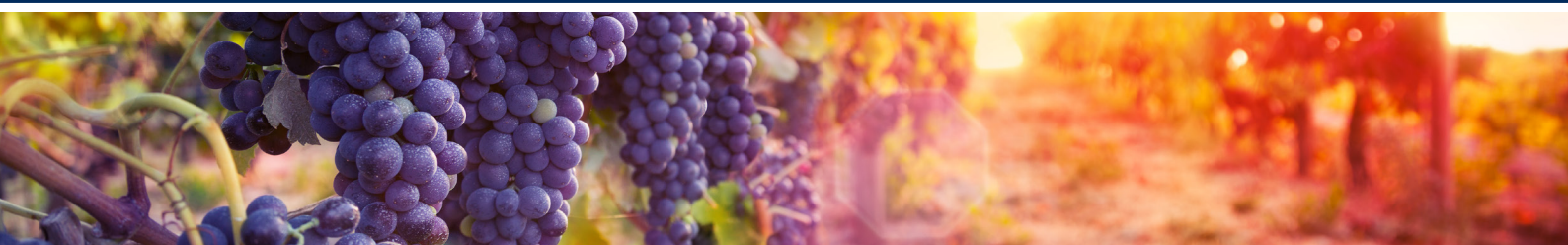




May 2022

Newsletter



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Soil Science and Viticulture with Wine Australia

Friday 20 May 2022

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The SHE Task

Friday 27 May 2022

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7-10 Australian Curriculum Science: How can we design and assess differentiated tasks?

Friday 10 June 2022

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Teaching Science through creation of interactive VR Inquiries

Friday 24 June 2022

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11-12 July 2022

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Oliphant Science Awards

Student registrations close Friday 20 May 2022



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Newsletter copy deadlines 2022

(Advertising deadlines one week earlier)

Edition	Deadline
August	15 July
November	14 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.



Join primary and secondary teachers and other members of the science education community at SASTA's 2022 Annual Conference, 11-12 July at Westminster School.

The theme of the conference is 'Let's Talk Science!' and aims to inform and inspire delegates with current research and practices in the fields of science, as well as in the classroom.

The program is shaping up well with a broad program of seminars, discussions and professional learning workshops, and hands-on activities.

Keynote speakers

Monday's keynote presentation will be from **Heather Catchpole, co-founder and Managing Director of Refraction Media**. Science is much more than the wow factor chemistry explosions you see in the lab. Science and STEM are intrinsic to our everyday lives and are part of careers as diverse as retail, food processing and flood control. For a decade, STEM specialist content company Refraction Media has communicated the relevance of STEM to students, parents, government and industry through CareerswithSTEM.com. Heather will discuss this further in her presentation: '**STEM + X: linking students with smarter careers**'.

Tuesday's keynote presentation will be from **Associate Professor Debra Panizzon**, who is an adjunct at Monash University and Research Analyst for the Teachers Registration Board of South Australia. As teachers of science, we strive to support our students in developing scientific knowledge, the processes and ways of 'thinking scientifically' (inclusive of SHE), and scientific skills. Forty years of research in science education demonstrates that if we are to engage, interest and help our students

construct a solid, longer-term understanding of science, we need to focus on building conceptual understanding. Debra's presentation '**Learning progressions, language and building conceptual understanding – a powerful trio in science education!**' will cover this in more detail.

Cutting Edge speakers

Cutting Edge speakers include:

- **Dr Ian Moffat**'s research applies geological techniques to help understand archaeological sites
- **Dr Yee Lian Chew** uses the roundworm *C. elegans* to study how neurochemical signals in the nervous system work together to coordinate complex behaviours.
- **Dr Vitomir Kovanovic**'s research focuses on development of learning analytics systems to provide insights into student learning and guide pedagogical interventions.
- **Jarrad Kowlessar** is an Australian archaeologist who specialises in digital archaeology and geomatic techniques

More details from all our presenters can be found in the Conference program.

Conference Program

The complete program of concurrent sessions is now available on the website with over 35 sessions to choose from.

So, come along in July to network with others and see what you can learn in order to teach and inspire your students! Earlybird registrations close on 3 June!

Monthly Themes

Have you noticed that we're focussing on a different theme each month? You'll be able to find member resources, a website and excursion of the month in the SASTA e-news, blog posts and social media updates linked to this theme. In February we looked at Glass, in preparation for National Science Week. March was Environmental Science and we've just wrapped up Citizen Science for April.

In May we will be looking at Biodiversity / Fauna so keep an eye out for some new resources!

You can check out previous posts on our Blog here: <http://bit.ly/SASTABlog>

If you would like to contribute an article please contact Tegan - marketing@sasta.asn.au



Upcoming Themes:

June - Oceans

July - Plastic Free

August - National Science Week

Blog Posts:

Environmental Science

- Environmental Science @ KICE
- Environmental Science at St Catherine's School
- Green Adelaide Nature Education
- Regenerate Australia

Citizen Science

- The little things that run the world
- City Nature Challenge 2022
- Great Southern Bioblitz 2022
- Citizen Science - an introduction
- Insect Investigators
- Junior Field Naturalists



An Australian Government Initiative

NSC

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Visit our website to learn more.

navalshipbuildingcollege.com.au

Mary Anning Art Prize

The aim of the Mary Anning Art Prize is to have young South Australian artists create an original piece of artwork that tells us something about the prehistoric life of South Australia. It is essential, to be eligible, that the artwork explores an element of South Australia's rich and remarkable prehistoric past, and that the artist lives in South Australia. To explore and illustrate our own past is to better know who we are as South Australians, and to better understand our unique place in the history of life.

