Science Educators' Association of the Australian Capital Territory

CONSEA*ACT 2017

Conference of the Science Educators Association of the ACT

Educating Future Scientists

25 MARCH 2017, UNIVERSITY OF CANBERRA,
Faculty of Education, Technology, Science and Mathematics, Building 6

Registration Form and Tax Invoice

PLEASE PRINT CLEARLY AND USE BLOCK LETTERS

Name:	
School:	
Phone Number:	
Mobile Number:	
Email:	TQI #:
Dietary Requirements:	
*Photos taken on the day may be used for SEA*ACT publications and for use on our website. Please indicate if you **do not** give SEA*ACT consent to use your images for publicity purposes.*	☐ Permission **not** granted

	SEA*ACT Members		Non–members	
Full Day Conference (morning tea and lunch provided)	☐	$70.00 Incl. GST	☐	$95.00 Incl. GST
Preservice and Early Career teachers	☐	$35.00 Incl. GST	☐	$45.00 Incl. GST

Method of payment:

☐ Cheque (made payable to SEA*ACT: ABN 78 948 251 953)

☐ Mastercard ☐ Visa ☐ Bankcard

Card number ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___

Cardholder name _____

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☐ Direct debit

Bank Details: Commonwealth Bank of Australia
BSB: 062 908
Account number: 0090 7189
Please quote CONSEAACT (surname)

RSVP by 21 March at seaact@y7mail.com

Educating Future Scientists

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Faculty of Education, Technology, Science and Mathematics, Building 6

Times			Location
8.30am – 8.55am	**REGISTRATION**		Building 6 Foyer
8:45 – 9am	Special AGM – 2 motions		6B45
9am – 9.05am	Welcome address	Paula Taylor, SEA*ACT President	6B45
9.05am – 10am	**Keynote**	**Roslyn Prinsley** *Australian Government Department of Education and Training*	6B45
10.05am – 10.35am	**Breakout session**	Science Fair: How to get the best from your students	6B45
10.35am – 10.55am	**MORNING TEA**		
11.00am – 12pm	**Session A Workshops** Please select one workshop.	**Cindy Chambers** P *The Ian Potter Foundation Technology Learning Centre (Questacon)* ☐	6C10
		Taryn Johnson P *CSIRO Education and Outreach* ☐	6C14
		Paula Taylor JS, SS *St. Clare's College* ☐	27C04
12.05pm – 12.50pm	**Session B Workshops** Please select one workshop.	**Jef Byrne** P, JS, SS *Science by Doing* ☐	6C14
		Felicity McLure JS, SS *Brindabella College* ☐	27C04
		Shona Blewett P *Geoscience Primary science* ☐	6C10
12.50pm – 1.50pm	**LUNCH**		Building 6 Foyer

SESSION C WORKSHOPS: BUILDING 27

1.50pm – 3.30pm	**Session C Workshop** Please select one workshop.	**Professor Sue Stocklmayer** JS, SS *Centre for the Public Awareness of Science, ANU* ☐	6C10
		Alisha Duncan P, JS, SS *ARC Centre of Excellence for Translational Photosynthesis, ANU* ☐	27C04

KEYNOTE

Dr Roslyn Prinsley

Senior Adviser, STEM Education
Australian Government Department of Education and Training

9:05 – 10:00 am, Inspire Centre, UC

Presenter Bio:
Dr Roslyn Prinsley is the Senior Adviser on STEM Education to the Department of Education and Training. She also manages the Departments' programs relating to STEM Education. Previously she was the National Adviser for Science and Mathematics Education and Industry in the Office of the Chief Scientist. In this role, Roslyn advised the Chief Scientist on the role of science, technology, engineering, mathematics across education and industry.
Roslyn was previously a Principal Strategic Consultant with Sinclair Knight Merz. Prior to this role, she held a number of senior positions at the Rural Industries Research and Development Corporation (RIRDC). She was formerly manager of the Agricultural Sciences Program for the Commonwealth Science Adviser to the Commonwealth Secretary General in the UK. She was a Science and mathematics teacher early in her career.
Roslyn holds a Bachelor of Science, a Diploma of Education (Science), a PhD in photosynthesis, and a Masters in Intellectual Property Law and is a graduate of the Australian Institute of Company Directors. She also worked as a science and mathematics teacher early in her career. She has published over 90 books and reports.

