

February 2018 **SASTA**

Newsletter of the South Australian Science Teachers Association Inc.



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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Conferences / Events

SACE Stage 2 Workshops

- Introductory Relativity for Stage 2 Physics
- Teachers New to SACE Stage 2 Biology
- Introductory Stage 2 Physics
- Introducing Stage 2 Chemistry
- Teachers New to SACE Stage 1 & 2 Psychology

See page 6 for more details.

Laboratory Induction Workshop

Friday 23 February 2018, Cabra Dominican College.
See page 5 for more details.

Putting the 'E' in STEM

- **Primary Years** - Friday 9 March 2018
- **Years 7 - 10** - Monday 19 March 2018

See page 5 for more details.

Oliphant Science Awards

Details concerning the 2018 Oliphant Science Awards are now available. Please see page 10 for details or visit the website: www.oliphantscienceawards.com.au.

Annual Conference & Expo

The next Annual Conference & Expo will be held on Monday 16 & Tuesday 17 April 2018 at Adelaide High School. Further details are available on page 4 or visit www.sasta.asn.au.



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South Australian Science Teachers Association Inc.

Patron: Dr Leanna Read ABN 22 938 317 192

Registered by Australia Post - Print Post Publication No. PP 100004158

Member of the Australian Science Teachers Association (ASTA)

Supporting Teachers of Science | Advancing Science Education





2018 SASTA Committee

Patron of the South Australian Science Teachers Association

Dr Leanna Read FTSE, FAICD, Chief Scientist for SA

SASTA Board

Vanessa Fay (President)
Mark Divito (Vice President & Treasurer)
Anthony Armstrong
Marianne Nicholas
Anita Trenwith
Jane Wright
Yvonne Zeegers

Board Representatives

Awards

Yvonne Zeegers

PD & Conferences

Jane Wright

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Lester Russell
Peter Schodde OAM
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Ray Smith
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Newsletter copy deadlines 2018

(Advertising deadlines one week earlier)

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

Advertising

Advertising rates & booking form available 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 alternatives 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



A warm welcome to all teaching science in 2018! What a busy start to this year of teaching the new Australian Curriculum Year 12 science subjects, and the focused preparations being made to commence teaching the new curriculum in South Australian schools are being made with their usual standard of excellence.

The Australian Science Teachers Association held its residential STEM X Academy at the Australian National University in Canberra during the second week of January for over 70 teachers from around Australia. About half the attendees taught in primary schools around Australia, while the other teachers taught in middle and senior secondary sectors, and separate programs had been developed for each group that occasionally overlapped, and led to some energetic networking! The STEM X Academy aims to empower teachers to incite a STEM-capability revolution, and is run by ASTA, Questacon, and the CSIRO. The course of teacher professional development in developing STEM inquiry and student learning from thinking 'outside the square' has been designed around the concept that "STEM is key not only to our economic prosperity but also to our environmental, social and cultural wellbeing, and it is teachers who are crucial to advancing STEM capability in Australia's classrooms".

As one of the privileged cohort attending the STEM X Academy this year, I can thoroughly recommend its relevant and engaging hands-on program, with one attendee describing the week as the best teacher professional development they had ever attended. Applications for attending the STEM X Academy will be on the ASTA website later this year, and are well worth watching out for.

A personal highlight for me was the evening spent at the Mount Stromlo Observatory, where Professor Ben Greene described how he was eradicating space junk by laser targeting, and the always fascinating Brad Tucker took us through the history of the cosmos and Australia's role in enhancing our understanding of that. Professor Brian Schmidt's Nobel Prize medal and certificate are on display there, and some of us were privileged to hold a 30kg satellite worth an amount expressed in seven figures. Their work continues despite being burned out in the 2003 bushfires, and is an inspiring example of Australian ingenuity and resilience which underlies the application of STEM approaches to problem solving.

I wish you all well in your own STEM adventures this year with your students!

