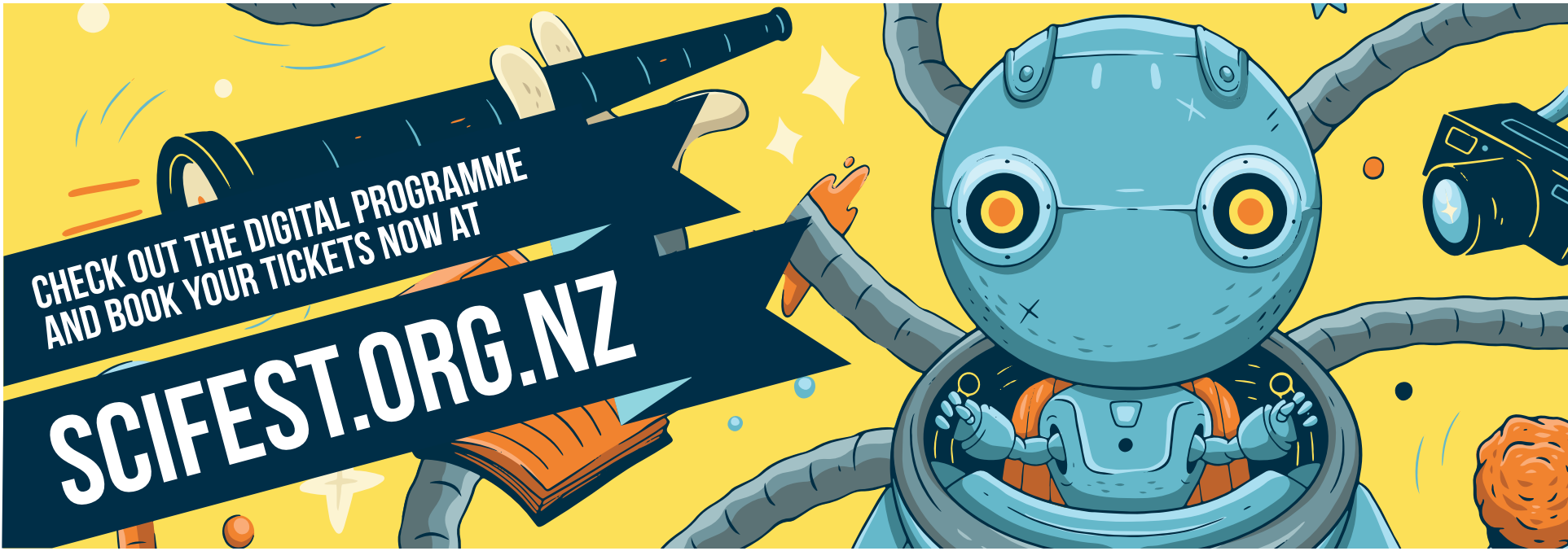
MITRE 10 MEGA BACKYARD BUILDERS



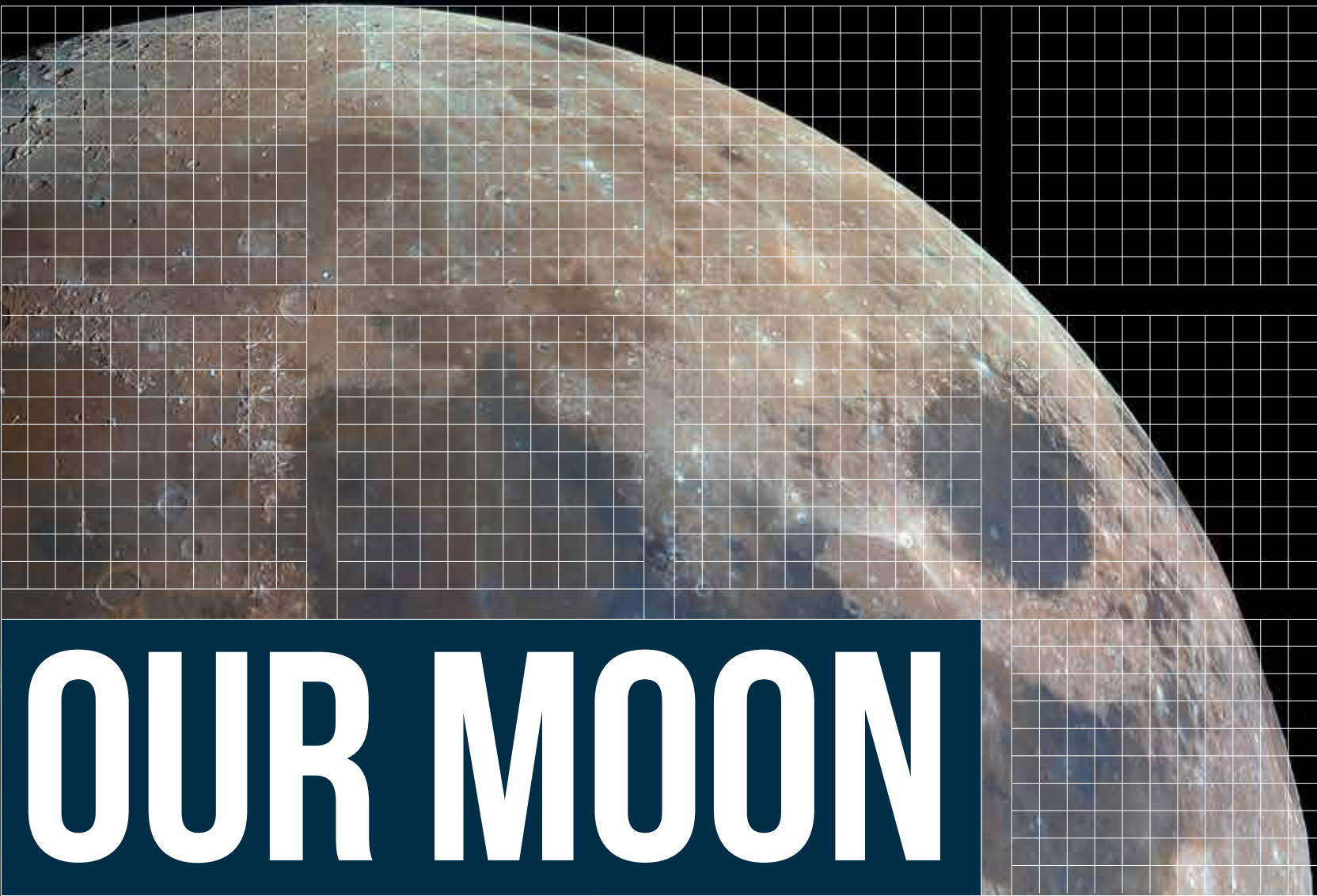
OUTSIDE INSIDE FOREST



KŌRERO TE MARAMA







# OUR MOON



TINY RUINS SOLO



SPACE FRONTIERS



STORY TIME

## **THEN, NOW AND BEYOND**

13 - 18 JULY • HANOVER HALL, 65 HANOVER STREET • 10AM-4PM • \$5/\$3



YOGA UNDER THE MOON



QUANTUM CRYPTOGRAPHY

**Explore the Moon's past, present, and future in Our Moon: Then, Now and Beyond.**

This is an out-of-this-world experience where you can enter the orbit of our spectacular moon.

Get up close and personal with the earth's moon in this very special exhibition.

Bathe in the glow of Moon by British artist Luke Jerram, a 4-metre replica moon printed with high-resolution NASA imagery, hosted in Hanover Hall.

On display beneath the Moon exhibit will be a large photographic exhibition, **Space Frontiers**, focussing on NASA's science experiments in space; the past, present and future of space exploration; and a feature display focussing on traditional Māori practices of navigating by the stars, and harnessing knowledge of the night's sky to predict the changing of the seasons, and signify when to plant and harvest crops.

Presented by the Nelson Museum in partnership with the Rātā Foundation, Cawthron Institute and the Embassy of the USA.

Ka mahi kātahi kā ohu whakahaere a Puaka Matariki Festival me NZISF – a Puaka Matariki Festival/NZISF collaboration.

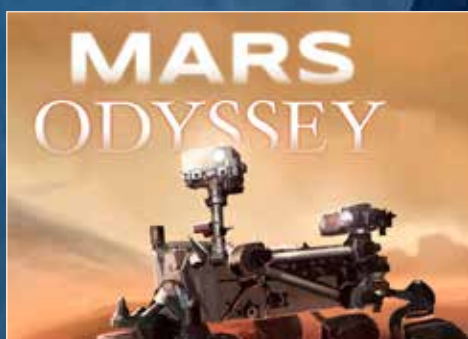




# VIRTUAL REALITY & GAMING CENTRE



12 - 18 JULY • OLD AOTEA GIFT SHOP • 10AM-4.30PM • \$12/\$10



**Come immerse yourself at the Virtual Reality & Gaming Centre Pop-Up and be amazed by some of the latest virtual reality experiences from around the world!**

Back by popular demand, we have levelled up our virtual reality experiences for you for a limited time as part of this year's festival.

Walk on the moon, kayak the Grand Canyon or run amongst dinosaurs!

This is an immersive experience like



no other with the latest headsets on offer to play, engage and discover new worlds!

To accompany the virtual reality experiences we have partnered with CODE, Centre of Digital Excellence and the local gaming industry to showcase the incredible work being done right here in Dunedin.

Explore the beauty of the rainforest with a virtual reality experience from Dunedin game studio Runaway. Discover real life butterfly species and meet animal friends in this relaxing game. See the environment change from day to night and rain to sunshine as you meet and discover



new creatures. Unlock journal entries by documenting species and uncovering hidden secrets! Photograph each new find and immerse yourself in the wondrous world of the rainforest!

From Dunedin's own Gfactor Technologies, experience the CoDriVR simulators, developed for Worksafe NZ to support driver training in side-by-side vehicles, and Go-Rentals to induct tourists to New Zealand roads.

The Orders of Magnitude is an educational and relaxing virtual reality experience which will show you our Universe at many different scales. Mars Odyssey is a single player



virtual reality simulator experience. Land on the red planet. Walk the surface of Mars and interact with full-scale, realistic NASA Landers and Rovers.

Learn about the Red Planet, its history, and its geography in this interactive experience.







# BIG SCIENCE! SHOW! WITH AMADEO

10 & 11 JULY • TCOL AUDITORIUM • 2PM (SAT), 11AM & 2PM (SUN) • 60MIN • \$14/\$12/\$40

**Dunedin's favourite mad scientist Amadeo returns with a brand new science show, full of explosive science to jump start your 2021 Science Festival.**

Amadeo has a new assistant this time... and they don't always see eye to eye.

Bonnie is an artist, who has no time for science. Equally, Amadeo has no space in his science dominated world for the likes of the arts.

But fate has thrown them together and the pair will have to set aside their differences in order to harness the power of both Science and Art - enjoying heaps of experiments, videos, crashes, bangs and a whole lot of other fun along the way.

Maybe arts and science aren't so different after all?

This show is written by award winning comedian and playwright Abby Howells and directed by Arcade Theatre Company's Alex Wilson.

Thanks to DCC Arts funding for helping to fund this production.



NEW ZEALAND PLAYWRIGHTS  
**PLAYMARKET**  
AGENT. ADVISOR. BOOKSHOP



# BANG! SCIENCE SHOW!

**Frankenstein has finally decided what she wants to be when she grows up...a Super Villian!**

Together with her faithful sidekick, Igor, Frankenstein uses chemical experiments to come up with the perfect villain powers.

Frankenstein and Igor experiment with fire, ice and smoke all in the name of trying to find the coolest villain superpowers.

There will be crashes, there will be bangs, there will be many terrible puns!

But in the end is a super villain still Frankenstein's dream, or does being a scientist sound a little more exciting?

17 & 18 JULY • 2PM (SAT), 11AM & 2PM (SUN) • 60MIN TCOL AUDITORIUM • \$14/\$12/\$40

Join the Festival for this brand new science show! In close collaboration with the University of Otago Chemistry outreach team, this show is set to make your mind boggle, as real life chemistry experiences are set off before your very eyes!

This show is written by award winning comedian and playwright

Abby Howells and directed by Arcade Theatre Company's Alex Wilson.

Thanks to the University of Otago Chemistry Department and DCC Arts funding for helping to fund this production.

NEW ZEALAND PLAYWRIGHTS  
**PLAYMARKET**  
AGENT. ADVISOR. BOOKSHOP



# DUNEDIN MATHS CRAFT DAY

18 JULY • DUNEDIN TOWN HALL • 10AM - 4PM • DROP-IN



**Discover the maths behind craft and the craft behind maths at the Dunedin Maths Craft Day.**

Enjoy craft? Then you probably enjoy mathematics too – you just may not know it yet. This is the idea behind Maths Craft New Zealand, an initiative co-founded and run by mathematicians Dr Jeanette McLeod and Dr Phil Wilson, and is dedicated to bringing maths to the masses, through craft. Over the past five years, Maths Craft have run festivals and workshops all over the country, and now, armed with crochet hooks and origami paper, Maths Craft are coming to the New Zealand International Science Festival.

Featuring a range of craft creation stations and public talks by mathematician crafters, the day-long celebration of maths promises to engage people of all ages. Knit a mathematical

knot, crochet a Möbius strip, fold an origami octahedron, and flex a hexahexaflexagon. Volunteers with backgrounds in mathematics and crafting will be on hand at all times to answer questions and assist people with their creations. Our guest speakers will present a series of maths and craft themed talks throughout the day, ranging in topics from folding and fractals to crochet and chaos.



The Dunedin Maths Craft Day is open to everyone: experts and amateurs, maths-fans and maths-phobes, the crafty and the curious.



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# IMAGINATION PLAYGROUND

10 - 25 JULY • MUNICIPAL CHAMBERS • 10AM - 4PM • DROP-IN • \$3

**Imagination Playground is an innovative playground equipment system that transforms any space into a playground - encouraging learning, social development, movement, and above all fun.**

Using Imagination Playground blocks, kids build a new world every day. They make objects like animals, rocket ships, and robots. They make imaginary places like houses, factories, and cities. They make new dramatic scenarios, settings, and games to play. Most importantly, they make the rules. Imagination Playground is child-directed and open-ended, it encourages self-expression through deep, joyful play.

Traditional playgrounds consist primarily of fixed equipment, such as slides, monkey bars and teeter-totters, all of which focus on developing children's gross motor skills. Imagination

Playground contains a wide variety of loose parts, including cubes, bricks, cogs, curves, and cylinders. But the parts are not simply loose. They have holes and shapes that fit together in ways that allow the continuation of a child's idea. A pair of blocks becomes a wall. A wall becomes a room. A room becomes a house. The pieces connect together to make immersive play last a long time.

