2023 INPIRE FESTIVAL

WORKSHOP PROGRAMME

CAWTHRON INSPIRE

THURSDAY Workshop Timetable

Title	Presenter(s)	9:30 to 2:45PM
Adventures in CSI	Angela Clark	
Be a Civil Engineer for the day	BECA & Inst of Engineers	
Become a science influencer	Amadeo Enriquez Ballestero	
Bubbleology PLUS Milk magic!!	Jo Townsend / Mike Boland	
Emergency 101	Julia Froeling & Tom Froeling	
Fake it—Horror SFX!	Annie Davies	
Hearts inside and out!	HeartOtago	
Helicopter automatons!	Wouter Froeling	
Hogwarts day trippers	Kat Rayson	
Lampshade illumination	Yaelle Pochon	
Luminous Mythical Monsters	Erin Mintrom	
Robotic theatrics	Jessica Cathro	
Storm the cardboard castle!	Mike Rayson	

FRIDAY Workshop Timetable

Title	Presenter(s)	Session start time: 9:30AM	10:45AM	12:30PM	1:45PM
Be a soldering pro!	Meko Hardinge				
Blood & Gore: Intro to SXF	Annie Davies				
Bridges To Schools	Inst. Civil Engineers				
Chemical monsters	Yaelle Pochon				
Climate Change Solutions from the Sea	Jonathan Puddick & crew				
DECIBEL!!!	Mr Science				
Deconstruct / Reconstruct	Ben Harrison & Dylan Mackie				
Dreaming big	Jessie Cross				
eDNA Detectives	Xavier Pochon & crew				
Fun with AI	Mahsa McCauley				
Glide Time!	Wouter Froeling				
Hatch a monkey?!	Sobhan R. Akhavan & Jamie Bellamy				
HeartOtago Dissection Lab	HeartOtago				
Help, I've Got Gas!	Lucia Stallard & Glenn Cousins				
Hogwarts half-day trippers	Kat Rayson				
How does your brain work?	Kyla Horne				
It's a landslide!!	Dan Chamberose & Simon Alder				
It's a mollusc's world!	Glenis Paul				
Luminous Mythical Monsters - mini	Erin Mintrom				
Milk magic!!	Mike Boland & crew				
Predicting human behaviour	Stella Bloomfield & Ciara McLellan				
Scratch it!	Arturo Neale & crew				
Smells like...???!!	Haley Hawkins				
Spider Decider	Averill Moser-Rust				
Squishy Circuits	Juno O'Connor & Jacob Stallard				
Staunch the flow!	Julia Froeling & Tom Froeling				
SUGAR - How Sweet are you?	Chris Fortune & crew				
The BIG picture	Stacey Walden				
The science of chaos	Amadeo Enriquez Ballestero & crew				
The Science of Crime	Angela Clark				
War of the Waves	Mike Rayson				
What's open framework chemistry?!	Paul Kruger & Courtney Ennis				

KEY

DOUBLE SESSION (Parts A and B)				
SINGLE SESSION				
WHITE = NO SESSION				

THURSDAY ALL-DAY WORKSHOPS

Adventures in CSI

Presented by
Dr Angela 'Bones' Clark

Session kindly sponsored by:

NBS
Banking for life

Get ready for an epic journey into the thrilling world of crime scene investigation with Adventures in CSI hosted by the Science of Crime! You'll dive into the fascinating realm of forensic science. Throughout the day, you'll unlock the secrets of crime scene investigation, explore the history of forensic science, and discover the fundamentals of criminal investigations. Prepare to immerse yourself in a world of hands-on experiences as you try out real forensic techniques the experts use. From fingerprinting and analysing blood spatter to examining impressions and even exploring the captivating field of forensic entomology, you'll get to be a detective-in-training for the day. In this interactive workshop hosted by a real forensic expert, you will uncover clues, analyse evidence, and piece together the puzzle like a true detective. Are you ready to catch the culprit?

Angela is a passionate forensic anthropologist and the mastermind behind the captivating world of the Science of Crime. With her expertise in crime scene investigations and deep understanding of the justice system, she brings unparalleled authenticity to these workshops. Driven by her desire to educate and entertain, Dr Bones has crafted an exceptional fusion of forensic science, investigation, and entertainment. Participants are empowered to unleash their inner detectives, using real forensic tools to solve clues and catch the culprit!

Be a Civil Engineer for the day!

ice Institution of Civil Engineers

Presented by BECA & Institution of Civil Engineers

Model landslides and build creative engineering solutions to stop them from happening! You'll become junior engineering geologists, learning to identify potential landslide prone areas and understanding the importance of slope stability engineering. Then build a kid-sized bridge! Join a team from the Institution of Civil Engineers to construct a REAL cable-stayed bridge made from 400 kg of materials. The finished bridge will be 13m long and 2.5m high. After you're done, walk over your creation—will it pass the test?!

The Institution of Civil Engineers, the largest of its kind in the world, has been around for over 200 years. We are an institution full of Civil Engineers connecting communities and building infrastructure all over the world.
Simon Alder from BECA is an Engineering Geologist experienced in identifying and engineering against landslides. Simon has recently worked in the Hawkes Bay helping to fix the roads that were impacted by landslides after Cyclone Gabrielle.
Dan Chamberose from BECA is an Engineering Geologist experienced in landslide hazard mapping and working to understand the most effective ways landslides can be fixed. Dan has recently worked in the Marlborough Sounds managing a team of designers, and fixing up many landslides which have recently impacted the roads.