Vanessa Fay

2018 SASTA Awards

There are many great teachers out there that SASTA would like to acknowledge, but often they don't get nominated for Awards because teaching is a very busy job and people don't get the time to fill in nomination forms. **Start thinking now! Alert your Principal. There are a number of Awards for SASTA members.**

SASTA Medal

SASTA offers its members an award for excellent contribution to science education or teaching or both. The SASTA Medal is awarded to an individual who has made a significant contribution to SASTA and has been active in science education.

Credit Union SA / SASTA Outstanding Teacher Award for junior primary, primary, middle years and senior years teaching

The Outstanding Teacher Awards' recognise teachers' contributions to the education of students in science.

Helen Castle Memorial Scholarship

This Scholarship is in memory of Helen Castle, a dedicated and enthusiastic science teacher who tragically died during the Eyre Peninsula bush fires in 2005. The Scholarship is designed to assist country science teachers attend the SASTA Annual Conference and gain professional development to assist themselves and other country teachers to maintain a high standard of science teaching in country areas. Two (2) scholarships of \$500 will be awarded to enable country based science teachers to attend the SASTA Annual Conference on Monday 16 & Tuesday 17 April 2018.

Nomination forms are available at www.sasta.asn.au.

Nominations close Friday 2 March 2018 at 4.00 pm

SASTA Annual Conference & Expo

Theme: Spotlight on the Science in STEM

16 -17 April 2018, Adelaide High School

The South Australian Science Teachers Association (SASTA) is delighted to announce details of the forthcoming Annual Conference program. Over 200 R-12 teachers, laboratory officers and tertiary educators are expected to attend.

Distinguished keynote and cutting edge presenters

The SASTA Annual Conference has a reputation for outstanding Keynote and Cutting Edge Presenters.

In 2018 we are proud to have confirmed:

Keynote Presenters:

- Dr Kristin Alford - Director of MOD
- Professor Steve Donnellan, Evolutionary Biology Unit, SA Museum

Cutting Edge Presenters:

- Dr Cristian Birzer, Senior Lecturer, School of Mechanical Engineering, The University of Adelaide
- Dr Jayakumar Bose, ARC/DECRA Fellow, School of Agriculture, Food and Wine, The University of Adelaide
- Dr Justin Chalker, Senior Lecturer Synthetic Chemistry, College of Science and Engineering, Flinders University
- Dr Stephanie Reuter Lange, Senior Lecturer, School of Pharmacy and Medical Science, University of South Australia
- Associate Professor Tom Raimondo, Program Director: Environmental Science and Geospatial Science, University of South Australia
- Dr Susan Woods, Senior Research Officer, Gastrointestinal Cancer Biology Group, The University of Adelaide

Program Outline

Day 1 Monday 16 April	
8.30am	Registration
9.00am	Welcome & Award Presentations
9.30am	Keynote Presentation
10.30am	Morning Tea & Exhibition
11.00am	Workshop Session 1
12.00pm	Workshop Session 2
1.00pm	Lunch & Exhibition
2.00pm	Workshop Session 3
3.00pm	Panel Discussion
4.00pm	Happy Hour
6.30pm	Conference Dinner - Adelaide Pavilion (cnr South Tce & Peacock Rd)

Day 2 Tuesday 17 April	
8.30am	Registration
9.00am	Welcome
9.05am	Keynote Presentation
10.00am	SASTA AGM
10.30am	Morning Tea & Exhibition
11.00am	Cutting Edge Session A
12.00pm	Cutting Edge Session B
1.00pm	Lunch & Exhibition
2.00pm	Workshop Session 4
3.00pm	Workshop Session 5
4.00pm	Happy Hour

Sponsored by:



Term 1 Professional Learning

For Secondary / Middle school teachers:

Laboratory Induction Workshop

Date: Friday 23 February 2018

Time: 9.30am - 3.00pm

Venue: Cabra Dominican College

Presenters: Dr Catherine O'Halloran and Kate Dilger

This workshop is designed to address the needs of teachers who are new to teaching in a science laboratory. Instruction will include; safety guidelines, including how to complete a risk assessment, equipment use and behaviour management. Teachers will be guided through typical laboratory lesson scenarios and have the opportunity to plan and complete a practical investigation.