WORKSHOPS

AUDIENCE

P = Primary K - 6	JS = Junior Secondary 7 - 10	SS = Senior Secondary 11 - 12

Session A: 11:00 – 12:00 pm

Questacon Workshop: Hands-on chemistry for primary years

Audience: P

Experience hands-on activities relating to the Chemical sciences strand of the Australian Curriculum Science. These activities will also integrate creative problem solving, inquiry, mathematics and smart phone apps.

Presented by:

Cindy Chambers is based at Questacon's Deakin facility 'The Ian Potter Foundation Technology Learning Centre'. Cindy's careers have included secondary science teaching, interactive exhibit development, visitor studies and developing teach professional learning programs.

Using the Atlas of Living Australia in the (primary) classroom

Audience: P

The Atlas of Living Australia is Australia's largest repository of data on animals, plants, fungi and microorganisms. Founded on collections from Australia's museums and herbaria, universities, government departments and citizen scientists, the ALA provides free online access to this valuable biodiversity data. Its mapping and analysis tools allow exploration and analysis of information. This workshop will demonstrate many ways of using the ALA in science classrooms and how the activities link in with all three strands the Australian Curriculum – Science over all year levels.

NB: *Please bring your own device to this workshop*

Presented by:

Taryn Johnson trained and worked as a science teacher before completing further study in science communication. Taryn has worked as an Education Officer with CSIRO Education and Outreach since 2005. Her current role at the Atlas of Living includes assisting teachers and students to use the ALA to explore Australia's biodiversity. The role combines her love of the natural world with her expertise in science education.

The Colour of Chemistry

Audience: JS, SS

This session will be packed with demonstrations and activities that will promote science inquiry, enhance science literacy and numeracy and engage learners. This workshop will attempt to address most of the Chemistry topics from the Australian Curriculum from years 7 to 12: acid base chemistry, nanoparticles, reaction rates, equilibrium, organic chemistry, and electrochemistry. Some activities will utilise the PASCO sensors to collect and analyse data. Participants will have access to assessments, worksheets, and on-line resources.

Presented by:

Paula Taylor has over 20 years teaching experience in Junior Science and Senior Chemistry in Australia and Canada. She has a B. Medical Lab Science (Hons), B.Ed. and a M.Ed. all from the University of British Columbia, Canada. She is a certified PASCO trainer, awarded the BCScTA Outstanding Teacher Award in 2008 and the Senator Zed Seselja Excellence in Teaching Award in 2016.

Session B: 12:05 – 12:50 pm

Teaching science with Science by Doing curriculum units

Audience: P, JS, SS

Science By Doing is a comprehensive Year 7 to 10 program available online and free to all Australian teachers and students. It is supported by award winning professional learning modules and a research based professional learning approach. The program presents a practical way to implement the Australian Curriculum year 7 to 10 Syllabus. The presentation will provide an overview of the program including the new revised curriculum unit format that contains a student e-notebook component.

Presented by:

Jef Byrne is the Director of Curriculum Development of Science by Doing at the Academy of Science.

The Thinking Frames Approach: Supporting students in constructing scientific understanding and writing explanations

Audience: JS, SS

This workshop is based on a two-year longitudinal study of the benefits of using the Thinking Frames Approach (Newberry & Gilbert, 2011) in Year 8-10 Science classes. The Thinking Frames Approach (TFA) utilises student-produced multiple representations (mental models, drawings, verbal and written) to support them in constructing detailed explanations of higher order questions. Results from pre and post tests comparing students learning using the TFA with comparison classes showed that the experimental group had significantly higher levels of conceptual understanding in topics such as Newton's Laws, Electricity, Thermal Energy and Energy Transformation/Conservation, Kinetic Theory of Matter, Genetics and Natural Selection and that this understanding persisted over a six month period. Students' interest in Science and feelings of self-efficacy also improved significantly. Students also improved in their ability to write complex explanations of scientific phenomena and this skill was observed to transfer to other subject areas. This workshop will include an explanation of the TFA and how to implement it in the classroom as well as a practical demonstration of the process involved.

