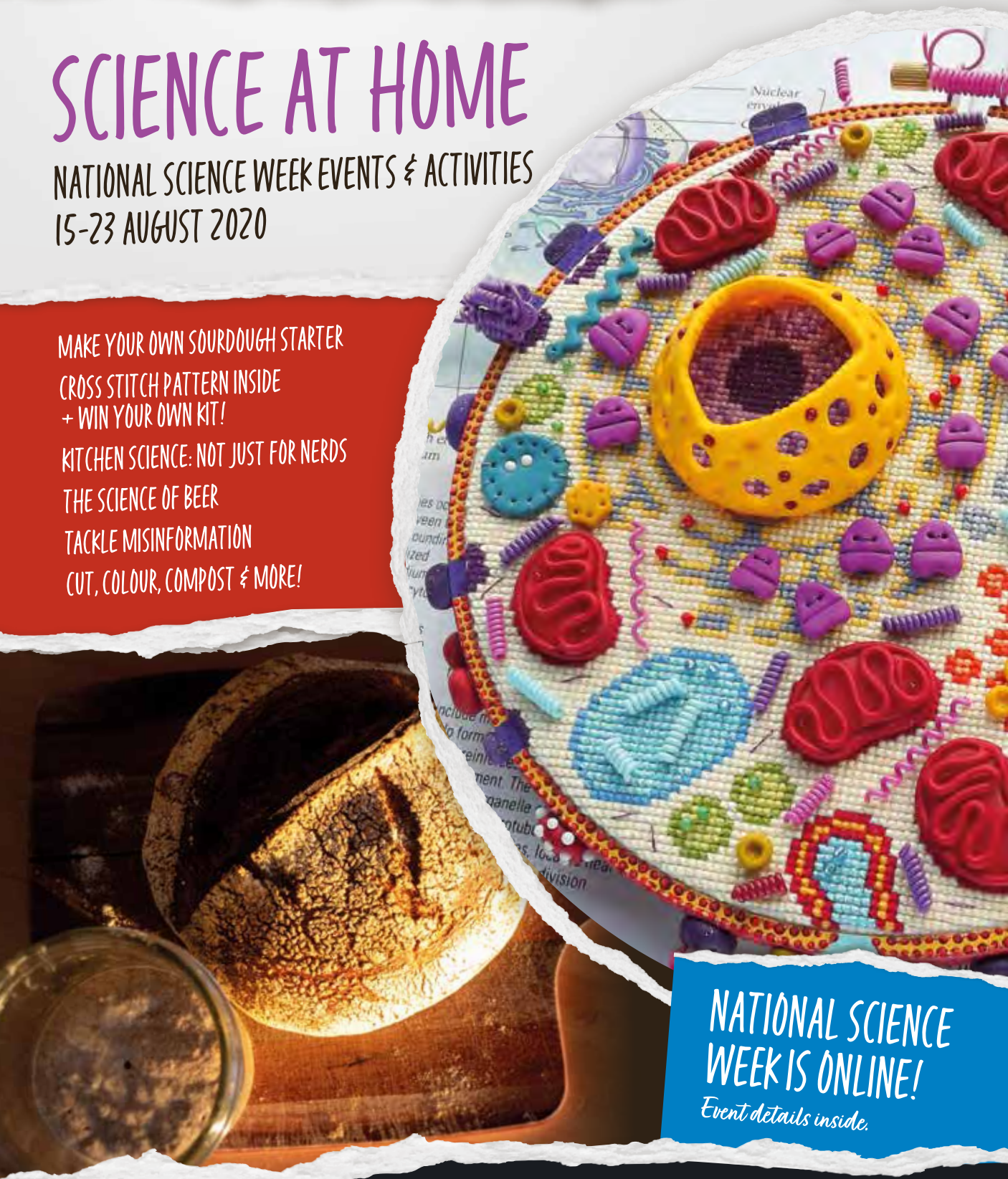
SCIENCE AT HOME

NATIONAL SCIENCE WEEK EVENTS & ACTIVITIES
15-23 AUGUST 2020



- MAKE YOUR OWN SOURDOUGH STARTER
- CROSS STITCH PATTERN INSIDE + WIN YOUR OWN KIT!
- KITCHEN SCIENCE: NOT JUST FOR NERDS
- THE SCIENCE OF BEER
- TACKLE MISINFORMATION
- CUT, COLOUR, COMPOST & MORE!

NATIONAL SCIENCE WEEK IS ONLINE!

Event details inside.

national science week
SUPPORTED BY Tasmanian Government
An Australian Government Initiative
Inspiring AUSTRALIA
UNIVERSITY of TASMANIA
MERCURY
The Advocate
The EXAMINER

Welcome to NATIONAL SCIENCE WEEK TASMANIA

All events are free and online unless otherwise stated.

FROM THE MINISTER

Hon Michael Ferguson MP, Minister for Science & Technology

Science Week is a celebration of wonder and curiosity, of inventiveness and achievement. It's a time when we come together as a community to marvel at the daily workings of our world, and share the ground breaking discoveries determining our future.

In 2020 we pause to consider how science is helping us chart a path forward through these challenging times as a result of bushfires and the pandemic. Through all of this, we recognise the critical work of our Tasmanian and Australian scientists, and the importance of science, technology, engineering and maths in progressing our society. STEM has never been more important to Australia.

So while National Science Week in 2020 will be different, the Inspiring Australia team and community have worked tirelessly to ensure it is as engaging as ever: events will be delivered online, STEM experiences will be shared through virtual tours and video seminars, plus there are competitions, citizen science projects and lots of home-based DIY STEM activities.

Both Beaker Street and TastroFest will be back this year, with Beaker Street presenting online Sci Art Walks, an innovative series of audio-escapes that will encourage listeners to get out into Tasmania's stunning natural environments. They'll also host the 2020 Beaker Street Science Photography Prize.

Ferment-Home-Station will have TED Talk speaker Anne. A Madden and Sourdough Librarian, Karl de Smedt; and Science Made Beerable will hear from Tasmanian craft brewers about the science behind the beer, with options for tasting.

Panellists including Dr Jess Melbourne-Thomas (Tasmanian Australian of the Year) and Dr Darren Saunders (ABC, Eureka Prize) will discuss Tackling Misinformation through an online event and a series of podcasts hosted by nationally syndicated radio program, That's What I Call Science.

And our enthusiastic Young Tassie Scientists, early career researchers and PhD candidates will entertain and educate school children and participate in many of the online events.

Together with our distinguished Patron, Dr Elizabeth Blackburn, I take great pleasure in welcoming you to Science Week 2020 and all the wonders that it offers. I encourage you to celebrate, participate and discover that there's something for everyone in this year's program.

PROFESSOR EMERITA ELIZABETH BLACKBURN

Nobel Laureate and Patron of Science Week Tasmania

In 2019, a mural was painted in Argyle St in Hobart at the Science Street Party. You might have seen it, opposite McDonald's and just under the large University of Tasmania sign. The graphics, designed by local artist Rory Dick, also graced the cover of last year's program. The face you saw is that of Professor Emerita Elizabeth Blackburn, one of our island home's most successful scientists. Her passion for science began in the small town of Snug and grew so large it took her across the world.

Now based at the University of California, San Francisco, Professor Blackburn is a leader in the area of telomere and telomerase research. She discovered the molecular nature of telomeres - the ends of chromosomes that serve as protective caps essential for preserving the genetic information and what makes us, us! Blackburn and her research team at the University of California, San Francisco are working with various cells including human cells, with the goal of understanding more about this key part of our biology.

In 2020, you'll be able to learn more about our Patron at scienceweek.net.au.

Details correct at time of printing but are subject to change.
For up-to-date information please visit scienceweek.net.au/events
or download the mobile app for Apple or Android.
All events free and online unless otherwise stated.

Create your own natural blueprint with Inala. See page 13 for more.

ABOUT OUR COVER ARTIST

Rachel James is a proud Tassie girl, growing up in Kingborough. She lived on the Sunshine Coast for 10 years, where she completed her BSc (Biomedical Science), Honours in Biochemistry and Cell Biology and Masters in Human Biology at USC. She loves the arts and also has a Grad Dip in Psychology from CQU, which she did for fun while working in a pathology lab. Rachel is now part of the Waste Management Team at EPA Tasmania, runs her own business selling her cross stitch designs, and does all sorts of other crafts in her spare time. Make the cover with the pattern on page 10!

CONTENTS

KEY TO EVENTS:

- Children's University
- Citizen Science
- Competition
- Exhibition
- Family/Kids
- Festival
- Film
- Outdoor/Backyard
- Performance
- Science At Home
- Talk/Lecture/Panel Discussion
- Tour
- Workshop

MOST EVENTS ARE FREE AND ONLINE UNLESS OTHERWISE STATED. PLEASE CHECK EVENT WEBSITES FOR UP TO DATE INFORMATION.

Grab the free app!

DOWNLOAD ON THE App Store

ANDROID APP ON Google play

natsciwktas
sciencetasmania
#scienceweek

In Tasmania, National Science Week is supported by Inspiring Australia, the University of Tasmania and the Tasmanian Government, and is coordinated by the Tasmanian National Science Week Coordinating Committee that works with event holders to develop, produce and promote a state-wide program of events.

FERMENT-HOME-STATION

For more information on these events including how you can get your own sourdough kit, visit: bit.ly/fermenthome

Twitter: @FermentHome | #fermenthome

Ancient techniques in your kitchen. Explore the science behind fermented foods like sourdough and sauerkraut. Get hands on in a workshop in your own kitchen! Participate in a public experiment, ask questions to world experts, share recipes and help us on the quest to find Tasmania's oldest sourdough.

