

August 2017 SASTA

Newsletter of the South Australian Science Teachers Association Inc.



Conferences/Events

Term 3 PD/Conferences and science activities are now published. Please see page 4 for details or www.sasta.asn.au

Oliphant Science Awards

For the latest information concerning judging, Open Day (including science demonstrations and come and try activities) and other key dates, please see pages 9 & 10 or www.oliphantscienceawards.com.au

SASTA Trial Exams

Biology, Chemistry, Physics and Psychology Trial Exams can now be purchased and downloaded immediately at www.sasta.asn.au



Early Career Teachers Conference

Date: Friday 13 October 2017

Venue: Immanuel College, Morphett Rd, Novar Gardens

Please see program details on pages 7 & 8

Call for Presenters: STEM 6-11 Conference & Expo

Date: Friday 1 December 2017

Venue: Australian Science and Mathematics School, Bedford Park

Submit your abstract at www.sasta.asn.au from 1 August – 30 September



SASTA is on Facebook go to www.sasta.asn.au



SASTA is on Twitter go to www.sasta.asn.au

Latest Events

For the latest events and Conference information go to SASTA's website: www.sasta.asn.au

For information about science competitions go to: www.oliphantscienceawards.com.au

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South Australian Science Teachers Association Inc.

Patron: Dr Leanna Read ABN 22 938 317 192

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Member of Australian Science Teachers Association (ASTA)

Supporting teachers of science • Advancing science education





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Newsletter copy deadlines 2017

(Advertising deadlines one week earlier)

Edition	Deadline
February	11 January
May	11 April
August	11 July
November	10 October

Advertising

Advertising rates & booking form online at www.sasta.asn.au

Views expressed in this newsletter are not necessarily those of SASTA or the editors. Whilst every effort is made to be factual, no liability is accepted for the accuracy of information presented.

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Adhering to the following guidelines would be appreciated:

Save as a Microsoft Word document

Tables to be set up as text with one tab between columns and a return at the end of each row.

For spelling please use the Macquarie Dictionary and where several alternative spellings are listed, use the first. The exception to this is when you are citing, referencing or quoting directly from a source which uses alternative spelling. Photographs should be high quality untouched digital photographs.

From the President



CONASTA 66

The annual national conference for science teachers, CONASTA 66, was held in Hobart at both the Wrest Point Casino and at the University of Tasmania from 9-12th July. Our SASTA Medallist, Katrina Elliott, was presenting at CONASTA 66, and Katrina was also presented

with an award at the Stanhope Oration for the most useful article for science teachers in "Teaching Science", ***Making Science Misconceptions Work For Us***. The article explores how teachers can access students' misconceptions about science in order to improve their own ability to better support student learning. The article can be found through the following reference:

Elliott, Katrina; Pillman, Anne
Teaching Science, v62 n1 p36-39 Mar 2016

National Science Week

National Science Week for 2017 will be running from 12th -20th August, and in Schools the theme will be "Future Earth". The Future Earth program, which was launched two years ago, is an international initiative for the next ten years to advance scientific initiatives in global sustainability.

The main issues the Future Earth program addresses are firstly about the provision of adequate water, energy and food for the population of the entire planet. Additionally, the need to safeguard the freshwater, marine and terrestrial natural assets is another focus of the program, and will also address the need to promote sustainable rural futures with sustainable consumption and production patterns. Building healthy, resilient and productive cities which will improve human health rather than impacting it negatively, and increase social resilience to future threats is also a priority. De-carbonising socio-economic systems in order to stabilise the climate also underpins the stability of our future Earth.

The **2017 National Science Week Teacher Resource** is a free publication available from the ASTA website.

Check out the intriguing array of an increasing number of events organised for this year at www.scienceweek.net.au.

The **International Astronautical Congress (IAC)** will be an exciting event held from 25-29 September 2017 at the Adelaide Convention Centre, and is the world's largest space science conference.

Concurrently with the congress, DECD, together with the State Library and the Museum, will be running sessions for primary students and PD for teachers.

Supporting the inclusion of teachers and students at this Congress is a wonderful achievement for those from SASTA who are enabling this outcome.

Vanessa Fay

Exam Prep Seminars for SACE Stage 2 Students

To be held at The University of Adelaide, Napier Building, Lower Ground Floor as follows:

Registration fee \$15 (incl.GST) per student. Register online at www.sasta.asn.au For teachers registering a class, please fax a list of participant names with school purchase order number and the school will be invoiced accordingly at \$15 per student. Teachers accompanying a class are free.