The workshop will be held in a school laboratory setting.

Intended Audience: Secondary / Middle school teachers

Putting the 'E' in STEM (Years 7 - 10)

Date: Monday 19 March 2018

Time: 9.00am - 3.00pm

Venue: Education Development Centre

Presenter: Kate Dilger

Why is the E so important?

Engineering offers a tangible link between the STM components and their applications. Implementing engineering practices as part of a teaching and learning program offers teachers the opportunity to explore new exciting and engaging activities and students a new way to solve problems.

This workshop will focus on what this might look like in a classroom. Teachers will explore the engineering design process through prepared exemplar challenges. The tasks and resources aim to give teachers the experience and support they need to plan and deliver STEM focussed lessons that highlight the design thinking required in engineering.

Intended Audience: Teachers of Years 7-10 science

For Primary Years teachers:

Putting the 'E' in STEM (primary years)

Date: Friday 9 March 2018

Time: 9.00am - 3.00pm

Venue: Education Development Centre

Presenter: Kate Dilger

Why is the E so important?

Engineering offers a tangible link between the STM components and their applications. Implementing engineering practices as part of a teaching and learning program offers teachers the opportunity to explore new exciting and engaging activities and students a new way to solve problems.

This workshop will focus on what this might look like in a classroom. Teachers will explore the engineering design process through prepared exemplar challenges. The tasks and resources aim to give teachers the experience and support they need to plan and deliver STEM focussed lessons that highlight the design thinking required in engineering.

Intended Audience: Teachers of primary years, up to year 6

Registration Fees

- **Personal Member** \$145
- **SASTA Student Member** \$145
- **Corporate Member** \$185
(SA School)
- **Non Member** \$225

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

Morning tea and lunch will be provided

SACE Stage 2 Workshops

Introductory Relativity for Stage 2 Physics

Monday 12 February

Time: 4.30pm - 7.00pm

Venue: Concordia College

Presenters: Paula Groncki (Seymour College) and Michael Smith (Concordia College)

An overview of the relativity sections of the new course will be provided, and guidance offered for planning, assessment and task design. Participants will be given the opportunity to share and discuss ideas, tasks and other resources for teaching the new course.

Key Topics:

- New course content
- Sharing and discussion of resources
- Teaching and Learning
- Assessment ideas

Intended Audience: For teachers new to Stage 2 Physics and current teachers seeking guidance for the new course.

Teachers New to SACE Stage 2 Biology

Monday 19 February

Time: 9.00am - 3.30pm

Venue: Education Development Centre

Presenters: Brian LeCornu and Tony Diercks

Key Topics:

1. Introduction

- Australian Curriculum 2018 (Topics and Assessment, SU, SIS, SHE)
- What's new?
- SACE Board documents
- Designing a Teaching Program
- Alternative Programs

2. Theory Lessons

- Teaching biology (including discussion of new content for 2018)
- Analysing worksheets, class assignments, homework assignments using new assessment design criteria and performance standards
- AV and multimedia materials in Senior Biology

3. Practical Lessons

- Types of Practical
- Assessing practical work
- Test questions relating to practicals

4. Assessment Plans

- Including changes for 2018 – e.g. 'weightings', examination format

5. Moderation

6. Preparing tests, SHE questions, and SHE investigations

- Analysing test questions
- Preparing answers
- 'Deconstructing' a problem

7. Marking

- Marking tests, SHE questions, and SHE investigations
- Marking extended response questions

8. Q & A Session

Intended Audience: For teachers new to Stage 2 Biology and current teachers seeking guidance for the new course.

Registration Fees

Evening workshop

- Personal Member \$77
- SASTA Student Member \$77
- Corporate Member \$99 (SA School)
- Non Member \$120

Full day workshop

- Personal Member \$145
- SASTA Student Member \$145
- Corporate Member \$185 (SA School)
- Non Member \$225

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

Morning tea and lunch will be provided for the full day workshops.