A TOUR OF THE SOUDOUGH LIBRARY WITH SOURDOUGH LIBRARIAN, KARL DE SMEDT

1Wednesday 9 August, 6pm

Can a sourdough starter have beer and eggs in it? To know the answer, take a live virtual tour of the World's first Sourdough Library in St. Vith, Belgium with the man who is called the Sourdough Librarian- Karl de Smedt, as he unravels their quest to find the most unique sourdough starters of the world and talks about the 'books' in his 'library'

puratos.com/commitments/next-generation/product-heritage/sourdough-library

About the speaker

Karl de Smedt, Puratos Baking, Director of Sourdough Library, Belgium

Also known as the Sourdough Librarian, with 30 years history in sourdough baking and R&D, Karl currently manages the world's only Sourdough library.

SOURDOUGH BREAD ART TECHNIQUE WORKSHOP

Thursday 20 August, 6pm

Learn how to turn your sourdough into a canvas with expert baker Morgan Clemenston.

About the speaker

Morgan Clementson, Sourdough Ambassador APMEA , Puratos Australia Pty Ltd

With more than 10 years of experience in retail, artisan and semi industry bakery market, Morgan Clemenston is an expert baker with numerous Baking awards in Australia with a passion for sharing her baking, sourdough and fermentation expertise

RESEARCHING THE MICROBIAL COSMOS

TED speaker Dr Anne A. Madden takes us on a journey of the microbial world as she speaks to us about her research in food fermentation, what grows on our hands and the various wonders of yeasts.

About the speaker

Dr. Anne A. Madden, Founder and President of The Microbe Institute and Chief Scientific Officer of Lachancea

Award-winning scientist, TED speaker, and entrepreneur with a mission to explore wild microbes and discover how they can make life better.

anneamadden.wordpress.com
microbeinstitute.org

DIY FERMENTATION WORKSHOP

Check the Ferment-Home-Station Facebook page for dates and times.

Lactofermentation is one of the oldest preservation techniques known to humans. Learn how to set-up your preservation ferments from Dr Erin McKenney in this hands-on workshop where she will be describing the science behind lactofermentation, the role of the microbes and how we can best exploit this process to make delicious foods like Kimchi and Sauerkraut.

About the speaker

Dr Erin McKenney, Lecturer Coordinator – Academic Programs, North Carolina State University

As a researcher she has focused on microbial ecology, nutrition, and comparative gut morphology but has engaged the public, particularly students through large public projects to study the microbes in sourdough starters and other fermented foods.

WHAT'S GROWING IN YOUR SOURDOUGH?

Check the Ferment-Home-Station Facebook page for dates and times.

Find out what sort of bacteria and yeasts are growing in your sourdough as the lead scientist of the Global Sourdough Project shares some of the results of the project.

About the speaker

Liz Landis, PhD student, Tufts University

Liz is interested in patterns and processes in microbial communities across large spatial scales and linking microbial traits to community assembly.

START IT OFF!

A Public Experiment with Sourdough Starter Culture.

10 August onwards

Make your own sourdough starter at home! By participating in this year's big experiment, you'll learn how to measure pH, share pictures of your progress, and together you'll explore some of the wonders of sourdough starter science. You can even submit your data to global experiments like The Wild Sourdough Project (robdunnlab.com/projects/wildsourdough).

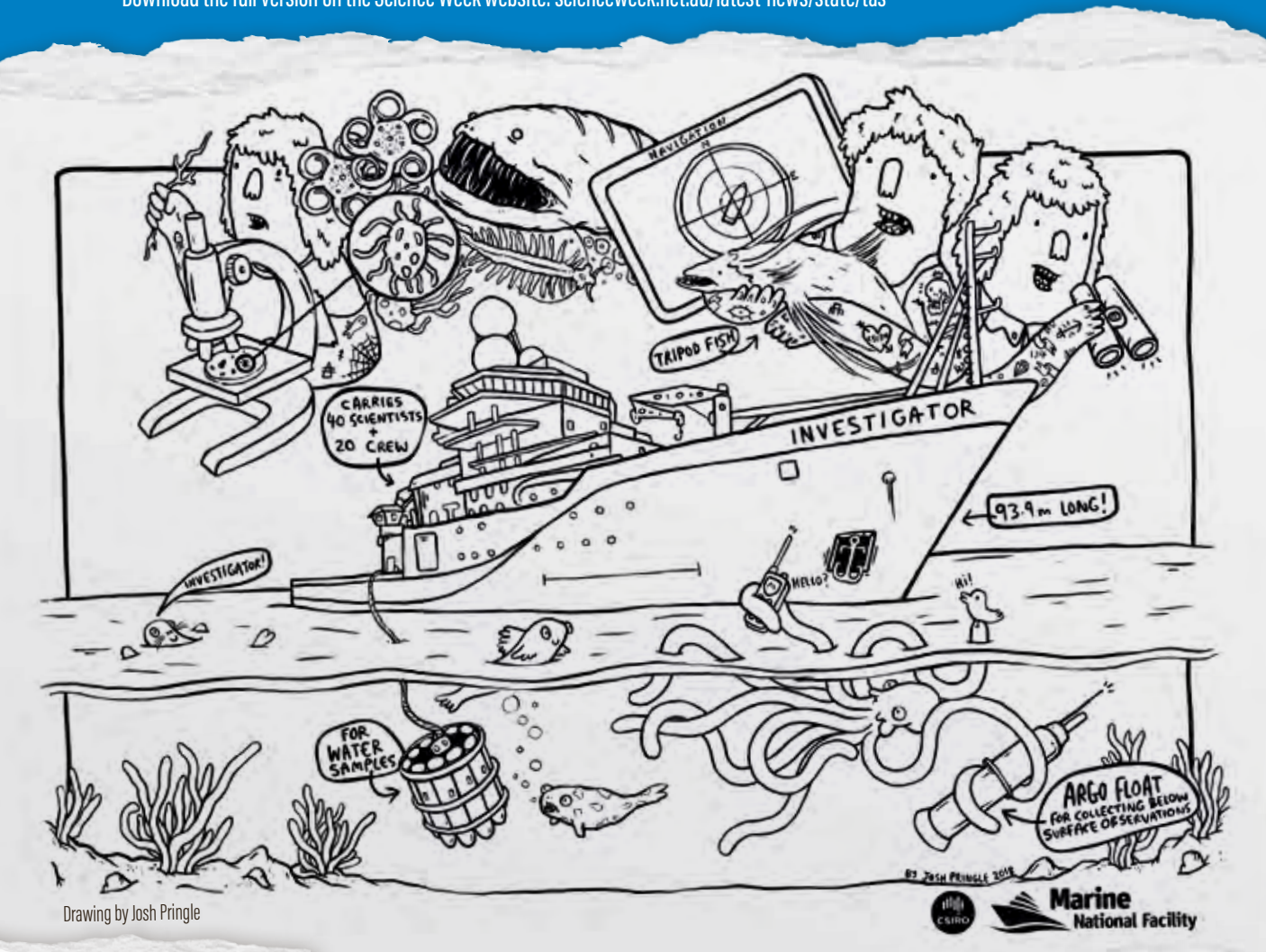
Share your images on social media using #fermenthome and follow others in their sourdough journey!

For information on how to get a sourdough starter kit and to RSVP for the sourdough how-to event, please visit bit.ly/fermenthome

COLOUR-IN THE R.V. INVESTIGATOR!

The RV Investigator is a 94-metre ocean research vessel capable of sailing for up to 300 days each year doing real science! Can you imagine what it's like working in a floating lab? Have a go at colouring in the ship. We promise it won't be a big oar-deal

Download the full version on the Science Week website: scienceweek.net.au/latest-news/state/tas



Drawing by Josh Pringle

If ever there were a year to recognise and celebrate the importance of science, 2020 is surely it. Australia has faced huge upheavals this year since extraordinary bushfires spread across vast areas of the big island destroying property, lives and altering ecosystems. For us, thankfully our island was largely spared. As the country was trying to overcome the difficult summer an even bigger challenge was just around the corner. The COVID-19 pandemic has been unlike anything most of us have experienced. Aside from the terrible loss of life, the pandemic has effectively turned our lives upside down. The impacts have been far-reaching and certainly haven't affected us all equally. We're not all in the same boat, but rather different boats in the same storm.

These storms are not wholly unexpected though. The rigorous, systematic way of carefully and thoroughly observing the world and using consistent logic to evaluate results pointed to the prospect of bushfires and pandemics. So, what is this illuminating method? Well, it's science. And just as science can forewarn us, it can also help us overcome. Whether it's bushfire researchers looking for the best fire management practices for a changing landscape, climate scientists seeking to identify future threats to communities, epidemiologists aiding evidence-based public health decisions, or medical researchers working to develop vaccines, we should take comfort that we already have the right tool for the job.

Science itself isn't immune from global events and the current upheaval has certainly presented challenges for how we do science and how we engage with it. The safety of our communities is what matters most, so National Science Week is different this year, with online events, virtual tours and stay-at-home science experiences. It's a great opportunity for us all to try something different, whether it be run by someone in your town, the other end of the state, or the other side of the country. It's a chance to engage, share, question and learn, all from your living room. While we may not be able to get you on board an ocean-going research ship for a look around this year, why not join a live virtual excursion, or try some science ship art (above). This Science Week let science help you make sense of our seemingly chaotic world and inspire you to create a future of our choosing.