Imagination Playground blocks combine all of the benefits of block play on a larger-than-life-size scale to encourage kids to play together in groups and have more fun.

With Imagination Playground, kids literally make their own fun. There's no right or wrong way to play.

**Tickets are limited so bookings are essential.**



# OUR CLIMATE FUTURE EXHIBITION

8-18 JULY • MERIDIAN MALL • 9AM - 6PM • DROP-IN

**The Ministry for the Environment's 'Our Climate Future' exhibition shares information on how climate change is impacting us today and how we can create a better climate future together.**

You can also find out your personal carbon footprint and ways to reduce it with FutureFit, then make a pledge to take action.

'Ehara taku toa i te toa takitahi, engari he toa takitini.

My strength is not that of a single warrior but that of many.'







# FAR FROM FROZEN EXHIBITION ● ♿ \$

10 - 18 JULY • OLD SCOTTISH SHOP • 10AM - 4PM • DROP-IN

**Climate change is the greatest challenge of our time. Far from Frozen is a hands-on science showcase that brings climate change to life and to your doorstep.**

Learn how climate change is impacting Antarctica and Aotearoa New Zealand.

Take a deep dive beneath the ice of Antarctica using virtual reality to discover the beauty and splendor of life in our southern oceans and see how it's already being affected.

Explore interactive displays to see what impacts our generation, and what those that follow will face.

Discover how exciting new technologies can potentially make a difference, and help decide what we should invest in.

Each of us can make a difference! Learn why there's no better time than now to help create a better, safer, world.

Presented by Otago Museum in association with Curious Minds, Antarctica NZ, University of Otago, NZ Antarctic Research Institute, The MacDiarmid Institute and NIWA.



# DUNEDIN STUDY ● ♿ \$

ON NOW • OLD SMITH CITY, SOUTH DUNEDIN • 10AM - 4PM, 7 DAYS

**Slice of Life: The World Famous Dunedin Study provides an overview of the Dunedin Study, its methods and its major findings and celebrates the lives of the Study Members.**

The ongoing Study has followed 1,037 babies born in Dunedin in 1972 and 1973 right through to

age 45. It has been acclaimed internationally as one of the most significant projects of its kind and its findings have influenced health and social policy around the world.

Slice of Life was originally developed by the University of Otago Te Whare Wānanga o Ōtāgo and Toitū Otago Settlers Museum. This updated travelling version of the exhibition has been

to Canterbury Museum, MOTAT in Auckland and Nelson Provincial Museum with over 300,000 visitors taking a walk through 1,000 lives.

The exhibition follows the Study's members as they start school, learn to drive, experiment with sex, drugs and alcohol, find careers and start families of their own.

Visitors can look into rooms recreated in the styles of the 1970s, 80s, 90s and 2000s, and learn about links between lifestyle choices and health through

hands-on interactive exhibits. During the Science Festival visitors can also get a tiny taste of the Dunedin Study by trying for themselves some of the many tests the Study members experience when they come for an assessment day.

The University of Otago is hugely grateful to Martin Dippie who has provided a temporary venue for the exhibition and the whole team at Mitre 10 Mega who have worked to create this pop-up museum space.



# University of Otago

# Science Expo



University of Otago Business School, corner of Clyde Street and Union Street (East).  
Saturday 10 July, 10am–4pm | Sunday 11 July, 10am–2pm | **Free entry**

## Anatomy

Come to our interactive display and discover how fascinating and unique you are! You will get to see the dissection of an animal heart or brain, have the opportunity to paint your “insides” onto a t-shirt (which you can take home with you), and learn how your bones, muscles and organs all fit together.

## Botany

Plant biology is crucial to the health of the planet. Through photosynthesis, plants have changed the Earth's atmosphere, transforming the planet and enabling life as we know it to evolve. Plants now have numerous roles in mitigating the effects of climate change. Understanding the biology of plants is crucial in addressing many of the challenges involved with climate change and many different approaches are being used. Come and learn more about the research projects undertaken by staff and students in the Department of Botany.

## Brain Health Research Centre

The Brain Health Research Centre is a group of almost 50 research groups from around the University of Otago focused on understanding how the brain works and what goes wrong in diseases of the brain. Come and meet some of our best researchers and visit our giant inflatable brain.

## Computer Science

### AR spectator

See the future for sports spectators. Experience prototypes that in the future will provide visualisations and statistics to you in your seat at live events.

### Interactive sculpture

Work with others to create a colourful virtual sculpture. Four computers work together on one piece. This shows a highly intuitive interface: you need almost no instruction to make complex 3D shapes in a virtual space.

### Are you in tune?

Come and play your own musical instrument, or borrow one of ours. Our software will help you play better.

### Mind controlled drone

Launch our drone with the power of your mind. Science fiction becomes fact: you can control a machine just by thinking.

## Department of Biochemistry and Genetics

Biochemistry and Genetics are types of biology that explore the origins and mechanics of life. They discover causes of disease and their cures, and also solve problems facing our agriculture and natural heritage.

Explore some of the hands-on techniques that are used by scientists to investigate the molecular details of life.

## Physics

Hands-on activities show how physics helps us explain things from planet formation to modern communications technology, and from the sun and climate to sustainable energy.

## Faculty of Dentistry

Have a first-hand experience of what it is like to be a dentist and understand some of the key challenges and concepts. Investigate the impact of sugar on our oral health

and discover how 3D printing and scanning are changing dentistry.

## Food Science

Investigate the latest food trends including plant-based, wellness and sustainability. Explore why these concepts are becoming important issues for many consumers.

## Geology

The Earth below us contains a record of how climates and environments have changed over the past 4.6 billion years. Find out how knowing our past helps us step into the future.

## He Kaupapa Hononga: Otago's Climate Change Research Network

Come along to hear from researchers from across the University about the many ways scientists are probing climate change. Learn how to make a carbon footprint, and come to see what is happening in our oceans, how scientists do research in Antarctica, and some of the new technologies being used to decarbonise our world.

## Human Nutrition

What we eat affects the health, wellbeing and performance of individuals, communities and populations. Find out how our diet affects health and performance, and whether we need to spend our money on special sports drinks or can we make our own?

## Information Science

We will showcase a number of interactive demonstrations on virtual, augmented, and mixed reality, telepresence, and ubiquitous and visual computing.

### Ātea presence

Be virtually present at a marae and experience Māori storytelling in 3D!

### Computational glasses

See the world through the eyes of a colourblind person or, if you are colourblind, see colours compensated. This is also a great opportunity to test whether you are colourblind!

### Virtual Albany St studio

Dunedin was one of the places in the world where musicians could record in a BBC “Abbey Road”-style studio at Albany Street. Unfortunately the building had to go, but we captured it in 3D and you can experience the studio with virtual reality googles!

### Digital tissue slicer

Explore pixel-level segmentation of digitised human body slices and label the bones, muscles and even tiny blood vessels.

## Marine Science

Discover the connectivity between land and sea through interactive activities and “hands-on” encounters with local marine species and the Aquavan. From the mountains to the sea, learn how environmental impacts on land can affect river catchments and, ultimately, our ocean. Build a river catchment model to share your learning with others.

## Mathematics & Statistics

Warp your point of view by travelling near the speed of light. See how gravitational waves bend spacetime. Fall into a fractal. Wrap your head around some curly probabilities. Try your hand at some tricky puzzles in our chill-out zone.

## Microbiology and Immunology

Have you ever wondered how something as small as a virus can have such a profound effect on human, animal and bacterial life? We will showcase the complex and beautiful world of virus structures. Represented in stunning 3D shapes and colours, discover what the smallest organisms on earth look like.

## Ngāi Tahu Māori Health Research Unit

Join us on a hands-on investigative mission into the world of bug-busting medicines. Discover mould juice and exploding bacteria, learn how to care for antibiotics so that they can care for us, and test your petri dish powers by staying one step ahead of the SuperBugs! Protect yourself and your whānau in a game of COVID Kerplunk, and imagine what's next in nature's medicine chest.

## Orokonui Ecosanctuary

Come and join the Orokonui Ecosanctuary Dream Team Supreme to celebrate the last 15 years of conservation, education and research with hands-on activities and take home resources focusing on our precious native species.

## Psychology

In times of uncertainty, what is it that drives human behaviour? What can we do to change people's thoughts, attitudes and behaviour? The Department of Psychology is here to give you some insights into the science of brain and behaviour, and how it applies to current real-world situations.

## Geography

Explore how future climate change may affect where you live. Come along to our interactive mapping display to predict where the current climate in your home town will shift to over the next 30 years. What will happen to the climate in Aotearoa's mountains? In 2050, will the same areas as today still have suitable climates for our agricultural products? Share your experiences about your place: how do we feel about the climate where we live? Hear about some examples of the complex interactions between humans and the natural and physical environment.

## Pharmacy

Come along and learn how medicines are created, the different ways we can administer medicines to people and what's in store for the future!

## The Centre for Science Communication

What does it take to catch an elusive species going about its astonishing everyday business in the wild? Learn tricks of the trade from our wildlife and natural history documentary filmmaking crew, including the Centre of Science Communication's own Robert Brown, cameraman for acclaimed BBC broadcaster and natural historian David Attenborough.

## Zoology

What kinds of animals live in and around Dunedin? What animals lived here in the past, and what animals might live here in the future? Come and see what animals are around us, and how and why scientists in the Department of Zoology are studying them.

For further information and an expo map, go to:  
**[scifest.org.nz/programme/expo](https://scifest.org.nz/programme/expo)**





# OUTSIDE INSIDE FOREST ● ♿ \$

12 - 18 JULY • MERIDIAN MALL • 11AM-3PM • DROP-IN

**We're bringing the outside in! Pay a visit to our indoor forest at the Meridian Mall and learn about the wonderful natural world through hands-on science activities.**

Each day, different organisations will be on hand to share their science with you.

Plant a tree, solve a kiwi mystery, become a micro-investigator and learn about bugs, birds, water, healthy homes, transportation, marine ecosystems and more!

The Outside Inside Forest will offer a different experience each day so drop in a couple of times across the week to see it all.

The Outside Inside Forest is brought to you by the Science Festival in cooperation with the Meridian Mall, Orokonui Ecosanctuary, the Dunedin City Council and Ribbonwood Nurseries.

## MERIDIAN & GOLDEN CENTRE MALL ACTIVITIES ♿

**Pop-up Science in the Malls** ● \$  
11:30AM-12:30PM  
GOLDEN CENTRE: 19\* & 20+ JUNE  
MERIDIAN MALL: 26\* & 27+ JUNE, 3\* & 4+ JULY  
\*OTAGO MUSEUM, \*DEPARTMENT OF CHEMISTRY  
Come along for some pre-festival fun at the Meridian and Golden Centre malls!

Let the Otago Museum and the University of Otago's Department of Chemistry get your science senses tingling during these pop-up shows.

**Meet a Scientist** ● ♿  
12 JULY • 1PM • 60MIN • \$2  
What is it like to be a scientist? What do scientists actually do? Come along to this interactive workshop and find out!

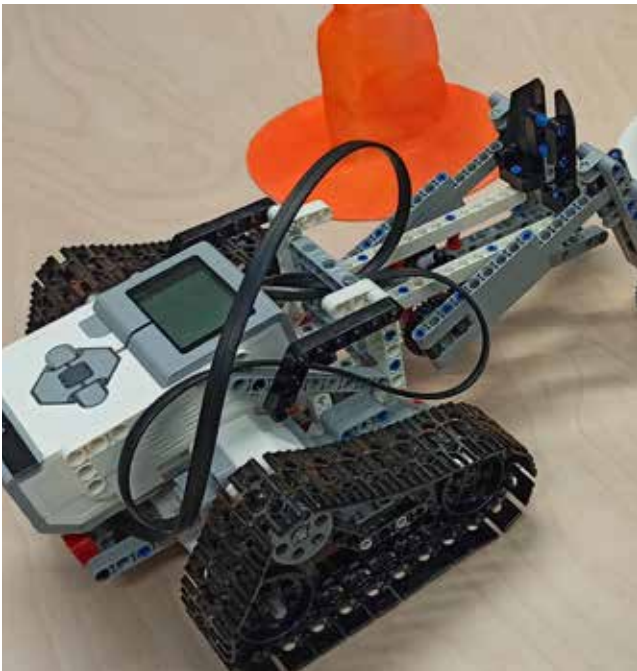
**The Secret Science of Balloonology** ● ♿  
14 & 15 JULY • 10AM • 60MIN • \$5  
Discover the science of how balloons are made and how they can be used in balloon modeling to make anything you want!

**Tūhura Taster** ● \$  
14 & 15 JULY • 11AM-2PM • DROP-IN  
Get a taste of the new Science Show at Otago Museum during this pop-up event!

