

August 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

STEM - beginning with the Science (Primary)
Friday 10 August

STEM - beginning with the Science (Secondary)
Friday 24 August

These sessions will focus on the Chemical Sciences.

SACE Biology Marking Workshop
Friday 14 September

See page 4 for more details about these workshops.

Early Career Teachers Conference

Friday 12 October 2018 | Immanuel College

Knowledge on its own isn't enough; it's the understanding of the science content that brings it to life. This conference will include specialised workshops for both Primary and Secondary Teachers.

See page 7 for more details.

STEM 6-11 Conference and Expo

Friday 30 November 2018 | Call for Presenters is now open!

Submit your abstract by Friday 14 September at www.sasta.asn.au

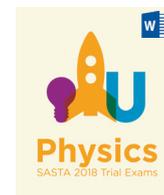
Oliphant Science Awards

Open Day - Sunday 26 August 2018

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

See page 8 for details or visit the website:

www.oliphantscienceawards.com.au.



Stage 2 Trial Exams

SASTA Stage 2 Trial Exams are now available and can be purchased and downloaded at www.sasta.asn.au.

South Australian Science Teachers Association Inc.

Patron: Dr Leanna Read ABN 22 938 317 192

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Member of the Australian Science Teachers Association (ASTA)

Supporting Teachers of Science | Advancing Science Education





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Oliphant Science Awards

Anita Trenwith
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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

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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



Welcome back to term 3 for 2018! After a reviving and energising look at science teaching around Australia at CONASTA67 at the University of Sydney, courtesy of STANSW, for those of us who were lucky enough to attend, it is now time to reflect upon and begin to incorporate some of the ideas

gleaned there, and develop some of the networks gained while attending.

The opportunity to explore the oldest museum in Australia, the Australian Museum, was embraced by many of us prior to the Welcome Function in the Atrium. The skeleton of a very large dinosaur, tens of metres long, was spectacularly suspended from the high ceiling of its gallery. The geological collection, collections of Australian birds, and reproductions of the Welcome Stranger and Hand of Faith nuggets were also extraordinary for both their size and breadth.

On the first morning of the conference, the Minister for Education and Training, the Honourable Simon Birmingham, presented his vision for the recruitment of STEM qualified teachers for every STEM classroom in Australia to support the role of STEM as a powerful economic driver in Australia's future, and address the current issue of out-of-field teachers in STEM classrooms.

Dr Tanya Latty, a keynote speaker from the University of Sydney, queried us all, asking "Are you smarter than a slime mould?" while she explored the mysteries of swarm intelligence in bees, ants, giant amoebas, and acellular slime moulds (Protista). Her conclusion that collective behaviour allows organisms to make the best choices, and to 'self-organise' is very relevant to the world into which we are moving, where many things are interconnected such as drones and driverless cars. Shortest path algorithms and Steiner trees make a welcome interdisciplinary connection as well.

The inspiring Stanhope Oration was delivered by Professor Lisa Harvey-Smith, famous for her appearances on 'Stargazing Sky', where she showed us a fascinating visual representation of the world's largest radio telescope, the Square Kilometre Array. Instead of an 'orderly' array, the placement of receivers has been deliberately randomly scattered to reduce duplication of information. So far they have found 'fast radio bursts', which are a thousand times brighter than a galaxy, but only last for a millisecond or less; as yet we are unsure what they represent. Gravitational waves, dark matter in galaxies, weighing black holes and supernova sightings are all part of her work.

Professor Richard Garratt from ANSTO gave us a fascinating insight into their developmental projects. They are building a 'dark matter' detector at the bottom of a goldmine, over a kilometre underground, at Stawell, and he theorised that dark matter was probably a particle, like protons and neutrons, which is holding our galaxy together. The ITER Plasma Diagnostic Project represents a significant ANU-ANSTO-ITER collaboration of 35 nations to provide new, clean, safe and unlimited fusion energy, just as our sun is the source of fusion energy for our world. The exciting announcement that ANSTO is offering the CERN High School teacher program to send two Australian science teachers to CERN for three weeks in July 2019, and will advertise this later in 2018, was a very welcome support for science educators to engage more closely with developing technologies and scientific discoveries.

