

SASTA

November 2020

Newsletter



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Upcoming Events

STEM Conference

Friday 27 November 2020

Program and registration now available. See page 6.

2021 New Course Nutrition Stage 1 & 2 Workshop

Thursday 14 January 2021, Education Development Centre

See page 4 for details.

Psychology Summer Conference 2021

Friday 15 January 2021, Education Development Centre

See page 7 for details.

Teachers new to teaching Stage 2 Science

- **Biology** - Friday 12 February 2021
- **Physics** - Friday 12 February 2021
- **Chemistry** - Friday 19 February 2021
- **Nutrition** - Friday 19 February 2021
- **Psychology** - Monday 1 March 2021
- **Scientific Studies** - Monday 1 March 2021

See page 4 for more details.

SASTA Annual Conference - Save the date!

12-13 April 2021, Pulteney Grammar School



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South Australian Science Teachers Association Inc.

Association member of the Australian Science Teachers Association (ASTA)

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Newsletter copy deadlines 2021

(Advertising deadlines one week earlier)

Edition	Deadline
February	15 January
May	16 April
August	16 July
November	15 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.

The cover image has been adapted from 'Bushfoods - A rainbow of Australian Native Nutrition' from Josephine Oehler, Seymour College as a Poster entry in the 2020 Oliphant Science Awards competition and received a High Commendation.

From the President



Department for Education Scope and Sequence and Australian Curriculum Units

Last term, specialists in the Department for Education added a South Australian perspective to the

Australian Curriculum by writing a new Scope & Sequence for teachers of science. Four SASTA members were then appointed by SASTA to provide feedback to the writers who have been working from this Scope and Sequence to produce the new curriculum units.

The work was summarised as follows:

- The writing group have produced a comprehensive Scope and Sequence that has been written to clarify the science conceptual understanding, particularly for those teachers who are not science specialists.
- The content of the Scope and Sequence is not as broad but focusses on key points of progression, deepening understanding of these key concepts.
- The new Scope and Sequence embeds SIS and SHE into the science content descriptions, providing a more integrated curriculum.
- The number of elaborations has been reduced for each content description.
- The curriculum is designed to challenge misconceptions in science understanding.

The new units, that were trialled in September, will be available to all sectors however will not be mandated for teaching at this stage.

Department specialists will present these new curriculum units at the SASTA/MASA STEM Conference on 27 November.

Oliphant Science Awards

The huge array of Oliphant Science Awards entries that I saw assembled at the main OSA judging day on Saturday 22 August, showed the amazing range of interests and capabilities of South Australian students.

I read some extraordinary entries in the Scientific Inquiry category, saw some beautifully crafted games, posters, models and inventions and admired stunning photography.

With no Open Day this year, due to COVID restrictions, entries were professionally photographed on Saturday afternoon to allow a Virtual Open Day, enabling SASTA to provide the usual publicity and exposure for the winners and our loyal sponsors. We are now optimistic that COVID-19 conditions will permit the OSA Presentation Ceremonies to occur in the usual way on Friday 13 November. Moreover, the next edition of the SASTA Journal, with its focus on the Oliphant Science Awards, will be a great celebration of OSA 2020.

Jane Wright

Innovative Association Award Winner

We are excited to announce that SASTA has won the Innovative Association Award in the 2020 Educators SA World Teachers Day Awards!

This award recognises and encourages education associations that develop innovative and creative professional learning structures and opportunities.

Our submission focussed on a number of new initiatives and improvements on current practices for the Oliphant Science Awards competition. This included a new blog for students and teachers, a more streamlined online judging process and training presentations for judges, video submissions of projects from students and a Virtual Open Day showcasing all winning projects. Some of these were a result of the impacts of COVID-19 however we will continue to implement them in future years.

Congratulations and thank you to all involved in supporting the Oliphant Science Awards this year. This is a great recognition of the development of science education in SA.