THURSDAY ALL-DAY WORKSHOPS

Become a science influencer

Presented by Amadeo Enriquez Ballestero & Anton, George, Jay, and Claire

Science influencers can change the world for good! Become one of them! We live in a world in need of science for everyone to battle misinformation. From Tik Tok to YouTube and in our day to day lives science influencers help us understand everything. In this day-long workshop you will see some examples of good science communication, including a live science show with Amadeo and his team in the morning. Then you will be given the secrets of being a great science influencer for you to present your own shows and videos. You will be able to choose an exciting demonstration to record and make your own video of it. From fire tornadoes to lighting and goo, the excitement of science will be contagious!

Amadeo started his journey as a science communicator over 20 years ago at the Otago Museum. He studied Geology and Palaeontology at Otago University and decided to become a science presenter following his passion to explain things through science. For the last ten years too he has been teaching science in schools part time, and collaborated in many community programmes and events to share the wonders of science everywhere. At present Amadeo presents shows with highschool students, so at Inspire you will meet him with his team of students that have been delivering shows in Christchurch mostly as that is where he is based.

Bubbleology PLUS Milk magic!!

Riddet Institute
Kōkiri - Te Hā o te Kai

Presented by Jo Townsend (Waimea Intermediate), and members of the Riddet Institute- New Zealand's Centre of Research Excellence for Food at Massey University

Waimea Intermediate School

Hey there, Bubble Tea enthusiasts! Ever wondered what those tiny, chewy black balls at the bottom of the drink are? They're called boba—if you're a fan of this delightful drink and curious about how it's made, come and discover the secrets to creating Bubble Tea from scratch. Whether you're a seasoned Bubble Tea lover or just getting started, this workshop is suitable for all. You'll take home skills to impress your family and friends with your very own Boba Bubble Tea creations!

Dairy products are NZ's top export and in this fascinating workshop students will learn to process milk into three different products! This hands-on, tasty workshop will have you learning about emulsions and phase inversion through butter and cheese making. In addition, students will create non-edible products from casein. Milk, it's not just for cereal!

Jo is a dedicated educator and food enthusiast at Waimea Intermediate, with a keen appreciation for the connection between science and food technology. She finds immense joy in witnessing the excitement in her students as they explore the world of cooking. Her commitment to manaakitanga, the Maori concept of hospitality and care, shines through as she nurtures and guides young minds in the culinary arts.
Mike is Principal Scientist and Associate Investigator of the Riddet Institute, and has carried out research for more than 50 years on many aspects of Agri-Food, particularly relating to proteins and enzymes.
Mahya is a postdoctoral researcher with the Sustainable Nutrition Initiative Team and has expertise in sustainable food production and science communication.
Patricia is a PhD student with the Sustainable Nutrition Initiative Team and is investigating the nutritional quality of vegetarian-vegan diets and how this may impact on health outcomes.

THURSDAY ALL-DAY WORKSHOPS

Emergency 101

Presented by Tom Froeling & Julia Froeling; Wairau Hospital (Nelson Marlborough DHB) / University of Otago

Attention all aspiring doctors and life-saving heroes! Get ready to dive headfirst into an action-packed day filled with thrilling medical scenarios that will put your skills to the test. This workshop is not for the faint-hearted!

First up, we have a medical emergency scene. Learn the basics of first aid as you rush to help the injured victims, using bandages, splints, and more! Can you save the day?
Next, brace yourself for the emergency department. Step into the shoes of our doctors as you manage airways, perform CPR, and get hands-on experience with essential hospital equipment. Will you remain calm under pressure and save lives like a true pro?

Then take the chance to explore the mysterious world of surgeries. Put on your scrubs and enter the operating theater. You might even get a chance to test your surgical skills.
Lastly, let's roll up our sleeves and get our hands dirty! Experience the art of plaster casting as we teach you how to fix broken bones, and create your very own cast masterpiece.

Tom and Julia are real doctors and INSPIRE veterans as well! Tom now works in ED at Wairau Hospital, and Julia is in her last few months of medical school, based in Christchurch Hospital. This brother-and-sister team brings fantastic energy and a hands-on, practical approach to their sessions.

Fake it—Horror SFX!

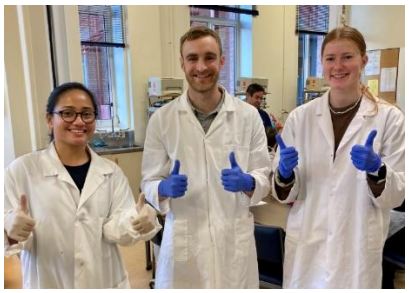
Presented by Annie Davies

Learn the secrets behind Hollywood horror makeup! You'll have the chance to make and apply your own cuts, scrapes and wounds and find out how to bring to life the guts and gore of the silver screen. Discover a whole new avenue of creativity and try your hand at becoming a special effects makeup artist for a day, not recommended for the faint of heart!

My name is **Annie** and I am a special effects makeup artist working in film and television. After graduation from Nelson College for Girls I went on to study prosthetic design in Tāmaki Makaurau and have been working on movies and TV for the past 3 years, including Amazon's 'Rings of Power' and the mighty morphin power rangers! I look forward to sharing my passion with kids who can discover a whole new way of expressing their artistic talents.

THURSDAY ALL-DAY WORKSHOPS

Hearts inside and out!



Presented by the HeartOtago team (Pete Jones, Jennifer Schack, Willow de Jonge)

Have you ever wondered: How does my heart work? How many times does it beat? What fuels it and can I control my own heart? If you've ever asked yourself these questions or perhaps are feeling curious, join the HeartOtago crew for an action-packed day of all things cardiovascular science INSPIREd! Participate in a rapid anatomy race, construct your own 3D heart model, get your heart rate pumping, listen and take scientific measurements of your own heart. After lunch we'll be investigating how you can influence your own heart health and continue exploring the real heart of the matter with HeartOtago.

Disclaimer: this workshop involves participation in exercise. If you have a cardiovascular condition this full-day workshop may be unsuitable for you.