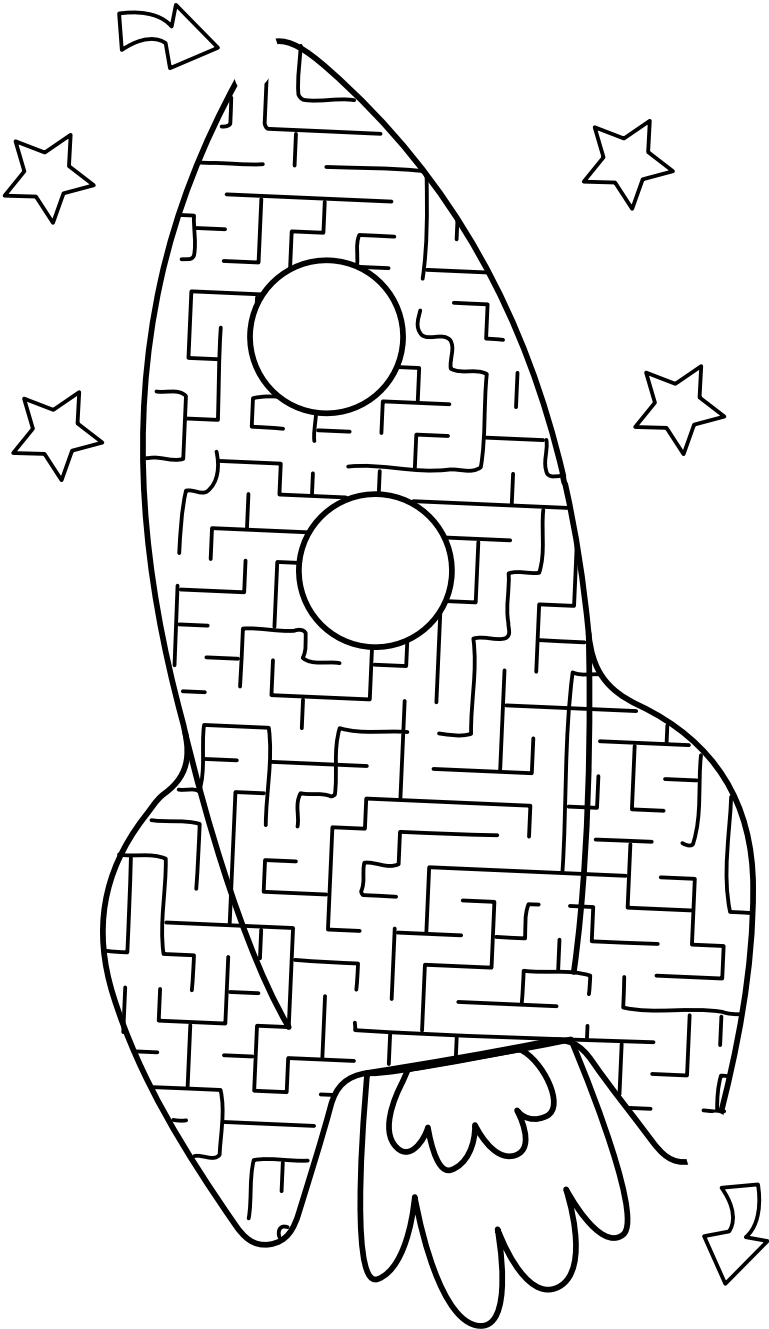
**Fight like a Physicist** ● \$  
16 JULY • 10AM • 60MIN  
Channel your inner physics ninja in this fun interactive workshop. Learn how to use classical mechanics principles to vanquish your opponent.

**Mission to Mars** ● \$ ♿  
17 & 18 JULY • 10AM & 2PM • 60MIN  
In this workshop you will code rovers to navigate simple obstacles to complete their mission.

**Meet the Mars Rover** ● \$  
17 & 18 JULY • 12PM • 60MIN  
What does a scaled down version of a Mars rover look like? What sensors are needed to make it work? How do you build your own? Come and find out!







# WORD SEARCH

E	X	P	L	O	S	I	O	N	Q	B	P	Y
W	S	C	I	E	N	C	E	N	S	W	S	N
F	T	O	S	B	N	E	R	G	A	H	U	Y
R	W	S	T	G	L	C	E	P	N	A	S	G
E	B	Y	A	L	V	E	O	L	I	L	T	P
A	R	N	R	P	F	Q	B	H	T	E	A	R
C	A	P	M	D	L	E	S	D	I	F	I	O
T	I	S	V	A	U	H	E	D	S	K	N	T
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V	A	C	C	I	N	E	O	N	U	E	I	T
C	H	E	M	I	S	T	R	Y	F	T	T	O
F	B	I	O	L	O	G	Y	F	X	I	Y	M

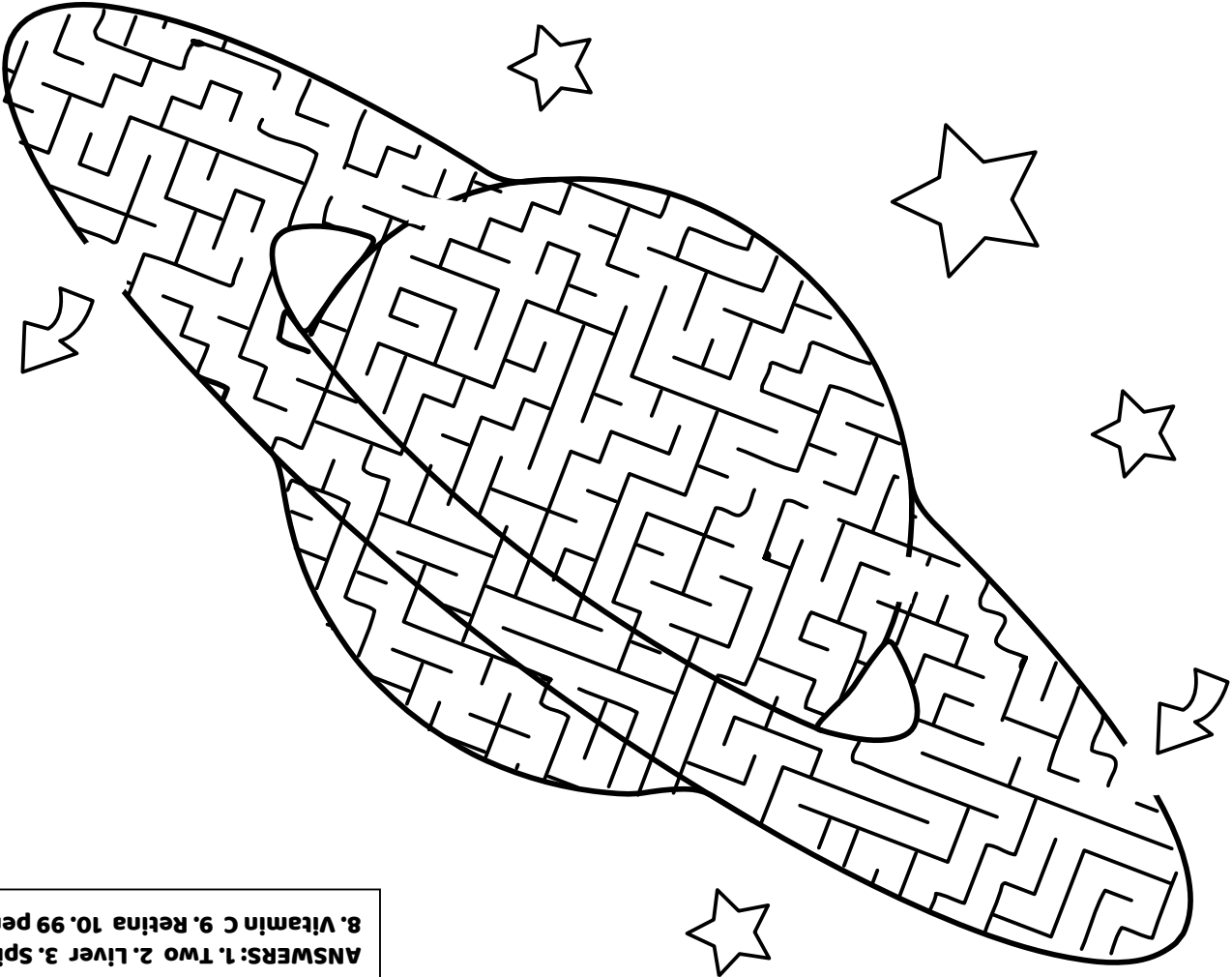
# SCIENCE QUIZ

1. How many wings does a mosquito have?
2. Which is the largest internal organ in the human body?
3. Arachnophobia is the fear of what?
4. What is the collective name for a group of crows?
6. At what speed does light travel?
7. What is the largest moon of Saturn called?
8. Ascorbic acid is a form of which vitamin?
9. What is the name of the light sensitive panel of cells at the rear of the eye?
10. Humans and chimpanzees share roughly how much DNA?
11. What is the biggest planet in our solar system?
12. What is a material that will not carry an electrical charge called?
13. How many hearts do octopuses have?
14. How many ribs do you have?

CHEMISTRY  
VACCINE  
MAMMAL  
PROTEIN  
ATOM  
BIOLOGY

COMET  
STAR  
OBSERVATORY  
SANITISER  
LASER  
EXPLOSION

SCIENCE  
SUSTAINABILITY  
WHALE  
REACTION  
BRAIN  
ALVEOLI



ANSWERS: 1. Two 2. Liver 3. Spiders 4. A murder 5. 300,000 km per second 7. Titan 8. Vitamin C 9. Retina 10. 99 per cent 11. Jupiter 12. Insulator 13. Three 14. 24





# **NZ** NEW ZEALAND **ISF** INTERNATIONAL **SCIENCE FESTIVAL**

GROWN-UP PROGRAMME

**8-18 JULY 2021** [SCIFEST.ORG.NZ](https://scifest.org.nz) **#NZSCIFEST**





# OPENING NIGHT: SCIENCE IN THE SPOTLIGHT

8 JULY • OTAGO BUSINESS SCHOOL • 5.30PM • 2HRS • \$15

What does the future hold? And why should science be at the heart of the challenges we face?

To kick off this year's Science Festival we are hosting a special opening night talk: Science in the Spotlight. Join us for a fireside chat between Festival patron Helen Anderson, the Prime Minister's Chief Science Advisor Dame Juliet Gerrard, and the chair of the Climate Change Commission Rod Carr.

We will discuss the challenges faced, as well as the massive leaps forward that science is currently making and those that science will need to make, in order to tackle our future.

A drink and refreshments are included in the price of your ticket.

Dame Juliet Gerard is a Professor at the University of Auckland and serves as the Prime Minister's Chief Science Advisor, a role she has held since 2018. Earlier this year, she became a Dame Companion of the New Zealand Order of Merit for her services to science.

Rod Carr is the Chairperson of the Climate Change Commission. He has previously served as Chair of the Reserve Bank of New Zealand and Vice Chancellor of the University of Canterbury.

Helen Anderson served as the Chief Executive of the Ministry of Research, Science and Technology from 2003-2010. She is a companion of the Royal Society of New Zealand and a Companion of the Queen's Service Order for services to the Ministry of Research, Science and Technology.



# PLASTIC UNWRAPPED: THE POLITICS OF CHANGE

9 JULY • PETRIDISH • 5:30PM • 2HRS • \$15

Plastics have played an important role in our world for over a century, however with growing awareness of the impact plastics make, the industry is facing disruption. But is plastic as bad as we think?

Our panel will discuss the science, the challenges, and the opportunities, and how we need to adjust our own mindset to achieve the results.

**SPEAKERS**  
**Dame Juliet Gerrard**  
Dame Gerrard is a New Zealand biochemistry academic, a professor at the University of Auckland and the New Zealand Prime Minister's Chief Science Advisor.

**Dr. Florian Graichen**  
Dr. Gerrard is the general manager of Forests to Biobased products at biomaterials innovator Scion Research.

**Steve Anderson**  
Anderson has spent the last 20 years as the CEO of Foodstuffs South Island Ltd, as well as time with Shell Chemicals International and Mainland products.

**Rachel Barker**  
Barker is the CEO of Plastics NZ, the Industry Association representing plastics companies across the country.

**Dr. Gillian Worth**  
Dr. Worth is the research and development manager for eco-friendly homecare company Earthwise.

**Modertor**  
**Dr. Helen Anderson**  
Dr. Anderson currently chairs the boards of BRANZ, Scion and Studio Pacific Architecture. She is also a director of DairyNZ, Antarctica NZ and ClearPoint Ltd. She is a festival patron.





# CENTRE FOR SCIENCE COMMUNICATION

## STUDENT FILM PREMIERE



10 JULY • REGENT THEATRE • 7PM  
3HRS • \$16/\$12/\$10

A fantastic evening of science and nature films produced by Master's students of the University of Otago's Centre for Science Communication.

From kiwis to climate change, farmland to Fiordland, July 10th is a red carpet evening at the Regent! Join us for six

sensational films produced by current and former Master's students of the University of Otago's Centre for Science Communication, home of the world's leading postgraduate programme for Science and Natural History Filmmaking.

**Growing Up Kiwi** by Madeleine Brennan follows the story of "Almer," a feisty little Haast

Tokoeka kiwi through his first year of life. **A Forest's Dream** by Upamanyu Das tells a beautifully cinematic tale of Fiordland from the perspective of its residents – a wise old tree, the bedrock that forms its foundation, and the water that shapes it. The hilarious mockumentary, **Kiwis Against Birds** by Peter Naik delivers a laugh-out-loud, yet potent message of conservation. Imy Mahon's **Protecting the Pomahaka** introduces viewers

to this iconic river and those on a mission to protect it. **Winds of Change** by Janic Gorman is an inspiring cross-cultural adventure with future leaders of climate action. And Tegan Good's award-winning **Nest 38** tells the story of a pair of banded dotterels attempting to defy the odds to raise their chicks on a surprisingly hostile New Zealand beach. It's a night not to be missed!



# SCIENCE TELLER: IMAGINE A SUSTAINABLE SOCIETY



8 & 9 JULY • OTAGO MUSEUM • DAY 1: 2PM - 4PM • DAY 2: 9AM - 5PM

Imagine living in a sustainable society. What would that look like and what would it take to get us there?

We're bringing together some of the best thinkers and doers on sustainability together to think, discuss and imagine a better future.

From dealing with climate change to engineering our way into a sustainable future, we're inviting you to be part of the discussion.

So join us over the two days, starting with a keynote from the Chair of the Climate Commission, Rod Carr, followed by a panel discussion on the first afternoon. The second day starts with a morning of talks on sustainable food, better housing and managing waste followed by an afternoon of workshops and demos, from ebikes to composting to fabric recycling.

This is about more than just imagining; it's about creating a real, more sustainable future for us all.





# WHO OWNS YOU (AND YOUR DATA) ● ●

13 JULY • PETRIDISH • 5.30PM • 90MIN • \$15

**Let's get down to the dirty, business end of digital privacy.**

Your data might be about you, but is it yours? To sort this out once and for all, we'll bring a bunch of great minds together to debate and discuss the question: Who owns you (and your data)?

The panel is made up of John Edwards, New Zealand's Privacy Commissioner since 2014;

science and technology journalist Peter Griffin, and Richard White, the manager for copyright and open access at the University of Otago. The panel will be MC'd by Marcelo Rodriguez Ferrere of the Univeristy of Otago's Law Faculty.

Oh, and once we've got that sorted, there will be VR games to help us jump further into the digital world.

# EDIBLE INSECTS: PAST, PRESENT AND FUTURE ● ● ●

10 JULY • 5PM • 2HRS  
DUNEDIN PUBLIC LIBRARY • \$2

**Ever considered crickets for dinner? Beetles for dessert? What about some spicy ants? No? In fact, insects are healthy, economical, and sustainable future food source.**

They are good for people, our pockets, and the planet - yet why are we not eating them?

Insects are already considered a valuable source of nutrients in many countries around the world, including Thailand, China, Brazil and The Netherlands.



This event will cover the historical development of edible insects around the world, the current research and development landscape on edible insects, and what the future may hold for the use of insects as food.

Who knows, maybe you'll find yourself a yummy new source of valuable protein. Tasting available.