Biology

Saturday 2 September 2:30 pm – 5:00 pm

Physics and Psychology

Saturday 9 September 2:30 pm – 5:00 pm

Chemistry

Saturday 16 September 2:30 pm – 5:00 pm

Term 3 2017 Teacher Professional Learning Science

The workshops provided through SASTA will **provide practical strategies and resources to support teachers** in the development of teaching and learning programs that embed science Inquiry Skills and provide clear opportunities for reflection and recording of student achievement.

For Secondary/Middle school teachers:

SASTA STEM Project- Middle Years

Date: Thursday 7th September and Friday 8th September 9.00am-3.00pm

Venue: Education Development Centre, Hindmarsh

The SASTA STEM Project will offer teachers the opportunity to work together across subject areas for two full days, developing a series of coordinated lessons that can be taught in each of their classrooms to support a shared STEM program.

When designing STEM programs/lessons/units of work, your teaching colleagues are often your best resource. The best-case scenario for planning an integrated STEM learning experience for students is to meet in cross curricula teams and **plan in collaboration**, however we know this is not always possible in a busy school week.

We are inviting participation from two teachers from each school, a science teacher and a maths and/or technology teacher.

Over the course of the two days, the colleagues will collaborate to design lesson outlines for a STEM learning program for a particular year level. Teachers will be given **guidance and resources** to help them select real world problems, integrate appropriate science, maths and technology, and embed elements of the engineering design process.

It is envisioned that the collection of lessons from each STEM learning program would then be made available to all participants. In addition, SASTA will edit this collection and produce it as a resource for the wider education community.

SASTA is offering a special rate to support participation in this Project. Each teacher will be able to register for **two full days** of professional learning for **only \$30 more than a single day rate!**

Participation will be limited to 20 places (10 teams of 2 teachers) so that each team will be able to access the support they need across the Project.

Who should attend: Secondary/Middle school teachers

Registration Fees for 2 days

- **Personal Members** \$165
- **Corporate Members** \$205
- **Non-members** \$245

For Primary Years Teachers:

Designing STEM tasks–Primary Years (repeat of sold out session on June 23rd)

Date: Monday 14th August 9.00am-3.00pm

Venue: Education Development Centre, Hindmarsh

Start Science Week with some hands-on professional learning in STEM!

This workshop is designed to help teachers acquire the skills and confidence to design, develop and implement their own STEM-based teaching resources.

Building on a common understanding of STEM teaching, teachers will explore methods of transforming inquiry based science investigations into tasks that reflect real world challenges and incorporate the technological/engineering design process.

Using provided exemplars and strategies, teachers will collaborate to develop STEM focussed tasks to use in their own classrooms.

Who should attend: Primary school teachers

Registration Fees

- **Personal Members** \$135
- **Corporate Members** \$175
- **Non-members** \$215

Time

All Workshops run from 9.00 am – 3.00 pm

Program details and registration available online at http://www.sasta.asn.au/professional_learning

Morning tea and lunch will be provided

Term 3 2017 Teacher Professional Learning SACE Stage 2 Science Australian Curriculum

The University of Adelaide is kindly hosting seminars for teachers who wish to update their knowledge concerning new topics in the SACE Stage 2 Biology, Chemistry and Physics curriculum which will be introduced in 2018.

For Senior Secondary Biology, Chemistry and Physics teachers:

Sessions Include

- 1. New content in the SACE Stage 2 Biology curriculum**
 - a. DNA sequencing and the removal of genes using CRISPR
 - b. The nervous system
 - c. Reproductive isolation

Date: Tuesday 15 August 2017
- 2. New content in the SACE Stage 2 Physics curriculum**
 - a. Electromagnetic induction
 - b. The Standard Model
 - c. Relativity

Date: Tuesday 15 August 2017
- 3. New content in the SACE Stage 2 Biology curriculum**
 - a. Allopatric and sympatric speciation
 - b. Maintaining biodiversity
 - c. Homeostasis

Date: Wednesday 16 August 2017

- 4. New content in the SACE Stage 2 Chemistry curriculum**
 - a. Ion (Exchange) Chromatography
 - b. Reverse osmosis
 - c. New materials e.g. composites