HeartOtago is a collaborative research group located at the University of Otago and Dunedin Public Hospital. Founded in 2011, HeartOtago was formed to advance scientific research in cardiovascular disease. The group comprises scientists, clinicians and academic students dedicated to carrying out research aimed at understanding the molecular nature of cardiovascular disease. This collaboration allows us to study tissue donated from patients undergoing cardiac surgery, something very rare globally. HeartOtago strives to expand on traditional research techniques, produce robust research and to translate our findings into future treatment options for people with heart disease.

Helicopter automatons!

Presented by Wouter Froeling

Develop your woodwork skills and make an actual moving helicopter that you can take home at the end of the day! We will also be learning about different mechanical components such as gears & drive shafts. There is plenty to learn, see and do in this workshop!

Hey team! I'm **Wouter** and I maintain helicopters for a living. Whether it be doing a 50 hourly inspection on the local Rescue helicopters or a major 12 yearly check on a commercial helicopter, we do it all. Sometimes we use a helicopter just to get there.

I enjoy working on all things mechanical and also have a strong passion for woodwork. I like to get stuck into a project and particularly enjoy helping others do the same.

THURSDAY ALL-DAY WORKSHOPS

Hogwarts day trippers

A wonderful wizarding day, full of fun. We will make and decorate our own light up wands so you can practise your Lumos and Nox spells. You can choose to make a magical creature to be your companion. We will learn our special Wingardium Leviosa swish and flick in order to amaze your friends and family with a flying object. Potion making class will be messy and fun! Then create and decorate your own chocolate frogs and take them home in an authentic box. Lots of activities to choose from including solving puzzles, having fun in dress ups and a quiz to round off the day. Come along and enjoy a magical time!

Presented by Kat Rayson Ministry of Inspiration

As a self-confessed all-things-about-Harry-Potter enthusiast, **Kat** has even travelled to the UK to see the Wizarding World at the studio tour in London. In her day job as a local teacher she enjoys encouraging scientific curiosity, a life-long love of reading and to never miss an opportunity to exercise your imagination!

Lampshade illumination

You will receive a usb powered LED bulb and use your imagination to create your own lampshade using paper, cardboard, wood and other materials. You will learn some tricks and techniques to complete an exceptional item to illuminate your bedroom.

With a background in glass painting and leadlighting, **Yaelle** loves exploring the play of light using simple materials such as paper, cardboard and textile to create lampshades. Yaelle is a trained teacher in art and fashion design. She endeavours to encourage her students to express their creativity as a way to share their uniqueness.

Presented by Yaelle Pochon Ministry of Inspiration

Luminous Mythical Monsters

Come with us on an all-day journey using light and motion to bring eerie creatures from your imagination to life. Playing with Light and colour in a sometimes dark room we will use everyday objects as reflectors/ refractors and diffusers in tandem with motors to achieve this. Bring your imagination, your tinkering skills and sense of fun along to this workshop!

Erin has worked with the Ministry of Inspiration for four years teaching at STEAMS School. Her interest in teaching sparked from swimming instructing and organising children's library holiday programmes as a teenager. Teachers College seemed a natural progression. She loves seeing kids make connections with the real world and having fun while learning. Now living in the sunshine capital of NZ, Erin enjoys spending time with her family on any outdoor adventure.

Presented by Erin Mintrom Ministry of Inspiration

THURSDAY ALL-DAY WORKSHOPS

Robotic theatrics

Presented by Jessica Cathro Ministry of Inspiration

Join a group of 4 to develop your own 10 second (it doesn't sound long but it is) robotic performance. Decide on the soundtrack, create the props, code the robot and deliver the performance of a lifetime!

Jessica is a technology educator based in Rotorua. She has started numerous Code Clubs and Robotics Clubs and runs the Rotorua Robocup Jr and Aquabots Competitions. She has been involved in robotics and engineering competitions as a coach for 10 years.

Storm the cardboard castle

Presented by Mike Rayson Ministry of Inspiration

This is a capture the flag team event with a creative twist! Go forth to the contested land and there elect your leaders. Each team will be given resources (cardboard and tape, lots) to build all they need. Build your cardboard fortress and hide your treasure well, for enemies are certain to come. Equip your warriors in distinctive cardboard style and plan your tactics to seize the enemy's treasure whilst protecting your own. When the battle comes your leader will give their best heroic speech and if the enemy has not fled in fear of this mighty rhetoric then battle will commence. If your team can master the enemy's warriors and seize their treasure, victory is yours. But remember that a single battle rarely wins a war.....

Mike has been an educator for 30 years and he is currently a senior class teacher for the Ministry of Inspiration STEAMS school. Outside of work he has an eclectic range of interests including military history/technology, historical reenactment, motorcycles and guinea pigs.

FRIDAY WORKSHOPS

Be a soldering pro!

Presented by
Meko Hardinge
Garin College

Knowing basic electronics and how to solder can be a very useful life skill to have. In this workshop, we will be learning about soldering and basic electronics. We will follow some instructions to complete a circuit with a function. It is truly a useful skill to have and will come in handy when something's needing a fix!

Meko Hardinge is 14 years old and was born in Singapore and moved to New Zealand 5 years ago. When he first came to New Zealand, Meko went to Clifton Terrace and then at year 6 moved to St Joseph's then at year 8 started attending MOI classes. Meko enjoys learning about engineering, especially aeronautical engineering.

Blood & Gore: Intro to SXF

Presented by Annie Davies

Create your own cuts, scrapes and wounds with this introductory course to special effects makeup! You'll learn to apply and paint your own prosthetics, and of course smother them in blood, learn more about Hollywood makeup secrets and how to kickstart your career in film and TV makeup!