DR BEN ARTHUR

CSIRO Engagement Programs Coordinator | Governance, Policy & Outreach | Marine National Facility and Chair of the Tasmanian National Science Week Coordinating Committee

BEAKER STREET SCIENCE PHOTOGRAPHY PRIZE

On show at the Tasmanian Museum and Art Gallery,
23 August - 13 September, Tuesday - Sunday, 10am - 4pm

Entry is free but booking is required via www.tmag.tas.gov.au

Come along to place your vote for the People's Choice Winner

To learn more about the annual Beaker Street Science Photography Prize, visit www.beakerstreet.com.au

PRESENTING PARTNERS:

BEAKER STREET

Tasmanian Government

TASMANIAN MUSEUM & ART GALLERY

MAJOR PARTNERS:

City of HOBART

Events Tasmania

national science week tasmania

COMPETITION SPONSOR:

FULL GAMUT

Image: Cam Blake Photography (competition judge). A curious wedge-tailed eagle, *Aquila audax fleayi*, soars above in the South West of Tasmania

Details correct at time of printing but are subject to change. For up-to-date information please visit scienceweek.net.au/events or download the mobile app for Apple or Android.
All events free and online unless otherwise stated.

SCI ART WALKS A BEAKER STREET PROJECT

Sci Art Walks is a series of audio escapes featuring some of Tasmania's most innovative and accomplished scientists and artists. Each episode is paired with a suggested walking location, and weaves together a fascinating talk with originally composed music.

Access Sci Art Walks from anywhere in the world. Learn more and listen for free via:

BEAKERSTREET.COM.AU

BEAKER STREET


The Nut, Stanley

Dr Jennifer Lavers


Maggie Abraham

MUTTON BIRDS: SO MUCH COOLER THAN YOU THOUGHT THEY WERE

@ The Nut, Stanley

Talk by Dr Jennifer Lavers
Music by Maggie Abraham


Cradle Mountain

Emily Sanzaro

IN SEARCH OF A DEVIL FACIAL TUMOUR DISEASE VACCINE

@ Cradle Mountain

Talk by Dr Andy Flies
Music by Emily Sanzaro


Lake Pedder, before flooding


Bob Brown


Tabatha Badger

REWILDING TASMANIA: THE ECOLOGICAL CHALLENGE OF RESTORING LAKE PEDDER

@ Lake Pedder, Southwest National Park

Talk by Christine Milne, Bob Brown, Tabatha Badger, and Todd Dudley
Music by Julius Schwing and Tilly Martin


Lion Rock, South Cape Bay


First Dog on the Moon


Emily Sheppard

EXPLORING THE LAST STOP ON THE EARTH

@ Cockle Creek to South Cape Bay

Talk by First Dog on the Moon
Music by Emily Sheppard


Cataract Gorge

USING MATHS AND EVOLUTION TO CONNECT ALL LIVING THINGS

@ Cataract Gorge, Launceston

Talk by Professor Barbara Holland
Music by Brian Ritchie


Professor Barbara Holland

Brian Ritchie


Wineglass Bay

AS TASMANIA'S WATERS WARM, WHAT HAPPENS TO OUR MARINE SPECIES?

@ Wineglass Bay Walk, Freycinet National Park

Talk by Professor Gretta Pecl
Music by Michael Fortescue

Professor Gretta Pecl


David Walsh

ON RISK

@ GASP! Trail, Glenorchy

Talk by David Walsh
Music by Zac Henderson


Tasman Peninsula

Warren Mason

WALK SLOW, LOOK LOW: SEEING THE WORLD FROM A NATURALIST'S PERSPECTIVE

@ Remarkable Cave to Crescent Bay, Tasman Peninsula

Talk by Dr Cathy Byrne and Dr Simon Grove
Music by Warren Mason and Ben Salter


Andry Sculthorpe in Knocklofty Reserve

REIGNITING ABORIGINAL FIRE CULTURE IN TASMANIA

@ Knocklofty Reserve, Hobart

Talk by Andry Sculthorpe and Billy Paton Clarke
Musician to be announced

Images courtesy (clockwise from top right): MONA/Jesse Hunniford (Brian Ritchie), Luke Webber (Cataract Gorge), Kristina D.C. Hoeppner (Wineglass Bay), MONA/Leigh Carmichael (David Walsh), HilACT (Tasman Peninsula), Andrew Wallace (South Cape Bay), Graham Wootton (Lake Pedder), Jade Hallam Photography (Emily Sanzaro), Oliver Berlin (Maggie Abraham).

LEARN MORE AT BEAKERSTREET.COM.AU

Major Partners:

City of HOBART · Events Tasmania · National Science Week · Tasmanian Government · Tasmanian Museum & Art Gallery

Episode Sponsors:

CMS · DETACHED

Project Supporters:

RACT · Tasmanian Aboriginal Centre · Destination Southern Tasmania · Tasmania

TASMANIA

CROSS STITCH THIS BIOLOGICAL WONDER!

Like our cover by artist Rachel James? Use this free pattern to make your own! You can also win your own cross stitch kit by entering the competition on our Facebook page by midnight Sunday 9 August and join in the live event (see page 12).

Visit facebook.com/natsciwktas to enter!

Difficulty : Intermediate (whole stitches, 39 French knots/beads & minimal backstitch)

Grid Size : 70H x 70W

Design Area : 64 x 64 stitches

Colours Required : 1 DMC skein each of

159, 160, 321, 368, 470, 472, C550, 552, C554, E718, 718*, 722, 742, 743, 772, 946, 991, 3801, 3809, 3811*, 3823, 3843, 3846, 5200*, Kreinik BF 094
(* only if using French knots rather than beads)

Legend : Stitches

=	DMC Cotton 159	grey blue - lt
⩸	DMC Cotton 160	grey blue - md
♥	DMC Cotton 321	Christmas red
ↄ	DMC Cotton 368	pistachio green - lt
//	DMC Cotton 470	avocado green - lt
ᔕ	DMC Cotton 472	avocado green - ul lt
★	DMC Etoile C550	violet - vy dk
✚	DMC Cotton 552	violet - md
≈	DMC Etoile C554	violet - lt
‡	DMC Cotton 722	orange spice - lt
※	DMC Cotton 742	tangerine - lt
∴	DMC Cotton 743	yellow - md
⋈	DMC Cotton 772	yellow green - vy lt
●	DMC Cotton 946	burnt orange - md (bead on top of single stitches)
◪	DMC Cotton 991	aquamarine - dk
+	DMC Cotton 3801	Christmas red - lt
▲	DMC Cotton 3809	turquoise - vy dk
I	DMC Cotton 3823	yellow - ul pl
▬	DMC Cotton 3843	electric blue
›	DMC Cotton 3846 (2 strands) & Kreinik BF 094 (1 strand) bright turquoise - lt blended with Star Blue	

Legend : Back Stitch Lines

Use one strand of floss for all backstitch ☺ I used straight stitch.

DMC Cotton 321	Christmas red	pinocytotic vesicle
DMC Cotton 552	violet - md	centrosome
DMC Light Effects E718	pink garnet	flecks in cytosol
DMC Cotton 772	yellow green - vy lt	centriole
DMC Cotton 3809	turquoise - vy dk	turquoise fibres

Legend : Beads or French Knots (2 strands)

//	Green Beads - I used Mill Hill Frosted Glass Seed Beads 62049 Spring Green, or use DMC 470 avocado green - lt for French knots
●	Bright Orange Beads - I used Mill Hill Seed Beads 2061 Crayon Dark Orange, or use DMC 946 burnt orange - md for French knots
•	Aqua Glass Beads - I used Mill Hill Petite Seed Beads 42010 Ice, or use DMC 3811 turquoise - vy lt for French knots
✖	Magenta Beads - I used Mill Hill Petite Seed Beads 42101 Purple, or use DMC Cotton 718 plum for French knots
◇	White Beads - I used Mill Hill Petite Seed Beads 40479 White, or use DMC Cotton 5200 snow white for French knots

Wash and iron if required before beading.

Every living thing is made up of tiny cells – so small, you can only see them with a microscope. Trillions of cells make up the human body.

Inside each cell, there are various components that carry out the cell's jobs, such as taking in nutrients, converting those nutrients into energy, making and using cell parts, and getting rid of waste. There are also instructions for controlling what goes on inside the cell and for making copies of the cell. It's like each cell is its own self-replicating, biological factory.

Here's an overview of what happens where inside the cell:

The **nucleus** (purple) is the cell's control centre and contains DNA, the genetic information that cells need to grow and reproduce. It is surrounded by a nuclear envelope (deep yellow) which protects the DNA found inside the nucleus is the nucleolus (dark purple), the quality control centre for making proteins.

The **endoplasmic reticulum** (ER) (blue and yellow) functions as the manufacturing and packaging system of the cell. This is particularly important in making, modifying and moving proteins around the cell. Attached on its surfaces are ribosomes (pink dots), super-sophisticated molecular machines that assemble all the cell's proteins.

The smooth ER (blue) is important in creating and storing fats.

The **Golgi complex** (orange) receives the newly made proteins and fats from the ER, and sends them off to their final destinations, either inside or outside of the cell.

The **mitochondria** (red) are the cell's power generators, turning nutrients into energy.

The **lysosomes** and **peroxisomes** (dark blue and green) are the cell's recycling centres, getting rid of toxic substances and recycling worn-out cell components.

The **vacuoles** (light blue) are the cell's storage facilities for excess nutrients or even waste products.