Date: Wednesday 16 August 2017

Registration Fees

**Personal Members \$66, Corporate Members \$88,
Non-members \$99**

Time

**All Seminars run from 5.15 pm – 7.45 pm
(Registration from 4:45 pm)**

Program details and registration available online at
http://www.sasta.asn.au/professional_learning

A light meal will be provided



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(Attention: Science, Maths, Design & Technology and ICT Coordinators)

STEM 6-11 Conference 2017 CALL FOR WORKSHOP PRESENTERS

**To be held on Friday 1 December 2017
at Australian Science and Mathematics School, Sturt Road, Bedford Park**

This Conference will provide high-quality professional learning opportunities for middle school teachers and educators, in the fields of mathematics, science, ICT and design & technology.

With program inputs from teachers from STEM professional associations, the event is designed to bring together teachers, educators and exhibitors who are interested in sharing and exploring tools, resources and related activities that will ensure successful implementation of STEM education into our schools and communities.

The Conference will also provide an excellent opportunity for educators and teachers to exchange ideas about STEM teaching and learning and to maintain and develop valuable networks.

Some workshops will address the critical importance of connecting different areas of STEM by considering ways of interrelating science and/or mathematics topics using the tools of technology with engineering emerging through hands-on and real-life applications. Other workshops will address activities to support teaching and learning in more specific topics in the disciplines of mathematics, science, design & technology and IT.

CONFERENCE THEMES

The Conference will address a range of the content and pedagogies of the Australian Curriculum: Mathematics, Science, Design & Technology and ICT. Participants should be actively involved in the learning through a practical and investigative approach. Sessions that link to real world examples of contemporary STEM are encouraged.

POSSIBLE WORKSHOP IDEAS:

- Hands-on activities for middle school maths, science, design & technology and ICT
- Developing an engaging curriculum in the middle school for STEM subjects
- Use of technologies in teaching and learning
- Integrated units of work
- Ways of motivating students to consider STEM in their future careers
- Improving students confidence and experiences in STEM

Share your good ideas submit a proposal for the

STEM 6-11 Conference online at www.sasta.asn.au by 30 September 2017.

SASTA Early Career Teachers Conference



Friday 13th October 2017

8.30am - 4.30pm, Immanuel College

Are you new to teaching Science or in the first 5 years of your career?

If so then this conference is a great opportunity for you to be involved in **interactive and fun learning activities** as well as **gather resources** that will enrich and inform your science teaching.

The Program includes specialized workshops for **both Primary and Secondary Teachers**.

National Professional Standards for Teachers:

Teachers will receive a certificate of attendance that details the hours of professional learning and Standard 2 Focus Areas 2.1 and 2.2, Standard 3 Focus Area 3.2, Standard 6 Focus Area 6.2 and Standard 7 Focus Area 7.4

The workshops will focus on:

- **The Australian Curriculum: Science**
- **Creative classroom strategies**
- **STEM teaching and learning**
- **Resources to enhance learning**

This **hands-on** interactive professional learning day will cater specifically for each level of schooling.

Morning Tea and lunch will be provided and there will also be a chance to network with other teachers and the presenters at the **HAPPY HOUR!!!**