I can thoroughly recommend attending the national science teaching conferences or CONASTAs to every science teacher, whether for primary or secondary teaching. Ideas from Design Thinking, or how to improve scientific literacy of students, support every science teacher's drive for excellence in their field.

Vanessa Fay

SACE Stage 2 Trial Exams

SASTA 2018 edition \$132 each, now available to purchase online!

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.

Available in 'Word' format this vital resource will familiarise teachers and students with the SACE Stage 2 exam format. Teachers will be able to use the resource as revision for students, stand-alone assessment tool or to develop exam preparation skills.

Exam Prep Seminars for SACE Stage 2 Students

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

Biology	
Saturday 1 September	2.30pm - 5.00pm
Physics and Psychology	
Saturday 8 September	2.30pm - 5.00pm
Chemistry	
Saturday 15 September	2.30pm - 5.00pm

Registration fee \$15 (incl.GST) per student. Register online at www.sasta.asn.au

For teachers registering a class, please email or 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.

Term 3 Professional Learning

STEM - beginning with the science

Focus on Chemical Sciences:

Primary: Friday 10 August 2018 | 9.00am - 3.00pm

Secondary: Friday 24 August 2018 | 9.00am - 3.00pm

Venue: Education Development Centre Hindmarsh

STEM teaching and learning involves the successful integration of science, mathematics and technology. Planning and implementing effective lessons that have STEM focus depends largely on teachers' understanding and knowledge of the subject matter.

These workshops aim to deepen teacher's science content knowledge and expertise in teaching that content to all kinds of learners.

The workshops will provide teachers with links to explicit curriculum materials, investigations and contemporary pedagogical strategies that will enable them to successfully plan and deliver integrated science programs with a STEM focus.

Teachers will be actively engaged in science investigations, using an inquiry approach to build conceptual understanding. Teachers will also be challenged to explore the opportunities to integrate technology and mathematics to support the learning.

Register online at: www.sasta.asn.au



Primary | 10 August
Secondary | 24 August

STEM - beginning with the science

Focus on Chemical Sciences



Biology Marking Workshop

Date: Friday 14 September | 9.00 am – 3.30 pm

Venue: Education Development Centre, Hindmarsh

Presenter: Dr Kathy Adams

Intended Audience: For Year 12 Biology Teachers, New Teachers to senior Biology teaching and Year 11 Biology Teachers.

This workshop provides an opportunity for teachers to discuss assessment and the application of the performance standards to samples of work, as well as to have invaluable professional input with their own student samples. As well as an opportunity to readjust marking standards prior to final moderation.

Tasks that will be discussed include the deconstruct and design task, science as a human endeavour investigation and marking of SATs, in particular short answer and extended response questions, including SHE responses.

Key Topics

- Performance Standards
- Deconstruction Tasks
- Science as a Human Endeavour Tasks
- Marking SATs

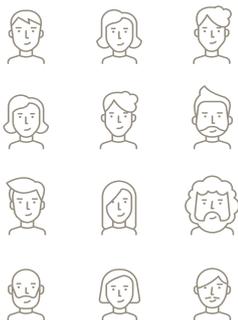
Please bring examples of your own student's work- in particular Deconstruct and Design Practicals, SHE tasks, SHE SAT questions and SATs.

Register online at www.sasta.asn.au

Why should you support the credit union that supports SA's educators?



We help nearly **10,000** educators with their banking



Dedicated mobile team supporting the banking needs of the education community



Teachers of SA Facebook community



Awarding SA's quality teachers through our 18 annual awards



Primary sponsor of CEASA World Teachers' Day Awards



Proud supporter of SASTA since 2001

Sponsoring **210** education professional development events

Over **850** school staff rooms visited each year

Established by South Australian teachers 60 years ago



\$150,000 in fundraising support for South Australian schools

Award winning credit card exclusive to the education community*



Financial education seminars tailored to the needs of the education community



Find out more about how Credit Union SA supports South Australian educators:

creditunionsa.com.au/supporting-education

*Lending criteria, fees, terms and conditions apply. Education Community Banking Benefits are available to any employee of the education community and students carrying out studies in education. Credit Union SA Ltd ABN 36 087 651 232, AFSL/Australian Credit Licence 241066. Credit Union SA Centre, 400 King William Street, Adelaide SA 5000. 180709



STEM

6 - 11 Conference and Expo

30 November 2018

Call for
Workshops
Open!