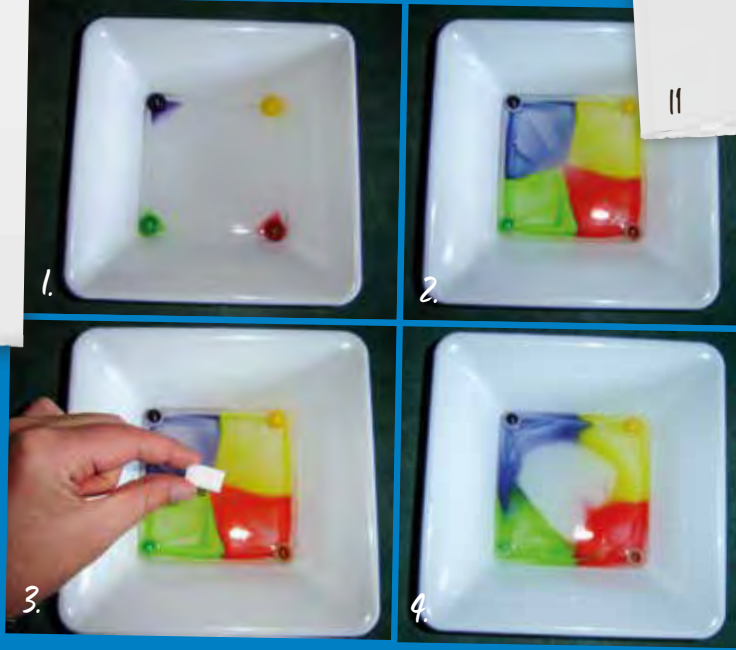
The **microfilaments** (pink lines) and **microtubules** (green zigzags) form the structures that allow the cell to hold its shape and move its parts around.

The **centrosome** (pale green) is essential for cell division.

The **cell membrane** surrounds the cell and allows nutrients to enter and waste to leave. It can fold in on itself to bring fluids into the cell. This is called pinocytosis or "cell drinking". A pinocytotic vesicle (light blue with yellow and red border) can be seen.

KITCHEN SCIENCE

There is so much amazing science you can explore with some very simple ingredients that you'll most likely have at home. Here are some ideas to get you started.



SPECTACULAR SKITTLES

You'll need: a shallow dish (e.g. a saucer, preferably white in colour), some Skittle fruit lollies, water and a sugar cube (or try a small amount of white sugar on a teaspoon).

What to do: Fill the dish with a layer of water so that the water covers the bottom of the dish. Using four different-coloured Skittles, carefully place these at equal distances around the rim of the dish (see image 1), making sure that they are in the water. Watch to see what happens over the next few minutes (patience may be needed). Any ideas to explain what you're seeing?

Next, if you have your sugar cube, place it carefully in the centre of the dish. Again, watch what happens over the next few minutes.

What's happening: The process you are seeing is called diffusion - which is the movement of a substance from an area of high concentration to an area of low concentration. The sugar coating on the Skittles dissolves into the water, so that the water surrounding the Skittles has a higher concentration of sugar. This sugary water moves to an area where is there is no or low sugar until the sugar concentration becomes the same – which is why you see the distinct lines between each colour (image 2). But when you add the sugar cube (image 3), guess what? The sugar concentration suddenly gets higher in the centre of the dish than in the surrounding water. As this sugary water moves to an area of lower sugar concentration, it pushes the sugary water from the Skittles towards the edges of the dish (image 4).

How is this useful: Diffusion is an important process for living things; it is how substances move in and out of cells.

Check it out at: fizzicseducation.com.au/150-science-experiments/kitchen-chemistry-experiments/skittle-science

DANCING SULTANAS

You'll need: a clear glass, some sultanas, and a fizzy drink such as lemonade or soda water

What to do: Fill the glass with your fizzy drink, then gently drop in a few sultanas. Watch the sultanas carefully for a few minutes (patience may be needed). What do they do? Any ideas why?

What's happening: When you first put the sultanas in the drink, they'll sink to the bottom as they're heavier than the liquid around them. The fizzy, or carbonated, drink is producing bubbles of carbon dioxide gas that rise to the surface. Some of these bubbles stick to the outside of the sultana providing a buoyant force and raising the sultana to the surface. When the sultana reaches the surface, the carbon dioxide bubbles burst, causing the sultana to sink back down to the bottom. While the liquid contains enough carbon dioxide bubbles, the whole process repeats itself.

How is this useful: Marine archaeologists fill bags with gas so they can raise shipwrecks and sunken treasure.

Check it out at: fizzicseducation.com.au/150-science-experiments/force-movement-experiments/dancing-sultanas

PEPPER PARTING

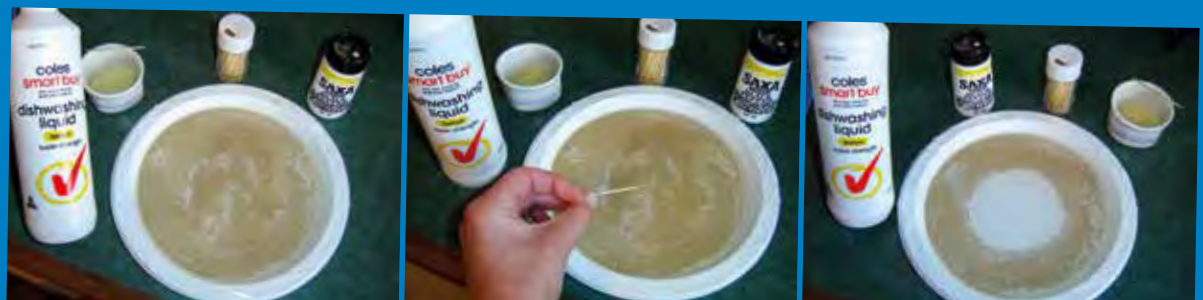
You'll need: a clean bowl, ground or fine pepper, a toothpick, some detergent and water.

What to do: Fill the bowl with a layer of water. Gently sprinkle your pepper all over the surface of the water. Take your toothpick and dip into the detergent so you have a good coating on its tip. Dip the detergent-coated toothpick into the water in the middle of the bowl. Watch what happens to the pepper. Any ideas why?

What's happening: Water has high surface tension which is why the pepper sits on top of the water. High surface tension means that the water molecules are pulled strongly against each other. This makes the surface of the water strong enough to hold up the pepper. But when you added detergent, you lowered the surface tension at that spot. Some of the water further away from the detergent still had high surface tension, meaning that these water molecules were still pulling against each other strongly. This difference created a force that moved the pepper away from the detergent.

How is this useful: Some small insects such as mosquitoes, water skippers and water striders use the high surface tension of water to walk on water.

Check it out at: questacon.edu.au/outreach/programs/science-circus/videos/pepper-scatter



EVENTS

QV CONVOS

QVMAG

The Queen Victoria Museum and Art Gallery (QVMAG) in Launceston will be presenting exciting live online talks. There are sessions on the tides, the night sky, water on other planets, and the Tamar estuary, with contributions from the University of Tasmania, the AMC and IMAS. Talks for young people and adults are available.

15-21 August 10-10.45am

Check the website for more information

qvmag.tas.gov.au

SAVING ENERGY AT HOME

Learn how to save energy at home. Energy educator Matt Ruffin will share how heat enters and leaves your home and how to slow that down. Check out different kinds of insulation, draught sealing, double and triple glazed windows, curtains and blinds and the comparative efficiency of different types of heaters and lighting! Be a sleuth and check the energy used by different appliances.

This event is suitable for families.

Saturday 15 August 11am–12 noon

Huon Energy Hub 72 Wilmot Road Huonville 7109

For more information contact Nel Smit
nel.smit@education.tas.gov.au

SOLAR COOKING- HOT STUFF

Greening Australia

There is far more solar energy reaching the earth's surface each day than we use in our factories, homes and vehicles. But we are not very good at capturing this energy. Find out about a small but practical way of using solar energy. Solar cookers are a good, simple example of what we can do with solar. Led by energy expert, Associate Professor John Todd, learn how to make a solar cooking device that can prepare hot food without using a single watt of electricity or gas. Participants will have fun with different solar cooker designs.

This event is suitable for young people ages 5-14.

Saturday 15 August, 1-3pm

Huon Energy Hub 72 Wilmot Road Huonville 7109

For more information contact Nel Smit
nel.smit@education.tas.gov.au

CROSS STITCH A CELL WITH A REAL BIOLOGIST!

Tasmanian National Science Week Coordinating Committee

Have you ever wanted to try cross stitch but aren't sure how to start? Now's your chance! Make art inspired by our cover and meet the artist, Rachel James. A biologist will be on hand to explain what it is you're looking at, and how a cell works. Suitable for experienced cross stitchers as well.

Saturday 15 August, 3-4pm

Streamed live at facebook.com/natsciwktas

EXPLORE AND LEARN AT HOME

George Town Library

Explore and learn with five interesting experiments or activities in your very own home! Tune in every day to the George Town Library Facebook page for live stream walk-throughs of each activity.

17-21 August, 3.30-4pm

RSVP: Calll 03 6702 6090 or email georgetown.library@education.tas.gov.au by Friday 7th August to secure your pack which includes a free book! Available to those in the 7253 postcode area.

facebook.com/georgetownlibrarytas

ABOVE, ON AND BELOW THE DEEP BLUE

Peter Underwood Centre

Join experts for this week-long series of broadcasts.

- STEM-tastic! Two early career STEM grads discuss why they do what they do (primary school)
- STEM-do: a two-part, hands-on science project (school aged – any)
- STEM-life: the importance of a long-term commitment to scientific enquiry (all welcome)

17-21 August, 4-5pm

Bookings appreciated: eventbrite.com.au/o/peter-underwood-centre-university-of-tasmania-30121806940

utas.edu.au/underwood-centre

MOVE IT! A 3D DESIGN CHALLENGE

Glenorchy Library

Enjoy 3D design workshops that will help you learn the skills you need to design a 3D object that moves! Winning designs will be 3D-printed and showcased on the Glenorchy Library's popular Facebook page.

17-22 August

glenorchy.library@education.tas.gov.au

facebook.com/GlenorchyLibrary

SCIENCE FOR FOOD SECURITY: MAKING A GLOBAL, PROFESSIONAL AND PERSONAL DIFFERENCE

The Crawford Fund

Explore countries and cultures, have a rewarding career AND make a difference. Interested? If you're looking for study, career or volunteer opportunities delivering global, professional and personal impacts, join our live interactive panel and Q&A with young passionate scientists highlighting the diverse fields impacting global food security, and how you can get involved.

