CONQEST22

THE ANNUAL CONFERENCE FOR QUEENSLAND EDUCATION SCIENCE TECHNICIANS

27 JUNE 2022
28 JUNE 2022

QUEENSLAND EDUCATION
SCIENCE TECHNICIANS

THE UNIVERSITY OF QUEENSLAND
GATTON CAMPUS

CONFERENCE INFORMATION

TICKETING INFORMATION

Two days:
QEST Member $275.00
non-member $310.00

One day:
QEST Member $160.00
non-member $195.00

REGISTRATION

Register via Eventbrite https://conqest22.eventbrite.com.au
Use Member only Promo Code to access Early bird ticketing
Non-member tickets available from 20th May
SALES CLOSE: Thursday 9th June at 3PM

CONTACT QEST

For more information visit the QEST website qest.org.au
or contact QEST via email qest@qest.org.au

ABOUT CONQEST22

The annual QEST conference provides invaluable opportunities for science technicians to participate in practical based workshops, presentations and discussions. Workshops will focus on:

- Exploring student experiment options in the national senior science curriculum;
- Inclusion of Aboriginal and Torres Strait Islander science elaborations and sustainable practices across the science curriculum;
- Exposure to latest laboratory management practises, science curriculum inclusions and technologies;
- Building relationships with industry professionals to maximise resource efficiency and improve equipment expertise;
- Wellbeing for science staff.

The ConQEST22 theme *A Healthy Dose of Science* will inspire participants to expand and implement healthy practices in the science curriculum, in the laboratory, and in their lives.

CONFERENCE VENUE

THE UNIVERSITY OF QUEENSLAND
Gatton Campus
5391 Warrego Hwy
Gatton QLD 4343

Best parking for the conference: P7 and P8
Plus Code: F82Q+29 Lawes, Queensland

ACCOMMODATION

No need to travel each day or pay high end city prices for a bed and breakfast. Affordable accommodation, including meals, is available on campus from $95 per night. Register via Eventbrite https://accommodationconqest22.eventbrite.com.au

CONFERENCE DINNER

Celebrate science education in style with your peers and corporate partners. Conference tickets include a complementary gala dinner on Monday night with guest speaker, pre-dinner canapes and drinks on the deck of the Foundation Building.

ABOUT QEST

QEST is the professional association of Queensland Education Science Technicians. The association has membership across the state in both metropolitan and rural areas, with diverse experience and needs. With few laboratory support staff in each school, staff filling these roles often feel isolated and challenged. QEST aims to connect laboratory staff through encouraging regional and state networks to share ideas, information and experiences.

QEST produces a quarterly newsletter, maintains a website with relevant links and downloadable resources, facilitates training through other organisations and organises an annual conference focused on professional development, specific to members' roles in schools.

Find QEST at our website, on YouTube, on Instagram and on Facebook to join the conversation with colleagues across the state. Volunteers for QEST are always welcome, email qest@qest.org.au to find out more.

ACKNOWLEDGMENT TO COUNTRY

In the spirit of reconciliation, QEST acknowledges the Yuggera Ugarapul people, the Traditional Custodians of the land on which ConQEST22 is held. We honour and celebrate their connections to country, to the health of the land, water and community, and encourage the inclusion of their culture in science education. We pay our respect to their Elders past, present and emerging, and extend that respect to all Aboriginal and Torres Strait Islander peoples attending and contributing to ConQEST22.

PRESIDENTS WELCOME

Reflecting on the last 2 ½ years, we have all been exposed to a great deal of change. COVID-19 has infiltrated our work, social and family lives with ever changing policy, protocols and mandates. Current statistics show that 1 in 5 Australians are experiencing mental health issues, and there are insufficient professionals available to help. For many Australians, mental health and wellbeing is fast becoming a top priority for themselves and their family.

Whilst employers are advocating employee wellbeing, they are not necessarily investing in it, either through time or financial contributions. This impacts our ability to focus on our wellbeing in a working environment. Thus, the ownness for now falls back on us to maintain a positive outlook on life balanced with a sustainable work ethic.

It is my hope that this year's conference theme, "A Healthy Dose of Science", will inspire participants to expand and implement healthy practices in their School Science Curriculum, in the Laboratory, and in their personal Lives.