# A BETTER FUTURE FOR AOTEAROA ● ● ●

17 JULY • 6PM • 2HRS • PETRIDISH • \$12

Join us for a discussion about creative solutions to the climate crisis, the biodiversity crisis and other problems caused by economic growth.

Audience questions will be invited before and during the session.

The evening's speakers will include American journalist and educator Richard Heinberg,

who has written extensively on energy, economic, and ecological issues, including oil depletion; ecological economist Dr. Marjan van den Belt, who is a strategic partner at sustainability consultancy Terra Moana; freshwater ecologist and science communicator Mike Joy and environmental activist Jett Gannaway.



# EDITING THEM OUT GENE EDITING AND PEST CONTROL IN AOTEAROA ● ●

15 JULY • PETRIDISH • 5.30PM • 90MIN • \$10/\$8

**Current methods for controlling introduced pests can be difficult and expensive to use at a landscape scale. With Aotearoa's goal of being Predator Free by 2050, novel techniques to eradicate these species need to be considered.**

Hosted by Professor Peter Dearden (University of Otago), our team of expert speakers from New Zealand's Biological Heritage National Science Challenge will discuss the future of gene editing in Aotearoa, its potential for use in pest control, and how we can partner with mātauranga Māori experts.

Ka mahi kātahi kā ohu whakahaere a Puaka Matariki Festival me NZISF – a Puaka Matariki Festival/NZISF collaboration.

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**toitū** OTAGO SETTLERS MUSEUM

JUSTIN SPIERS Julia and Larry 2017 (detail) Photograph. Courtesy of the artist

Octavia Cook  
Alexandra Kennedy  
Ed Ritchie  
Justin Spiers

**SUITE**  
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Contemporary Dunedin  
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**20/21**  
20 MAR – 18 JUL 2021

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# DR. SIOUXSIE WILES ●●

10 JULY • PETRIDISH • 2PM • 60MIN • \$12

**Join us for a fireside chat with New Zealander of the Year, Dr. Siouxsie Wiles!**

Over the past year, Dr. Wiles has become a household name thanks to her public science communication efforts during the COVID-19 pandemic. An Associate Professor at the University of Auckland, Dr. Wiles has studied medical microbiology at the University of Edinburgh, the Centre for Ecology and Hydrology in Oxford and Edinburgh Napier University.

Dr. Wiles spent almost a decade at Imperial College London, before relocating to New Zealand. She has won awards for both her commitment to the ethical use of animals in research and

for her science communication. In 2017 she published her first book, 'Antibiotic resistance: the end of modern medicine?' and in 2019 was appointed a member of the New Zealand Order of Merit for services to microbiology and science communication.

During COVID-19, Dr. Wiles joined forces with Spinoff cartoonist Toby Morris to make the science of the pandemic clear and understandable. Their graphics have been translated into multiple languages and have been adapted by various governments and organisations.

Dr. Wiles will be interviewed by Assoc. Prof Jesse Bering, Director of the University of Otago's Centre for Science Communication.



# UPCYCLED FOOD DINING EXPERIENCE ●●

16 JULY • PETRIDISH • 5.30PM & 7.30PM • 1.5HR • \$10 BOOKING, PAY WHAT YOU CAN

**While enjoying a three course meal, you will learn the science behind upcycled foods from experts from the University of Otago Food Waste Innovation's Upcycled Food Lab.**

Upcycled foods are made from ingredients that would usually be thrown out. This unique meal will be prepared by chefs from Everybody Eats, a pay-as-you-feel dining experience available in Auckland and Wellington that serves delicious, nutritious meals "that feed bellies, not bins".

by KiwiHarvest, a food rescue organisation that originated in Dunedin.

Due to limited space, we are requesting a \$10 reservation fee in advance; then you pay-as-you-feel for the meal on the night.

All proceeds from the evening will go to Everybody Eats and KiwiHarvest to help them in their mahi to feed the hungry and reduce food waste.

Food for the meal will be supplied



**LANTERN ROOM**

Event Packages & Catering Available  
Email [events@thedishcafe.co.nz](mailto:events@thedishcafe.co.nz)

8 Stafford Street



# WHAT'S ON AT THE MOON

## YOGA UNDER THE MATARIKI MOON

Celebrate Matariki and your new year with this blissful nourishing yoga under the Full Moon at Hanover Hall.

Led by Jéssica Latton from the Dunedin Yoga Studio. Explore the divination of Matariki in movement and meditation.



14-16 JULY • 7AM • 1HR  
HANOVER HALL • \$20

Completely new to yoga? This is the perfect time to start. Set your flow of grace for the day and for a sparkling New Year. All levels welcome.

Ka mahi kātahi kā ohu whakahaere a Puaka Matariki Festival me NZISF – a Puaka Matariki Festival/NZISF collaboration.



## TINY RUINS SOLO

10 YEARS OF 'SOME WERE MEANT FOR SEA' ● ● ●

15 JULY • HANOVER HALL • 9.00PM  
60MIN • \$40/35/30

Join us as we celebrate the 10<sup>th</sup> anniversary of acclaimed New Zealand songwriter **Hollie Fullbrook's** debut album 'Some Were Meant for Sea', with this very special solo performance under Luke Jerram's Moon sculpture.



## SPACE FRONTIERS EXHIBITION

13-18 JULY • 11AM-4PM • DROP-IN  
HANOVER HALL • \$5/\$3

In association with the US Embassy, the Festival is proud to present Space Frontiers, a photographic exhibition exploring the history of space exploration, the mythology behind the night sky and the ways Māori used it to navigate the oceans, and a look at what the future holds for space exploration.



## LATE NIGHT

17 JULY • 6PM-9PM • DROP-IN  
HANOVER HALL • \$5/\$3 • R18

Enjoy a very special late night opening while you take in the spectacle of Luke Jerram's Moon sculpture in this late night session.

Enjoy a cocktail while you gaze upon the wonder of Te Marama, peruse our Space Frontiers exhibit and take in the atmosphere.



## ORGANIC FARMING FOR THE FUTURE

9 JULY • 5.30PM • 90MIN  
OTAGO UNIVERSITY • \$5/\$4

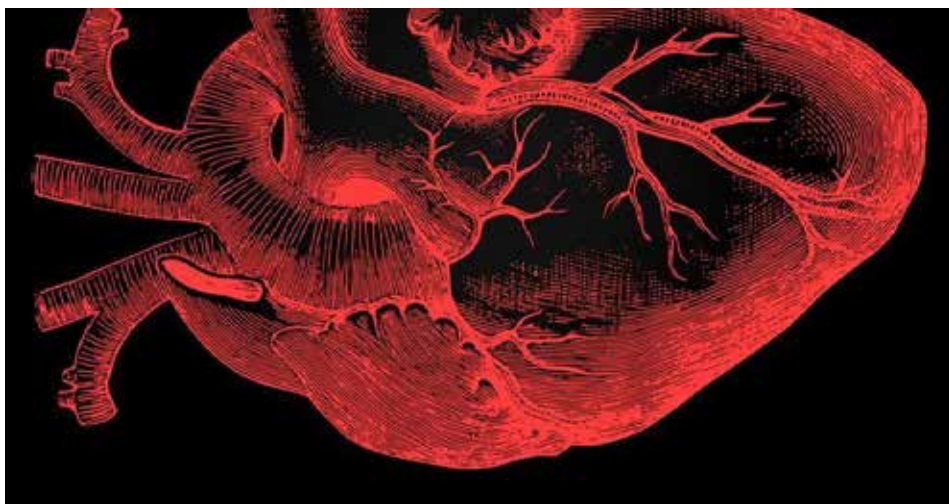


This event will include informed discussion on regenerative agriculture, health and the nutritional aspects of organically farmed meats - from a local and global perspective. Also included is an opportunity to 'taste test' a new 'flexitarian' organic meat and vegetable patty, made from locally sourced ingredients.

Join us to hear from a farmer, a scientist and a food technologist. There will be short talks from Mr. Allan Richardson, a passionate organic sheep and

beef farmer who 'walks the talk' as a regenerative farming practitioner based in South Otago; Assoc. Professor Aladin Bekhit, a meat scientist whose research focuses on waste reduction and the biochemical factors that control meat quality and its nutritional value; and Mrs. Fiona Nyhof, a food product development specialist at the University of Otago.

The session should help to clear some of the negative misconceptions associated with animal farming.



## NOT FOR THE FAINT-HEARTED



12 JUL, 11AM & 2PM ● 14 JUL, 7PM ●  
OTAGO UNIVERSITY • 60MIN

Faint-HEARTed? Then this workshop is not for you! Come and learn how the heart works by dissecting one.

Join us for his 1-hour workshop, during which we will explore how

the heart works by examining its anatomy.

Attendees will each perform a fully guided dissection of a sheep heart. Participants must be comfortable handling animal tissue which will be sourced through the normal food chain.





# UNLEASH YOUR INNER DETECTIVE: FORENSIC BASED CSI WORKSHOP

13 & 15,16-17 JUL, SEE WEBSITE FOR TIMETABLE • GASWORKS MUSEUM • 2HRS • \$16/\$12

**The Science of Crime offers immersive forensic science-based events that explore real life crime scene investigation techniques. Working in small teams, your job is to find the evidence, solve the clues and catch the criminal!**

Our uniquely themed workshops are written and hosted by an experienced forensic expert. Wearing your special CSI suits and

using real forensic tools you will complete practical activities to help solve the crime. In these Teens and Adults sessions, the event contains more mature themes, as we offer you an opportunity to examine a murder mystery crime scene and uncover the clues to help solve the crime. Workshops last between 60 and 150 minutes. So grab your teens, whānau, friends or colleagues and book today!

For kids and tweens events see page 29.



# INHALERS AND ARTIFICIAL LUNGS: FIGHTING LUNG DISEASE

17 JULY • 10AM & 12PM • 60MIN • OTAGO UNIVERSITY

**New methods for fighting lung diseases are under research at the University of Otago's School of Pharmacy.**

Powder inhalers are the future of treating diseases like asthma and COVID-19.

In this workshop, you will visit the laboratory of Associate Professor Shyamal Das at the School of Pharmacy and learn about how his research team is

using an 'artificial lung' to develop more effective lung treatments.

You will learn how the artificial lung works, what happens in your lungs when you take a puff from an inhaler, how inhalers can be used to treat COVID-19 and other lung diseases, and what the future holds for this innovative research.



# OUR OCEAN: BRINGING CLIMATE DATA TO LIFE

15 JULY • 2PM & 6PM • CENTRAL LIBRARY • 2HRS

The oceans are at the heart of our warming planet, with long-term changes underway that are radically altering the marine environment, and threatening species that we treasure locally. We invite you to join us for the first of a two-part workshop to create stories and artworks celebrating our local marine life, whilst also raising awareness

of climate impacts on these species.

Together, we will explore some of the latest ocean climate data collected in New Zealand. This event will be interactive, guided by climate scientist and science communicator Dr. Cathy Cole from the University of Otago. Ages 16+.



# MUSEUM AFTER DARK

16 JULY • OTAGO MUSEUM • 7PM-10PM • DROP-IN • \$25/\$20 • R18

**After Dark is when Otago Museum opens at night for drinks, dancing, singing, desserts, and a DJ.**

Forgetting the winter outside, we host this event in (and around) the warmth of our three-storey Tropical Forest.

To kick off the final few days of the New Zealand International

Science Festival we offer more active fun science, there are hands-on interactives in Tūhura, science explorations and demos, karaoke under the planetarium stars and more.



# ASSOCIATION FOR WOMEN IN THE SCIENCES CONFERENCE ● ♿

8 & 9 JULY • 10AM - 6PM • 2-DAYS  
CASTLE ST LECTURE THEATRE

The Association for Women in the Sciences (AWIS) triennial conference provides an opportunity for women working in or supporting the sciences to develop their skills to support their professional advancement, and opportunities to learn from and network with other women working in the sciences.

Women are still under-represented in many areas of STEM (Science, Technology, Engineering and Maths), particularly at leadership levels. AWIS is dedicated to bettering the position of all women working in the sciences, to create a New Zealand where women are fairly represented throughout the science system.



Through AWIS 2021, women in the sciences will have the opportunity to learn skills to support their professional careers – such as facing unconscious bias and identifying mentors – as well as gain more understanding about issues facing women in STEM and how these may be addressed.



## THE HEART OF A WOMAN ● ● ♿

12 JULY • PETRIDISH • 5.30PM • 90MIN • \$12

**Heart disease is a leading killer of women in Aotearoa, however it is often thought of as a man’s health problem.**

Too often, women can think their symptoms don’t match what is perceived as “typical”. Women may also not be aware of the symptoms of heart disease, or think “it is an older person’s problem”. This means half the population may not be getting the adequate care and treatment they need.

Please come and join Manaaki Mānawa: The Centre for Heart Research as we hear from a range of world-leading researchers in heart health about how we study cardiovascular health from bench to bedside and what makes Aotearoa a leader in cardiovascular science and research.

We’ll also hear from patients about their experience and share what we can do to ensure healthy hearts for all.



## 2 MINUTE TALKS ● ♿

**One picture, one prop, two minutes.**

2 Minute Talks: Young Women in Science is a community celebration of the talented young female scientists working and studying in Dunedin.

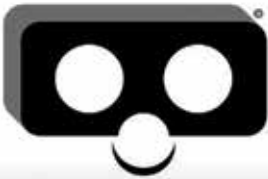
Now in its fourth year, this event was specifically created for the New Zealand International Science Festival, to give young women a platform to talk about their science.

11 JULY • 5.30PM • 2HRS • PETRIDISH • \$5

Presenters are given the challenge of turning their complex ideas into a two-minute talk that everyone can understand.

It is sure to be an interesting, inspiring and fun-filled evening. There will be an opportunity after the talks for drinks, nibbles and networking with like-minded people.

Thanks to the Association for Women in Science and Graduate Women NZ.



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# COLOUR ME IN!!!

Harness your inner artist, colour in this page and post it on an Instagram account with the hashtag **#nzscifestcolour** by the 1st of July and go in the draw to **win one of 4 family passes** to the Big Science Show!



# DUNEDIN LIBRARIES

Join Dunedin Libraries for a range of fun events!



## Dunedin City Library

### Science Drama at the Library

Sunday 11 July, 4pm, 30min  



The Library is home to many amazing science books. Come and see how the Taieri Dramatic Society brings some of these books to life!

### Science Storytime Special

Monday 12 July, 10.30am, 30min  

Bring the family and have a blast at our Science-themed Storytime.