Please see program on page 8

8.30 am	Registrations			
8.45 am	Opening and Welcome			
9.00-10.10 am Session 1	S101 This is how paper making becomes child's play! Tracy King The Travelling Papermaker	S102 Sharing successful strategies for providing student feedback Bronwyn Mart Retired science teacher	S103 Keep calm and throw out your textbooks Lara Lang and Dr Catherine O'Halloran Cabra Dominican College	S104 Flipping senior science- a journey Toby Ward Brighton Secondary School
Year level Focus	Primary Years		Middle/Secondary Years	Senior Years
10.10 am	MORNING TEA			
10.30-11.40 am Session 2	S201 and S301 Diving into STEM: 3 teachers and a pool of ideas Mike Hawkey Two Wells Primary School Dina Phan Swallowcliffe School P-7	S202 I volunteer as tribute: The PD Games Alex Fowler Woomera Area School	S203 Life Hacks: Fact or Fiction? Myth busting internet advice through science. Shane Meegan Christian Brothers College	S204 Sliding SHE into your lessons. Hilary Jones Australia's Science Channel
Year level Focus		All	Middle/Secondary Years	
11.45-12.55 pm Session 3	Jenny Woodcock Hewett Primary School	S302 Getting into gardening – boots and all Joanna Whitehead Barmera Primary School	S303 Using stop motion animation to demonstrate science understanding Malcolm Rogers Cowell Area School	S304 Thinking about thinking Renee Rees and Michelle Burt Cardijn College
Year level Focus	Primary Years		Primary/Middle Years	Middle/Secondary Years
1.00 pm	LUNCH			
1.30-2.40 pm Session 4	S401 Using STEM strategies to teach the digital technologies curriculum Abby MacPherson Burnside Primary School	S402 Creating engaging spaces using animals (dead or alive!) Mike Hawkey Two Wells Primary School	S403 Naked and Hungry – How science teachers will save the world! Ben Stockwin Primary Industries Education Foundation Australia	S404 Flipping the classroom Paul Gavini Marryatville High School
Year level Focus	Primary Years		Middle/Secondary Years	
2.45-3.55 pm Session 5	S501 Naked and Hungry – How science teachers will save the world! Ben Stockwin Primary Industries Education Foundation Australia	S502 Planning science learning for composite classes Sonia Cooke DECD	S503 Collecting evidence to help you move from Graduate to Proficient Adrian Dilger Catholic Education SA	S504 Teaching Stage 2 Biology in 2018? Dr Kathy Adams SACE Board of SA
Year level Focus	Primary Years		All	Senior Years
4.00 pm	CLOSE AND HAPPY HOUR			



The Oliphant Science Awards this year!

Project and School Coordinator Registrations are now closed for the 2017 competition, with this year's competition attracting almost 2100 projects from 98 South Australian Schools!

With such a large number of projects registered we are thankful for all our volunteers who have registered to help judge and run this year's event... but we are always looking for more volunteers to assist us, especially at this year's Open Day on Sunday 27 August.

If you are interested in becoming a part of this special event please head to our website to register as a volunteer for 2017: http://www.oliphantscienceawards.com.au/get_involved/volunteers

Registrations for our 2018 Oliphant Science Awards Judging Team will re-open online in September, so keep checking our website for more information: www.oliphantscienceawards.com.au

Reminder of Key Dates for Coordinators

Saturday 12 August – Computer Programming & Robotics Judging Day at Pulteney Grammar School – Senior Learning Centre (times by appointment only) – Coordinators please make sure that your students are aware that they need to call the SASTA office on 8354 0006 by Tuesday 8 August to make a time as appointment times are limited!

Friday 25 August – All Crystal Investigation, Models & Inventions, Photography & Poster entries to be delivered to Festival Functions (292 Findon Road, Findon) between 9am – 5pm

Saturday 26 August – Final Judging Day for Crystal Investigation, Models & Inventions, Photography & Poster entries at Festival Functions (292 Findon Road, Findon) between 9am – 1pm

Sunday 27 August – Open Day at Festival Functions (292 Findon Road, Findon) 12noon – 4pm

Monday 28 August – All Projects (*Winning and Non-winning entries*) to be collected from Festival Functions (9am-5pm) – coordinators please ensure that you contact SASTA if you are going to send a courier to collect your projects, as SASTA will dispose of any uncollected projects after 5pm!



OLIPHANT SCIENCE AWARDS

OPEN DAY

Sunday 27 August 2017

12pm – 4pm

Festival Functions

292 Findon Road, Findon

oliphantscienceawards.com.au



2017 Open Day

Come to see, learn and immerse the whole family in science this year at South Australian's largest student science Competition – The Oliphant Science Awards Open Day!

This year will be hosted by Andrew 'Cosi' Costello (from Channel 9's South Aussie with Cosi). There will be several Science Spectacular Shows to sit back and watch, or get hands-on with our Come & Try stations organized by groups such as The RoboRoos, Southern Bricks Lego Users Group, The University of Adelaide Bright Sparks Club and SASTA.

Take some time to have a browse through our large collection of 2017 winning science projects and Model & Invention projects from schools all around SA!

Make a day of it! Food and beverages will be available to purchase on the day to help support some of our local community groups including a BBQ from The Rotary Club of Regency Park and coffee from Homeless Beans Coffee Cart (a Hutt Street Centre initiative).

This event is open to the general public and for all ages!