Modelling sustainable and healthy living starts with our own wellbeing, so that we may be the best version of ourselves before contributing to other areas in our lives. There are opportunities in the programme for delegates to prioritise themselves and their own wellbeing through yoga breathwork, mindful origami, sun gazing, creating terrariums, connecting with country by learning outdoors, learning something new, or simply connecting with others by sharing experiences and networking.

For the more experienced QEST members among us, there is opportunity to extend your personal development by presenting to your peers. I would like to acknowledge this year's peer presenters, Amber Wilson, Lynn Thomas, Jacinta Hodnett, Linda Adamson, Sandra Lewis and Sam Godwin for accepting the invitation to present at ConQEST22 and share their expertise with us.

QEST continues to foster positive relationships with corporate partners in Science Education and we see this reciprocated in our programme through Trade-hall participants, Workshop presentations, Keynote presenters and Sponsorship.

We are thankful for the support of our hosts, The University of Queensland, providing opportunity to learn and explore in diverse and relaxed environments.

On behalf of QEST, I thank our corporate partners for their willingness to contribute to and participate in meaningful professional development for the role of Science Technicians in schools.

Special thanks to our sponsors for their generous donations to QEST and ConQEST, enabling us to communicate with members effectively, explore new ways of delivering inclusive training, build the reach of our professional association and encourage active member contributions.

PLATINUM SPONSOR Ciderhouse Tech
GOLD SPONSOR Modern Teaching Aids
SILVER SPONSOR Westlab

And finally, I acknowledge the contributions of the ConQEST22 committee members who have supported my goal to bring you a conference experience that will leave you feeling energised, supported and empowered.

Nikki Bradford
QEST President, 2014-2022

QEST ANNUAL GENERAL MEETING

All delegates are invited and encouraged to attend the QEST AGM, held as part of the conference programme on Monday. The success of our association is directly related to the active contributions of the membership. Many of our current committee will be stepping aside to allow for new goals and new direction from the membership. At this year's AGM, you have the opportunity to make a difference by volunteering to represent your peers state-wide.

What vision do you have for the future of Queensland Education Science Technicians and your role in schools? Put your name forward at the AGM to become a part of the Management team.

KEYNOTE SPEAKERS

Prof Nigel McMillian, Program Director Menzies Health Institute

An informed view of COVID19: Using science to overcome the challenges of sorting truth and facts from urban myths

Professor McMillian is a cancer and infectious diseases researcher interested in the infectious causes of cancer as well as a science communicator and commentator in infectious disease issues. He is also part of the Australian RNA Production Consortium, a group promoting RNA medicine production here in Australia. He was listed as one of Australia's top 10 pandemic media voices and talks to many organisations about COVID responses from community groups to ASX200 boards. He is an internationally recognised expert in the area of human papillomavirus, gene editing and gene silencing, with over 114 publications and >$15m in research funding. He has graduated over 40 Masters or Honours students and 22 PhD students. His laboratory has expertise covering the disciplines of molecular biology, cell biology, virology and immunology and focuses on diseases caused by the human papillomavirus. Currently his laboratory is heavily into CRISPR/Cas gene editing and were the first in the world to cure mice of cancer using this technology. They also work with SARS-CoV-2 virus testing novel therapies.

Dr Sreejith Rajan, Griffith University

Frugal Innovations – Ideation to implementation

Frugal innovation is the process of reducing the complexity and cost of a product and its production. This talk discusses the process of frugal innovation, step-by-step with necessary examples. The presentation also covers the journey of the researchers from Queensland Micro and Nanotechnology Centre to develop a frugal point of care diagnostic system for diseases ranging from Cancer to Covid 19. The session would also present some insights about inspiring the young students to brainstorm and come up with frugal innovations.

Sreejith Rajan received his PhD degree from Griffith University for his research on liquid marble based digital microfluidics with the emphasis on point-of-care diagnostics. He is currently working as a postdoctoral research fellow at Queensland Micro and Nanotechnology Centre (QMNC) at Griffith University, Australia. His present research focuses on developing portable devices for PCR and LAMP reactions for the amplification and detection of RNAs and DNAs. He recently developed a handheld point-of-care device for the rapid detection of SARS-CoV-2 virus using LAMP technique. He has more than 30 research publications in reputed international peer reviewed journals and more than 10 years of experience in teaching and research. He also serves as a CSIRO STEM in school professional in Queensland.