Introductory Stage 2 Physics

Monday 26 February

Time: 9.00am - 3.30pm

Venue: Education Development Centre

Presenters: Paula Groncki (Seymour College) and Michael Smith (Concordia College)

Introductory Stage 2 Physics provides an overview of the new course for 2018.

An overview of the course will be provided, and guidance offered for planning, assessment and task design. Participants will be given the opportunity to share and discuss ideas, tasks and other resources for teaching the new course.

Key Topics:

1. **Overview of the course**
 - Using the subject outline in teaching
2. **Planning and assessment**
 - Assessment types
 - Developing a LAP
 - Good investigations
 - Developing SATs
 - Formative / Demonstration activities
 - Other resources
 - Planning the year
3. **Sample tasks and discussion**
 - Have some prepared to discuss
 - Assessing and using the performance standards
 - Science Inquiry Skills / SHE assessments
 - Examination preparation
4. **Moderation**
 - What is required
 - Planning and organisation

Intended Audience: For teachers new to Stage 2 Physics and current teachers seeking guidance for the new course.

Teachers New to SACE Stage 1 & 2 Psychology

Friday 2 March

Time: 9.00am - 3.30pm

Venue: Education Development Centre

Presenters: Irena Atherton and Carolyn Pinchbeck

Key Topics:

1. **Levels of Explanation**
2. **Assessment Type 1: Investigations Folio**
 - How to conduct a research program
 - Guiding students in writing research proposals, drafts and final reports

Introducing Stage 2 Chemistry

Friday 2 March

Time: 9.00am - 3.30pm

Venue: Education Development Centre

Presenters: Sandra Eustace (St Aloysius College) and Emily Gough (St Peter's Girls' School)

Introducing Stage 2 Chemistry provides an overview of the course for 2018, which is the first year of teaching the new Subject Outline.

An overview will be presented, and guidance offered for planning, assessment and task design. Participants will be given the opportunity to share and discuss ideas, tasks and other resources for teaching the new course.

Key Topics:

1. **Subject outline and its use with students**
2. **Planning and assessment**
 - Assessment types
 - A look at investigations
 - Developing SATs - not all tests
 - Formative / Demonstration activities
 - Other resources
 - Planning the year
3. **Sample tasks and discussion**
 - Have some prepared to discuss
 - Assessing and using the performance standards
 - Science Inquiry Skills / SHE assessments
 - Examination preparation
4. **Moderation**
 - What is required
 - Planning and organisation

Intended Audience: For teachers new to Stage 2 Chemistry.

- Strategies to help students understand the skills needed for the research programs
3. **Assessment Type 2: Skills and Application Tasks**
4. **Grading of:**
 - Assessment Type 2: Skills and Application Tasks (Stage 1 focus)
 - Assessment Type 2: Skills and Application Tasks (Stage 2 focus)

Intended Audience: For teachers new to Stage 1 or 2 Psychology.

National Science Week

11 - 19 August 2018

School theme - Game Changers and Change Makers

In 2018 the focus will be on scientists, engineers, technologists, mathematicians, designers and innovators of the past and present (and not just the famous ones!) who have and are making great changes to the way we live. National Science Week will be taking inspiration from three 'celebrations' in 2018:

- 200th anniversary of the publication of Mary Shelley's Frankenstein (genetic engineering, biotechnologies, prosthetics, bionics, genetic modification, brain enhancement and ethics)
- 40th anniversary of the birth of the first test tube baby (genetic engineering, biotechnology, nanotechnology)
- International Year of the Reef (coral reefs and the scientists who study them)

An electronic resource book and poster will be available in March/April. Keep an eye on the Australian Science Teachers Association (ASTA) website for more information:

<http://asta.edu.au/programs/natscienceweek>

School Grants 2018

Grants for amounts of \$100 to \$500 will be available to SA Schools to conduct any Science activity or event during National Science Week.