### Shark Spy Community Talk

Monday 12 July, 5.30pm, 1hr  

Join shark expert Rob Lewis as he takes you into the amazing world of our local sharks!

### About the Heart

Tuesday 13 July, 10am & 1pm, 1hr

What happens to your heart when you exercise? Learn how it works, why it sometimes beats slow and sometimes feels like it is going to burst!

### Lines & Wines: A Scientific Playreading

Tuesday 13 July, 6pm, 2hrs

Join us to hear (or choose to participate in reading) a science-themed play. This is a play reading, rather than a stage performance, and audience participation is very much encouraged. Light refreshments provided.

### Lego Creations

13 & 15 July, 2pm, 2hr

Join Captain Lego and get some inspiration to create your next amazing Lego creation.

### Rubik Rumble Challenge

Wednesday 14 July, 11am, drop-in  
Get in the Pit and Rubik! Bring your Rubik skills (and cube) and beat the clock. Fastest time wins Rubik-related prize.

### Build-a-Bot

Wednesday 14 July, 2pm, 2hrs

Come and work with Captain Lego to build a robot out of Lego.

### Dogs and Science Working Together

Wednesday 14 July, 5.30pm, 1hr

An outline of the ground-breaking work of K9 Medical Detection New Zealand using the enormous potential of canine sensory abilities.

### Lego Parkour

Friday 16 July, 1pm, 2hr

Do some Lego mini-figure parkour with Captain Lego! Create an obstacle course challenge for your mini-figure, then film them completing it with our new stop-animation studio.

available anytime:

### Creative Connections

10-16 July, Library opening hours, drop-in  
Reconnect with your creativity at our science-themed craft table. Offered Daily throughout the NZ International Science Festival.

### Science on the Cube

8-18 July, Library opening hours, drop-in

Enjoy a variety of short Science and Natural History films produced by students, alumni and faculty of the University of Otago's Centre for Science Communication.



DOGS AND SCIENCE WORKING TOGETHER



FIGHT LIKE A PHYSICIST



AQUAVAN ADVENTURES



SHARK SPY COMMUNITY TALK

## Branch Libraries

### Aquavan Adventures: Coastal Connections

South Dunedin: 13 & 14 July, 11am, 90min

Mosgiel: 15 & 16 July, 11am, 90min

Connect to your coast with the Aquavan and staff from the NZ Marine Studies Centre!

### Aquavan Adventures: Amazing Adaptatons

South Dunedin: 13 & 14 July, 1.30pm, 60min

Mosgiel: 15 & 16 July, 11am, 90min

Get hands on with the Aquavan! Learn about crab feeding and defensive strategies, then meet some marine critters at our mobile touch tank.

### About the Heart

Wednesday 14 July, 1hr

Mosgiel: 10am, Port Chalmers: 12pm

Waikouaiti: 3pm

What happens to your heart when you exercise? Learn how it works, why it sometimes beats slow and sometimes feels like it is going to burst!

### Fight Like a Physicist

Mosgiel: Thur 15 July, 10am

Waitati Hall: Sat 17 July, 10am

Channel your inner physics ninja in this fun interactive workshop. Learn how to use classical mechanics principles to vanquish your opponent.

# MITRE 10 MEGA BACKYARD BUILDERS



13 - 15 JULY • MITRE10 MEGA • 10AM & 1PM • 60MIN



### Rat Trapping Tunnels

Tuesday 13 July, 10am and 1pm

New Zealand has the highest rate of threatened species in the world. Are you keen to do your part towards pest control and help our native species out? In this workshop, you can! The Mitre 10 team will give you all the tools and materials you need and help you make your own backyard trapping tunnel. Plus, City Sanctuary will be on hand to teach you all about how (and why) to use them.

### Bird Feeders

Wednesday 14 July, 10am and 1pm

Join the Mitre 10 team and Orokonui Ecosanctuary's nature educator extraordinaire Tahu Mackenzie to build your very

own bird feeder and learn how to attract our incredible native birds to your garden. All tools and materials supplied.

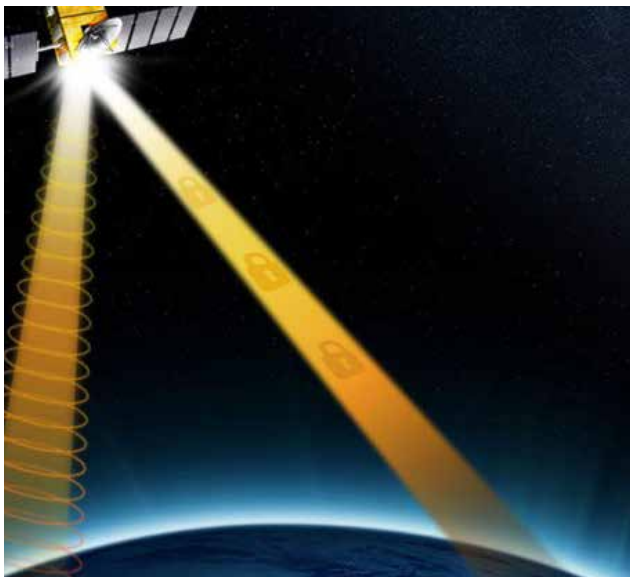
### Insect Hotels

Thursday 15 July, 10am and 1pm

Want to provide a habitat for the awesome creepy crawlies that live in your garden? The Mitre 10 team will give you all the tools and materials you need and help you make your own insect hotel! In this workshop, you'll learn all about creating bug-friendly habitats and meet some incredible insects up close...

Note: caregivers will be expected to supervise and assist children throughout the workshop.





# QUANTUM CRYPTOGRAPHY VIA SATELLITE

13-18 JULY • HANOVER HALL • 11AM-4PM • DROP-IN • \$5/\$3

As privacy concerns mount in the modern era, quantum physics leads the way in new encryption methods. Learn how quantum key distribution works, compare it to other types of key-based encryption methods, and find out what happens when someone tries to “eavesdrop” on photon-based communication.



# SPACE LASERS!

13-18 JULY • HANOVER HALL • 11AM-4PM • DROP-IN • \$5/\$3

Lasers, the moon, telescopes and jelly lenses – come explore how optics makes space science better!

Can you tell how far away the Moon is by shining a laser at it? NASA did just that as part of the Apollo moon programme!

Come learn about lasers and optics and how we can use the unique nature of light to advance our understanding of the sun, the moon, the stars - including understanding the size of the whole universe and how far away everything within it is from us.



# ZOBOTS REVOLUTION

12 JULY, 5.30PM, ADINSTRUMENTS • 13 JULY, 4.30PM, GASWORKS MUSEUM • 2HRS • \$10

ZoBots are animal-like robots designed by University of Otago neuroscientist and former NASA robotics engineer Mike Paulin.

On Monday we'll demonstrate and explain how understanding the materials, mechanics and brains of animals helps engineers to design new kinds of robots, and how new manufacturing and digital technologies make it possible to design and build them in your basement.

Then we'll help you to build your own simple ZoBot and decorate it to give it a unique personality.

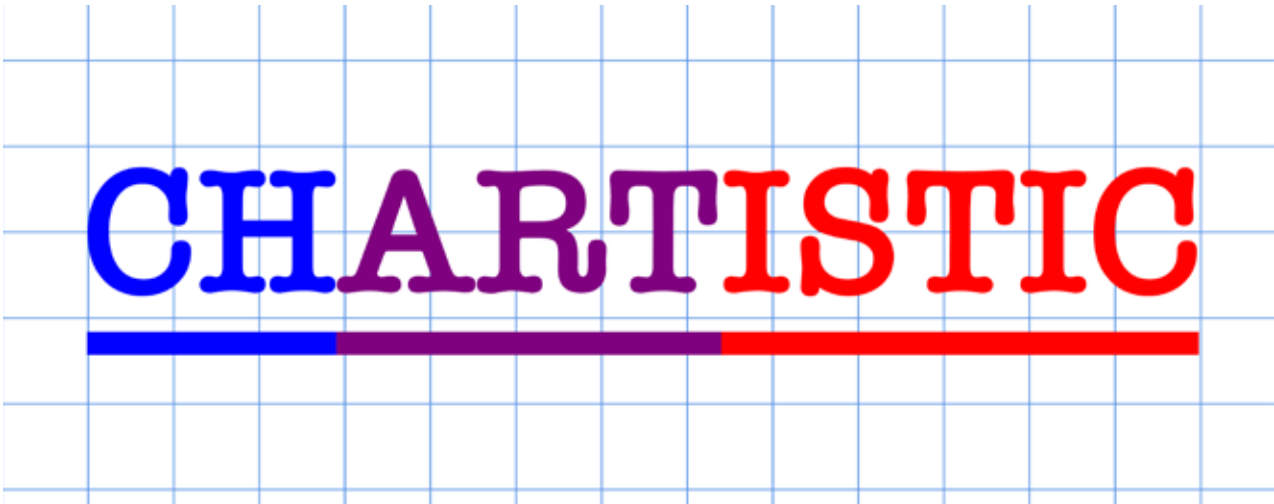
There will be demonstrations of ADI technology and refreshments available.

On Tuesday afternoon you are invited to bring your ZoBot to the Engine Room at the Gasworks Museum, where the steam-based technology of the industrial revolution and the Victorian age is preserved in working order.

As darkness falls we will release our robots and follow them into the Museum.

Did I mention that they glow in the dark?

How did we get from steam engines to robots, and what's next?



# CHARTISTIC

15-18 JULY • MERIDIAN MALL • 11AM-3PM • DROP-IN

Come to Chartistic and have a go at charting your creativity. Participate in a series of fun drawing & craft activities and make some art.

We will combine the art onto a chart that tells us something interesting about ourselves and our community. What is the

average eye colour? How does your drawing style compare to others? What changes in how we draw as we age? How far do we travel to our favourite beaches?

Artist or analyst, Chartistic has something for everyone.



Otago Regional Council is a proud sponsor of the New Zealand International Science Festival



For educational activities to keep you busy these school holidays, head to [www.orc.govt.nz](http://www.orc.govt.nz) and search 'Kea Crew'





## PYJAMARAMA! ●●●●

9 JULY • OTAGO MUSEUM • 6PM • 2HRS • \$2

There's a new moon rising in our southern skies and the nights are long, so bring your torches and teddy bears on down to Otago Museum's pyjama party to kick off the school holidays and the NZ International Science Festival!

Hands-on activities, storytelling, and science shows about the night sky and nocturnal nature will astonish and delight the whole family.

## OTAGO MUSEUM ●

Join Otago Museum for a range of fun events!

### Pyjamarama! ●●●●

9 July, 6pm, 2hrs, \$2  
Get your jammies on and head to Otago Museum for an evening of family-friendly, after-hours fun!

### Quantum Shorts Film Festival Screening ●●●●

12 July, 5.30pm, 2hrs  
Otago Museum and the Dodd-Walls Centre are bringing you the weird, wonderful, and stranger-than-fiction side of science with this screening of the finalists in the global Quantum Shorts Film Competition.

These "quantum-inspired stories" are no more than five minutes in length and range from live-action to puppeteering, from dad-jokes to emotionally dramatic. There will be nibbles, a cash bar, and physicists on-hand to help unpack the science and help you decide what is science and what is fiction.

Offered in partnership with the Dodd-Walls Centre.

### After Dark: A Night in the Tropics ●●●●

16 July, 7-10pm, drop-in, \$25/20  
Otago Museum opens at night for the hottest attraction in town: music, fun and cold drinks in the warmth of our three-storey Tropical Forest.

### Secrets, Ciphers, and Codes ●●●●

12, 14, 16 July, 12pm, drop-in  
At this regular pop-up just outside Otago Museum, try out some old-fashioned Earth-based methods for keeping secrets secret, like disappearing ink and Ancient Greek scytale ciphers, then learn what the future holds for space-based cryptography! Decide for yourself which is the best way to keep a secret message safe from prying eyes!

### First Flight Butterfly Release ●●●●

10-18 July, 11am & 1.30pm, 30min, \$12/\$10  
The Tūhura Tropical Forest is home to butterflies from Central America and Southeast Asia. Join us daily and help a communicator release the recently emerged butterflies, while also learning



## LITTLE CREATURES ●●●●

10 & 11 JULY • 2PM & 4PM • 60MIN • TCOL AUDITORIUM • \$25/\$20

What little creatures can you dream up? Flex your creative muscles and take part in a unique, three-step artistic process to create little creatures. One person writes a creature description, the next person draws the creature based on its description, and a third will sculpt it out of modeling clay! All three steps of the process will be on display as they are developed, drawn and sculpted. Write up a creature description of your

own and see how it evolves in the hands of others. There is a different 'creature' theme at each location, so be sure to visit all three!

Thanks to DCC Arts and Creative Communities Scheme for funding this event.

Meridian Mall - bugs & forest  
Golden Centre Mall - underwater creatures  
Hanover Hall - space



about the life cycle and biology of these beautiful creatures.

### SciFest Tūhura Treat ●●●●

10-18 July, 11.30am - 12pm, drop-in, \$12/10  
Join one of our Science Communicators for a surprise activity, which could be anything from any field of science!

### Giants of the Forest ●●●●

10-18 July, 2.30pm, 30min, \$12/10  
Tūhura is home to more than butterflies! Get up close and personal with the newest residents of the Tropical Forest!

### Light Cycles ●●●●

12-18 July, 2pm, 30min  
Hands-on science and centuries-old stories illuminate the cycles that connect the universe!

### Spacetronauts: Mighty Moons ●●●●

10-18 July, 11.30am, 60min, \$7/\$12  
What are moons and why are they so extreme? During this show, we will explore weird and wonderful moons in our solar system and beyond, learn why they might hold life, and how we might be able to explore them.



# MARINE STUDIES CENTRE

Join the NZ Marine Studies Centre at multiple locations across Dunedin for lots a fun with marine life!

At the Marine Studies Centre:

**Snippets from the Sea: Seaweed Secrets** ● ● ● ● ●

Friday 16 July, 3pm, 90min  
Join a variety of experts for coffee, short presentations, films, and knowledge sharing all about seaweeds!

**Marine Encounters at the NZ Marine Studies Centre** ● ● ● ● ●

Sunday 18 July, 10.30pm & 12.30pm, 90min \$15/10  
Connect to your coast and meet local marine species to find out what makes them special, vulnerable and resilient.

**Eyes Underwater: Livestream** ● ● ● ● ●

Tuesday 13 July, 12pm, 60min  
Join us for a dive off the Otago Peninsula coast from the comfort of your home!