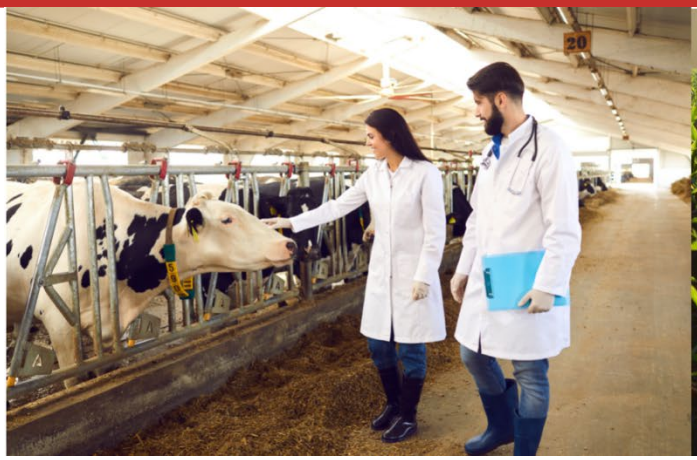
Fraser Border, integratedSTEM

Science and Innovation, Revolutionising Meat Processing

Fraser is a former Darling Downs student who, as a local robotics engineer and agricultural researcher, is passionate about technology. With a particular interest in innovating in agriculture, Fraser has worked to solve complex problems of many ag-tech giants such as John Deere, Caterpillar and JBS Foods. He particularly enjoys working within a global start-up investigating means of automating the incredibly difficult domain of red meat processing – and is developing a solution to a problem worth $90m to Australia each year! Recently, Fraser was awarded Australia's Science and Innovation Award for Young People in Agriculture this year that included a project stipend of $45,000 to complete a project that will implement augmented reality to assist processors to work more efficiently in abattoirs using advanced sensing and visualisation technologies.

Fraser is also the founder of integratedSTEM, a Toowoomba-based STEM education start-up dedicated to empowering students with the perspective of transforming a passion into a profession through skills in technology and entrepreneurship. With a team of engineers, educators and scientists, integratedSTEM has engaged thousands of students across Australia, and even across the world, in authentic engineering and STEM experiences focused on developing entrepreneurial strategies and technical skills in cutting-edge technologies such as robotics, 3D printing and design, electronic circuits, artificial intelligence, machine vision and much more.

In his address, Fraser will present some of his research to showcase the practical applications of technologies taught in schools as well as a few insights in engaging students in practical STEM projects from his start-up, integratedSTEM.




HEALTH, SAFELY & WELLBEING

Session workshop registrations have been limited to allow for physical distancing and maximise individual learning.
The UQ COVID policy can be found at https://about.uq.edu.au/coronavirus/covid-19-vaccination-requirements

Remember to bring your own personal protective equipment for laboratory sessions – including lab coat, safety glasses and closed in impervious footwear.

If you feel unwell or are unable to attend, your ticket may be transferred to a virtual hybrid ticket. Contact conqest@qest.org.au if you require this option.

HYBRID ACCESS

Delegates who are unable to attend the conference in person have opportunity to access some parts of the conference remotely. Hybrid tickets will be available for purchase via Eventbrite from 20th May.

Key note addresses will be live streamed, via the QEST Zoom channel, for hybrid ticket holders. A number of workshops in each session may be recorded for all delegates to view post-conference. Recorded workshops are noted in the programme timetable with a preceding *.