Attn: Science, Maths, Design & Technology and ICT Coordinators

Call for Workshop Presenters

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 and submit a proposal for the STEM 6-11 Conference online at www.sasta.asn.au by 14 September 2018.





Early Career Teachers Conference

Knowing, understanding and doing science

12 October 2018 | Immanuel College



Conference Theme: Knowing, understanding and doing science

Knowledge on its own isn't enough; it's the understanding of the science content that brings it to life. This conference is an opportunity for early career and pre-service teachers to be involved in **interactive learning activities** that deepen their understanding of the science content and gives them the **skills and resources** to engage their students in learning.

The Conference will include specialised workshops for **both Primary and Secondary Teachers**.

Workshops will include:

Primary Years:

Making it relevant to your students, Hilary Jones, RiAus

Easy ways to show your students how what they are learning in class is relevant to them and the impact it might have on their lives - both day to day as well as big picture.

A selection of techniques, learning tools and resources on how to deliver interesting and fun science to your students ensuring they see the why as well as the what.

Middle Years:

Taking STEM Challenges to the next level, Joanne Scott

This workshop will be about creating an adventure style STEM challenge that caters for larger groups. I will talk through how I planned a STEM challenge that all students from 7-9 were involved in and outline the structure and support needed for a teacher to implement a challenge of their own.

Secondary Years:

Innovative approaches to STEM, Karla Pobke, Australian Science and Mathematics School

This workshop will explore a range of innovative approaches to teaching STEM at senior secondary. Participants will engage in a design process to outline a learning sequence focused on an entrepreneurial idea in STEM.

All Years:

From Graduate to Proficient, Adrian Dilger, Catholic Education SA

Being early career teachers, you may not as yet have changed your registration from graduate to proficient. This workshop will go through the requirements needed to change your status and provide practical advice on the types of evidence required.

The full program will be available soon on the SASTA website!



Oliphant Science Awards

Project and School Coordinator Registrations are now closed for the 2018 competition, with this year's competition attracting almost 2200 projects from 107 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 26 August.

If you are interested in becoming a part of this special event please head to our website to register as a volunteer for 2018: http://www.oliphantscienceawards.com.au/get_involved/volunteers



Reminder of Key Dates

Saturday 11 August

Computer Programming and Robotics judging interviews

Times are by appointment only. Appointments must be made online by Tuesday 7 August. For more information visit: www.oliphantscienceawards.com.au

Friday 24 August

All Crystal Investigations, Models & Inventions, Photography and Poster entries to be delivered between 9.00am – 5.00pm to Festival Functions (292 Findon Road, Findon).

Saturday 25 August

Judging Day for Crystal Investigations, Models & Inventions, Photography and Poster at Festival Functions between 9.00am - 1.00pm.

Sunday 26 August

Open Day at Festival Functions from 12:00pm – 4:00pm

Monday 27 August

Project Collection

All Projects (Winning and Non-winning entries) to be collected from Festival Functions (9.00am - 5.00pm) – 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!

To Find Out More or Get Involved:

Visit www.oliphantscienceawards.com.au 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 volunteer, or simply find out more about the competition!



Like us on Facebook!

www.facebook.com/oliphantscienceawards

Volunteer as a judge in 2019:

Registrations for our 2019 Oliphant Science Awards Judging Team will re-open online in September, so keep checking our website for more information:

www.oliphantscienceawards.com.au





**Entry:
Gold Coin
Donation**

Sunday 26 August 2018

12pm - 4pm

Festival Functions | 292 Findon Road, Findon

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

There will be a number of Science Spectacular Shows to sit back and watch or get hands on with Come & Try activities from the SA Museum, Southern Bricks Lego Users Group, Mobile Science Education and SASTA.

Take some time to have a browse through our large collection of 2018 winning science projects and Model & Invention projects from schools all around SA!

Plus there will be a selection of food & beverage options available for purchase including a BBQ from The Rotary Club of Regency Park, supporting scholarships for students to attend the National Youth Science Forum and coffee from Bean There Drank That Coffee who donate 10c of each cup they sell to HeartKids.

