



Science Teachers' Association of Victoria Inc.

ABN 59 004 145 329

Patron: Dr Barry Jones, AO, FAA, FAHA, FTSE, FASSA, FRSA, FRSN, FRSV, FACE

Science Victoria

ABN 94 108 759 762

STAV Labtech Conference 2019

"Supporting STEM in the Science Classroom"

Friday 7 June 2019

Quantum Victoria, 235 Kingsbury Drive, Macleod West.

Many sessions are available including

- **Arduinos and the Environment** presented by **Carlie Alexander & Anthony Simcox**
- **Lego Robotics - Thinking like a Robot!** presented by **Mahaelia Thavarajah**
- **How to get results from student design pracs** presented by **Dale Carroll**
- **How to use STEM to enrich a science program through quality teacher and lab tech collaboration** presented by **Matthew Story & Rosalia Bruzzese**
- **Rocking Plate Tectonics & The Power of Synthesising Virtual and Hands-On Learning**
presented by **Dr Leslie Almberg**

Full session information and registration details are on the following pages

For further information

Contact the STAV Business Centre

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STAV Labtech Conference 2019

8:30am – 9:00am Registration

**9:00am – 9:05am Welcome and Housekeeping
by Soula Bennett STAV President**

9:05am – 9:55am Keynote - TBA



9:55am – 10:20am Morning Tea & Displays

10:25am – 11:25am Session A

A1 Chemical management for the school laboratory

Michael Pola, Envirostore Chemical Consulting

How to fulfil your legal obligations in the school laboratory- topics covered include chemical registers, correct storage, labelling, compliance with the GHS, disposals, banned chemicals, spills and problem chemicals.

Curriculum: Biology & Chemistry

Suitability: VCE Unit 1

A2 Arduinos and the Environment

Carlie Alexander & Anthony Simcox, Quantum Victoria

In this workshop, delegates will program an Arduino to detect different properties from the surrounding environment. They will use the visual programming language Snap4Arduinos to garner the fundamentals of algorithmic thinking and coding. No previous programming experience is necessary for this workshop.

Delegates Note: No previous programming experience is necessary.

Curriculum: Learning Technologies

Suitability: Years 7-10

Repeated in B2

A3 Lean your Lab

Claire Crowther & Mark Bouke, Westlab

Mark will discuss how to lean your lab and Westlabs Innovation.

Curriculum: General

Suitability: ALL

A4 Littlebits Workshop

Daniela Migliorati, Science Supply Australia

Engage, empower and inspire students with this hands-on session of "Littlebits" an innovative product that allows you to create inventions large and small with a platform of easy to use electronic magnetic building blocks that snap together!

Curriculum: Learning Technology, STEM

Suitability: Years 4 - 8

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A5 Lego Robotics - Thinking like a Robot!

Mahaelia Thavarajah, Quantum Victoria

This hands-on workshop explores how engineering comes to life through the use of accessible robotics, such as Lego EV3s. Delegates will program the EV3 robots to overcome a series of challenges. This workshop gives delegates a hands on, authentic experience using robotics.

Curriculum: Learning Technologies

Suitability: Years 5-8

A6 How to get results from student design pracs

Dale Carroll, Geelong College

Getting results from student design pracs is often hit and miss. I will go through a few examples that we have worked through and hopefully have participants share their experiences.

Curriculum: Chemistry, Physics & General

Suitability: Years 7-10

Repeated in B6

11:40am – 12:50pm Session B

B1 Chemical disposal for the school laboratory

Michael Pola, Envirostore Chemical Consulting

How to correctly prepare your chemical wastes for disposal, legal obligations, correct labelling and packaging, storage, types of chemical wastes, what should be disposed of.

Curriculum: Chemistry

Suitability: VCE Unit 1

B2 Arduinos and the Environment

Carlie Alexander & Anthony Simcox, Quantum Victoria

In this workshop, delegates will program an Arduino to detect different properties from the surrounding environment. They will use the visual programming language Snap4Arduinos to garner the fundamentals of algorithmic thinking and coding. No previous programming experience is necessary for this workshop.

Delegates Note: No previous programming experience is necessary.

Curriculum: Learning Technologies

Suitability: Years 7-10

Repeat of A2

B3 CSIRO Crest Case-Histories - Method and Madness!

Ray Harvey, Cider House & Jamie Astill, Sirius College

How to be legend in the lab with nothing at all!

You got no money?

No equipment?

No project?

No plan?

No problems!

Ray Harvey from Ciderhouse and Jamie Astill from Sirius College introduced you last year to the CSIRO CREST program, for students to unleash their creativity in Science and Technology projects.

This year we will show you how to get awesome student projects started with little money, basic equipment and no ideas, using past CREST projects as case studies.

You will be surprised at what is possible!

Delegate Note: This workshop will run immediately before lunch, and again immediately after. While both sessions will be on the same theme, the example projects shown will be different, allowing participants who attend either session, or both, to enjoy the same experience without falling asleep!