My name is **Annie** and I am a special effects makeup artist working in film and television. After graduation from Nelson College for Girls I went on to study prosthetic design in Tāmaki Makaurau and have been working on movies and TV for the past 3 years, including Amazon's 'Rings of Power' and the mighty morphin power rangers! I look forward to sharing my passion with kids who can discover a whole new way of expressing their artistic talents.

Bridges To Schools

Presented by
Institution of Civil Engineers

What can you make out of 100 pieces of aluminium and wood? Be a civil engineer and build a kid-sized bridge! Join a team from the Institution of Civil Engineers to construct a REAL cable-stayed bridge made from 400 kg of materials. The finished bridge will be 13m long and 2.5m high. After you're done, walk over your creation—will it pass the test?!
This is a DOUBLE session.
You must sign up for Part A and Part B.

The Institution of Civil Engineers, the largest of its kind in the world, has been around for over 200 years. We are an institution full of Civil Engineers connecting communities and building infrastructure all over the world.

FRIDAY WORKSHOPS

Chemical monsters

Presented by Yaelle Pochon
Ministry of Inspiration

In a cave in the Cupric Chloride Hills, the mad Dr. Foilenstein is threatening to destroy the world with his latest invention: a Juggernaut Aluminum Monster! Join in this activity to find out how to defeat Dr. Foilenstein's monster with a serious chemical trick! The experience will include the making of your own aluminium monster, and the concoction of the right chemical formula to save the world.

With a background in glass painting and leadlighting, **Yaelle** loves exploring the play of light using simple materials such as paper, cardboard and textile to create lampshades. Yaelle is a trained teacher in art and fashion design. She endeavours to encourage her students to express their creativity as a way to share their uniqueness.

Climate Change Solutions from the Sea

Presented by Jonathan Puddick & Cawthron team

Learn more about climate change and some of the solutions that scientists at the Cawthron Institute are working on to fight back against climate change. This one hour workshop includes an interactive presentation and two 15-min activities. Participants will learn about seagrass restoration to sequester carbon whilst enhancing marine environments and how seaweed / algae can provide us a carbon-positive superfood.

Jonathan (aka JP) is a scientist at the Cawthron Institute where he works on harmful and helpful algae figuring out how we can use their superpowers to solve environmental problems and improve human health. He is passionate about improving our aquatic environments and protecting them with the next generation and the creatures that live in them.

DECIBEL!!!

Presented by Mr Science

Some like it LOUD! We will explore loud noises, bangs, pops, and booms. What do you think is the loudest sound a human being can make? Let's find out! We will look at sound waves and their effect on the human ear, including pitch and volume. Bring your own hearing protection, or ear plugs provided. We will also construct noise makers to take home, (sorry parents).

Mr Science, aka Sterling Cathman, is a primary science specialist teacher working in primary schools in Nelson and all over NZ for the last 15 years. Guaranteed fun and excitement!

FRIDAY WORKSHOPS

Deconstruct / Reconstruct

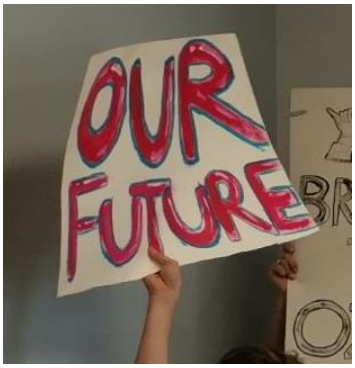
Presented by Ben Harrison & Dylan Mackie

NELSON ENVIRONMENT CENTRE

First, pull it apart! Deconstruct electronic waste and then use your creativity and imagination to put it back together in a new way!! Create a bristlebot, a key chain, or a sculpture, or anything you can imagine. Students will be able to race their bristlebots against each other at the end of the class!
This is a DOUBLE session.
You must sign up for Part A and Part B.

Ben has been pulling things apart to see how they work for as long as he can remember, and most of the time putting them back together again. He started out with electronics and computers at a hobby level and now runs the Nelson Environment centre e-waste program, breaking things down and repairing things as a fulltime job.
Dylan has had an interest in electronics ever since he broke his family's first computer. Since then he's been studying and working with electronics – including testing electronics to their limits. He's currently enjoying work that strives to lessen our impact on Papatūānuku with the team at NEC, while still finding plenty of opportunities to puzzle over: How does it work? Why did they design it like that? Dylan has a particular affinity for technology that is friendly for hacking; re-use, repurposing, and re-composition!

Dreaming big: How can we all thrive in our changing climate?



Presented by Jessie Cross & team Tasman District Council

tasman district council

We've had some pretty wild weather in Aotearoa over the past couple of years. Our changing climate is bringing heavier rainfall, higher sea levels, hotter days and more regular droughts. Do you have creative ideas on how we can make the most of our changing climate? How can we continue to grow delicious fresh food? How can we build homes and get around when there's water in places it didn't used to be? Our changing climate presents an opportunity to think and do things differently. This workshop will give you the chance to get your thinking caps on and dream up what it might look like to live, work and play in Te Tau Ihu/Top of the South in the future.
This is a DOUBLE session.
You must sign up for Part A and Part B

Jessie studied law and environmental science at the University of Canterbury, which is where she first became interested in learning about our changing climate. She started her career as a resource management lawyer before joining Inspiring Teachers where she coordinated teacher training programmes in Africa. In 2020, Jessie moved to Nelson and began working as the coordinator of the Nelson Tasman Climate Forum. Jessie is now a Partnerships and Environmental Education Officer at Tasman District Council, where she has worked as a facilitator for Enviroschools. Jessie will be joined by other expert facilitators to deliver this workshop.

FRIDAY WORKSHOPS

eDNA Detectives: Unleash the Power of Genetics to Safeguard Our Seas!