SUNDAY 26 JUNE 2022

2.00pm	**Trade Hall & Welcome Desk Setup** QEST volunteers and representatives	Elton Burns Building (8206)
2.30pm – 4.00pm	**Trade Hall** open to suppliers	Elton Burns Building (8206)
4.00pm – 6.00pm	**Halls or residence check-in**	Pitt Halls (8121)
6.00pm – 9.00pm	**BBQ Dinner** Included in accommodation for hall occupants	Under Foundation Building (8118)

DAY ONE: MONDAY 27 JUNE 2022

*session recorded

7.00am – 8.00am	**Breakfast** For residential hall occupants	Dining Hall (8125)
7.30am – 8.30am	**Registration** Trade Hall – Tea, coffee and pastry provided	Elton Burns Building (8206)
8.30am – 9.15am	**Conference Opening: Day One** Nikki Bradford, QEST President	WP Hamon Centre (8255)
9.15am – 10.00am KEYNOTE ADDRESS	**An informed view of COVID19: Using science to overcome the challenges of sorting truth and facts from urban myths** Professor Nigel McMillian, Program Director at Menzies Health Institute	WP Hamon Centre (8255)
10.00am – 10.40am	**Morning Tea and Trade Displays** Trade Hall – Morning tea provided	Elton Burns Building (8206)
10.50am – 11:50am	**Workshop A (60 minutes)** Concurrent workshops	Various Rooms

A1 Laboratory **DNA and Electrophoresis in the Senior Syllabus** Steve Garrett, Bio-Tek	A2 Laboratory **Collecting and Preserving, Animal and Plant Specimens** Sandra Lewis, Bremmer SHS	A3 Classroom * **Science of the Ridiculous** Stuart Lewis, Scientrific	A4 Classroom * **Care and Maintenance of Pasco Gear** Doug Bail, Ciderhouse Tech
A5 Classroom * **Fun Physics for the Curriculum and Open Days** Jacinta Hodnett, Redcliffe SHS	A6 Classroom **Meditation with Yoga** Sammy Morgan, Space 2 Grow Yoga	A7 Laboratory **Heart Dissection** Sam Godwin, Gordanvale SHS	A8 Lecture Theatre **Riskassess: Tips, Tricks and Latest Features** Phillip, Eva and James Crisp, Ecosolve Australia

Noon – 1pm	**Workshop B (60 minutes)** Concurrent workshops	Various Rooms

B1 Laboratory **DNA and Electrophoresis in the Senior Syllabus** Steve Garrett, Bio-Tek	B2 Classroom **Neogen** Sarah Buttsworth, Neogen	B3 Classroom * **A Healthy Land: Measuring the Environment with Datalogging Equipment** Stuart Lewis, Scientrific	B4 Classroom * **Intro to Rowed: Immersive and Interactive 3D Educational Simulations and Exercises** Doug Bail, Ciderhouse Tech
B5 Classroom * **Engaging Science with Origami Models** Daniella Migliorati, Science Supply Australia	B6 Laboratory **Health and Wellbeing in the Lab, Beerwah Style** Amber Wilson & Lynn Thomas, Beerwah SHS	B7 Laboratory **Biotechnology Tips and Tricks with Blue Gel Electrophoresis** Matt Kopp, Southern Biological	B8 Lecture Theatre * **Environmentally Sustainable Practices in the Laboratory** Christine McCallum, UQ

1.00pm – 2.00pm	**Lunch and Trade Hall** Trade Hall – Lunch provided	Elton Burns Building (8206)
2.10pm – 2.55pm MININOTE ADDRESS	**Union Breakouts** Thom Ryan, Together & Aaron Watson QIEU-NT	WP Hamon Centre (8255)
3.00pm – 4.00pm	**QEST Annual General Meeting**	WP Hamon Centre (8255)
6.00pm – 6.30pm	**Pre-Dinner Canapé and Drinks**	Foundation Building (8118)
6.30pm – 10.00pm KEYNOTE ADDRESS	**Conference Dinner** Professor Rachel Allavena, UQ	Dining Hall (8125)

DAY TWO: TUESDAY 28 JUNE 2022

*session recorded

7.00am – 8.00am	**Breakfast** For residential hall occupants	Dining Hall (8125)
8.00am – 8.50am	**Registration** Trade Hall – Tea, coffee and pastry provided	Elton Burns Building (8206)
9.00am – 9.15am	**Conference Opening: Day Two** Nikki Bradford, QEST President	WP Hamon Centre (8255)
9.15am – 10.00am KEYNOTE ADDRESS	**Frugal Innovations – Ideation to Implementation** Dr Sreejith Rajan, Griffith University	WP Hamon Centre (8255)
10.00am – 10.30am	**Morning Tea and Trade Displays** Trade Hall – Morning tea provided	Elton Burns Building (8206)
10.40am – 12.10pm	**Workshop C (90 minutes)** Concurrent workshops	Various Rooms