Monday 17 August, 11am-12pm

Bookings essential: crawfordfund.org

BLINK OF EYE – AUGMENTED REALITY (AR) WORKSHOP

Would you like to create something fun and interactive to connect with loved ones? Using the software SparkAR, University of Tasmania ICT students will take you down the rabbit hole and show you AR is not as hard as it sounds! Learn how to create fun filters you can use on Instagram and more!

Monday 17 August, 6-7pm

Bookings essential: eventbrite.com.au/e/blink-of-eye-ar-workshop-tickets-111289134798

Details correct at time of printing but are subject to change. For up-to-date information please visit scienceweek.net.au/events or download the mobile app for Apple or Android. All events free and online unless otherwise stated.

2020 CIRCULAR HEAD SCIENCE GIG - DEEP BLUE

Circular Head Council

The 2020 Circular Head Science Gig is going online! Want a behind-the-scenes look at how your favourite seafood makes its way onto your plate? How can you be creative and re-use marine waste? Keep an eye out for the at-home Experiment Kits and MacGyver Challenge packs to compete for the 2020 title!

Monday 17 August, 6.30-8pm

circularhead.tas.gov.au/community-and-recreation/youth/science-gig

facebook.com/CHScienceBigGig

AT HOME WITH INALA

Inala Foundation

Bruny Island is a place of natural wonder. Celebrate with at-home scientific blueprint making, beginner's birdwatching, and online trivia!

inala@inalanaturetours.com.au

A QUIZ ABOUT QUOLLS

Tuesday 18 August, 6.30-8.30pm (online)

BEGINNERS GUIDE TO BIRDWATCHING

Saturday 22 August, 10am (online)
Sunday 23 August, 2pm (in-person)

BLUEPRINTS OF NATURE

At home pack – create your own "blueprint"

For more information please visit:
facebook.com/inalanaturetours

COOL SCIENCE AT HOME

Bridgewater Library

The Bridgewater Library is providing cool science kits for families with children ages 4 to 12. The kits include easy experiments families can do at home together. With materials you can find at home or at the local shop, you can keep experimenting and learning at home all year long.

Live launch via Facebook Monday 17 August, 3-5pm

Tune in to Facebook daily from Monday 17 August – Friday 21 August, 9am–4pm!

Call 03 6165 5446 to book your take-home kit as numbers are limited. Open to residents of the 7030 and 7120 postcodes.

facebook.com/BridgewaterLibraryTasmania

LET'S TRAIN AN A.I.

Secret Lab

In this session, game developers from Tasmania's Secret Lab and academics (who study everything from human-computer interaction to machine learning) will reveal what genuine artificial intelligence (AI) is, how machine learning works, and how the rise of our machine overlords might still be a few decades away yet...

Wednesday 19 August, 6-7pm

secretlab.com.au/scienceweek/2020

Videos will be available to view following the live event at: youtube.com/user/thesecretlab

secretlab.com.au

SCIENCE MADE BEERABLE

Science Made Beerable

What's better than an online Science Week? An online Science Week with beer! Science Made Beerable is taking this hop-portunity to make you weiser to ale the science that gose into a brew with a live beer tasting event. We'll be joined by brewers from Hobart Brewing Company, Shambles Brewery, OCHO Beer and Van Dieman Brewing! Order your Science Week 4-Pack from Hop, Vine and Still to enjoy at home.

Wednesday 19 August, 7-9pm | 18+ only

Check the website for more information

beerablescience.com

More details on page 21!

THE SCIENCE OF THE BLACK BOX

Tasmanian Museum and Art Gallery

The Science of the Black Box is a dynamic online learning program inviting young people to explore traditional Tasmanian Aboriginal artifacts and the modern science behind their remarkable qualities: from the medicinal properties of bull kelp to the chemistry of resins and the secrets of bush-foods.

Thursday 20 August, 11am-12pm

A recording will be available after this event at youtube.com/user/tasmanianmuseum

tmag.tas.gov.au

VIRTUAL RENEWABLE ENERGY TOUR

Huon Energy Futures

Take a virtual energy tour of the Huon Valley and learn about the extraordinary innovation happening right here in Tassie. See the Huon Energy Hub, solar panels, bio fuels and more, and discover how these technologies are helping the planet.

20 August, 4-5pm

Videos will be available after the event

For more information contact Nel Smit
nelssmit@gmail.com

circulareconomyhuon.org.au

BEAUTY FROM THE ASHES: ARTISTIC AND SCIENTIFIC RESPONSES TO FIRE-AFFECTED LANDSCAPES

Science in the Pub

We live on a flammable island, where indigenous Tasmanians have been burning skilfully for >40,000 years. Fire is not necessarily a disaster: but how do we respond when sensitive landscapes burn? This event draws together scientific and artistic responses to fire-affected Tasmanian landscapes.

Thursday 20 August, 6-7.30pm

facebook.com/SciPubTas

UHACK INNOVATION 2020 ONLINE

University of Tasmania

UHack is an exciting fast-paced innovation competition - a great way to create new business ideas and develop skills to fulfil them! Meet industry pros, sculpt your idea into a fully functioning creation over three fast-paced days of fun. Register as a team or individual, learn new skills, and meet new people. Enjoy networking and team-building opportunities throughout the weekend. Open to anyone!

Friday 21 August, 5pm – Sunday 23 August, 6pm

Bookings essential: utas.edu.au/uhack

Details correct at time of printing but are subject to change. For up-to-date information please visit scienceweek.net.au/events or download the mobile app for Apple or Android. All events free and online unless otherwise stated.

Photo: Rex Greeno, model paperbark canoe, 2013, courtesy of the artist and Kelly-Marie Lewis

EVENTS

SWINGMANIA - PHYSICS OF DANCE

SwingMania

All dancing uses applied physics, from the most elite ballerinas to the clumsiest bar floor dancers. Join SwingMania and experiment with some of these aspects, from the comfort of your own home.

Saturday 22 August, 1-3pm

Check Facebook for how to register

facebook.com/swingmaniatas

TOO MANY COOKS

University of Tasmania

The web-based resource will include an investigation into resilience of indigenous culture in surviving the impact of British invasion and look deeper into the rich pre-existence cultural knowledge and science behind Tasmanian Aborigine canoe-making with focus on naval architecture, and ethno-botany with information on cultural use of plants for canoe-making.

For more information, please check bit.ly/2YHL2Eo or facebook.com/natsciwktas

SCIENCE OF TASMANIAN CULTURAL HERITAGE

Applied Conservation Science

Museum Conservation Scientists work on understanding and preserving heritage objects in safe keeping places and the community. Discover thylacine hair from a newly revealed pelt, brewers yeast recovered from heritage sources, and advice on preserving family treasures.

Check website for dates and times.

Bookings essential via Eventbrite $5-10

enquiries@appliedconservationscience.com.au

appliedconservationscience.com.au

FERMENT-HOME-STATION

Ancient techniques in your kitchen. Explore the science behind fermented foods like sourdough and sauerkraut. Get hands on in a workshop in your own kitchen! Participate in a public experiment, ask questions to world experts, share recipes and help in the quest to find Tasmania's oldest sourdough.

See page 4-5 for dates and times or visit the Facebook page

facebook.com/Ferment-Home-Station-108603044228187

FIGHTING FAKE NEWS AND PHONIES!

THAT'S WHAT I CALL SCIENCE - EDGE RADIO

Science provides enormous value to our community, but this message is often drowned out by misinformation and negative press.

It's harder than ever to judge fact from fiction as people are faced with an onslaught of information at their fingertips.

That's What I Call Science is on a mission to bring people accurate and engaging science content. For Science Week, we are facing the beast head-on and bringing you a jam-packed miniseries on fake news and misinformation with local and national experts.

Is science literacy and engagement the key to fighting fake news?

This webinar attacks the issue of fake science head-on, discussing how technology fuels the issue and how we may all be playing a role in the spread of inaccurate information. The team is joined by an expert panel of scientists and science communicators. Stay tuned. Stay informed.

Meet the Panellists

Dr Jess Melbourne-Thomas, Knowledge Broker and marine scientist at CSIRO, 2020 TAS Australian of the Year.

Dr Darren Saunders Associate Professor in Medicine at UNSW and regular science communicator on ABC, 2019 Eureka Prize Winner for Promoting Understanding of Science.

Mikaela Jade, a Cabrogal woman and Founder and Chief Executive Officer of Indigital, Australia's first Indigenous Ed-tech company specialising in Augmented Reality use, AMP Foundation Tomorrow Maker 2019 (indigital.net.au).

Taylah Griffin, a Gangulu woman, and Boeing engineer and corporate responsibility ambassador, 2018 CSIRO Aboriginal and Torres Strait Islander Tertiary Student STEM Achievement Award and the Women in Defence Rising Star Award.

Podcasts will also be available on the topic of Tackling Misinformation. Learn how you can do it too!

MISINFORMATION MINISERIES

Premieres Sunday 9th August 2020

Available any time!

WEBINAR

Wednesday 12th August, 7:.0-9pm

ThatsScience@edgeradio.org.au

thatsscience.org

LIKE SCIENCE? LEARN MORE!

CITIZEN SCIENCE

Citizen Science is as old as science itself, however, it has experienced a resurgence in recent years with more and more scientists relying on the efforts and expertise of the general public. Thanks to the internet, anyone can help real scientists complete their research in record time.

There are many different citizen science projects that you can get involved in, some are based in Tasmania, but there are thousands across our planet.