Presented by Xavier Pochon, Ulla von Ammon & Michelle Scriver Cawthron Institute

CAWTHRON

Dive into the fascinating world of marine biosecurity and become a cutting-edge scientist during this exciting workshop. In this action-packed session, you'll take on the role of real scientists in the lab and immerse yourselves in the latest technologies used to protect our precious marine ecosystems. Get ready for a journey of discovery as we explore the revolutionary technique of environmental DNA (eDNA) detection.

First, you'll embark on a colourful challenge where you'll master the art of using lab pipettes, expertly mixing different volumes of food colouring to create a stunning rainbow. Once you've honed your pipetting skills, we'll unleash the power of genetic analysis. Using qPCR technology right in the classroom, you'll work with eDNA samples collected in the Nelson marina, and in real time, will detect the presence of invasive species. Uncover the secrets of eDNA and learn how it helps us monitor and protect our oceans from potential threats.

Xavier is a marine molecular ecologist at the Cawthron Institute and University of Auckland, promoting the use of Environmental DNA (eDNA) for measuring ecosystems health and biodiversity changes in aquatic environments.
Ulla is a molecular scientist in the Marine Biosecurity group at the Cawthron Institute. Her recent research focusses on the development and validation of novel molecular technologies for marine invasive species monitoring.
Michelle is a PhD student based at the Cawthron Institute. Her research focuses on optimizing sampling approaches and design of molecular tools for marine biosecurity surveillance. This research will help to answer questions regarding environmental DNA (eDNA) distribution in coastal waters and where, when, and how to sample eDNA to increase efficiency of marine pest detection and surveillance.

Fun with AI (Artificial Intelligence)

Presented by Dr Mahsa McCauley of She Sharp

She#

I will cover the basic landscapes of artificial intelligence and applications (different types of AI and examples). I am going to demystify the buzz words Machine Learning, Big Data and Deep Learning into easy-to-understand concepts for students. I will take them through some of the creations Google has built and contributed to, like Teachable Machine and Coral, to make AI accessible and understandable. I will equip them with tools and resources to train their first AI model. The goal will be to tie the concepts of a few Machine Learning models back to everyday challenges.
This is a DOUBLE session.
You must sign up for Part A and Part B.

Mahsa is a Senior Lecturer and Director of Women in Tech at AUT's School of Computer, Engineering, and Mathematical Sciences. She is a well-recognised leader in AI and machine learning. She is also the founder of the charitable trust She Sharp, https://shesharp.org.nz/, a women's technology networking and learning group, where she works to encourage young New Zealand girls to consider what a career in technology offers.

FRIDAY WORKSHOPS

Glide Time!

Presented by Wouter Froeling

Make an aircraft glider! Learn about the mechanics behind flying and put them into practice straight away. We will learn, adjust, and test as much as we like to produce a great flying glider that you can take home at the end of the day. Then find out how drones work—you never know, a real-life one might drop in for you to check out!
This is a DOUBLE session.
You must sign up for Part A and Part B.

Hey team! I'm **Wouter** and I maintain helicopters for a living. Whether it be doing a 50 hourly inspection on the local Rescue helicopters or a major 12 yearly check on a commercial helicopter, we do it all. Sometimes we use a helicopter just to get there. I enjoy working on all things mechanical and also have a strong passion for woodwork. I like to get stuck into a project and particularly enjoy helping others do the same.

Hatch a monkey?!

Presented by Sobhan R. Akhavan & Jamie Bellamy from NMIT

Artemia, sea monkey, are microscopic brine shrimp that aquaculture hatcheries use as a nutritious diet for fish and shrimp. Students will learn how to hatch artemia cysts, count artemia, and determine different water quality parameters. Students will also learn to identify the different stages of artemia life cycle by watching them under microscope and compare different methods of artemia separation.

Sobhan is a PhD graduate from the Department of Zoology, University of Otago, and an academic staff member at Te Pūkenga, Nelson Marlborough Institute of Technology (NMIT), in Nelson. He has extensive experience across aquaculture operations offering a unique blend of technical and strategic skills in the field of sustainable aquaculture.

HeartOtago Dissection Lab

Presented by the HeartOtago team (Pete Jones, Jennifer Schack, Willow de Jonge)

HeartOtago's Dissection Labs are coming to INSPIRE! Kids will dissect a lamb's heart, learn the basic anatomy and physiological functions of the heart, guided by the expert HeartOtago crew who will lead the way! This workshop is not for the faint-hearted and is bound to leave you thinking about your own beat.

Disclaimer: This workshop involves the use of animal hearts which have been acquired through the normal human food chain. Additional Information and waiver on this workshop will be provided.

HeartOtago is a collaborative research group located at the University of Otago and Dunedin Public Hospital. Founded in 2011, HeartOtago was formed to advance scientific research in cardiovascular disease. The group comprises scientists, clinicians and academic students dedicated to carrying out research aimed at understanding the molecular nature of cardiovascular disease. This collaboration allows us to study tissue donated from patients undergoing cardiac surgery, something very rare globally. HeartOtago strives to expand on traditional research techniques, produce robust research and to translate our findings into future treatment options for people with heart disease.

FRIDAY WORKSHOPS

Help, I've Got Gas!

Presented by Lucia Stallard & Glenn Cousins
University of Otago

Could you blow up a balloon using only the superpowers of microorganisms? Come and find out! Explore the shared fundamental processes of all life by having a look down the microscope into the molecular world, and learn how the DNA and cell structure of plants, animals, and microorganisms differ. Students will explore different forms of life up close, specifically yeast and plants, to find clues about how life on earth originated and continues to blossom. How can we use their superpowers in everyday life?

Lucia grew an obsession with houseplants into study of the world of plants (botany) at Otago University. She is fascinated by the underlying systems of life.

We don't ride yeasts or race them or keep them as pets. But without them, the world would be a less yummy place to live in. Imagine... no bread. No donuts. No pizza! And that's why, ever since discovering these amazing little organisms, **Glenn** has been up to his elbows in dough!