The application process can be completed online and will be open from Monday 26 February 2018. Applications will close towards the end of April.

For more information, please visit the ASTA website at - <http://asta.edu.au> and click on National Science Week. Or visit the National Science Week website for more details about the event:

<https://www.scienceweek.net.au/schools/>

Enquiries about the Schools Grants can be sent to the SA Schools Grants Representative, Priscilla Martinus at fullerst@adam.com.au

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* To be eligible for a \$100 account credit you must open a new Credit Union SA Access Account between 15/01/2018 to 30/04/2018, add the Visa debit card to Apple Pay and use it to complete three (3) purchases/payments before 31/05/2018. Limit one (1) cashback per person. Joint accounts limited to one (1) cashback per account. Please read the terms and conditions at creditunionsa.com.au before making a decision and consider whether the product is suitable for you. The offer is current as at 15/01/18 and is subject to change at any time. Apple, the Apple logo, Apple Pay, Apple Watch, iPad and iPhone are trademarks of Apple Inc., registered in the U.S. and other countries. Credit Union SA Ltd, ABN 36 087 651 232, AFSL/Australian Credit Licence 241066, 400 King William Street, Adelaide SA 5000. 180109

Notice of Annual General Meeting

Notice is given that the 2018 Annual General Meeting of members of The South Australian Science Teachers Association Incorporated will be held at Adelaide High School, West Terrace, Adelaide, on Tuesday 17 April, commencing at 10.00am for the purpose of transacting the items of business below.

Agenda

1. Welcome and Apologies
2. Minutes of the 2017 AGM
 - a. Acceptance
 - b. Business Arising
3. President's Report
4. Treasurer's Report
5. Election of Board Members
6. General Business
 - a. Membership Fees
 - b. Appointment of Auditor
7. Any Other Business

Call for nominations - 2018

South Australian Science Teachers Association
ABN 22 938 317 192

Closing date: 5.00pm 20 March 2018

Background

1. Call for Nominations

All members of SASTA are hereby notified of a call for nominations for three (3) positions on the Board.

2. Composition of the Board and terms of office

The board consists of up to nine (9) elected members who shall hold office for a term of three (3) years. Continuous elected membership shall not exceed nine (9) years.

Responsibilities of Board Members

The Board governs SASTA and has overall responsibility for determining the strategic plan and priorities, monitoring implementation and developing a resource base to support the organisation's activities. It is also responsible for the financial viability of SASTA and ensuring compliance with statutory requirements applicable to an association. All Board members are required to act in what the Board considers are the best interests of the organisation, being the interests of the membership as a whole.

Nominees should be aware that there are at least six Board meetings each year for the purposes of corporate governance of the organisation. There is an emphasis on policy and, specifically, corporate governance. The Board is not involved in the day to day running of the association's business.

Position Description & Nomination Form

A Board Member position description and nomination form is available on the SASTA website at www.sasta.asn.au in the 'Members Area'.

*NB Only Personal Members are entitled to vote and hold office in the Association. Each Corporate Member shall be entitled to one vote by a nominated delegate acceptable to the Board in elections of the Association but no such delegate shall be entitled to hold office through Corporate Membership nor may Corporate Members nominate others for office.

Further information

Members interested in nominating for the Board are welcome to contact Greg Cole, Executive Officer, on 8354 0006 if they require further information.

Oliphant Science Awards

Great opportunities for learning through science



BHP Billiton Awards

Congratulations to Vira Wallis from Mawson Lakes School who is South Australia's teacher finalist in the BHP Billiton Teacher Awards.

Winning entries from 2017 Scientific Inquiry and Models & Inventions categories were eligible to enter the BHP Billiton Science & Engineering Awards national competition.

Anyone planning a scientific inquiry, model or invention entry should have a look at the BHP Billiton judging criteria. There are great prizes for Primary and Secondary entries, including cash, a science camp and a trip to the USA to attend a science fair.

Ideas for starting your entry

Scientists solve problems

Look around you - have you got a problem that needs fixing? Many discoveries and inventions have been made by scientists trying to solve a problem.