Find the perfect project for you at inspiringtas.org.au/more-science/citizen-science

UNIVERSITY OF TASMANIA VIRTUAL OPEN DAY

Are you driven to discover, meet new challenges and create something new? Studying science will help turn your curiosity into a career.

The University's virtual Open Day gives you the chance to explore facilities, while hearing about university life straight from the experts: students, staff and graduates.

These virtual events will also walk you through everything you need to know about studying science. You'll access key information and resources on units, pathways, scholarships and more.

Plus, you'll get a taste of the distinct learning experiences that each campuse has to offer.

Come along to be informed, inspired, and motivated to jump into a career in science.

For more details including tours, show, and talk times, visit utas.edu.au/openday

SCIENCE AT THE UNIVERSITY OF TASMANIA

Science degrees give you the flexibility to choose your own path, from investigating our six diverse ecosystems to using an array of world-class radio telescopes, when you study science in Tasmania you can turn your curiosity into a career.

Visit utas.edu.au/study-science

TASMANIAN SCIENCE TALENT SEARCH (TSTS)

Open to all students

Science Week gives you heaps of opportunities to do your own science and to share your findings. One such opportunity is the Tasmanian Science Talent Search, an online competition with lots of options, organised by the Science Teachers' Association of Tasmania.

The 2020 Tasmanian Science Talent Search (TSTS) submissions for sections on Research Investigations, Natural Sciences Project, Invention/Engineering and a STEM Challenge are invited by the 25th of September. Linkages can be made between Science and other learning areas in the school curriculum. Yes, Science can be found everywhere!

Students from Early Childhood to Senior Secondary (Year 12) are eligible to participate in this year's TSTS competition from their home, or school, finding inspiration from objects around them.

This year's theme is Deep Blue: Innovations for the future of our oceans. You'll explore this theme in the STEM Challenge; but your investigation, invention or natural sciences project can be on any topic.

The Tasmanian Science Talent Search has been held annually since 1960 and is FREE to enter.

For more information, please visit stat.org.au/tsts/tsts-2020-deep-blue or utas.edu.au/seia

TASTROFEST - ASTRONOMY ONLINE!

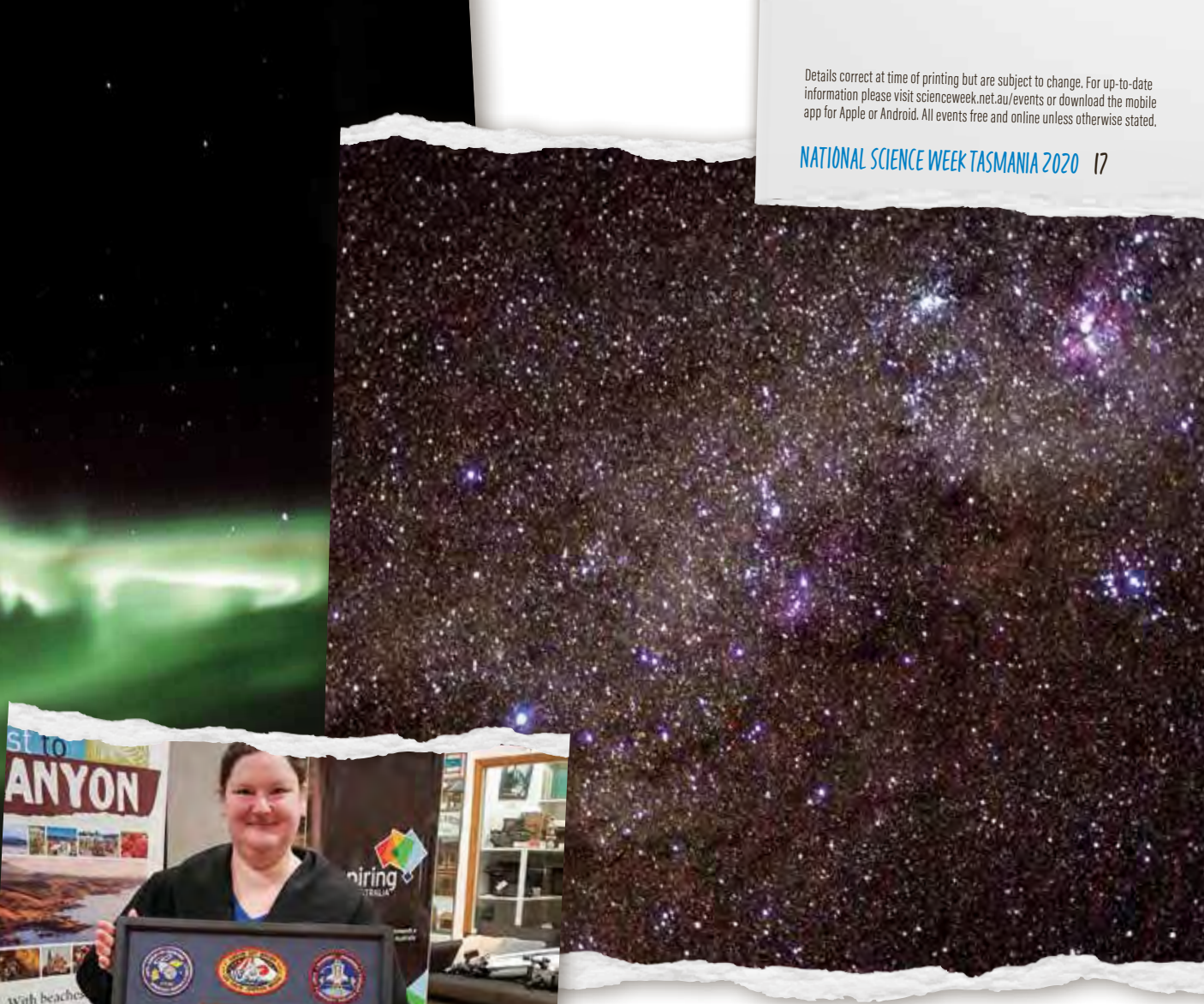
TastroFest is the biggest astronomy festival in Australia, held annually in Ulversone, Tasmania over three days in August - USUALLY. This year, TastroFest invites all of Australia to join them online.

From how to look at the night sky from your backyard to live interactions with scientists, there's something for everyone!

Check the website for more information.

tastrofest.com

facebook.com/TastroFest



BRITTANY TRUBODY
HUMAN SUPERHERO AND TASTROFEST DIRECTOR

Born and raised in Hobart, Brittany has spent 20 years working in and directing museums across Australia. From uncovering dinosaurs at the Queensland Museum to giving Australian allied speeches onboard active US Warships, she has had a very diverse career. Brittany is now working to develop Tasmania's first dedicated Science Centre and the state's second planetarium here in Ulverstone. With History degrees from the University of Oxford and also the University of New England, as well as repeated placement on the Honour Roll for her degrees in both Astronomy and Astrophysics from Swinburne University's Centre for Astrophysics and Supercomputing, Brittany returned to Tasmania a few years ago so that she can help others understand the world we live in. As the Founder and Director of TastroFest, this was one of these outlets. Now in its fifth year, the event is the largest astronomy festival in the country and in 2019, it partnered with NASA to conduct a live broadcast from Houston for the 50th Anniversary of the Moon Landing.

WHAT CAN YOU SEE IN YOUR BACKYARD?

Tasmanians benefit from low light pollution meaning a lot of us have a crystal-clear view of the night sky - except for cloudy days of course. There's lots you can see in the night sky and these days a simple, free app can help you use your phone to see an overlay of the stars like Google Sky or StarTracker. But you don't even need an app to see one of Australia's most well known constellations.

TRY THIS

On a clear night, rug up and step into your backyard. Look up. Can you see a lot of stars? If you live in the city, you might see less due to light pollution. All the street lights, or shop lights, and home lights, can wash out objects in the night sky. In Tasmania, this isn't as common but in big cities like Sydney or Melbourne, it's a lot tougher to see stars.

Take a short drive outside of the city. Are the stars more visible? The less unnatural light around, the better the view.

Now that you can see the stars, can you spot the Southern Cross constellation?

Here's how. Start by finding south. In Tasmania, that means looking towards Cradle Mountain if you're in Burnie, Hobart if you're in Launceston, and Huonville or Southport if you're in Hobart.

The Southern Cross, or Crux to astronomers, can be found lying on its side with the Pointers almost directly above it around 8pm in August – perfect for Science Week!

"But what's the easiest way to see it? Come on, tell us!"

Crux has two bright stars pointing to the head of the cross, one of which is part of four points indicating the cross shape. All up there are five visible stars (but plenty more you can't see with the naked eye).

Still can't see it? Visit abc.net.au/science/starhunt

"MY KIDS WERE VERY RESPONSIVE TO THESE YOUNG SCIENTISTS, THEY ARE SO PASSIONATE ABOUT WHAT THEY DO! AS AN ADULT IT OPENED MY MIND TO THE INCREDIBLE OPPORTUNITIES OUT THERE, AND THE IMPORTANCE OF SCIENCE IN OUR EVERYDAY LIVES."

YOUNG TASSIE SCIENTISTS

Find out what scientists really do!

WHO ARE THE YOUNG TASSIE SCIENTISTS (YTS)?

The Young Tassie Scientists program brings together a team of keen young scientists and engineers from local research and industry to share their science stories. Since the program began in 2003, nearly 300 young scientists from a huge variety of fields of research have taken part! The 2020 YTS Team includes 8 passionate researchers who will share their experiences of working in science right here in Tasmania!

This project received funding from the Australian Government as part of National Science Week. It is run by the College of Sciences and Engineering at the University of Tasmania.

MEET SOME OF THE 2020 YTS TEAM

Alyce Hennessy

Ecologist, School of Natural Sciences, University of Tasmania

"Studying ecology lets me learn how to manage and protect ecosystems, and I get to explore Tasmania's beautiful environments!"