C1 Laboratory **Techniques and Trouble shooting in Microbiology** Steve Garrett, Bio-Tek	C2 Laboratory * **A Bit of Chemistry** Linda Adamson, Toowoomba Grammar School	C3 Laboratory **Algal Ball Photosynthesis** Matt Kopp, Southern Biological	C4 Classroom * **The Science of Us: Measuring Humans with Datalogging Equipment** Stuart Lewis, Scientrific
C5 Classroom * **Electronics & Artificial Intelligence for Innovation in the Classroom** Fraser Border, integratedSTEM	C6 Outdoors * **Soil Types, Properties and Testing Techniques** Doug Bail, Ciderhouse Tech	C7 Outdoors **The Light of Astronomy in Education: Wonder, Exploration, and Contribution** Des Janke, USQ	C8 Lecture Theatre **Chemical Disposal: Logic and advice for 3000 Chemicals and Solutions in RiskAssess** Phillip. Eva and James Crisp, Ecosolve Australia

12.20pm – 1.20pm	**Lunch and Trade Hall** Trade Hall – Lunch provided	Elton Burns Building (8206)
1.30pm – 2.15pm KEYNOTE ADDRESS	**Science and Innovation, Revolutionising Meat Processing** Fraser Border, integratedSTEM	WP Hamon Centre (8255)
2.15pm – 3.00pm	**Science Technician Forum** Lively group discussion with the brains trust	WP Hamon Centre (8255)
3.00pm – 4.00pm	**Conference Closing Address** Including farewell, prize draws and acknowledgements	WP Hamon Centre (8255)

WEDNESDAY 29 JUNE 2022

7.00am – 8.00am	**Breakfast** For residential hall occupants	Dining Hall (8125)
8.30am – 12.00pm OPTIONAL TOUR	**Bush Tucker Workshop** **Native Oz Bushfoods, Ropeley** **includes:** - Smoking Ceremony - Touch and Taste Tour - Morning Tea - Farm Gate sales *Places on the tour are limited. Must have own transport to Ropeley. Car-pooling suggested from the University Halls.*	Meet at: Pitt Halls (8121) Tour location off site: 486 Ropeley Rockside Rd, Ropeley QLD 4343

WORKSHOP DESCRIPTIONS

DNA and Electrophoresis in the Senior Syllabus

Steve Garrett, Bio-Tek A1+B1

NOTE: This is a 2 hour workshop. If you choose this workshop you MUST also choose B1
This hands-on workshop explores agarose gel electrophoresis- a cornerstone technique of biotechnology. Participants will be exposed to a range of the latest equipment and will learn the principles behind the techniques- how to prepare, set-up, and manage classroom activities, run samples, analyse results and troubleshoot. Participants will investigate current scientific/medical contexts, using dye samples (simulated DNA) to learn the techniques and then run a range of prepared DNA samples to investigate DNA staining options, including visible and fluorescent staining. The session will also introduce the techniques relevant to amino acid and protein electrophoresis using both horizontal agarose gels and vertical polyacrylamide gels. There will be lots of opportunities for discussion and to explore options.

Level of skill: ALL
Delegates to supply: Lab coat

Collecting and Preserving Animal and Plant Specimens for Display

Sandra Lewis, Bremmer SHS A2

DIPLOMA RELEVANT
Learn the techniques to collect, preserve, identify, label and present plant and animal material for scientific display, and how to safely store them to minimise deterioration. Experience some hands-on pinning and preservation of insects and pressing of plants, as well as the use of field guides, keys, and taxonomic charts.

Level of skill: BEG/INT
Delegates to supply: Lab coat

Science of the Ridiculus*

Stuart Lewis, Scientrific A3

The everyday, all around us, is filled with so much wonder that we are flooded by it. We make the extraordinary normal. We forget to take time to play, to be silly, and to find the little sparks that turn it into back into the extraordinary, the ridiculous.