Invent a solution

Here is a good web site to help solve your problem. The 'Creative Thinking Lesson Plan' gives you easy to follow steps to help spark your inventive abilities. Look up <https://www.thoughtco.com/creative-thinking-lesson-plans-1992054>

2018 Category Titles

Photography

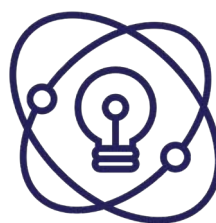
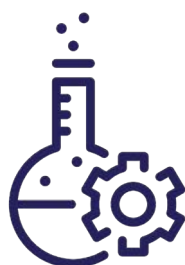
- Colours of the Earth
- Golden Ratio in Nature
- The Night Sky
- Real or Virtual?
- How do things grow?
- Chemical Shapes

Posters

- Game changers in Science
- Your favourite experiment
- Automating Agriculture
- Recycling
- Superheroes of Science
- Nanomaterials

Science Writing

- Can coral reefs be regenerates?
- Batteries of the future
- AI - its uses now and in the future
- Extreme disasters
- CRISPR - its impact on biotechnology
- Species variation! The science of biodiversity
- Science topic of your choice (YEAR 8-10 ONLY)
- Science as a Human Endeavour (YEAR 11-12 ONLY)



Rowe Scientific New and Country Schools Incentives

Rowe Scientific Support for new schools and country school's participation:

New schools who have not participated in the past five years, have the opportunity to receive up to \$200.00 in entry fees to enter the Oliphant Science Awards by applying for the New Schools Incentive (Incentive is deducted from registrations invoice only – no cash payments).

Country schools can apply for the Country Schools Incentive, in which they will receive reimbursement for couriers/postage of entries to and from the competition of up to \$200.00 (with copies of original receipts).

Applications close 8 June 2018

Apply now: Please fill out the form online at www.oliphantscienceawards.com.au

2018 Oliphant Key Dates

Term 1

- Look at information on the website, distribute student information, category information and rules to students
- New Coordinators meeting (online) - Date TBC

Term 2

- **Registration forms** - negotiate a date with your students to return their student registration form (before 21 June)
- **Friday 8 June** - Closing date for Rowe Scientific New & Country School Incentive applications
- **Thursday 21 June** – School Coordinator Registration and Project Registrations due.
- **Friday 22 June** – Judges Registrations due.

Term 3

- **Monday 23 to Friday 27 July** – Delivery of Science Writing, Scientific Inquiry, Games and Multimedia entries to SASTA.
- **Saturday 11 August** – Computer Programming and Robotics judging interviews
- **Friday 24 August** – Crystal Investigations, Models & Inventions, Photography and Poster entries delivered between 9am – 5pm to Festival Functions.
- **Saturday 25 August** – Crystal Investigations, Models & Inventions, Photography and Poster Judging Day.
- **Sunday 26 August** – Open Day 12:00 noon – 4:00pm.
- **Monday 27 August** – ALL Entries to be collected from Festival Functions.
- **Friday 21 September** – Presentation Ceremony (Invitation Only event).

All details are subject to change, please keep checking the **Oliphant Science Awards Website** (www.oliphantscienceawards.com.au)

To Find Out More or Get Involved:

Visit www.oliphantscienceawards.com.au to download the complete 2018 Information Booklet for all the details on this year's competition. You can also watch our Oliphant Science Awards Video, view past event photos and details of previous winners, register as a judge or volunteer, or simply find out more about the competition!