Professional Learning for Term 1 2021

Teachers new to teaching Stage 2 Science

Education Development Centre, Hindmarsh
9.00 am – 3.00 pm

Some of the key topics covered in these workshops include: an overview of the course, planning and assessment, sample tasks and discussion and moderation.

Participants will be given the opportunity to share and discuss ideas, tasks and other resources for teaching the new course.

Biology

Friday 12 February

Presented by Kathy Adams
(Horizon Christian School)

Physics

Friday 12 February

Presented by Michael Smith
(Concordia College)

Chemistry

Friday 19 February

Presented by Glen Arthur
(SACE Board of SA)

Nutrition

Friday 19 February

Presented by Lisa Cibich (Gleeson College)
& Elizabeth Arthur (Nazareth Catholic College)

Psychology

Monday 1 March

Presented by Carolyn Pinchbeck
(Xavier College)

Scientific Studies

Monday 1 March

Presented by Lois Ey (SACE Board of SA)

2021 New Course Nutrition Stage 1 & 2 Workshop

Thursday 14 January

Education Development Centre, Hindmarsh
9.00 am – 3.00 pm

Presented by Lisa Cibich (Gleeson College)
& Elizabeth Arthur (Nazareth Catholic College)

This session will provide an introduction to the new subject outline for Stage 1 and Stage 2 Nutrition covering content, resources, assessment and SACE requirements.

Program:

SUBJECT OUTLINES

Stage 1 Subject Outline

- Topics
(left hand column vs right hand column)
- How do these topics link to Stage 2
- Ideas for teaching

Stage 2 Subject Outline

- Topics

ASSESSMENT

Assessment requirements Stage 1 vs Stage 2

- Folio: prac and SHE
- SATs: task or case study

Performance Standards

Assessment tasks Stage 1 vs Stage 2

- Science Inquiry Skills
- Practical ideas
- SHE
- Case Study
- Test
- Examination (using case study)

Registration fees

Personal Member	\$145
SASTA Student Member	\$50
Corporate Member (SA School)	\$185
Non Member	\$225

Morning tea and lunch provided.

For more information and to register, go to sasta.asn.au/professional_learning

2021 SASTA Awards

There are many great teachers out there that SASTA would like to acknowledge, but often they do not get nominated for Awards because teaching is a very busy job and people do not 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 Contribution to the Teaching of Science Awards

The Outstanding Contribution to the Teaching of Science 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, 12-13 April 2021.

Nominations close Friday 5 March 2021 at 4.00pm. Online nominations can be completed at www.sasta.asn.au/about_us/awards.

2021 SASTA Membership

It's that time of year again already and 2021 SASTA membership is now open for renewal!

You can renew your membership subscription on the SASTA website: <https://www.sasta.asn.au/renew/form>. You can check out a few of the member benefits below.

To help you plan for 2021, we have put together a professional learning calendar for next year which is available here: https://www.sasta.asn.au/professional_learning.

Don't forget, your membership will expire on 31 December 2020, so if you want to register for any 2021 professional learning after this date, your 2021 membership will need to be paid before you register to be eligible for the member price.

Thank you for your support of SASTA in 2020, we look forward to working with you next year!

MEMBERS AREA
MEMBER RESOURCES

Welcome SASTA members

On this page you will find a variety of resources to assist you in the classroom and contribute to your professional development. Many of these resources have been kindly donated by your fellow members or presenters at various conferences and workshops organised by SASTA.

If you have any resources that you would like to share in the SASTA Members Area, please contact us via email at office@sasta.asn.au

Teaching Resources


Conference Resources


SASTA PUBLICATIONS

Newsletter


SASTA E-News


SASTA Journal


Teaching Science Journal




STEM Conference



27 November 2020

How does STEM help us
battle threats to our world?

Program and registration now available

27 November 2020

The University of South Australia,
Magill Campus

How does STEM help us battle threats to
our world?