Hogwarts half-day trippers

Presented by Kat Rayson
Ministry of Inspiration

A wonderful wizarding half day session, full of fun. You can choose to make a magical creature to be your companion. We will learn our special Wingardium Leviosa swish and flick in order to amaze your friends and family with a flying object. Potion making class will be messy and fun! Lots of activities to choose from including solving puzzles, decorating a chocolate frog, having fun in dress ups and a quiz to round off the session. Come along and enjoy a magical time!
This is a DOUBLE session.
You must sign up for Part A and Part B.

As a self-confessed all-things-about-Harry-Potter enthusiast, **Kat** has even travelled to the UK to see the Wizarding World at the studio tour in London. In her day job as a local teacher she enjoys encouraging scientific curiosity, a life-long love of reading and to never miss an opportunity to exercise your imagination!

FRIDAY WORKSHOPS

How does your brain work?

Presented by Dr Kyla-Louise Horne from the New Zealand Brain Research Institute

Did you know that your brain controls everything that you think and do? In this workshop we will look at how our amazing brain works, what it looks like and how it controls the rest of our body. You will not only learn some fun facts about the brain, but you will get to test how well yours is working! Understanding how our brain should work is important because sometimes things can go wrong! When this happens, either from an injury or a medical condition, we can use imaging and neuropsychological testing to determine what has happened and where it has happened in the brain. This information can then be used to help develop treatments or manage the medical condition that is affecting our brain.

My name is **Kyla-Louise** and I am a brain researcher at the New Zealand Brain Research Institute and the University of Otago, Christchurch. My research investigates cognitive (i.e. memory and thinking) and neuropsychiatric symptoms, such as anxiety, hallucinations, apathy and depression, that may occur in neurodegenerative conditions, such as Parkinson's, Huntington's and Alzheimer's disease. To do this I using brain imaging techniques, neuropsychological testing, machine learning, and advanced statistical modelling to better understand neurodegenerative processes in the brain.

It's a landslide!!

Presented by Dan Chamberose & Simon Alder

Explore the fascinating science behind landslides! Discover how landslides occur, how they can affect the world we live in, and learn how we can engineer to protect people and the places we live.
Landslides are movement of rocks, soil and debris that slide down steep hills or mountains. They can be triggered by heavy rains, earthquakes, or even human activities. When landslides happen, they reshape the land and can impact our homes and communities.
Through interactive activities and hands-on experiments, you will get the chance to make landslides occur and build creative engineering solutions to stop them from happening. You'll become junior engineering geologists, learning to identify potential landslide prone areas and understanding the importance of slope stability engineering.

Simon Alder is an Engineering Geologist experienced in identifying and engineering against landslides. Simon has recently worked in the Hawkes Bay helping to fix the roads that were impacted by landslides after Cyclone Gabrielle.
Dan Chamberose is an Engineering Geologist experienced in landslide hazard mapping and working to understand the most effective ways landslides can be fixed. Dan has recently worked in the Marlborough Sounds managing a team of designers, fixing up many landslides which have recently impacted the roads.

FRIDAY WORKSHOPS

It’s a mollusc's world!

Presented by Glenis Paul
New Zealand Marine Studies Centre / University of Otago

Explore the diversity of molluscs found in the waters around Aotearoa New Zealand. What are the characteristics of the mollusc family? How are green lipped mussels and pāua adapted to survive and thrive in Te Tau Ihu? What is their role in the moana? Why are they a tāonga species, a gift from Tangaroa, atua of the sea? Where do mussels and pāua like to live? How do they attach to rocks and the seafloor? How do they filter out plankton from the water? Is there a difference between males and females? Can we figure out how old a mussel, pāua or cockle is? What are the shells made of and what is their function? How do sea snails find food, and how fast can they travel to the food? To answer these questions, we will use our observational skills, carry out experiments and dissect a green lipped mussel to investigate their internal structure.

Glenis has been teaching science in Aotearoa New Zealand and internationally for over 20 years. She now delivers Marine Science education programmes for Year 0–13 ākonga across Te Tau Ihu. Glenis enjoys facilitating opportunities for people to make a connection with where they live, encourage their curiosity to ask questions, develop skills to critically analyse their world and be inspired to care for our rivers, estuaries, beaches and oceans.

Luminous Mythical Monsters - Mini

Presented by Erin Mintrom
Ministry of Inspiration

Come with us on a journey using light and motion to bring eerie creatures from your imagination to life. Playing with light and colour in a sometimes dark room we will use everyday objects as reflectors/refractors and diffusers in tandem with motors to achieve this. Bring your imagination, your tinkering skills and sense of fun along to this workshop!

Erin has worked with the Ministry of Inspiration for four years teaching at STEAMS School. Her interest in teaching sparked from swimming instructing and organising children’s library holiday programmes as a teenager. Teachers College seemed a natural progression. She loves seeing kids make connections with the real world and having fun while learning. Now living in the sunshine capital of NZ, Erin enjoys spending time with her family on any outdoor adventure.

FRIDAY WORKSHOPS

Milk magic!!

Presented by Mike Boland, Mahya Tavan & Patricia Soh
Riddet Institute

Dairy products are New Zealand's top export and in this fascinating workshop students will learn to process our greatest export-milk into three different products! This hands-on, tasty workshop will have you learning about emulsions and phase inversion through butter and cheese making. In addition, students will create non-edible products from casein. Milk, it's not just for cereal! All session presenters are members of the Riddet Institute -New Zealand's Centre of Research Excellence for Food at Massey University.
This is a DOUBLE session.
You must sign up for Part A and Part B.