Science Shows Program

SOUTHERN STAGE **NORTHERN STAGE**

TIME	WHAT'S ON
12:00pm	Opening Ceremony MC Andrew 'Cosi' Costello will welcome everyone to the 2017 Oliphant Science Awards Open Day & start the day off with a bang!
12:05pm	Extremes – Fire & Ice Mobile Science Education Help us explore the nature of heat and how it can change in dramatic ways – which is really just a good excuse to use liquid nitrogen, set things on fire and generally blow stuff up (moderately safely)!
12:30pm	The RoboRoos - Robot Showcase The Student Robotics Club of SA The RoboRoos will provide a short theatrical performance around the experience of their students in the creation of a robot to compete in the FIRST Robotics Competition 2017 and their trip to Texas, USA!
12:55pm	Weird Creatures Mobile Science Education Humans are pretty odd, but we are not the weirdest of creatures on the planet. Come and help us explore human limits and how we compare to other evolutionary marvels.
1:20pm	Our Australian Animals Nature Education Centre The Nature Education Centre's focus is to encourage children to learn about native Australian Wildlife and their habitats. The presenter will show you a variety of the Centre's animals and explain what makes each of them so special!
1:45pm	Bubble-Tific Mobile Science Education Help us explore the chemistry and beauty of bubbles and how the laws of entropy define their shape – plus the obligatory person inside a giant bubble thing and a few other tricks...
2:10pm	What Is Colour? The Young Scientists of Australia (YSA) This show will use the concept of colour to explore the process of science. Demonstrations will revolve around questions such as 'Why is the sky blue?', 'What causes chemical colour changes?' and 'What happens when colours mix?', using mostly household chemicals and objects.
2:35pm	Mathantics Mobile Science Education Explore the outrageous nature of numbers, weird patterns and universal proofs - with tricks, tips and head scratching problems thrown in for fun. Join us as we attempt to speak the language of science...
3:00pm	Engineering (Without Borders) Engineers Without Borders SA The EWB Outreach Programs introduce students to global challenges (such as water & sanitation) and solutions to these using modern engineering techniques. This show will introduce you to the topic of appropriate housing and the innovative idea of floating houses along the Tonle Sap in Cambodia!
3:25pm	Animal Behaviours ZoosSA Join us to discover the most positive approach to successful behaviour change with animals, exploring techniques used with zoo animals within Adelaide and Monarto Zoos, which can also bring great results in your own backyard!
3:50pm	Fire & Ice SciWorld Learn about extremes in temperature in this interactive show that will teach you about climate change, atmosphere and the factors that will influence our Future Earth!



All Science Shows run for 20 minutes. Program is correct at the time of printing, however is subject to change

Back by popular demand are SASTA's range of Stage 1 exams!



The 2017 Stage 1 end of year exams feature a range of questions with difficulty levels ranging from simple to challenging.

All questions are in context, are mapped to the subject outlines for teaching in 2017, and are designed to prepare students for examinations at Stage 2.

Students apply their knowledge to a 100 mark examination which is designed for formative or summative assessment at stage 1. Each exam comes with a complete set of solutions with variations on each answer to cover a wider range of student responses.

Take some of the pressure off in term 4 and purchase one or all of our end of year exams for Stage 1 biology, chemistry and physics. Two different marking schemes are provided for teachers to simplify the assessment process.



Purchase and download at
www.sasta.asn.au for \$165 each.

You simply must try our exams! We are confident that you will come back for more!



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SASTA Study Guides are the complete resource for students preparing for Year 12 SACE Board of SA exams.

These guides include questions with suggested solutions covering each topic in the subject outline and address all sections of the exam.

Please fax school purchase orders to 8354 0008 or order online at www.sasta.asn.au

Inquiries concerning resources can be answered by the SASTA office by telephoning 8354 0006 or email office@sasta.asn.au



Supporting Teachers of Science
Advancing Science Education

www.sasta.asn.au

SACE Stage 2 Trial Exams



The SASTA SACE Stage 2 Trial Exams are a 'must have' resource, developed by leading teachers to support SACE Stage 2 teachers of:

- Biology;
- Chemistry;
- Physics and
- Psychology.



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Purchase and download trial exams online at
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This vital resource will familiarize teachers and students with the SACE Stage 2 exam format. Teachers will be able to use the resource as a revision for students, stand-alone assessment tool or to develop exam preparation skills.



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marks scheme