Many of the problems we face in our world today will not be solved by today's adults, but by the students in our classrooms. Whether it is inventing a better way to distribute clean water, repopulate endangered species, or travelling to and colonising Mars; our students will be the ones leading the way.

The 2020 STEM Conference will bring together classroom teachers, leaders in education and businesses who are interested in sharing and exploring teaching methods, tools, resources, and related activities for implementing STEM education into our schools and communities.

The workshop presentations aim to cover a range of the content and pedagogies of the Australian Curriculum: Mathematics, Science, Design & Technology, and ICT.

8.15 am	Registration
8.45 am	Welcome
9.00 am	Keynote presentation
10.10 am	Morning tea
10.40 am	Workshop session 1
11.45 am	Workshop session 2
12.45 pm	Lunch
1.35 pm	Workshop session 3
2.40 pm	Workshop session 4
3.45 pm	Happy Hour

Keynote Presentation

Professor George Siemens

Professor and Director: Centre for Change and Complexity in Learning, UniSA



Empowering Learners for the Age of AI

The complexity and uncertainty of the future is growing daily. Tremendous advances in technology and engineering reveal humanity at its pinnacle. Unfortunately, global connectivity has also produced a conflicted society, where even basic scientific truths can be diminished or outright ignored. Simultaneously, the past decade has seen the rise of artificial intelligence, with large swaths of what was thought to be uniquely human - playing Chess or Go, image detection, writing - being progressively taken over by AI. How do we prepare learners to exist in this world of stunning advancements, polluted information ecologies, and growing threats to our future? This presentation will explore foundational ways of being in order to flourish in the AI age, focusing on required content knowledge, affective and emotional states, and metacognitive strategies required by all learners and citizens.

Full program and registration at
www.sasta.asn.au/professional_learning

Please note: Conference registrations will be capped at 100 delegates due to COVID restrictions.

Sponsored by:



University of
South Australia

Psychology Teachers Summer Conference 2021

Friday 15 January 2021, Education Development Centre

Gearing up for the New Curriculum!

9:00 am	Welcome	Carolyn Pinchbeck
9:15 am	<p>Keynote Address:</p> <p>Geof Boylan-Marsland is one of South Australia's leading psychologists with 14+ years of experience in the field. Geof is Senior Psychologist at 'Mind Matters Psychology', previously South Australian Sports Institute (SASI), located in Findon South Australia and is a leading Psychology Consultant for Sports Med. SA. Geof specialises in the areas of sport, performance and exercise psychology - with an emphasis on improving performance, well-being and mental health in athletes; as well as practicing General psychology - including Mental Health Care.</p> <p>Geof has helped Olympic and Paralympic athletes achieve success at 2012 London Olympic and Paralympic Games, 2014 Glasgow Commonwealth Games, 2016 Rio Olympic and Paralympic Games, 2018 Gold Coast Commonwealth Games and World Championships; and has also provided Psychology services to the AFL Player's Association, South Australian Sports Institute (SASI), NSOs (Rowing Australia, Shooting Australia, Table Tennis Australia), Adelaide Thunderbirds Netball Team and Netball Australia, as well as numerous other Institute based sports including track & road cycling, water polo, track & field athletics, BMX, table tennis, swimming and gymnastics.</p> <p>In his keynote address Geof will present his viewpoint about the role of a sports psychologist in today's society, and discuss the key elements that he believes will be engaging, inspiring, and valuable for teenagers to learn about in a Stage 1 Psychology classroom in preparation for the New Stage 1 Psychology Curriculum in 2021.</p>	
10:15 am	Morning Tea	
10:30 am	SACE Examination and Moderation Review	Supervising Panel Representatives
12:00 pm	Concurrent Workshops Session 1	
	1.1 Indigenous Psychology	Kate Cutts, Link Education Professionals
	1.2 Forensic Psychology	Nicole Marinos, OLSH College
	1.3 Implementing the new 'SHE' Task into Psychology	Jessica Mosca, Thebarton Senior College
1:00 pm	Lunch	
1:30 pm	Concurrent Workshops Session 2	
	2.1 Let's get PRACTICAL!	Heather Carter, Henley High School
	2.2 Indigenous Psychology	Kate Cutts, Link Education Professionals
	2.3 Forensic Psychology	Nicole Marinos, OLSH College
2:30 pm	Concurrent Workshops Session 3	
	3.1 Implementing the new 'SHE' Task into Psychology	Jessica Mosca, Thebarton Senior College
	3.2 Let's get PRACTICAL!	Heather Carter, Henley High School
	3.3 Psychological Literacy	Kate Cutts, Link Education Professionals
3:30 pm	Conference Plenary	
		Carolyn Pinchbeck