Like us on Facebook!

www.facebook.com/oliphantscienceawards



Teacher Professional Development Day



Access a number of syllabus-focused educational resources to teach areas of the **Year 9 Science and Yr 12 Physics curricula.**

SOUTH AUSTRALIA

Professional Development Day

JUNE

5

Tuesday

🕒 9.00am - 3.00pm

📍 The Science Exchange
55 Exchange Pl
Adelaide, SA

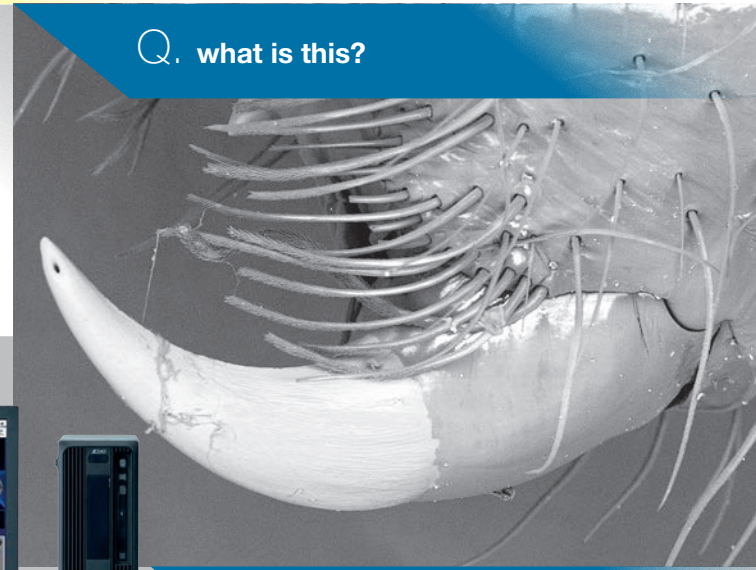
- 🗨️ Hear from prominent Australian scientists
- 🔬 Learn about Australia's capabilities in nuclear science
- 👥 Participate in workshops
- 📄 Receive new educational resources

REGISTRATION AND FURTHER INFORMATION

www.ansto.gov.au/education

Hosted by The Royal Institution of Australia

inspire curious minds



Q. what is this?

Hint. a part of this spider



A. Huntsman spider fang

In a partnership between Adelaide based company NewSpec and Hitachi High Technologies a new initiative has been developed to support schools-based STEM learning in an Australian first.

Limited bookings now available for the 'Lab Launch' pilot program.

10 places only.

\$500 for the TM4000 Scanning Electron Microscope Learning Lab to visit your site for one week.

All programs and resources are linked to the Australian Curriculum.

Our mission to inspire new generations of innovative pioneers through providing classroom based, hands-on access for all learners to world class equipment and professional expertise, delivering inspiration in the areas of Science, Technology, Engineering and Mathematics

Year 8 & 9 Practical Investigation Workbooks

The SASTA Practical Investigations Resources are student workbooks written to support the Australian Curriculum: Science for Year 8 and 9

These workbooks contain new, up-to-date, engaging and innovative science practicals in an easy to use design. These write-in workbooks guide students through each investigation, encouraging them to practice and enhance their inquiry skills, design procedures and answer questions about their learning. Each practical investigation comes complete with an assessment rubric to allow teacher feedback on student learning.

These items have a minimum order of 20 copies per title as it is a student write-in workbook and not a blackline master.

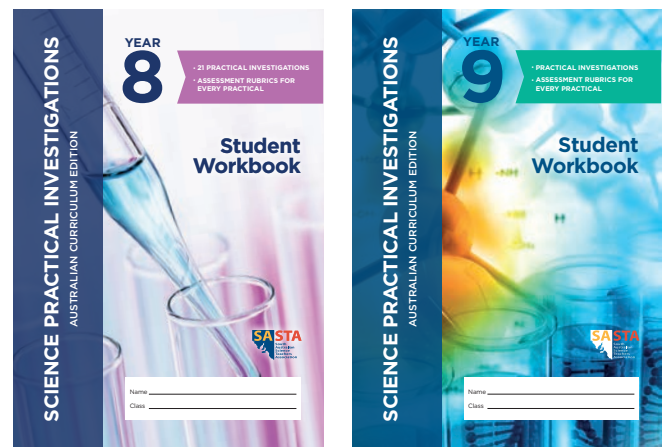
Features:

- Science Investigations that comprehensively explore the content of Biological sciences, Chemical sciences, Earth and Space sciences and Physical sciences for the Year 8 or 9 Australian Curriculum.
- Explanations of how to work scientifically, including; manipulating variables, graphing and measurement.
- An emphasis on Science Inquiry Skills.
- Australian Science Curriculum overview that highlights the context explored in each of the three standards; Science Understanding, Science as a human endeavour and Science Inquiry skills.
- Assessment rubrics for each practical giving an A - E scale for assessing the Science Inquiry skills.
- Consistent, easy to use format.