In this workshop we will start playing with science (if necessary, applying it to the curriculum). Fun will be had with (but potentially not limited to):

- People and their reactions
- The mind and what it can hold
- Colours and food.

Level of skill: ALL
Delegates to supply: Lab coat

Care and Maintenance of PASCO Gear*

Doug Bail, Ciderhouse Tech A4

A broad-based session, this will cover the basics for people new to the PASCO range of electronic measure through to advanced techniques in utilising and calibrating sensors - what needs calibrating, why and what not, what are the limitations and opportunities presented by different sensors, what do we do with old gear so it continues to be useful. We will also investigate novel techniques and approaches to key practical activities including mandatory pracs and there will be plenty of opportunity to ask questions and have them answered. BYO PASCO equipment if you would also like to problem solve any specific issues.

Level of skill: ALL
Delegates recommended to BYO PASCO equipment to troubleshoot

Fun Physics for the Curriculum and Open Days

Jacinta Hodnett, Redcliffe SHS A5

A fast-paced look at some physics for juniors, open day activities and how that expands into seniors. A rotation-based session with practical demonstrations and a group discussion at the end.

Level of skill: ALL

Meditation with Yoga

Sammy Morgan, Space 2 Grow Yoga A6

The practice of Meditation encourages one self toward an inner awareness, and mastery in self discipline. We can measure the depth of our awareness of our own lives, by how we breathe.

The practice of Pranayama (breathing techniques) exhilarates the senses, opens prana (energy) to flow through and release from the body, aids in digestion and organ health, improves cardiovascular strength and circulation.

Level of skill: ALL
Comfortable clothing recommended, mats and blocks provided.

Heart Dissection

Sam Godwin, Gordonvale SHS A7

The session will address what is required to complete a heart dissection in a school setting, including safety equipment and rationale. During the practical, an internal and external overview of the physiology of the heart will be presented; viewing the heart as a whole organ and drawing attention to the main areas of this organ. Participants will gradually dissect through to the internal structures of the heart; noting the anatomical parts and their functions, and observing the circulatory pathways.
Post dissection discussion will focus on handling and management of organs most commonly used for dissection, what to do with the waste, how heart dissection is applicable as a school practical, educational relevance, and curriculum links.

Level of skill: BEG
Delegates to supply: Lab coat

RiskAssess: Tips, Tricks and Latest Features

Phillip Crisp, Eva Crisp and James Crisp, Ecosolve Australia A8

See how easy it is to carry out mandatory risk assessments of science experiments using RiskAssess! Latest features of RiskAssess will be demonstrated. Learn the tricks and tips for creating labels for multiple chemicals on a single sheet, searching the laboratory scheduling, improving searches for equipment and biologicals, backing up your risk assessments, using Student RiskAssess and more! Questions welcome!

Level of skill: ALL

DNA and Electrophoresis in the Senior Syllabus

Steve Garrett, Bio-Tek A1+B1

NOTE: This is a 2-hour workshop. If you choose this workshop you MUST also choose B1
This hands-on workshop explores agarose gel electrophoresis- a cornerstone technique of biotechnology. Participants will be exposed to a range of the latest equipment and will learn the principles behind the techniques- how to prepare, set-up, and manage classroom activities, run samples, analyse results and troubleshoot. Participants will investigate current scientific/medical contexts, using dye samples (simulated DNA) to learn the techniques and then run a range of prepared DNA samples to investigate DNA staining options, including visible and fluorescent staining. The session will also introduce the techniques relevant to amino acid and protein electrophoresis using both horizontal agarose gels and vertical polyacrylamide gels. There will be lots of opportunities for discussion and to explore options.

Level of skill: ALL
Delegates to supply: Lab coat

Neogen

Sarah Buttsworth, Neogen B2

Ever wondered what Neogen does with DNA samples?
Sarah has experience in complex parentage analyses and the 'real world' application of ever-changing DNA technologies for the livestock industry from her time as Scientific Officer at The University of Queensland's Animal Genetics Laboratory (UQAGL). Learn more about the real-life applications of Genomics in industry.