Full program and registration at www.sasta.asn.au/professional_learning



SA'S LARGEST
SCIENCE
COMPETITION

2020



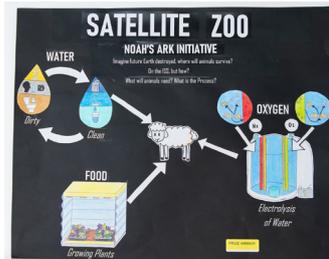
Oliphant Science Awards

Congratulations to all prize winners in this year's Oliphant Science Awards. A list of winning and highly commended entries is available at oliphantscienceawards.com.au. Thank you to all entrants, coordinators and teachers, and also the judges (who all agree that the standard of entries improves every year), volunteers and SASTA staff who all help to make the Oliphant Science Awards the amazing event that it is. **We received 2,112 entries across 9 categories and 6 age groups and 2,839 students from 92 schools took part in this year's competition.**

This year, we have created a Virtual Open Day on the Oliphant Science Awards website to showcase and celebrate the enormous effort students put into their projects and provide inspiration for future entries! You will find photos, videos and reports for all the winning entries.

Prize winners will find out their final placings and be presented with their awards at a ceremony at Brighton Secondary School on Friday 13 November.

**Register your interest for 2021
at oliphantscienceawards.com.au**



Thank you to our
major sponsors



Bringing Nature to the Classroom

It is fair to say that 2020 has been an interesting year for educators and many new alternatives have been required for teachers to deliver their outcomes to students. In previous years many classes would go on excursions to see wildlife and learn about our environment but due to restrictions, many of those trips had to be cancelled.

However, many students still had the opportunity for hands on learning about wildlife through the services of the Nature Education Centre. During the peak period of concern around COVID-19, many of our bookings were cancelled but as restrictions started to ease, our members flocked back looking for ways to support their teaching and keep restless students occupied.

Hiring live animals from the Nature Education Centre is a great way to bring nature into the classroom and is an opportunity unique to South Australia. Furthermore, it is a simple yet valuable way to teach empathy and care to younger students and can be used to help

explore more complex environmental learning for older students. Our educational kits allow a much deeper exploration of various topics such as classification, ecosystems, geology, or lifecycles, especially when hired for an extended period of time.

Once there was further easing of restrictions, a Nature Education Centre representative was able to attend schools again to deliver educational talks. Historically, the majority of our talks have been delivered to junior primary and kindergartens but due to COVID restrictions affecting excursions, we have had increasing requests from high schools looking to engage students in the environment by combining our services into their biology curriculum.

Nature Education Centre is always looking to reach as many educators and children around Adelaide as is possible with the aim of delivering educational resources to teach students about the natural world. We are grateful for such an outpouring of support from our existing members as well as educators who have approached us for the first time looking for alternative hands-on teaching methods in what has been such a stressful and uncertain year.

Find out more on the SASTA blog!



Biology: Levels of Life

Brian LeCornu and Tony Diercks

Biology: Levels of Life – Australian Curriculum Edition Textbook

\$63.40

This textbook provides detailed coverage of all the content (Science Understanding) of the SACE Stage 2 Biology subject. 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. Updated to match minor changes in the subject outline for 2020.