Mike is Principal Scientist and Associate Investigator of the Riddet Institute, and has carried out research for more than 50 years on many aspects of Agri-Food, particularly relating to proteins and enzymes.
Mahya is a postdoctoral researcher with the Sustainable Nutrition Initiative Team and has expertise in sustainable food production and science communication.
Patricia is a PhD student with the Sustainable Nutrition Initiative Team and is investigating the nutritional quality of vegetarian-vegan diets and how this may impact on health outcomes.

Predicting human behaviour

Presented by Stella Bloomfield and Ciara McLellan
Nayland College

Psychologists are interested in how people think, feel and behave and like to predict what a person might do in the future. This session explores how psychologists work out what you might do next based on how you think! We will look at some ways people have tried to predict human behaviour over the last 100 years and see what happens. This is an interactive session about human behaviour where you get to take part in the research process.

Stella is a Year 12 student at Nayland College. She enjoys learning Spanish and took part in an exchange to Chile earlier in 2023.
Ciara is a Year 11 student at Nayland College and she plays the violin in the orchestra.
Both Stella and Ciara are part of the Nayland Debating Club and enjoy the challenge of predicting what their opposition might say next.

FRIDAY WORKSHOPS

Scratch it!

Presented by Arturo Neale, Finn Palmer, James Wills, Max Harrington & Michael Lee

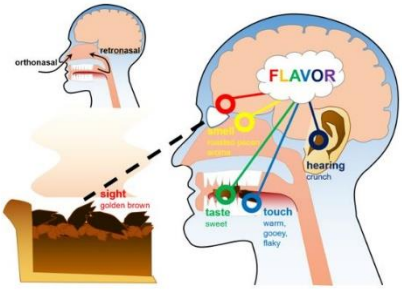
NELSON COLLEGE
TE KURA TAMATĀNE O WHAKATŪ

In this exciting workshop you can learn how to create your very own video game using the scratch coding and programming engine. If you don't have experience with Scratch, don't worry! The difficulty of the project will be adjusted to your skill level, with a choice of an action fighting game or a platformer. You will find out how to design a game, and develop elements, basic programming logic and intermediate Scratch features such as functions and variables. This workshop will teach you useful skills and allow you to make your own custom video game that you can show to all your friends!

This is a DOUBLE session.
You must sign up for Part A and Part B.

We are a passionate group of excited and enthusiastic teenagers with a keen interest in programming, coding and game development. We want to share our knowledge and encourage others to enjoy this as a hobby and fuel the next generation of programmers and coders! We have a combined total of more than 30 years of Scratch experience!

Smells like…???!!



Presented by Haley Hawkins

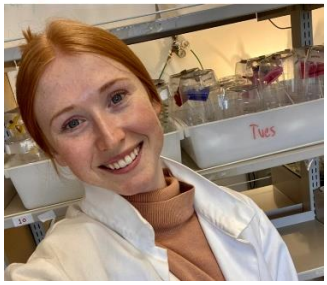
nmit | Te Pūkenga

Chemical analyses (e.g. pH, titratable acidity, sugar levels, and percentage of alcohol) are an important part of winemaking. Did you know that chemical components are responsible for flavours and aromas? Learn how to develop a winemaker's skills of sensory evaluation and put your senses to the test! In this workshop we will use taste and smell to evaluate a range of items and discuss the outcome. There might be a few unusual smells, so come prepared! Typically, this is used at NMIT for evaluating wine, however the skills learned will apply right across the food industry. This workshop is full of interactive, hands-on fun!

Haley studied chemistry as an undergraduate student at the University of New Mexico. She has been applying her knowledge of chemistry to winemaking since moving to Marlborough in 1998.

Spider Decider

NANOGIRLLABS



Presented by Averill Moser-Rust Nanogirl Labs, University of Canterbury

Join us to discover how spiders make decisions! If you have a curious mind and a love for animals, this workshop is perfect for you. We will conduct a human psychological experiment and spider behavioural experiments to explore the decision-making process of jumping spiders. Don't worry if you're scared of spiders - they will be safely contained, and by the end of the workshop, you might even love them! Plus, a few lucky participants will have the chance to win some awesome Nanogirl prizes.

Meet **Averill**, a PhD student at the University of Canterbury. Her research is all about animal behaviour. She's particularly interested in learning more about how jumping spiders make decisions. Averill also works as a science communicator for Nanogirl Labs, where she enjoys making science fun and exciting for everyone!

FRIDAY WORKSHOPS

Squishy Circuits

Presented by Juno O'Connor & Jacob Stallard

Are you ready to dive into the magical world of science, technology, and fun? Welcome to our Squishy Circuits Workshop, where we turn ordinary playdough into extraordinary circuits! This exciting workshop is designed especially for curious kids who love to explore, create, and tinker with their hands. Learn how to construct simple circuits with playdough, LEDs, and batteries. Discover the fascinating world of conductivity and watch your sculptures come to life in a burst of mesmerizing lights!

My name is **Juno** and I'm a Year Ten student at Nelson College for Girls. In my spare time I row, do pottery and read. I've always loved STEAM and have attended Inspire, both as a student and a helper, since Year 3. This is my first year running a workshop and I'm really excited to be here!

Jacob also attended Inspire as a student. As an adult, he is a mechatronics engineer and Ministry of Inspiration board member. He has previously led circuitry workshops at Inspire and is looking forward to supporting Juno in her new role!

Staunch the flow!

Presented by Tom Froeling & Julia Froeling; Wairau Hospital (Nelson Marlborough DHB) / University of Otago

Attention all aspiring doctors! Are you ready to dive into the fascinating world of wound care first aid? Get ready for an unforgettable experience! In this exciting hour-long session, we will unveil the secrets of practical wound care techniques, from the surprising power of superglue to the art of stitching. Get ready to roll up your sleeves and embark on a hands-on adventure with real medical suturing equipment. But beware, this session is not for the faint-hearted! Brace yourself for the challenge and unleash your inner healer as you learn the skills that doctors use to mend wounds. Join us and let your curiosity soar as we unlock the mysteries of wound care in a way that will make you feel like a true medical professional!