Come along with your class group, friends and family, to experience the fun and magic of science in action!

SCIENCE SHOW PROGRAM

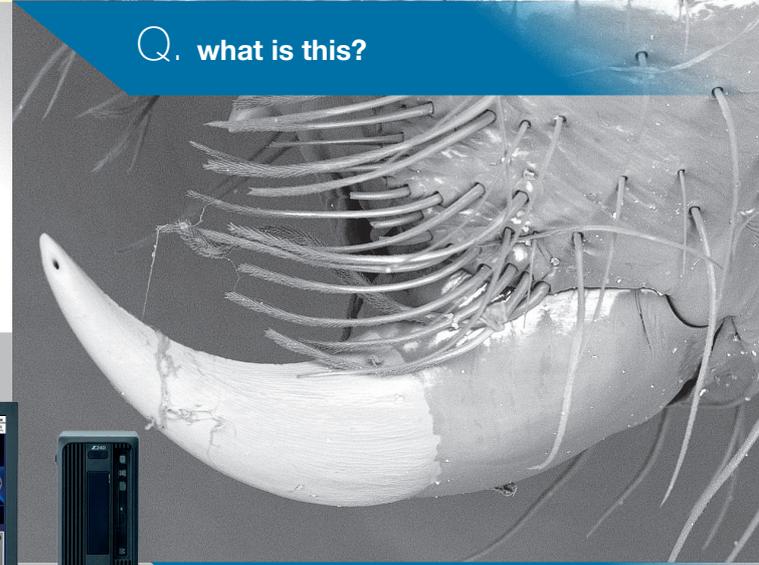
TIME	WHAT'S ON	Southern Stage	Northern Stage
12.10pm	MOTORS, MAGNETS AND MYTHS Mobile Science Education <i>explore Michael Faraday's contributions to the world of science and scepticism.</i>		
12.35pm	LEGO ROBOT WARS Robogals <i>Programming comes to life as we build right from the basics with Lego Mindstorms robots! Pick a robot to cheer for during the robot Balloon Battle while you gain an understanding of simple programming.</i>		
1.00pm	RADIATION, MEDICINE AND PREJUDICE Mobile Science Education <i>explore Marie Sklodowska Curie's trailblazing work.</i>		
1.25pm	POLYMERS James' Travelling Magic Show <i>What is a Polymer? Polymers have a place in science but do they have a place in our society? We will show you what polymers are; where they can be found; how they are used in our society; the issues with polymers and give you ideas to investigate your environment and question some activities humans are doing to themselves.</i>		
1.50pm	TIME, SPACE AND GRAVITY Mobile Science Education <i>how Albert Einstein changed and bent Newton out of shape.</i>		
2.15pm	OUR AUSTRALIAN ANIMALS Nature Education Centre <i>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!</i>		
2.40pm	WHAT IS COLOUR? The Young Scientists of Australia (YSA) <i>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.</i>		
3.05pm	RENEWABLE ENERGY Engineers Without Borders SA <i>The EWB Outreach Program introduces students to global challenges (such as water, appropriate housing and sustainable energy) and solutions to these using modern engineering techniques. This presentation will introduce you to the topic of renewable energy and the importance of social, environmental and economic considerations to design. This presentation also highlights the concept of appropriate technology and innovative solutions.</i>		
3.30pm	RAPTOR RAPTURE Warrawong2U Mobile Wildlife Education <i>Discover the secrets of two different but equally deadly aerial predators – the silent assassin Barn Owl, and the supercar of the skies, the Peregrine Falcon – and how they have inspired some incredible scientific advances throughout human history.</i>		

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

inspire curious minds



Q. what is this?



Hint. a part of this spider

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.



A. Huntsman spider fang

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.