Biology: Levels of Life – Australian Curriculum Edition Workbook

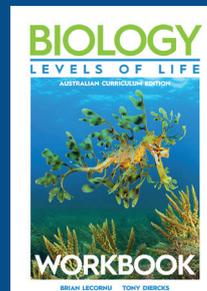
\$24.40

Written specifically to complement the textbook, this workbook covers all Science Understandings of the Biology subject outline. It can be used in conjunction with the textbook or 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.

Biology: Levels of Life – Teaching Notes

\$120.00

Teachers will find the Teaching Notes invaluable in ensuring that all Science Understandings are covered for each of the four topics. There are teaching tips throughout as well as additional information. Answers to questions in the Workbook will assist teachers in explaining concepts to students.



The Great South Australian Fossil Debate

For this year's National Science Week, several palaeontologists from Flinders University and the University of Adelaide got together to discuss and debate which of several time periods in the South Australian fossil record was the most awesome! The event was hosted by singing palaeontologist Professor Flint of Dinosaur University, and Dinosaurs Down Under, and included songs by the Professor, and several performers from Adelaide Youth Theatre. The final part of the event was a Q&A conducted by Professor Flint, where the panel of palaeontologists talked about a range of issues, and the remarkable South Australian fossil record.

For South Australians, learning about our fossil record is important for several reasons. Firstly, there is a great deal of science to be explored, and palaeontology offers a great gateway into many, many areas. Secondly, to learn about our own fossil record is to learn about the prehistoric place in which we live. It is a way of connecting to some of the stories of the land upon which we walk, and in so doing, is a part of our identity as South Australians.

Meet a Tall Poppy

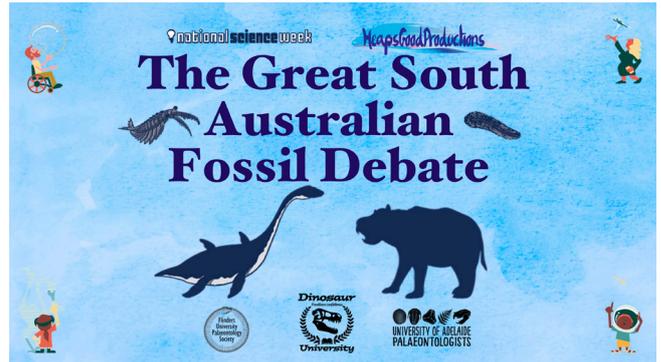
Dr Alice Clement

When did you realise your passion for science?

I didn't really use the "s-word" as something I was passionate about until late high school when a particularly inspiring teacher helped open my eyes to the huge possibilities and opportunities available through science. However in reality, I was always a kid who loved animals and the outdoors so I suppose it had always been there.

What are you working on at present?

I am an evolutionary biologist and palaeontologist, interested in early vertebrates. This means I study fish and tetrapods (the first terrestrial vertebrates), and in particular the changes that occurred in their bodies



The four palaeontologists who spoke, and the palaeontological time zones that they focused on are as follows:

- Dr Felicity Coutts on the Ediacara Biota
- A/Professor Diego Garcia-Bellido on the Cambrian
- Professor Mike Lee on the Mesozoic
- Diana Fusco on the Cenozoic

The following link will take you to the debate. It can be watched in full, and can also be watched in smaller sections. One time period at a time. Or just the Q&A.
<https://bit.ly/2HokRfG>

You can view the full details of the Great South Australian Fossil Debate on the SASTA blog: https://www.sasta.asn.au/about_us/sasta_blog/

over deep geological time. This spectacular transition is arguably the greatest step in evolution, and occurred close to 400 million years ago, in a time Period known as the Devonian. My favourite thing to look at is how the brains of these animals changed as they moved from water to a whole new environment up on land which they eventually went on to successfully colonise.