**Environmental Monitoring: Coastal Care Workshop for Educators** ● ● ● ● ●

Thursday 15 July, 12pm, 4hrs, \$24/\$12  
Take your teaching & learning into the real world with this teacher/

educator focused citizen science, coastal monitoring & actions workshop.

At the Royal Albatross Centre:

**Environmental Monitoring: Coastal Care Workshop for the Community** ● ● ● ● ●

Saturday 17 July, 1pm, 3hrs, \$10  
A public workshop at the Albatross Centre where you will learn how to collect and use environmental data to take action for the environment.

At Dunedin Public Library:

**Shark Spy Community Talk** ● ● ● ● ●

Monday 12 July, 5.30pm, 1hr  
Join shark expert Rob Lewis as he takes you into the amazing world of our local sharks!

At South Dunedin Library:

**Aquavan Adventures: Coastal Connections** ● ● ● ● ●

13 & 14 July, 11am, 90min  
Connect to your coast with the Aquavan and staff from the NZ Marine Studies Centre!



**Aquavan Adventures: Amazing Adaptatons** ● ● ● ● ●

13 & 14 July, 1.30pm, 60min  
Get hands on with the Aquavan! Learn about crab feeding and defensive strategies, then meet some marine critters at our mobile touch tank.

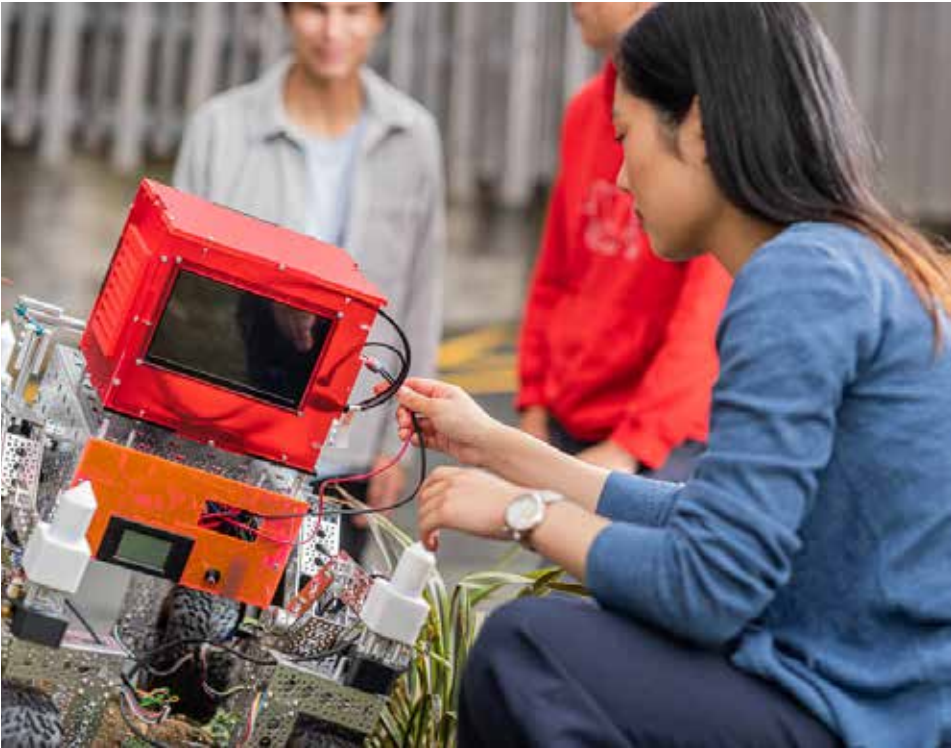
At Mosgiel Library:

**Aquavan Adventures: Coastal Connections** ● ● ● ● ●

15 & 16 July, 11am, 90min  
Connect to your coast with the Aquavan and staff from the NZ Marine Studies Centre!

**Aquavan Adventures: Amazing Adaptatons** ● ● ● ● ●

15 & 16 July, 1.30pm, 60min  
Get hands on with the Aquavan! Learn about crab feeding and defensive strategies, then meet some marine critters at our mobile touch tank.



## MEET A MARS ROVER! ● ● ● ● ●

17 & 18 JULY • GOLDEN CENTRE MALL • 12PM • 60MIN

**Come see a scale version of a mars rover in action!**

The Engineering and Computer Science School at Victoria University of Wellington built the rover from NASA JPL's open rover plans as part of a research project.

The rover can accommodate a couple of 3D imaging cameras along with a number of other sensors. It's suspension system gives it a unique edge to climb on difficult terrain.

Come see what it can do, learn how it operates and maybe even take it for a spin yourself!

# PUAKA MATARIKI FESTIVAL 2021

## 2 – 16 JULY

### ŌTEPOTI / DUNEDIN

 **PUAKA MATARIKI FESTIVAL**  
**MATARIKIDUNEDIN.CO.NZ**

PROUDLY SUPPORTED BY

 **DUNEDIN** | kaupihara o te rohe o Ōtepoti

 **OTAGO** Community Trust

 **oar** 105.4 FM dunedin





# JUNIOR FILM FESTIVAL

Join us at the Dunedin Public Library in the lead up to the festival for a mini film festival for kids and teens!

SATURDAY 12 JUNE

## DINO DANA



10AM • 80MIN  

10-year-old Dana, a wannabe-paleontologist who sees dinosaurs in the real world, completes an experiment that asks where all the kid dinosaurs are.

To find the answer, Dana, her older sister Sara, and their new neighbors Mateo and Jadiel go on a dinosaur journey bigger than anything Dana has ever faced before.

## TECHNO FOSSIL



2PM • 50MIN 

The spread of ubiquitous 'techno materials' such as aluminum, concrete and plastic, underpin a new kind of stratigraphy.

Plastics in rock layers across the globe is a distinctive geological signature for human activity. This documentary covers the current reality of geology in the macroscopic viewpoint of Anthropocene, a new geological era.

SUNDAY 13 JUNE

## ME AND MY ROBOT



10AM • 40MIN  

Me & My Robot follows 18 teams from 10 different countries as they head to Thailand for the 2018 World Robot Olympiad, where they must first navigate surprise rules, faulty code, and fierce competition.

These robots traverse obstacle courses, offer solutions to food scarcity and even play football.

## INDIAN SPACE DREAMS



2PM • 80MIN 

A story of passion and endeavour against the odds when space scientists in Mumbai, facing immense challenges, try to launch India's first astronomical satellite.

As countdown to launch approaches and the 'moment of truth' arrives, we discover if their 15 years of hard work pays off.

## KŌRERO TE MARAMA

18 JULY • HANOVER HALL • 2PM • 60MIN • \$5/\$3

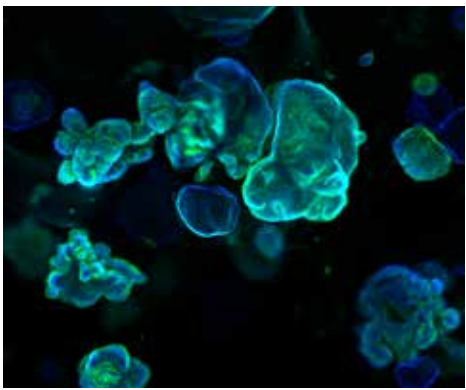


To conclude the 2021 Festival, join us under te marama, the moon, for two engaging talks. Victoria Campbell will share kōrero about her interests and research on Matariki and the maramataka. Brendan Flack will speak about the Te Mana o Te Moana voyage and its implications in 2021 and into the future.

Ka mahi kātahi kā ohu whakahaere a Puaka Matariki Festival me NZISF – a Puaka Matariki Festival/NZISF collaboration.

## BIOMEDICAL SCIENCES PHOTO EXHIBITION

9-16 JULY • UNIVERSITY OF OTAGO    10AM-4PM • DROP-IN



This exhibition showcases the artistic talents and research breadth of the staff and postgraduate students within the School of Biomedical Sciences. Images encompass areas of anatomy, biochemistry, genetics, microbiology & immunology, infectious diseases, neuroscience, pharmacology & toxicology, physiology and more!



OTAGO MUSEUM



MORE THAN A MUSEUM

Home to New Zealand's biggest science centre



# INSPIRING SCIENTIST ZOOM SERIES

VARIOUS DATES IN JUNE • ONLINE • FREE   

The NZ International Science Festival invites your school to be a part of our Inspiring Scientist Zoom series.

Register your school, receive the link and beam in on the day to hear from and range of internationally renowned Scientists. Got a question? Send them to us and we will put them to our guests.

**Sian Cleaver<sup>1</sup> (DE) • 9 June**  
Sian is a spacecraft engineer, STEM ambassador, and the former Chair of WISE Young Professionals' Board.

**Dr. Karl<sup>2</sup> (AU) • 15 June**  
Dr. Karl is a qualified doctor, scientist and engineer and now a well-known Australian author and science communicator. Thanks to the Australian High Commission.

**Professor Neil Gemmell<sup>3</sup> (NZ) • 23 June**  
Professor Gemmell's research blends ecology, population, conservation and evolutionary biology with recent technological spin-offs from the various genome projects.

**Pilar Seijo<sup>4</sup> (UK) • 30 June**  
Pilar is a London-based visual artist specialising in Visual effects for film and high end

television. Her work includes Black Panther, Mission impossible, Avengers: Age of Ultron and Bohemian Rhapsody, among other titles.

Moderated by Professor Christine Jasoni.



## HAND SANITISER: KNOW IT AND USE IT

10 JULY • UNIVERSITY OF OTAGO • 10AM & 12PM • 60MIN

Good hand hygiene is essential to prevent the spread of microorganisms. In the weeks before the COVID-19 lockdown, New Zealand experienced a scarcity of hand sanitiser.

Associate Professor Shyamal Das and his students at the University of Otago's School of Pharmacy prepared the World Health Organization's recommended hand sanitiser to serve the local community.

Prof Das and his team will give a presentation followed by a

demonstration and hands-on activity to teach about hand sanitiser, an essential commodity to prevent COVID-19.

Participants will learn the science behind hand sanitisation, understand safety issues related to hand sanitiser, observe the preparation of alcohol-based hand sanitiser in the laboratory, and learn how to detect a substandard alcohol-based hand sanitiser.



## KI-O-RAHI WORKSHOP

13 JULY • ALHAMBRA RUGBY CLUB • 9AM • 3HRS

This year's NZ International Science Festival theme is reconnection. For us here at Te Koronga the game of Ki-O-Rahi has helped us reconnect to Māori modes of physical activity.

It has also reconnected us to many schools over this year as we have taken Ki-O-Rahi around Dunedin high schools, playing the game with more than 300 kids to date.

For this event we will be blending western and indigenous science and applying that within the game of Ki-O-Rahi.

This workshop is weather dependent. A rain date has been set for 14 July. Participants who have booked a ticket will be notified of any changes due to weather as soon as a decision can be made.

Ka mahi kātahi kā ohu whakahaere a Puaka Matariki Festival me NZISF – a Puaka Matariki Festival/NZISF collaboration.



## OROKONUI ECOSANCTUARY

12, 15-18 JULY • 600 BLUESKIN ROAD  
1PM • 120MIN • \$10

**Reconnect with Te Ngāhere**  
Monday 12 July, 1pm-3pm  
Explore the amazing cloud forest at Orokonui Ecosanctuary and meet some of our native tree-sures!

**Reconnect with Ngā Manu!**  
Thursday 15 July, 1pm-3pm  
Explore the protected paradise of Orokonui Ecosanctuary and meet some of our beautiful native birds!



**Reconnect with Ngā Awa / Our Waterways!**  
Friday 16 July, 1pm-3pm  
Discover who lives in our beautiful waterways, how we can best look after them, and how waterways are central to our wellbeing!



**Reconnect with our Insect Whānau!**  
Saturday 17 July, 1pm-3pm  
Meet some of our beautiful native invertebrates and learn how we can look after them.

**Reconnect with Reptiles!**  
Sunday 18 July, 1pm-3pm  
Adventure through Orokonui Ecosanctuary and meet our amazing native reptiles!



# FUN SCIENCE @ MOANA POOL

10 - 18 JULY • MOANA POOL • 5PM • 60MIN • MOANA POOL ENTRY FEE  

Enjoy some Fun Science at Moana Pool! Physics, chemistry, biology, geology, astronomy... We will enjoy all areas of science in the pool. Each day features a different activity that will focus on a particular area of science.

Bring your togs and a pair of goggles to fully enjoy the programme.

Note: entry fee into Moana Pool

required. Cost is \$3.20 per child. Accompanying adults can request a free spectator's pass.

- Mon 12 July - Fish in a bottle
- Tues 13 July - Tsunami Science
- Wed 14 July - Octopus propulsion
- Thur 15 July - Rainbows underwater
- Fri 16 July - Fish communication
- Sat 17 July - Sink or float
- Sun 18 July - The weight of water



# GLOW SCIENCE @ THE OBSERVATORY

10 - 18 JULY • BEVERLY-BEGG OBSERVATORY • 7PM-9PM • DROP-IN • \$5

This is night science like you've never seen before!

Making rainbows to discover which colours use the most energy, finding plants that glow in the dark in the Town Belt, and of course looking at the stars through our telescopes if skies are clear.

No matter what the weather is doing, the Dunedin Observatory will be running some amazing night science activities.

Presented by Amadeo Enriquez Ballestero in association with the Dunedin Astronomical Society.



# CRUISE OTAGO HARBOUR

11 & 12 JULY • BACK BEACH JETTY • TIMINGS AVAILABLE ONLINE • 60MIN • \$55/\$25

Join Rachel on-board Sootychaser for one of two educational tours of Dunedin harbour!

Take a boat trip inside Dunedin's volcano! A volcano expert will be on board to help us identify the different layers of lava you can see from the harbor, as well as the dykes of rock where lava tried to flow and but got frozen in time. Explore the living creatures on the



sand flats. An expert will be right there to guide you through what you find at the beach!

Get onboard and explore Otago harbour and beyond!

# HANDS-ON SCIENCE FOR OUR YOUNGEST LEARNERS

10 JULY • BAYFIELD KINDERGARTEN • 9.30AM-12.30PM • DROP-IN



Have you got a budding young scientist at home?

This is event for young children and their families to have a hands-on science experience, celebrating all things fun and exciting about science!



Special Science Festival tours:  
**VOLCANO TOUR**  
**SHARKS!**  
**EXPLORING SAND FLATS**

[www.porttoport.co.nz](http://www.porttoport.co.nz)  
020 416 24250







## MEET A SCIENTIST ● ●

12 JULY • GOLDEN CENTRE MALL • 1PM • 60MIN • \$2 PER FAMILY

**If you could ask a scientist anything, what would it be?**

Join us for a fun, interactive group event where you can learn what it's really like to be a scientist.