Level of skill: ALL

A Healthy Land - Measuring the Environment with Datalogging Equipment*

Stuart Lewis, Scientrific B3

The world is a beautiful and complex place. It has systems for growth and maintaining itself, from balancing gas mixtures to maintaining the soil. In this workshop we will look at several ways of measuring it.

This workshop will use Vernier datalogging equipment to explore topics such as:

- Looking at chlorophyll in plants
- Investigating plant photosynthesis
- Investigating respiration (Both plant and animal)
- Abiotic conditions
- Water analysis

Level of skill: ALL
Delegates to supply: Lab coat

Intro to Roqed - Immersive and Interactive 3D Educational Simulations and Exercises*

Doug Bail, Ciderhouse Tech B4

Introducing ROQED - fuelled by a program to educate a nation, ROQED interactives are arguably the broadest and most accessible integrated range of digital science resources available anywhere. Over 1000 interactives across biology, chemistry, science and the environment are fully mapped to the Australian Curriculum for quick selection and run on just about any device. Engage students, introduce new ideas, reinforce key ideas. Dissect humans, animals and even rip out the skeleton of a T-Rex!

This will be a session where you can come to "play" and take away information on a genuinely useful addition to the range of digital science resources.

Level of skill: ALL

Engaging Science with Origami Models*

Daniella Migliorati, Science Supply Australia B5

In this hands-on workshop we will discover the inner world of a plant cell and animal cell! Cells are the basis of life, I will give you the tools to show students the key organelles and structure of cells! Learning through fun is the key to students retaining information, all students learn differently. Origami models are a diverse way to teach topics in the classroom. These simple origami models are a fun way to introduce the topic of cell structure and the foundations of Biology. All material will be provided in the session.

Level of skill: ALL

Health and Wellbeing in the Lab, Beerwah Style

Amber Wilson & Lynn Thomas, Beerwah SHS B6

In this hands-on workshop we will create a beautiful terrarium focal piece for your desk while covering several topics and ideas that are simple and engaging. The aim of these activities and displays is to improve Health and Wellbeing in your Science Department for staff and student alike. Topics will include, making and displaying ornamental plants, terrariums, mossariums and insectariums. Insect and small animal housing and husbandry techniques and mutually beneficial interdepartmental activities.

Skill level: ALL
Delegates to supply: Lab coat

Biotechnology Tips and Tricks with Blue Gel Electrophoresis

Matt Kopp, Southern Biological B7

Level of skill: INT/ADV
Delegates to supply: Lab coat

Environmentally Sustainable Practices in the Lab*

Christine McCallum, UQ B8

DIPLOMA RELEVANT
This session will provide a quick introduction to lab sustainability and ideas for how sustainable actions can be implemented within your lab. From reconsidering your energy and water use, reducing waste and chemical management, small changes can have a big impact.

Level of skill: ALL

Routine Techniques and Troubleshooting in Classroom Microbiology

Steve Garrett, Bio-Tek C1

Microbiology offers a rich array of meaningful learning experiences, but can also be a potential minefield! This is an opportunity to discuss your school's practices and to assess them against best practice and current regulations as well as discussing how to enable your school laboratories to achieve Physical Containment Level One (PC1), which is the basic requirement for the use of low-risk micro-organisms. The practical component focuses on the skills and techniques for the cultivation and visualisation of micro-organisms and includes Zones of Inhibition (Senior Biology Syllabus- Unit 2 Mandatory Practical) which investigates the comparative effect of a range of antimicrobial agents on the growth of bacteria. There will be plenty of discussion around hints and tips as well as troubleshooting.

Level of skill: ALL
Delegates to supply: Lab coat

A Bit of Chemistry*

Linda Adamson, Toowoomba Grammar School C2

If you are not a chemist then this workshop is for you. We will learn how to make a standard solution, how to perform an acid/base titration and we will have a look at some of the things that can trip you up. We will answer questions like:

- Which indicator should I use?
- Why won't my solid dissolve?
- Why is my solution cloudy?
- What is the difference between N and M?