Dipon Sarkar

Microbiologist, Tasmanian Institute of Agriculture, University of Tasmania

Twitter: @DiponSarkar10

"The air you breathe, the cheese you eat and the compost in your garden all contain fascinating microorganisms. I love to study them and their wonderful tiny world!"

Natalia Ribeiro Santos

Oceanographer, Institute for Marine and Antarctic Studies, University of Tasmania

Twitter: @ribeirosantosn

"I love the ocean and doing research out at sea. Elephant Seals collect data for me to study while they are swimming around!"

Dr Adele Wilson

Science Communicator and YTS Director, College of Sciences and Engineering, University of Tasmania

Twitter: @AdeleInTas

"Are you interested in finding out new things? Do you investigate 'Why' or 'How' or 'Hey what if...' to find an answer to a question? That's what scientists do too!"

FIND THE WHOLE 2020 TEAM AT YOUNGTASSIESCIENTISTS.COM

YOUNG TASSIE SCIENTISTS

Find out what scientists really do!

YOUNGTASSIESCIENTISTS.COM

ASK A SCIENTIST!

Is there something you have always wondered about?
Do you have a question about animals, or the environment, space, chemistry, rocks, the human body, or how your brain works?

Send us your question to get an answer from a real scientist!

Send your question to Young Tassie Scientists, Private Bag 50, Hobart TAS 7000 or via Facebook to @natsciwktas or Tweet us at @YTS_UTAS or use #askYTS on any platform.

Details correct at time of printing but are subject to change. For up-to-date information please visit scienceweek.net.au/events or download the mobile app for Apple or Android. All events free and online unless otherwise stated.

AVAILABLE ANY TIME!

THREE FEET IN YOUR GUMBOOTS – MEASURING SEA LEVEL RISE

Andrea Hay

You've heard about sea level rise, but have you ever wondered how it's measured? Dive into the wonderful world of sea level science. Learn about tide gauges, explore satellites, and find out how Burnie – yes, our Burnie! - is doing its bit to set the global record straight.

View the video at facebook.com/natsciwktas – check events for premiere date.

YOUNG EINSTEINS - SCIENCE WEEK ADVENTURE @ KINGSTON LIBRARY

Kingston Library

Join the Young Einsteins program exploring the theme 'Deep Blue: innovations for the future or our oceans'. Grab a take-home science pack filled with fantastic ocean themed DIY activities to enjoy. Share, create, learn and have fun as you explore the Tasmanian marine environment.

Suitable for families with children ages 4 to 12 in the Kinborough municipality.

kingston.library@education.tas.gov.au

facebook.com/KingstonLibraryTa

BEACONSFIELD CFC SCIENCE LEARNING PACKS

Beaconsfield Child and Family Centre

Learn, create and explore together with fun, exciting, and engaging science themed learning packs. Featuring a wide range of resources and activities to complete as a family. FREE for children aged 0-5 and families in the 7270, 7275, and 7276 postcode areas.

facebook.com/BeaconsfieldCFC

To secure your pack, email stewart.bell@education.tas.gov.au

Learn more about Child and Family Centres: education.tas.gov.au/parents-carers/early-years/child-family-centres

THE MAGIC OF MARINE LIFE

Royal Society of Tasmania

The Royal Society of Tasmania in collaboration with That's What I Call Science at Edge Radio will be delivering podcasts, videos and worksheets on what it's like working in marine science. Women who have lived and breathed in the adventurous world of marine science will be profiled for this four part series. Worksheets for young people will be provided based on each of the women's area of marine science and voyages that are suitable for children and young people.

Follow the Royal Society of Tasmania online for updates.

rst.org.au

UTAS DERBY: READY... SET... RACE!

University of Tasmania

Learn to build a model car and test track using easy to find materials. This series of short videos will draw on expertise from local STEAM gurus - straight to your loungeroom (or classroom). We'd love for you to share your speed machine invention with us through the MakerX Burnie Facebook page!

facebook.com/makerxburnie

THE STORY OF PLASTIC

University of Tasmania

The Story of Plastic takes a sweeping look at the man-made crisis of plastic pollution and the worldwide effect it has on the health of our planet and the people who inhabit it. Enjoy this free film until 29 August.

Bookings essential: bit.ly/storyofplasticTAS where you will receive a private link to view the film.

NEURAL KNITWORKS

MSP Research Student Committee

Whether you're a whiz with yarn, or just discovering the joy of craft, now you can crochet wrap, knit or knot and find out about neuroscience. No knitting experience is required, and all ages can participate. Join our online neural network now, just search online for Neural Knitworks TAS!

NeuralKnitworksTAS@gmail.com

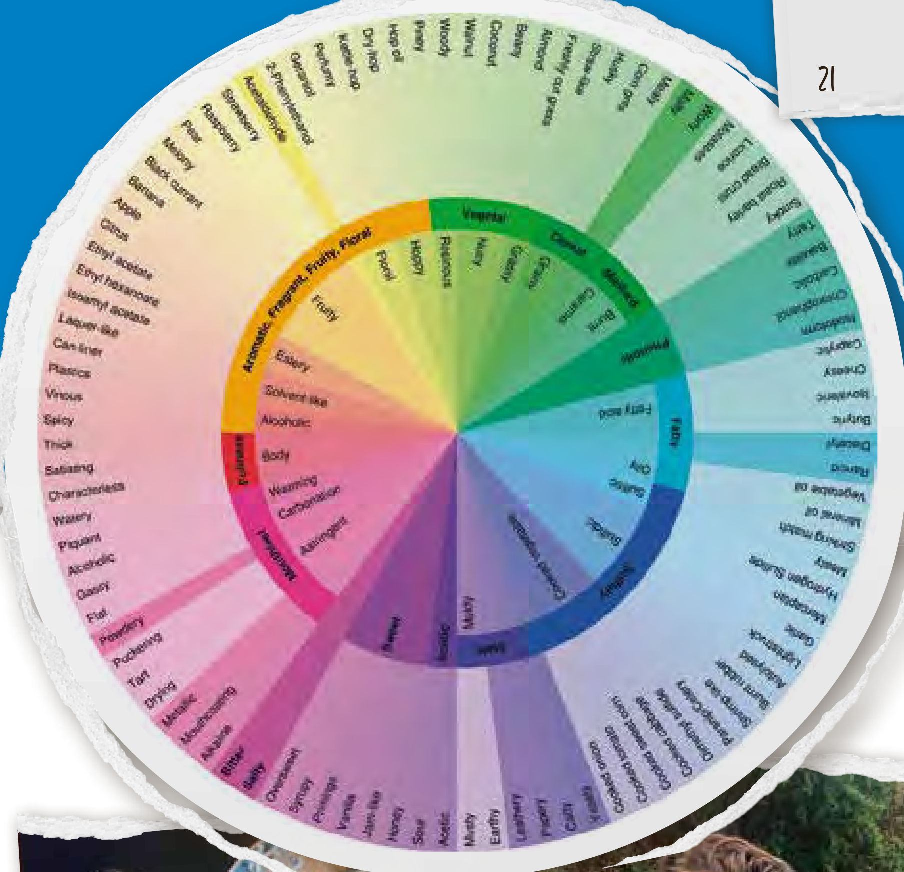
facebook.com/NeuralKnitworksTAS

DID YOU KNOW?

Ancient beers were made from a loaf of malted barley bread. The bread was soaked in water and allowed to ferment, resulting in a doughy oatmeal-soup-like liquid. Delicious!

SCIENCE MADE BEERABLE

See event details on page 13.



ABOUT BEER

We all know beer is delicious, but do you know the science behind that brewtiful drink? Let us make you weiser about the four main ingredients of a beer:

THE MALT

The Malt is the sugar supply for the fermentation process. Barley grain is the most common malted grain in beer. These grains are the seeds of the barley plant and the malting process begins by soaking the grain, allowing them to sprout or germinate and then drying them out in a kiln. This sprouting process converts the starches stored in the grain, into fermentable sugars (food for the yeast). The malt can be roasted for longer to result in a darker colour of malt with caramelised sugars which is used to make darker beers.

THE WATER

Water is the main ingredient in beer so the chemistry of the water can greatly influence a beer's flavour. For example, the hard water (high mineral content) in Dublin is ideal for making stout, such as Guinness, whereas the water of Pilsen (where Pilsner originated) is very soft and free of minerals. The water chemistry will influence the pH of the beer which will have major effects on the mouthfeel of the beer. These days, brewers will adjust the mineral content of the water to influence the water chemistry and finished taste of the beer.

THE HOPS

Hops are the flowers of the hop vine and they are used for flavouring in most modern-day beer. The flavour contribution of the hops will depend on when they are added to the brewing process. If they are added early on, they contribute bitterness to the beer, while hops added later will provide aroma to the brew. The flavours and aromas in the hops come from resins and oils that are produced in small glands inside the flower buds. Originally added as an antimicrobial agent to prevent the growth of unwanted bacteria in the beer, these hops are often responsible for the amazing flavours we find in beer, such as citrus, pine, and stone fruit.

THE YEAST

We can thank yeasts for the production of the alcohol and carbonation in beer! Yeast are tiny microorganisms from the fungi kingdom that live off of the sugars from the grains in the beer, producing alcohol and carbon dioxide as favourable byproducts. There are many different strains of yeast that brewers use for different styles of beer or interesting aromas and flavour profiles.

Just four seemingly simple ingredients can produce a wide range of different beers, and the resulting chemistry and flavours are extremely complex. Take a look at this beer flavour wheel which can be useful for putting a finger on that elusive smell or flavour to hoptimize your next beer drinking experience.