Meet five diverse researchers from a range of STEM fields of

Science, Technology, Engineering and Maths and learn about their work.

You'll have the chance to ask questions and practice a few fun science skills along the way.

Brought to you by Thirst for Knowledge.



## PLANTIBLE PAPER MAKING WORKSHOP ● ●

16 JULY • DUNEDIN PUBLIC ART GALLERY • 12PM & 2PM • 90MIN • \$5

**Combining a love of science and art! Join Paper Conservator and artist Marion Mertens for a fun filled workshop in our creative classroom!**

Creating seed paper is a hands-on way to learn about recycling, science, and the cycles of nature.

Everyone will leave this workshop with beautiful hand-crafted paper to show your family, or to create something else with!

Phone the Dunedin Public Art Gallery on 03 474 3260 to make a booking.



## UNLEASH YOUR INNER DETECTIVE: FORENSIC BASED CSI WORKSHOP ● ●

12 - 17 JULY • GASWORKS MUSEUM • SEE WEBSITE FOR TIMINGS • 1.5-2HRS • \$16/\$12/\$8

**The Science of Crime offers immersive forensic science-based events that explore real life crime scene investigation techniques.**

We offer multiple age-appropriate themed events that provide both children and adults an authentic and original Crime Scene Investigation experience. Working in small teams, your job is to find the evidence, solve the clues and catch the criminal!

Our unique themed workshops are written and hosted by an experienced forensic expert. Wearing your special CSI suits and using real forensic tools you will complete practical activities to help solve the crime.

In these Kids, Tweens and Family events, you will learn about Crime Scene Investigation techniques in a fun, hands-on way through activities such as fingerprinting, evidence collection, DNA and interviews.



**RIBBONWOOD  
NURSERIES**  
*SPECIALISTS IN NZ NATIVE PLANTS*

are pleased to support the  
**New Zealand International  
Science Festival**



# TIMETABLE

**Thursday 8 July**  
9am: **Our Climate Future Exhibition**, Meridian Mall  
9:30am: **Science on the Cube**, Dunedin Public Library  
10am: **Imagination Playground**, Municipal Chambers  
10am: **Slice of life: The Dunedin Study**, Old Smiths City  
10am: **AWIS triennial conference**, University of Otago  
2pm: **Science Teller**, Otago Museum  
5:30pm: **Science in the Spotlight**, Otago Business School

**Friday 9 July**  
9am: **Our Climate Future Exhibition**, Meridian Mall  
9am: **Science Teller**, Otago Museum  
9:30am: **Science on the Cube**, Dunedin Public Library  
10am: **Imagination Playground**, Municipal Chambers  
10am: **Slice of life: The Dunedin Study**, Old Smiths City  
10am: **Biomedical Sciences Photo Exhibition**, University..  
10am: **AWIS triennial conference**, University of Otago  
5:30pm: **Plastic Unwrapped**, Petridish  
5:30pm: **Organic farming for the future**, University of..  
6pm: **Pjyamarama!**, Otago Museum

**Saturday 10 July**  
9am: **Our Climate Future Exhibition**, Meridian Mall  
9:30am: **Science.. Youngest Learners**, Bayfield Kindergarten  
9:30am: **Creative Connections**, Dunedin Public Library  
10am: **Imagination Playground**, Municipal Chambers  
10am: **Slice of life: The Dunedin Study**, Old Smiths City  
10am: **Biomedical Sciences Photo Exhibition**, University..  
10am: **University Science Expo**, Otago Business School  
10am: **Hand Sanitiser**, University of Otago  
11am: **Science on the Cube**, Dunedin Public Library  
11am: **Far from Frozen II**, Old Scottish Shop  
11:30am: **Spacetronauts: Mighty Moons**, Otago Museum  
12pm: **Hand Sanitiser**, University of Otago  
2pm: **Big Science Show**, Teacher's College Auditorium  
2:30pm: **Giants of the Forest**, Otago Museum  
5pm: **Fun Science at Moana Pool**, Moana Pool  
5pm: **Edible insects**, Dunedin Public Library  
7pm: **Glow Science**, Beverly Begg Observatory  
7pm: **SciComm Student Film Premiere**, Regent Theatre

**Sunday 11 July**  
9am: **Our Climate Future Exhibition**, Meridian Mall  
9:30am: **Creative Connections**, Dunedin Public Library  
10am: **Imagination Playground**, Municipal Chambers  
10am: **Slice of life: The Dunedin Study**, Old Smiths City  
10am: **Biomedical Sciences Photo Exhibition**, University..  
10am: **University Science Expo**, Otago Business School  
10:15am: **Exploring Dunedin's Volcano**, Back Beach Jetty  
11am: **Big Science Show**, Teacher's College Auditorium  
11am: **Science on the Cube** Dunedin Public Library  
11am: **Far from Frozen II**, Old Scottish Shop  
11:30am: **Spacetronauts: Mighty Moons**, Otago Museum  
11:45am: **Exploring Dunedin's Volcano** Back Beach Jetty  
2pm: **Big Science Show**, Teacher's College Auditorium  
2:30pm: **Giants of the Forest**, Otago Museum  
4pm: **Science Drama at the library**, Dunedin Public Library  
5pm: **Fun Science at Moana Pool**, Moana Pool  
5:30pm: **2-minute talks**, Petridish  
7pm: **Glow Science**, Beverly Begg Observatory

**Monday 12 July**  
9am: **Our Climate Future Exhibition**, Meridian Mall  
9:30am: **Science on the Cube**, Dunedin Public Library  
9:30am: **Creative Connections**, Dunedin Public Library  
9:45am: **Exploring Sandflats**, Back Beach Jetty  
10am: **VR & Gaming Centre**, Old Aotea Gift Shop  
10am: **Imagination Playground**, Municipal Chambers  
10am: **Slice of life: The Dunedin Study**, Old Smiths City  
10am: **Biomedical Sciences Photo Exhibition**, University..  
10am: **Forensic Workshop** (Twens), Gasworks Museum  
10:30am: **Science Storytime Special**, Dunedin Public Library  
11am: **Far from Frozen II**, Old Scottish Shop  
11am: **Not for the Faint-HEARTed**, University of Otago  
11am: **Outside Inside Forest**, Meridian Mall

11:30am: **Spacetronauts: Mighty Moons**, Otago Museum  
12pm: **Secrets, Ciphers, and Codes**, Otago Museum  
12:30pm: **Forensic Workshop** (Family), Gasworks Museum  
1pm: **Meet a Scientist**, Golden Centre Mall  
1pm: **Reconnect with Te Ngāhere**, Orokonui Ecosanctuary  
2pm: **Not for the Faint-HEARTed**, University of Otago  
2pm: **Science Drama Workshop**, Fire Station Theatre  
2pm: **Light Cycles**, Otago Museum  
2:30pm: **Giants of the Forest**, Otago Museum  
5pm: **Fun Science at Moana Pool**, Moana Pool  
5:30pm: **Shark Spy Community Talk**, Dunedin Public Library  
5:30pm: **The Heart of a Woman**, Petridish  
5:30pm: **Quantum Shorts Film Screening**, Otago Museum  
5:30pm: **ZoBot Revolution**, ADInstruments  
7pm: **Glow Science**, Beverly Begg Observatory

**Tuesday 13 July**  
9am: **Ki-o-rah!**, Alhambra Union Rugby Club  
9am: **Our Climate Future Exhibition**, Meridian Mall  
9:30am: **Science on the Cube**, Dunedin Public Library  
9:30am: **Creative Connections**, Dunedin Public Library  
10am: **VR & Gaming Centre**, Old Aotea Gift Shop  
10am: **Imagination Playground**, Municipal Chambers  
10am: **Slice of life: The Dunedin Study**, Old Smith City  
10am: **Biomedical Sciences Photo Exhibition**, University..  
10am: **Moon Storytime**, Hanover Hall  
10am: **About the heart!**, Dunedin Public Library  
10am: **Backyard Builders: Trapping Tunnels**, Mitre 10  
10am: **Forensic Workshop** (Kids), Gasworks Museum  
11am: **Far from Frozen II**, Old Scottish Shop  
11am: **Outside Inside Forest**, Meridian Mall  
11am: **Our Moon: Then, Now & Beyond**, Hanover Hall  
11am: **Aquavan Adventures**, South Dunedin Library  
11am: **Quantum cryptography via satellite**, Hanover Hall  
11am: **Space Lasers!** Hanover Hall  
11:30am: **Spacetronauts: Mighty Moons**, Otago Museum  
12pm: **Eyes Underwater: Livestream**, Online  
12:30pm: **Forensic Workshop** (Teen), Gasworks Museum  
1pm: **About the heart!**, Dunedin Public Library  
1:30pm: **Aquavan Adventures**, South Dunedin Library  
2pm: **Light Cycles**, Otago Museum  
2pm: **Lego Creations**, Dunedin Public Library  
2:30pm: **Giants of the Forest**, Otago Museum  
4:30pm: **ZoBot Revolution**, Gasworks Museum  
5pm: **Fun Science at Moana Pool**, Moana Pool  
5:30pm: **Who Owns You (and Your Data)**, Petridish  
6pm: **Lines & Wines**, Dunedin Public Library  
7pm: **Glow Science**, Beverly Begg Observatory

**Wednesday 14 July**  
7am: **Yoga under the Matariki Moon**, Hanover Hall  
9am: **Our Climate Future Exhibition**, Meridian Mall  
9:30am: **Science on the Cube**, Dunedin Public Library  
9:30am: **Creative Connections**, Dunedin Public Library  
10am: **VR & Gaming Centre**, Old Aotea Gift Shop  
10am: **Imagination Playground**, Municipal Chambers  
10am: **Slice of life: The Dunedin Study**, Old Smiths City  
10am: **Biomedical Sciences Photo Exhibition**, University..  
10am: **Moon Storytime**, Hanover Hall  
10am: **About the heart!**, Mosgiel Library  
10am: **The science of balloontology**, Golden Centre Mall  
10am: **Backyard Builders: Bird Feeders**, Mitre 10 Mega  
10am: **Rubik Rumble Challenge**, Dunedin Public Library  
11am: **Far from Frozen II**, Old Scottish Shop  
11am: **Outside Inside Forest**, Meridian Mall  
11am: **Our Moon: Then, Now & Beyond**, Hanover Hall  
11am: **Quantum cryptography via satellite**, Hanover Hall  
11am: **Space Lasers!**, Hanover Hall  
11am: **Aquavan Adventures**, South Dunedin Library  
11am: **Tūhura Taster**, Golden Centre Mall  
11:30am: **Spacetronauts: Mighty Moons**, Otago Museum  
12pm: **About the heart!**, Port Chalmers Library  
12pm: **Secrets, Ciphers, and Codes**, Otago Museum  
1pm: **Forensic Workshop** (Twens), Gasworks Museum  
1:30pm: **Aquavan Adventures**, South Dunedin Library

2pm: **Build-a-Bot**, Dunedin Public Library  
2pm: **Light Cycles**, Otago Museum  
2pm: **Science Drama Workshop**, Fire Station Theatre  
2:30pm: **Giants of the Forest**, Otago Museum  
3pm: **About the heart!**, Waikouaiti Library  
5pm: **Fun Science at Moana Pool**, Moana Pool  
5:30pm: **Dogs and Science...**, Dunedin Public Library  
7pm: **Not for the Faint-HEARTed**, University of Otago  
7pm: **Glow Science**, Beverly Begg Observatory

**Thursday 15 July**  
7pm: **Yoga under the Matariki Moon**, Hanover Hall  
9am: **Our Climate Future Exhibition**, Meridian Mall  
9:30am: **Science on the Cube**, Dunedin Public Library  
9:30am: **Creative Connections**, Dunedin Public Library  
10am: **Forensic Workshop** (Twens), Gasworks Museum  
10am: **Moon Storytime**, Hanover Hall  
10am: **VR & Gaming Centre**, Old Aotea Gift Shop  
10am: **Imagination Playground**, Municipal Chambers  
10am: **Slice of life: The Dunedin Study**, Old Smiths City  
10am: **Biomedical Sciences Photo Exhibition**, University..  
10am: **Fight Like a Physicist**, Mosgiel Library  
10am: **The secret science of balloontology**, Golden Centre Mall  
10am: **Backyard Builders: Insect Hotels**, Mitre 10 Mega  
11am: **Far from Frozen II**, 11am, Old Scottish Shop  
11am: **Outside Inside Forest**, Meridian Mall  
11am: **Our Moon: Then, Now & Beyond**, Hanover Hall  
11am: **Chartistic**, Meridian Mall  
11am: **Tūhura Taster**, Golden Centre Mall  
11am: **Aquavan Adventures**, Mosgiel Library  
11am: **Quantum cryptography via satellite**, Hanover Hall  
11am: **Space Lasers!**, Hanover Hall  
11:30am: **Spacetronauts: Mighty Moons**, Otago Museum  
12pm: **Coastal Care Workshop**, NZ Marine Studies Centre  
12pm: **Secrets, Ciphers, and Codes**, Otago Museum  
12:30pm: **Forensic Workshop** (Teens), Gasworks Museum  
1pm: **Reconnect with Ngā Manu!**, Orokonui Ecosanctuary  
1:30pm: **Aquavan Adventures**, Mosgiel Library  
2pm: **Our ocean: bringing climate...**, Dunningham Suite  
2pm: **Lego Creations**, Dunedin Public Library  
2pm: **Light Cycles**, Otago Museum  
2:30pm: **Giants of the Forest**, Otago Museum  
5pm: **Fun Science at Moana Pool**, Moana Pool  
5:30pm: **Editing them out**, Petridish  
6pm: **Our ocean: bringing climate...**, Dunningham Suite  
7pm: **Glow Science**, Beverly Begg Observatory  
9pm: **Tiny Ruins: Solo, Under the Moon**, Hanover Hall