Suitability: All

Curriculum: Chemistry, Biology, Physics, Earth & Space Sciences, General

Repeated in C2

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B4 Drones In The Classroom

John Pearce, Salty Solutions Educational Consultancy

Everywhere you turn these days there are stories about drones and how they are going to change the way we live. The big question is how can schools leverage this interest? Programmable and other entry level drones are now priced very keenly. Even higher level machines are being used productively in education settings. From developing understandings of the physics of flight through maths and engineering activities and more, drones have a lot to offer students from middle school and beyond. This session will explore some school based drone options and how they might be utilised.

Curriculum: Earth & Space Science & Learning Technologies

Suitability: Years 4 - 10

B5 Rocking Plate Tectonics & The Power of Synthesising Virtual and Hands-On Learning

Dr Leslie Almborg, TESEP

Plate Tectonics is the grand unifying theory of all phenomena on Earth. The interrelationships between the geosphere, biosphere, hydrosphere, atmosphere, and even the exosphere are complex, fascinating and mystifying, necessitating a guided tour through common misconceptions. Tying Plate Tectonic theory to a carefully curated rock collection is a compelling and powerful means of story telling and moving beyond science as a collection of dusty (arte)facts. This session provides a hands-on guided introduction to the new Teacher Earth Science Education Programme (TESEP) rock kits <www.tesep.org.au>, virtual extension materials, and a forensic approach that brings this subject to life.

Delegates Note: All attendees will receive a free, full-colour Plate Tectonics poster.

Curriculum: Earth & Space Science

Suitability: Years 4-10

Repeated in C5

B6 How to get results from student design pracs

Dale Carroll, Geelong College

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Curriculum: Chemistry, Physics & General

Suitability: Years 7-10

Repeated in A6

1:50pm – 3:00pm

Session C

C1 How to use STEM to enrich a science program through quality teacher and lab tech collaboration

Matthew Story & Rosalia Bruzzese, Hazelglen College

Labtechs can be an underappreciated team within a school, when often exciting and engaging science program. This session aims at discussing how the teachers and labtechs work closely at Hazel Glen College to create better science programs for students ranging from year 5 to 11 through the incorporation of variety of existing STEM activities and engaging classrooms.

Curriculum: STEM, General

Suitability: Years 5 - 10

C2 CSIRO Crest Case-Histories - Method and Madness!

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Suitability: All

Curriculum: Chemistry, Biology, Physics, Earth & Space Sciences, General

Repeat of B3

12:55pm – 1:45pm Lunch & Displays

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C3 Using the relevant context of Sustainable Housing to teach STEM

Peter Pentland, STELR

Sustainable Housing is a multidisciplinary STEM module designed to be taught at year 9 level. It maps into the Physical Sciences strand of the Science Curriculum and has embedded maths and technology activities. It features a purpose-built equipment kit. Sustainable Housing aims to show the relevance of STEM subjects to students lives, now and in the future. Participants in this workshop will gain hands-on experience of the equipment pack and data logger gather and analyse data evaluate support materials trial activities investigate the effectiveness of building materials and high-tech treatments.

Delegates Note: Please bring your own laptop or iPad.

Curriculum: Physics

Suitability: Years 7-10 & VCE Units 2

C4 STEM In The Family

John Pearce, Salty Solutions Educational Consultancy

Promoting STEM in schools is important but can be greatly enhanced when parents and the community is also bought on board. One way to do this is via Family Science and Engineering, an opportunity for students to work alongside parents in a fun learning environment. In this session we will explore some models for running such sessions as well as engage with a number of activities that can be used to run your own Family STEM activity.

Curriculum: General

Suitability: ALL

C5 Rocking Plate Tectonics & The Power of Synthesising Virtual and Hands-On Learning

Dr Leslie Almberg, TESEP

Plate Tectonics is the grand unifying theory of all phenomena on Earth. The interrelationships between the geosphere, biosphere, hydrosphere, atmosphere, and even the exosphere are complex, fascinating and mystifying, necessitating a guided tour through common misconceptions. Tying Plate Tectonic theory to a carefully curated rock collection is a compelling and powerful means of story telling and moving beyond science as a collection of dusty (arte)facts. This session provides a hands-on guided introduction to the new Teacher Earth Science Education Programme (TESEP) rock kits <www.tesep.org.au>, virtual extension materials, and a forensic approach that brings this subject to life.

Delegates Note: All attendees will receive a free, full-colour Plate Tectonics poster.

Curriculum: Earth & Space Science

Suitability: Years 4-10

Repeated in B5

C6 Advanced Materials

Scott McLean & Latha Shivasubramanian, Quantum Victoria

Delegates will engage in multiple experiments using the Shape Memory Alloy & Nitinol, observing its behaviour and unique properties. Additionally, delegates will investigate the properties of Nanofluids through experimentation, demonstrating their current applications.

Curriculum: Chemistry

Suitability: Years 7-10

3:00pm

Conference Ends