Presented by:

Felicity McLure is the Head of Science at Brindabella Christian College. She has a B.Sc.(Hons) from Sydney University, M.Sc. by research in Organic Chemistry also from Sydney University, and a Grad.Dip.Ed. (University of New England). She is currently finishing her PhD at Curtin University with the hope of finishing in mid 2017.

Avoid the risk of disaster when teaching about natural hazards: helping primary teachers engage with Earth Science

Audience: P

Many middle and upper primary teachers feel unsure about teaching science, particularly Earth Science in the Australian Curriculum. However, many are also surprised by the high level of engagement of their students once they undertake teaching these topics.

This workshop will focus on the 'big ideas' in Earth Science and how they fit with the primary curriculum. It aims to increase the knowledge of teachers faced with teaching about *changes to the surface of the Earth over time*, or *sudden geological changes*…(hazards) by consideration of appropriate content to cover (and not cover) and Australian resources that are available to support each topic, including those from Geoscience Australia. In addition there will be suggestions and discussion regarding using inquiry in a primary setting when teaching Earth Science.

Presented by:

Shona Blewett has a B.Sc. (Hons) Geology, Dip Ed (Secondary), Dip Ed (Primary). She has been the Education Centre Coordinator at Geoscience Australia for ten years. She has qualifications in both primary and secondary teaching and taught in both the UK and Australia before joining Geoscience Australia.

Session C: 2:30 – 3:30 pm

The Trouble with Electricity

Audience: JS, SS

Why do so many students find electricity “difficult”? In this interactive hands-on workshop, Sue will discuss recent research into models of electricity, which indicates that the electron-flow model is problematic. She will illustrate a teaching sequence for middle high school that considers electrical circuits from first principles and that has been shown to remediate misconceptions about circuitry. Using simple equipment, the principles of electrostatics, electric circuits and electromagnetism will be demonstrated in a unified theoretical approach.

Presented by:

Sue Stocklmayer is a published author and long-time professor at the Australian National Centre for the Public Awareness of Science.

See it Science: Photosynthesis in the classroom ANU ARC Centre of Excellence for Translational Photosynthesis

Audience: P, JS, SS

Photosynthesis can be hard to see in the classroom. The idea of a plant as something living and breathing can be rather abstract for students when growth generally happens slowly over time. Alas, we have a range of observable experiments that can be measured for interactive inquiry based learning within a lesson or a day. We’ll show you the tips and tricks of the trade and you’ll work to create your own set of algae balls to test out in the classroom. We’ll also experiment with infiltrated leaf discs to measure the time they take to float to the surface, representing their rate of photosynthesis. We’ll also count oxygen bubbles escaping from submerged plants in water, to see photosynthesis as it happens. The algae ball experiment has been developed by SAPS and the original protocol can be found at: http://www.saps.org.uk/secondary/teaching-resources/235-student-sheet-23-photosynthesis-using-algae-wrapped-in-jelly-balls .

We’ll be sharing our top tips and assistance on troubleshooting on the day.

Presented by:

Alisha Duncan has a B. of Resource and Environmental Science performing ecological research before focusing full time on science education and outreach. Alisha spent three years working with schools and large groups visiting Questacon, performing and creating unique programs for the public. Alisha then went on to run her own Science Edutainment business called Alley Bee Entertainment, bringing science, fairies and pirates to life for school groups and birthday parties for over five years. In the two years since, Alisha has been working as the Education Officer for the Centre of Excellence for Translational Photosynthesis, working with teachers, outreach specialists and scientists to bring the best experiments to schools and the public.

ARC CENTRE OF EXCELLENCE FOR translational photosynthesis

This event is proudly supported by University of Canberra

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