**Friday 16 July**  
7am: **Yoga under the Matariki Moon**, Hanover Hall  
9am: **Our Climate Future Exhibition**, Meridian Mall  
9:30am: **Science on the Cube**, Dunedin Public Library  
9:30am: **Creative Connections**, Dunedin Public Library  
10am: **Fight Like a Physicist**, Golden Centre Mall  
10am: **VR & Gaming Centre**, Old Aotea Gift Shop  
10am: **Imagination Playground**, Municipal Chambers  
10am: **Slice of life: The Dunedin Study**, Old Smiths City  
10am: **Biomedical Sciences Photo Exhibition**, University..  
10am: **Moon Storytime**, Hanover Hall  
10am: **Forensic Workshop** (Kids), Gasworks Museum  
11am: **Chartistic**, Meridian Mall  
11am: **Far from Frozen II**, Old Scottish Shop  
11am: **Aquavan Adventures**, Mosgiel Library  
11am: **Outside Inside Forest**, Meridian Mall  
11am: **Our Moon: Then, Now & Beyond**, Hanover Hall  
11am: **Quantum cryptography via satellite**, Hanover Hall  
11am: **Space Lasers!**, Hanover Hall  
11:30am: **Spacetronauts: Mighty Moons**, Otago Museum  
12pm: **Plantible Paper Making**, Dunedin Public Art Gallery  
1pm: **Reconnect with Ngā Awa**, Orokonui Ecosanctuary  
1pm: **Lego Parkour**, Dunedin Public Library  
1:30pm: **Aquavan Adventures**, Mosgiel Library  
2pm: **Plantible Paper Making**, Dunedin Public Art Gallery  
2pm: **Science Drama Workshop**, Fire Station Theatre  
2pm: **Light Cycles**, Otago Museum

2:30pm: **Giants of the Forest**, Otago Museum  
3pm: **Snippets from the Sea**, NZ Marine Studies Centre  
3:30pm: **High school Science Expo**, University of Otago  
5pm: **Fun Science at Moana Pool**, Moana Pool  
5:30pm: **Upcycled Food Dining Experience**, The Dish  
6pm: **Forensic Workshop** (Adults), Gasworks Museum  
7pm: **Glow Science**, Beverly Begg Observatory  
7pm: **AfterDark: A Night in the Tropics**, Otago Museum

**Saturday 17 July**  
9am: **Our Climate Future Exhibition**, Meridian Mall  
10am: **VR & Gaming Centre**, Old Aotea Gift Shop  
10am: **Imagination Playground**, Municipal Chambers  
10am: **Slice of life: The Dunedin Study**, Old Smiths City  
10am: **Fight Like a Physicist**, Waitati Hall  
10am: **Moon Storytime**, Hanover Hall  
10am: **Inhalers & Artificial Lung**, University of Otago  
10am: **Mission to Mars**, Golden Centre Mall  
10am: **Forensic Workshop** (Family), Gasworks Museum  
11am: **Chartistic**, Meridian Mall  
11am: **Far from Frozen II**, Old Scottish Shop  
11am: **Aquabot Regional Competition**, Moana Pool  
11am: **Outside Inside Forest**, Meridian Mall  
11am: **Our Moon: Then, Now & Beyond**, Hanover Hall  
11am: **Quantum cryptography via satellite**, Hanover Hall  
11am: **Space Lasers!**, Hanover Hall  
11am: **Science on the Cube**, Dunedin Public Library  
11am: **Creative Connections**, Dunedin Public Library  
11:30am: **Spacetronauts: Mighty Moons**, Otago Museum  
12pm: **Inhalers & Artificial Lungs**, University of Otago  
12pm: **Meet a Mars Rover**, Golden Centre Mall  
1pm: **Coastal Care Workshop**, Royal Albatross Centre  
1pm: **Reconnect with our Insect Whānau!**, Orokonui..  
2pm: **Bang! Science Show**, Teacher's College Auditorium  
2pm: **Mission to Mars**, Golden Centre Mall  
2pm: **Light Cycles**, Otago Museum  
2:30pm: **Giants of the Forest**, Otago Museum  
5pm: **Fun Science at Moana Pool**, Moana Pool  
6pm: **Late Night under the moon**, Hanover Hall  
6pm: **Forensic Workshop** (Adult), Gasworks Museum  
6pm: **A better future for Aotearoa**, Petridish  
7pm: **Glow Science**, Beverly Begg Observatory

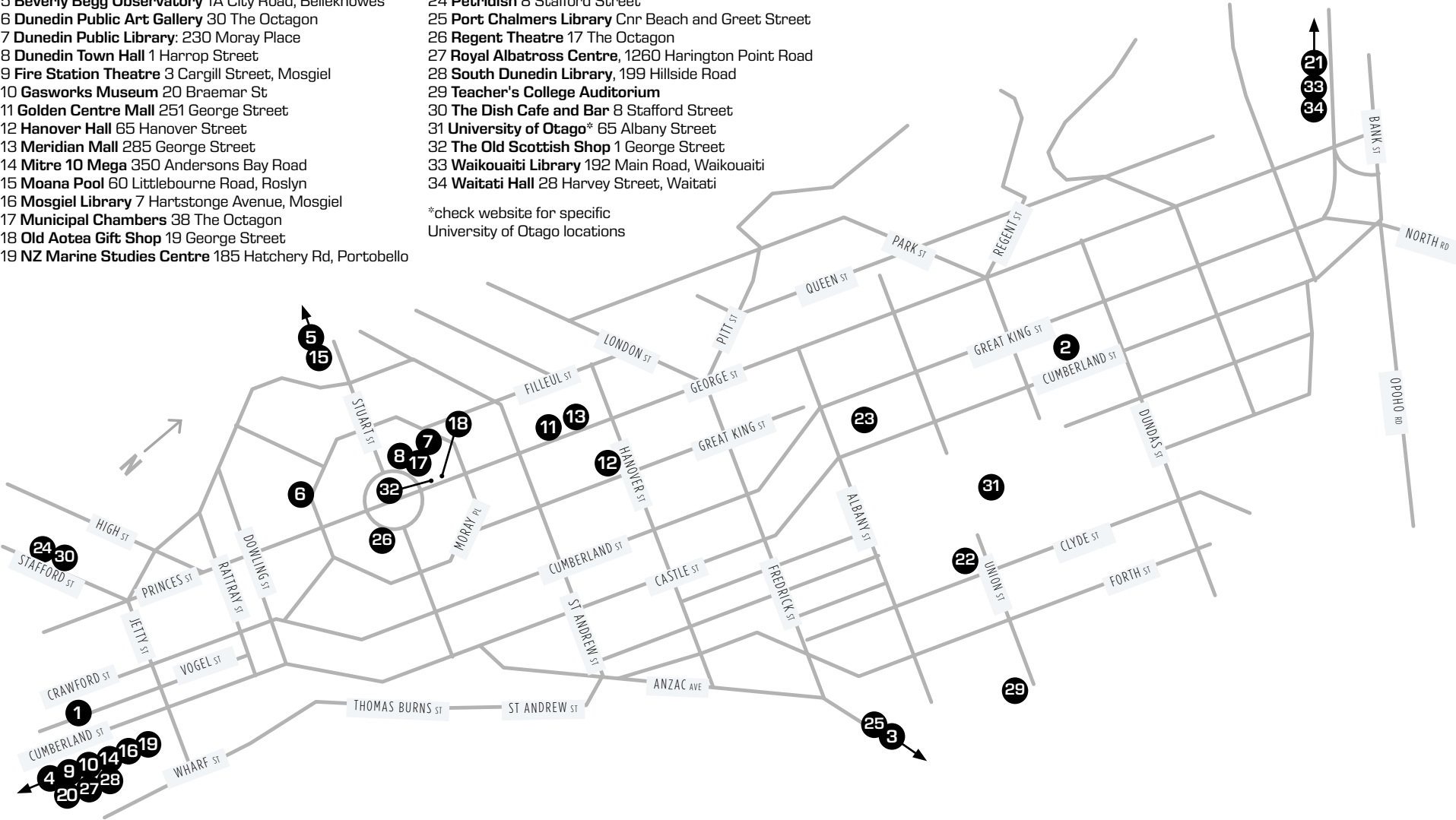
**Sunday 18 July**  
9am: **Our Climate Future Exhibition**, Meridian Mall  
10am: **VR & Gaming Centre**, Old Aotea Gift Shop  
10am: **Imagination Playground**, Municipal Chambers  
10am: **Slice of life: The Dunedin Study**, Old Smiths City  
10am: **Maths Craft Day**, Dunedin Town Hall  
10am: **Moon Storytime**, Hanover Hall  
10am: **Mission to Mars**, Golden Centre Mall  
10:30am: **Marine Encounters**, NZ Marine Studies Centre  
11am: **Bang! Science Show**, Teacher's College Auditorium  
11am: **Chartistic**, Meridian Mall  
11am: **Far from Frozen II**, Old Scottish Shop  
11am: **Science on the Cube**, Dunedin Public Library  
11am: **Creative Connections**, Dunedin Public Library  
11am: **Outside Inside Forest**, Meridian Mall  
11am: **Our Moon: Then, Now & Beyond**, Hanover Hall  
11am: **Quantum cryptography via satellite**, Hanover Hall  
11am: **Space Lasers!**, Hanover Hall  
11:30am: **Spacetronauts: Mighty Moons**, Otago Museum  
12pm: **Meet a Mars Rover**, Golden Centre Mall  
12:30pm: **Marine Encounters**, NZ Marine Studies Centre  
1pm: **Reconnect with Reptiles!**, Orokonui Ecosanctuary  
2pm: **Bang!**, Teacher's College Auditorium  
2pm: **Kōrero te marama**, Hanover Hall  
2pm: **Mission to Mars**, Golden Centre Mall  
2pm: **Light Cycles**, Otago Museum  
2:30pm: **Giants of the Forest**, Otago Museum  
5pm: **Fun Science at Moana Pool**, Moana Pool  
7pm: **Glow Science**, Beverly Begg Observatory

# VENUES

- 1 **ADInstruments** 77 Vogel St
- 2 **Alhambra Rugby Club** 541 Great King Street
- 3 **Back Beach Jetty** 39 Peninsula Beach Road
- 4 **Bayfield Kindergarten** 2 Bayfield Rd, Andersons Bay
- 5 **Beverly Begg Observatory** 1A City Road, Belleknowes
- 6 **Dunedin Public Art Gallery** 30 The Octagon
- 7 **Dunedin Public Library:** 230 Moray Place
- 8 **Dunedin Town Hall** 1 Harrop Street
- 9 **Fire Station Theatre** 3 Cargill Street, Mosgiel
- 10 **Gasworks Museum** 20 Braemar St
- 11 **Golden Centre Mall** 251 George Street
- 12 **Hanover Hall** 65 Hanover Street
- 13 **Meridian Mall** 285 George Street
- 14 **Mitre 10 Mega** 350 Andersons Bay Road
- 15 **Moana Pool** 60 Littlebourne Road, Roslyn
- 16 **Mosgiel Library** 7 Hartstonge Avenue, Mosgiel
- 17 **Municipal Chambers** 38 The Octagon
- 18 **Old Aotea Gift Shop** 19 George Street
- 19 **NZ Marine Studies Centre** 185 Hatchery Rd, Portobello

- 20 **Old Smith City** 375 Andersons Bay Road
- 21 **Orokonui Ecosanctuary** 600 Blueskin Road, Waitati
- 22 **Otago Business School** cnr Union St East & Clyde St
- 23 **Otago Museum** 419 Great King Street
- 24 **Petridish** 8 Stafford Street
- 25 **Port Chalmers Library** Cnr Beach and Greet Street
- 26 **Regent Theatre** 17 The Octagon
- 27 **Royal Albatross Centre**, 1260 Harington Point Road
- 28 **South Dunedin Library**, 199 Hillside Road
- 29 **Teacher's College Auditorium**
- 30 **The Dish Cafe and Bar** 8 Stafford Street
- 31 **University of Otago\*** 65 Albany Street
- 32 **The Old Scottish Shop** 1 George Street
- 33 **Waikouaiti Library** 192 Main Road, Waikouaiti
- 34 **Waitati Hall** 28 Harvey Street, Waitati

\*check website for specific University of Otago locations





# TICKETING AND OTHER INFORMATION

Each event listing contains details regarding venue, performance dates, times, approximate duration and ticket prices. Additional transaction fees apply.

All ticket prices include GST but do not include service fees or credit card fees.

### TICKETS ON SALE NOW

For ticketed events, tickets must be purchased through the Science Festival website. There will be no point-of-sale at venues.

#### Online

Each event on the Festival's website [scifest.org.nz](http://scifest.org.nz) has a link directly to the online point of purchase. Tickets for most events are available at [eventbrite.com](http://eventbrite.com).

#### Free events

Many of our free events still require a ticket. Registration for free events can also be completed through Eventbrite. You will not be charged for these tickets.

### SEATING

All events are general admission. Patrons may select their own seats after admission to the venue.

### SUPERVISION

All attendees under the age of 14 must be accompanied by an adult unless otherwise stated.

### SPECIAL OFFERS

Concession prices are available to select events to students, beneficiaries and senior citizens. Appropriate ID must be provided at the venue. Ticket prices include GST.

### COVID-19

Should we go into a Level 2, 3 or 4 scenario the Festival has planned for every outcome. If we have restricted gatherings, then the following will apply:

Responses to alert level changes will vary for each event and each alert level.

In the case of a change in COVID-19 alert level for Dunedin, please refer to the Science Festival website: [scifest.org.nz](http://scifest.org.nz). A notice will be posted to each individual event's listing regarding what the change in COVID-19 alert level means for that event.

Contact tracing will be available at every event.

### REFUNDS AND CANCELLATION

If you are feeling unwell please stay home. Refunds will not be issued for cancellation due to illness but tickets are transferable. Should an event or events be cancelled due to an alert level change full refunds will be issued.

**At the time of printing every effort was made to ensure that programme details were correct. However, some changes may occur after publication. Check the Festival website [scifest.org.nz](http://scifest.org.nz) for the latest information.**

# FESTIVAL PERSONNEL

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**Ellen Ozarka**  
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Minimization Manager

## EXECUTIVE COMMITTEE

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Angela Clark, Vice President  
Wendy Swainson, Treasurer  
Richard Barker  
Judith Bateup  
Michele Coleman  
Suzi Flack  
Dame Elizabeth Hanan  
Mike Harte  
Peter Jones  
Dave McMorran  
Jim O'Malley  
Gianna Savoie



**Connecting Dunedin is proudly sponsoring **free buses** for some events at this year's NZ International Science Festival.**

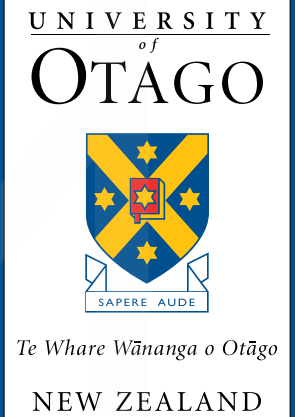
Check the Connecting Dunedin and Orbus Facebook page closer to the time to get the full route details.



Download Transit to get real time info for your bus, and get all sciencey before you even arrive!







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