Tom and Julia are real doctors and INSPIRE veterans as well! Tom now works in ED at Wairau Hospital, and Julia is in her last few months of medical school, based in Christchurch Hospital. This brother-and-sister team brings fantastic energy and a hands-on, practical approach to their sessions.

FRIDAY WORKSHOPS

SUGAR - How sweet are you?

Presented by Chris Fortune & NMIT Year 2 Culinary Arts Students

We crave sugary foods for a good reason. We find these tasty foods everywhere we look but do we really need them? From Honey in the Beehive to fruit on the tree, Yummy Yoghurt to tangy Pasta Sauce, Tomato Ketchup to breakfast cereals - sweetness can be found in many places. So how much do we eat and more importantly where is it hidden in foods that we wouldn't expect to find it. Humans no longer live on the edge of survival and starvation and so we need to balance our cravings to our output of energy. Join us on an interactive journey — just how sweet are you?

Chris brings an interactive hands-on approach to teaching with an emphasis on practical learning around local food and produce from around the Nelson Tasman region. In his long career he has worked in hotels, cafes, convention centres, superyachts and restaurants around the world and currently teaches Cookery at NMIT.

The BIG picture

Presented by Stacey Walden

Learn about the stars, planets and beyond. Explore questions about the Universe, what is a black hole? A shooting Star? An Aurora? Become the sun, the moon and earth and discover how an eclipse is created. Take home some materials to do your own star gazing.

Stacey is a Math and Science teacher for College students. She also teaches Astronomy on-line and has taught Nature Education to Primary. Stacey loves anything science, math or outdoors.

The science of chaos

Presented by Amadeo Enriquez Ballestero & Anton, George, Jay, and Claire

From fire tornadoes to exploding stars, we live in a chaotic universe. But lots of patterns are to be found within the chaos! We will discover fractals and the weirdest concepts to do with infinity! Come and experiment with fire, ice and water to discover the shapes and patterns that rule our universe. In this session you will learn to make a fire tornado in a rubbish bin, a cloud in a bottle, and even find patterns in the chaotic fluttering of butterflies or running cockroaches! The science of chaos is used to predict weather patterns, biological growth and even can help us understand the way our universe is expanding! Enjoy some chaos in this session and become a topologist as we discover the shapes that rule the universe.

Amadeo started his journey as a science communicator over 20 years ago at the Otago Museum. He studied Geology and Palaeontology at Otago University and decided to become a science presenter following his passion to explain things through science. For the last ten years too he has been teaching science in schools part time, and collaborated in many community programmes and events to share the wonders of science everywhere. At present Amadeo presents shows with highschool students, so at Inspire you will meet him with his team of students that have been delivering shows in Christchurch mostly as that is where he is based.

FRIDAY WORKSHOPS

The Science of Crime

Presented by Dr Angela 'Bones' Clark

Calling all super sleuths! Prepare for an exhilarating Science of Crime interactive workshop packed with thrilling challenges and mystery-solving fun! In this action-packed session, you'll embark on an epic adventure into the world of forensic science. Get ready to unravel mysteries, collect clues, solve puzzles, and analyse forensic evidence putting your detective skills to the test! Run by an expert forensic scientist, don't miss this chance to become a true detective! Grab your magnifying glass, gather your friends, and join The Science of Crime for this thrilling interactive session of crime-solving fun. Are you up for the challenge? Let the investigation begin!

Angela is a passionate forensic anthropologist and the mastermind behind the captivating world of the Science of Crime. With her expertise in crime scene investigations and deep understanding of the justice system, she brings unparalleled authenticity to these workshops. Driven by her desire to educate and entertain, Dr Bones has crafted an exceptional fusion of forensic science, investigation, and entertainment. Participants are empowered to unleash their inner detectives, using real forensic tools to solve clues and catch the culprit!

War of the Waves: The Science of Hide and Seek

Presented by Mike Rayson Ministry of Inspiration

This is an introduction to the science behind camouflage and stealth technology through the ages. We will explore how our knowledge of light, radio and sound waves have led to developments such as optics, radar and sonar. We will then have a look at the technologies developed to counter these detection methods ranging from simple camouflage to the latest stealth technology.

Mike has been an educator for 30 years and he is currently a senior class teacher for the Ministry of Inspiration STEAMS school. Outside of work he has an eclectic range of interests including military history/technology, historical reenactment, motorcycles and guinea pigs.

What's open framework chemistry?!

Presented by Prof. Paul E. Kruger & Dr Courtney Ennis

Te Mana Tangata Whakawhanake
MacDiarmid Institute
Advanced Materials & Nanotechnology

Find out how our research groups are working towards removing carbon dioxide from the air to help address global warming and climate change. In our research we use sponge-like open framework materials to capture gas molecules from mixtures of gas molecules. Hopefully one day we will use these materials to capture carbon dioxide, and other harmful polluting gases, directly from the air around us. A short presentation on how we do this in the laboratory will be followed by a hands-on exercise where you get to build open frameworks using items from the kitchen!

Paul is a professor of chemistry at the University of Canterbury and a Principal Investigator in The MacDiarmid Institute for Advanced Materials and Nanotechnology. Paul's research team looks at ways of catching CO_2 from air and waste gas streams, through clever chemistry that attracts CO_2 to the surfaces of 3D sponge-like materials, to support New Zealand's goal for 'net zero' carbon emissions by 2050.

Courtney is an astrochemist at the University of Otago where the Ennis group looks to recreate the atmospheres and surfaces of cold, icy moons in the outer Solar System in the laboratory. By doing so we hope to discover new chemistry pathways to forming biological molecules found on Earth, revealing clues to the origin-of-life.