How will your research impact society?

I am a strong believer that we need to understand the world around us, and appreciate our place on this planet. I don't think this is fully achievable without understanding the evolutionary history that has led to the diverse array of life on earth today, and it is by understanding the past that we can better prepare for the future.

Find out more about our Tall Poppies here: <https://aips.net.au/tall-poppy-campaign/>

Textbooks

Living Science: Biology

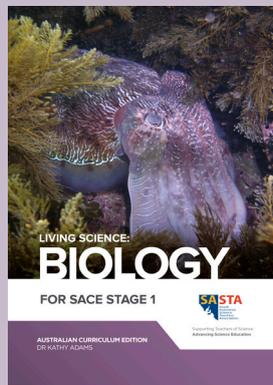
Teachers will find these textbooks an invaluable resource for planning and developing student knowledge as it has comprehensive coverage of the science understandings of the Stage 1 & 2 courses. Students will find it a great resource to complement lessons and will develop a broader knowledge of Biology across many different contexts.

'Did you know?' breakout boxes throughout the text include related stories, concepts, perspectives and facts to help engage students in deeper learning.

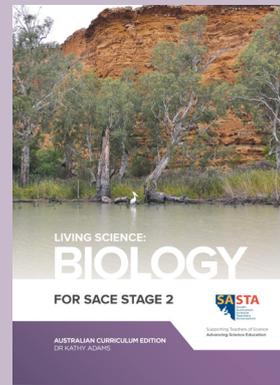
'SHE Alert' boxes are connected to the four SHE Key concepts: Communication and Collaboration, Development, Influence, and Application and Limitation.

These sections give students and teachers opportunities to consider how science and society interact to find solutions and overcome problems.

There are review questions throughout the books and at the end of each chapter. The Stage 1 textbook also has a list of possible Deconstruct and Design ideas at the end of each chapter, which could be used by the teacher to develop tasks.



\$49.00 each



\$54.00 each

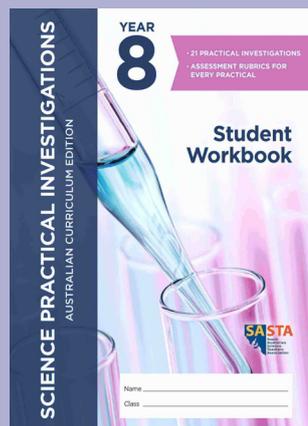
STUDENT WORKBOOKS



Year 8 & 9

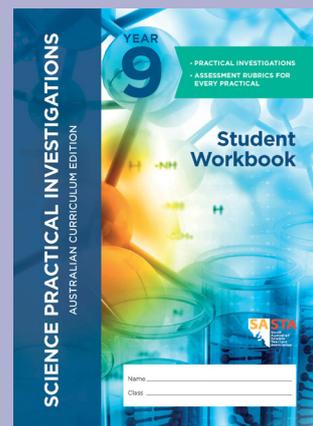
These write-in workbooks guide students through practical investigations, encouraging them to practice and enhance their inquiry skills, design procedures and answer questions about their learning.

- Explores 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
- Emphasis on science inquiry skills
- Assessment rubrics for each practical
- These workbooks reflect the current emphasis on STEM skills through the inclusion of Engineering Design Challenges



\$18.50 each

minimum order 20 copies



SACE Stage 2

RESEARCH PROJECT WORKBOOK & GUIDE FOR SACE STAGE 2

This step-by-step workbook guides students through the three parts of the Research Project: the Folio, the Research Outcome, and the Evaluation/Review.

Students are guided through activities and supported with information to enable them to: generate an idea; develop a research question; plan, conduct and analyse research; and then structure a research outcome and an evaluation or review with a focus on achievement of the performance standards (at a high level).

Along with activities and information, the workbook also includes sections that enable students to organise and store hard copy project material.