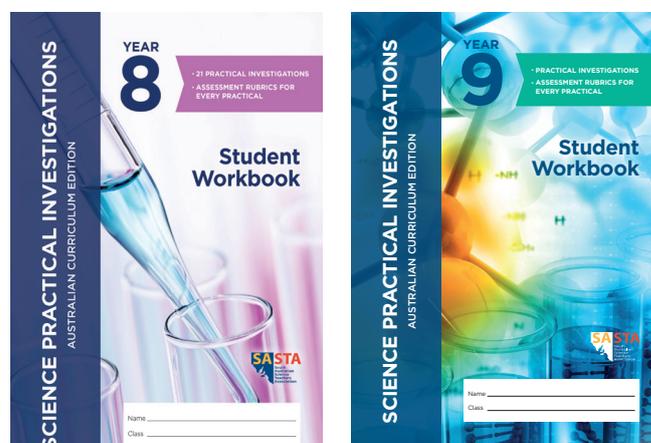
Features:

- 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.
- The Year 9 Workbook reflects the current emphasis on STEM skills through the inclusion of 4 engineering design challenges.

Cost: \$18.50 (including GST) per book

Minimum order of 20 copies

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



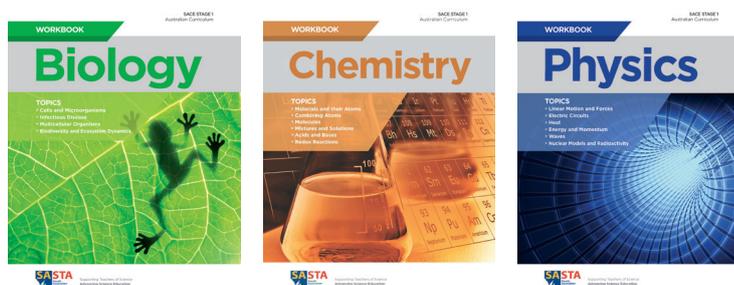
SASTA SACE Stage 1 Workbooks

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;
- All questions are mapped to the new performance standards for Stage 1 & 2; and
- Topic test for each chapter

Order online at www.sasta.asn.au



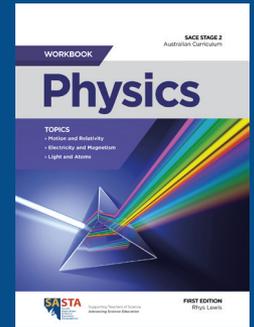
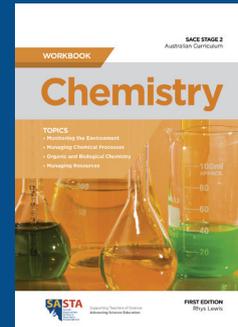
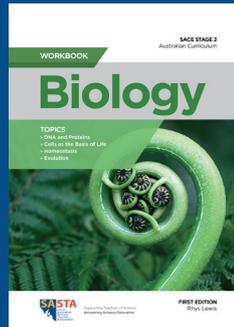
For schools preferring to use a purchase order, simply fax your purchase order (including postage of \$11 flat fee plus \$1 per book ordered) to 08 8354 0008 or email it directly to Rebecca at office@sasta.asn.au.

Stage 2 Science Workbooks

SACE Stage 2 Biology, Chemistry and Physics workbooks adapted for the Australian Curriculum, \$55 each

SASTA's workbooks are a **brand new resource** written for the launch of the new SACE Stage 2 Curriculum. They are a student text and workbook that covers all content of topics outlined in the new curriculum in an easy to read format and will be printed in full colour. **Sample pages are available at www.sasta.asn.au** Each workbook contains:

- A complete explanation of all theory outlined in the subject outlines for 2018;
- All questions are mapped to the new performance standards for Stage 2;
- Over 300 full colour diagrams;
- Over 700 contextual questions with fully worked solutions;
- Questions range from simple to challenging and are designed to prepare students for assessment tasks; and
- Review test for each chapter.



For more details and to order visit www.sasta.asn.au

2018 SASTA Study Guides

All SASTA Study Guides are \$28 each, available NOW!

- Biology
- Chemistry
- Nutrition
- Physics
- Psychology

The Biology, Chemistry and Physics study guides have been rewritten for 2018 to align to the new SACE Stage 2 Curriculum.

SASTA Study Guides are the complete resource for students preparing for Year 12 SACE Board of SA exams. These guides include questions with worked solutions covering each topic in the Subject Outline and address all sections of the exam.

Please email school purchase orders to office@sasta.asn.au or order online at www.sasta.asn.au