Level of skill: BEG
Delegates to supply: Lab coat

Algal Ball Photosynthesis

Matt Kopp, Southern Biological C3

Level of skill: INT/ADV
Delegates to supply: Lab coat

The Science of Us - Measuring Changes in Humans with Datalogging Equipment*

Stuart Lewis, Scientific C4

Humans are not simple. We are a series of complex systems streamed through a conscious brain. This means that there is a lot that can be measured, from bioelectric impulses required to move muscles to an analysis of touch.
This workshop will use Vernier datalogging equipment to explore topics such as:
EKG and heart analysis
Muscle analysis and strength
Wavelengths of light that fool the eye
How to tell if a room is well ventilated
Which feels warmer? tactile illusions
How much dye is in foods?
Diffusion through membranes
The effects of alcohol on biological membranes

Level of skill: BEG/INT
Delegates to supply: Lab coat

Electronics & Artificial Intelligence for Innovation in the Classroom*

Fraser Border, integratedSTEM C5

In this session we will explore the cutting-edge technology of AI and explore how this technology actually works (in a simple-to-understand manner) and how it can be embedded into the classroom for students to explore this concept in a practical, hands-on way. We will learn hands-on by building our own AI algorithms and will focus on assisting teachers to contextualise and implement this for students at various levels of competency. We will also explore electronic circuits by building our own circuits and discuss the benefits of using this technology in the classroom and outline just how low cost this can be!

Level of skill: ALL
Delegates recommended to BYO laptop

Soil Types, Properties and Testing Techniques*

Doug Bail, Cider house Tech
C6

A field and practically orientated session on a range of techniques around soil testing. We'll be carrying out tests, developing approaches to introducing soil science to the classroom, running through techniques. We'll look at options for monitoring over extended times as well as recording information in ArcGIS for comparison with data sets from government and semi-government organisations. We'll also look at comparing and assessing visual appearance and then compare to a regional ecosystem framework as used throughout Queensland.
And we'll consider the viability and limitations of testing for carbon sequestering within a school program.

Level of skill: INT/ADV
Delegates to supply: Sun safe clothes and hat

The Light of Astronomy in Education: Wonder, Exploration, and Contribution

Des Janke, USQ C7

Astronomy is a great discipline for developing an interest in science and expanding a young person's curiosity and desire to explore. The exploration can be simply going outside and looking at the night sky, through to using technology to easily but genuinely contribute to knowledge through Citizen Science. The presenter will relate experiences at daytime and night-time school astronomy observing sessions. This includes the engaging way smart telescopes allow students and parents to save and share their own images of Solar System and very distant objects, and extending that to contributing science observations. The session will conclude with a live, practical viewing of the Sun with a special, safe telescope if the sky is clear.

Skill level: ALL
Delegates to supply: Sun safe clothing and hat

Chemical Disposal: Logic and Advice for 3000 Chemicals and Solutions in RiskAssess

Phillip Crisp, Eva Crisp and James Crisp, Ecosolve Australia C8

Find out what you can safely throw into the garbage or pour down the drain. More importantly, find out what you should not! RiskAssess now provides advice on the disposal of 3000 chemicals and solutions, based on their ecotoxicity in sewage systems and in garbage sent to landfill. Advice considers holistically the issues of toxicity, transport, biodegradability, flammability, volatility, solubility etc, providing recommended maximum daily quantities for disposal. Questions welcome!

Level of skill: ALL

THANK YOU TO THE SPONSORS OF CONQEST22

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CONQEST22 ORGANISING COMMITTEE

ConQEST22 Coordinator: Nikki Bradford, Pittsworth SHS
Accommodation Coordinator: Kym Hunt, Caloundra SHS
Corporate Workshop Liaison: Kathy Tatzenko, Palm Beach Currumbin SHS
Keynote Liaison: Sharon Hunter, Victoria Point SHS
Graphic Designer: Christine Forrestal, Springfield Central SHS
Peer Workshop Liaison: Cheryl Tsan, Redeemer Lutheran College
Ticket Sales: Jennifer Walters, Bowen SHS
Tradehall Coordinator: Margot Lloyd, St Teresa's Catholic College
UQ Liaison: Sharon O'Keeffe, Lockyer District SHS
Webmaster: Annette Gregory, Ignatius Park College
Welcome Desk: Paul Evan, Kawana SHS & Olivia Frost, Caloundra SHS