MEET YOUR HOSTS

Kelsey Picard is a beer obsessed plant scientist whose love of beer extends beyond just drinking it! From the sexual biology of hop plants, to the sugar chemistry changes in a germinating barley grain, plant science plays a huge role in the production of beer. Kelsey enjoys a fruity sour or a resinous IPA and is fascinated by the complex flavours that can be produced with just four ingredients.

Matthew Fielding is a PhD Student studying ornithology at UTAS and a massive beer nerd. When he's not in the Tasmanian wilderness behind a pair of binoculars, he's likely got a hopped-up craft beer in his hands. His interest in brewing science started after he plunged into the world of home-brewing, which uncovered the incredible complexity behind that delicious liquid we call beer.

BEER QUIZ

Beer volumes once came in many different units. Do you know how many pins there are in a firkin? What about the number of firkins in a hogshead? And how many hogsheads make up a butt?

Answer: 2 pins = 1 firkin, 6 firkins = 1 hogshead, 2 hogsheads = 1 butt.

INSPIRING
TASMANIA
CONNECTING SCIENCE AND COMMUNITY

CONNECTING SCIENCE AND COMMUNITY

Inspiring Tasmania's mission is to foster a society that is inspired by and values scientific endeavour, that attracts increasing national and international interest in its science, that critically engages with key scientific issues, and that encourages young people to pursue scientific studies and careers.

Become a citizen scientist - participate in major research projects, often from the comfort of your own home. View science experiences that provide opportunities to enjoy science all year like museums, parks, and wildlife sanctuaries. There's even a list of science clubs for the curious of all ages.

GET INSPIRED AT INSPIRINGTAS.ORG.AU!

Principal Partners: Inspiring Tasmania is supported by the University of Tasmania, the Tasmanian Department of State Growth and the Australian Department of Industry, Innovation and Science.

An Australian Government Initiative | Inspiring Australia | Tasmanian Government | University of Tasmania

TASMANIAN STEM EXCELLENCE AWARDS 2020

APPLICATIONS OPEN FRIDAY 14 AUGUST

Tasmanians who have excelled in science, technology, engineering and mathematics (STEM), STEM teaching, or STEM communication are invited to apply for:

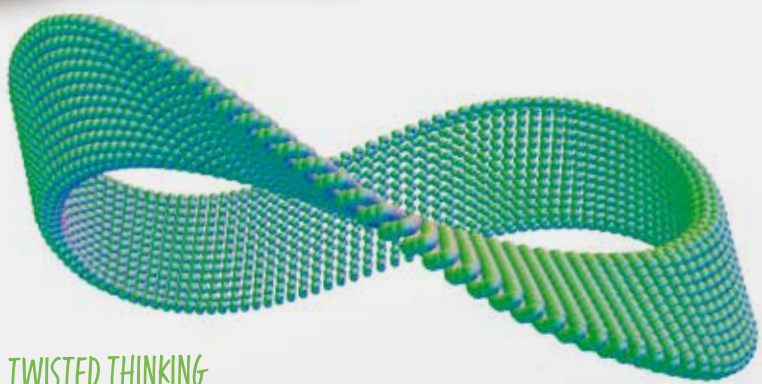
The Premier's Tasmanian STEM Researcher of the Year Award ($10,000)
The Minister's Tasmanian STEM Innovation of the Year Award ($5,000)
The Tasmanian STEM Teacher of the Year Awards for Primary and Secondary Teachers ($2,500 each)
The Tasmanian STEM Communicator of the Year Award ($5,000)
The Tasmanian STEM Young Researcher of the Year Award ($5,000)

APPLICATIONS CLOSE FRIDAY 18 SEPTEMBER 2020
APPLICATION FORM AND GUIDELINES STATEGROWTH.TAS.GOV.AU
CONTACT SARAH.BAYNE@UTAS.EDU.AU

An Australian Government Initiative | Inspiring Australia | Tasmanian Government | University of Tasmania

THE SCIENCE OF SUSTAINABILITY

National Science Week may be over for another year, but we think there is always a bit more science left! Sustainability, focusing on meeting the needs of the present without compromising the ability of future generations to meet their needs, is an increasingly important area of science and our society. What better way to be sustainable than to reuse, repurpose, and then recycle the program itself!



TWISTED THINKING

What you'll need:

- One double page of the National Science Week program (remove the staples first)
- Sticky tape
- Marking pen
- Scissors

Instructions:

1. Cut a strip of paper around 1 – 2 cm wide from the long edge of the program
2. Join the ends of the paper strip to make a loop; turning one end over before you tape the ends together. You should create a paper loop that has a half-twist in it – this is called a Mobius strip. How many sides does the strip have?
3. Without lifting your pen from the paper, draw a line along the centre of the strip. Now, how many sides does the strip have?
4. Cut the strip in half by putting a small hole in the centre, then carefully cut along the line you have drawn. What do you think will happen? What actually happens?

Help me Science!

So what's going on here? A Möbius strip is a surface with only one side and only one boundary curve. The peculiar properties of this twisted loop were first discovered by mathematician August Ferdinand Mobius back in 1858. Since then it has become an important part of topology – a branch of maths that studies the properties of geometric objects when they are stretched, twisted, crumpled or bent.

By drawing a line beginning at the centre of the strip, you should have shown that the strip only has one side. The strip also has only one edge - you can prove this by putting your finger on the edge anywhere along the strip (mark where you start) and run your finger along the edge.

By cutting the Mobius strip along centre line, you should have ended up with one long strip with two full twists in it. But it's no longer a Mobius strip. Check this out for yourself by drawing a line along the centre of the strip again and you'll find it has two sides. Cutting the first strip created a second independent edge.

Even more twisted thinking

What happens if you cut the strip into thirds or quarters instead of half?

What happens if you put an extra twist in your loop before you tape the ends together?

BATTLE OF THE BRAINS

Everyone loves a little friendly competition, so why not get the household together to compete to design amazing creations using the National Science Week Program!

Some of our favourites are below. For each challenge, you will need to divide the National Science Week program evenly among participants (remove staples) and provide scissors and sticky tape to each team.

The Paper Plane Challenge

Whose paper plane can fly the furthest? Remember to launch planes from the same point to make sure the distance is measured fairly!

The Delicate Art of Paper Chains

Who can make the longest paper chain (made by cutting strips of the program and taping them together in loops). Patience and delicate craftsmanship are key here, an the end result can also be a beautiful decoration!

The Tower Heist

Who can build the tallest tower with the paper provided? Ensure all participants have an even and solid space to work and avoid windy areas if possible!

WALK THROUGH PAPER WITH THE HELP OF SCIENCE!

What you'll need:

- One double page from the National Science Week Program (remove the staples first)
- Pair of scissors

Challenge:

To cut the paper to create a hole large enough for you to climb through!

Help me Science!

If you are getting frustrated at the confetti on your floor, check out the instructions and the mathematics behind them here: blog.doublehelix.csiro.au/climb-through-a-hole-in-a-sheet-of-paper

ITS NOT OVER...

Just when you thought that you had squeezed every last bit of science fun out of the National Science Week Program, there is still one last step! This program is compostable (please remove staples first) and can either go in your home composting or in your Food Organics and Garden Organics (FOGO) Bin if available in your council area. If you would like to know more about the benefits and types of composting, how to build your own, tips to reduce food waste, or what will happen to your program over time, check out this resource from Good Life Permaculture and the Hobart City Council: bit.ly/composthobart

THE TASMANIAN NATIONAL SCIENCE WEEK PROGRAM IS COORDINATED BY THE TASMANIAN NATIONAL SCIENCE WEEK COORDINATING COMMITTEE WHICH IS PRIMARILY MADE UP OF VOLUNTEERS.

With thanks to all the 2020 members:

Dr Adele Wilson, University of Tasmania/Young Tassie Scientists
Amanda Hughes, Science Teachers Association of Tasmania
Andy Baird, Tasmanian Museum & Art Gallery
Dr Ben Arthur, CSIRO
Ben Payne, Department of Education
Dr Bianca Deans, Tourism Tasmania
Brittany Trubody, TastroFest
Jason Hoare, Elizabeth College
Jeannie Marie LeRoi, University of Tasmania
Jenni Klaus, University of Tasmania
Jenny Dudgeon, Sustainability Learning Centre
Dr Margo Adler, Beaker Street
Maria Dalla-Fontana, State Growth
Dr Martin George, Queen Victoria Museum and Art Gallery
Meredith Castles, University of Tasmania
Niamh Chapman, Menzies Institute for Medical Research, University of Tasmania
Peter Wright, Department of Education
Rob Armstrong, City of Hobart
Sarah Bayne, Inspiring Australia Manager, Tasmania
Susie Haley, University of Tasmania
Trish Hodge, mina-nina
Wayne Goninon, University of Tasmania

JOIN US! YOU CAN PARTICIPATE IN NATIONAL SCIENCE WEEK IN AUGUST 2021!

The Tasmanian National Science Week Coordinating Committee invites Tasmanian businesses, community groups, scientists and members of the public to create events for the 2021 program.

Funding of up to $20,000 is available through the national grant round, which opens again in October 2020 and is a wonderful opportunity to bring larger projects to life.

Local seed funding is available each year, supporting community and school events throughout Tasmania.

Queries to jenni.klaus@utas.edu.au

A BIG THANK YOU TO OUR AMAZING EVENT HOLDERS!

Thanks to the organisations, businesses and individuals who have created spectacular, diverse and incredibly inspiring National Science Week events this year despite all the challenges we've faced.

DOWNLOAD ON THE App Store

ANDROID APP ON Google play

The events listed are free of charge unless otherwise stated. Details correct at time of printing but are subject to change. For up-to-date information please visit scienceweek.net.au or download the mobile app on the Apple App or Google Play Stores.