Cost: \$18.50 (including GST) per book

Minimum order of 20 copies

Sample pages are available at www.sasta.asn.au



SCIENCE INVESTIGATIONS RESOURCE

What if..... we do Science?

Helen Silvester



- Over 50 unique Science investigations!
- Easy to use student worksheets ready to photocopy
- Ideal for use as assessment tasks
- Aligned directly to the Australian Curriculum: Science
- Highlights the Science Inquiry Skills
- Year 5 and 6 resources currently available

Order now from SASTA at the price of \$55 incl. GST

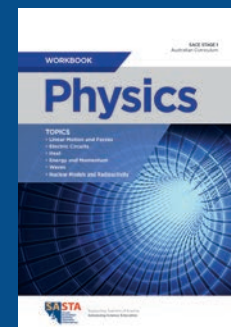
www.sasta.asn.au

SASTA SACE Stage 1 Workbooks

SACE Stage 1 Biology, Chemistry and Physics workbooks adapted for the Australian Curriculum, \$49 each

SASTA's workbooks have been written to align with the new SACE Stage 1 curriculum. They contain all new original questions for students. The SASTA resource covers all topics outlined in the SACE curriculum in an easy to read format and will be printed in colour and rich with illustrations and diagrams to enhance learning. **Sample chapters are available at www.sasta.asn.au**

- Over 300 full colour illustrations & diagrams;
- Over 100 original questions in each book;
- Over 250 problems with worked solutions;
- Questions range from simple to challenging;
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Biology Levels of Life

Brian LeCornu and Tony Diercks

Biology Levels of Life - Australian Curriculum Edition Textbook

BIOL.S2.TB \$59.95

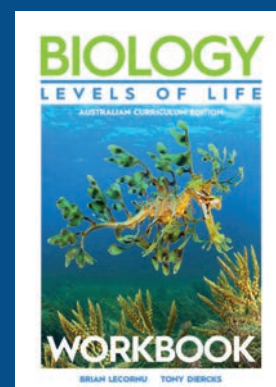
This textbook is from the authors of the popular Biology: Levels of Life materials, used by teachers and students since 2000. It provides detailed coverage of all the content (Science Understanding) of the Biology subject outline to be taught at Stage 2 from 2018. The new content is relevant, up-to-date and addresses **Science as a Human Endeavour**, with many examples throughout. It is attractively presented in full colour with numerous links to videos, animations, and useful resources. The textbook is divided into four topics, with each topic presented in chapters designed to make the material easy to follow, with study questions at the end of each chapter.



Biology Levels of Life - Australian Curriculum Edition Workbook

BIOL.S2.WB \$23.50

This workbook has been written specifically to complement the textbook. It covers all Science Understandings of the Biology subject outline and can be used in conjunction with the textbook or it can be used effectively on its own as an aid for understanding and revision. By completing answers to the workbook questions, students will develop their knowledge and understanding of biological principles and concepts relevant to the course.

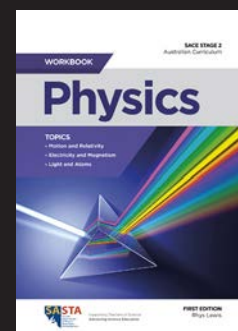
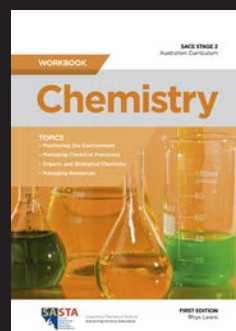


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