\$39.00 each

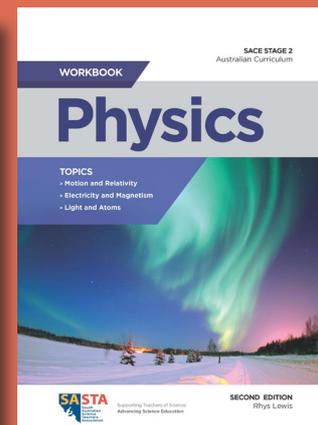
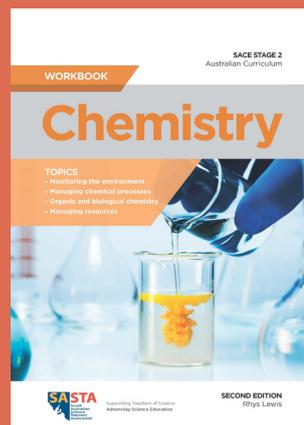
Available from sasta.asn.au

ALL NEW

Biology & Chemistry available now

Physics available for pre-order

\$59.00 each



SASTA is pleased to announce the arrival of the Second Editions of our workbooks for Stage 2 Chemistry and Physics.

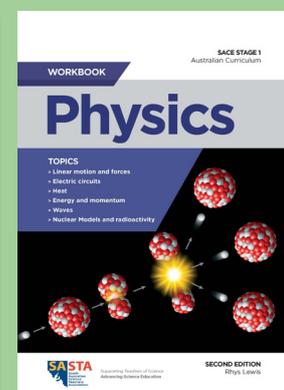
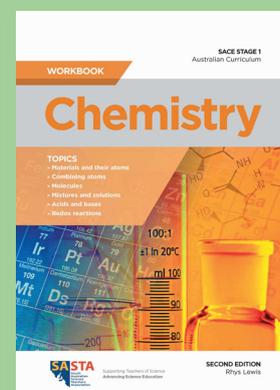
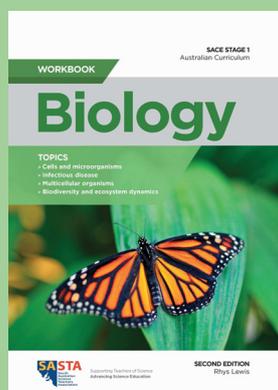
Some of the features of the second edition workbooks include:

1. The content has been updated to match the most recent subject outline
2. Design and layout have been updated extensively for a neater and more consistent look throughout the book
3. Hundreds of new questions have been added that were not featured in the first edition
4. The book now features questions that assess Science as a Human Endeavour (SHE)
5. All explanations have been made more concise to minimise the time taken to grasp the concepts
6. Most images have been updated. Around 300 high quality illustrations feature in the new edition
7. All formulae have been explored using useful examples that incorporate real-world applications
8. The colours have been brightened and softened in different sections for easier reading and interpretation of the diagrams
9. Solutions have been reviewed and simplified in some areas
10. The number of questions supplied for each concept has doubled and, in some sections, tripled and quadrupled to reinforce student understanding
11. Solutions have been written more concisely for simpler absorption by students
12. There is a deeper focus on the use of prefixes in physics (milli, m, mega, M, kilo, k, giga, G etc) in questions which better prepares students for the end of year exam
13. Many more higher order thinking questions added to stretch high achieving students
14. Enough questions have been provided for each concept that a teacher can set 30-60 minutes worth of questions each lesson for students to complete.

View sample pages and order online at <https://www.sasta.asn.au/resources>

SASTA's Stage 1 workbooks cover all topics outlined in the SACE curriculum in an easy to read format with colour illustrations and diagrams throughout.

- Over 300 full colour illustrations and diagrams
- Over 250 problems with worked solutions
- Questions range from simple to challenging
- All questions are mapped to the new performance standards
- Topic test for each chapter.



\$54.00 each