While all visual art-forms are eligible, each entry must be presented in the form of a single photograph of the artwork.

What makes a successful entry?

- Scientific accuracy, creativity, and originality
- The best art isn't just a picture, or a sculpture. It tells a story!

Check out this video to find out what the judges are looking for in a successful entry:

<https://bit.ly/3MG2O0m>



Submissions are now open and will close on 17 June 2022

Entry categories:

- Reception to Year 2
- Year 3 to Year 5
- Year 6 to Year 8

Prizes

1st, 2nd & 3rd prizes will be awarded in each year group category. Plus a People's Choice Award.

Full details of the competition can be found on the SASTA website: www.sasta.asn.au

Premier's Reading Challenge

SASTA and the Oliphant Science Awards are proud to be partnering with Inspiring SA and the Premier's Reading Challenge (PRC) to support this year's STEM Reading and Design Challenge.

The challenge encourages students to read about Science, Technology, Engineering and Maths (STEM) in the lead up to National Science Week. This year there are two additional themes - **NATURE & SPACE**

The Premier's Reading Challenge booklist contains excellent STEM books. To enter you need to read a STEM, nature or space themed book, preferably from the Premier's Reading Challenge booklist and then use your imagination for your entry.

There are great prizes to be won in 4 age categories.

For full details about the STEM Reading and Design Challenge visit: <https://bit.ly/3jEgM6V>

Links to the Oliphant Science Awards

There are many opportunities for students to combine their OSA project work with the STEM Reading and Design Challenge.

We have created STEM booklists for each age category from the PRC booklist. Students can select books from these booklists that will support them with their OSA project.

Examples:

- An R-2 student may be working on a Poster for OSA around the theme of Bushfires and Storms. They could source inspiration for their OSA Poster from one of the books listed in our STEM booklist (e.g., Bilby and the Bushfire by Joanne Crawford). They could then also complete the STEM Reading and Design Challenge task for entry to that competition.
- A Year 3-5 student can use a STEM booklist book (e.g., The Super Parp-buster by Janeen Brian) to inspire their OSA invention or model and then submit a copy of their invention plan/description to the STEM Reading and Design Challenge.

Age	PRC Task	Possible OSA link
R-2	Create	Posters
3-5	Invent	Models & Inventions
6-9	Design	Posters
Mature	Review	Science Writing

Professional Learning for Term 2 2022

Soil Science and Viticulture with Wine Australia

Friday 20 May 2022

9.00 am – 3.00 pm

Plant Genomics Centre, Hartley Grove, Urrbrae

Presented by Dr Bianca Warnock of SASTA, on behalf of Wine Australia

This workshop is aimed at primary years teachers who want a fresh and innovative approach to teaching Biological Sciences and Earth and Space Science.

Using grape vine management (viticulture) as the theme, we are able to teach science content such as plant life cycles and soil science with a context that applies to so many regional and rural families around South Australia within the wine industry.

You will receive ideas for several activities, experiments and fair test investigations, learning resources and **free gift** to take home to help you get started in the classroom.

With our workshop based at the Waite Campus, you'll also get a **tour of facilities** and **meet local researchers** in the wine industry to give context to the work, and link to the SHE strand of the Australian Curriculum.

The SHE Task

Friday 27 May 2022

9.00 am – 3.00 pm

Education Development Centre

Presented by Jason Greenslade, Curriculum Leader Science, Westminster School

This workshop is aimed at people who want to further their skills in setting, assessment and providing feedback on the SHE task. It also will cover the writing and marking of SHE questions for tests and examinations. There will be time to examine your own student work and participate in some cross-moderation and marking of work/drafts.

Morning Sessions: The SHE Task

- Performance Standards
- Introducing + structuring the task
- Providing guidance to students (drafting)
- Marking and moderation

Afternoon Session: SHE Questions in SATs/ Exams

- Types of questions
- Guiding students to answer these questions
- Writing SHE questions – how to effectively use articles + how to structure them

7-10 Australian Curriculum Science: How can we design and assess differentiated tasks?

Friday 10 June 2022

9.00 am – 3.00 pm

Education Development Centre

Presented by Jason Greenslade, Curriculum Leader Science, Westminster School

This session will only focus on Australian Curriculum 7-10 Science courses – these are so critical for making sure we are retaining students in Science in the senior years. It is essential that we equip students in these year levels with confidence and the skills needed to explain, analyse and be critical.

We know that the profile of our middle school classes is also becoming more and more complex with a wide range of skills and learning needs.

This session aims to provide a framework (and plenty of practical examples) of the following:

- How to design and assess via rubrics in AC 7-10 Science for assignment and practical work
- How to design, structure and execute differentiated assessments in the 7-10 science classroom (+ examples!) – practicals and assignments!
- 7-10 Scientific reports – what should we put in there? What is appropriate?
- Moderation of student work and standard setting in each year level

The session will give you an opportunity to work on your own tasks, share with the group, moderate your own student work and engage in professional discussions about marking – so please bring plenty!

Professional Learning for Term 2 2022

Teaching Science through creation of interactive VR Inquiries

Friday 24 June 2022

9.00 am – 3.00 pm

Education Development Centre

Presented by Dr Paul Unsworth, University of South Australia, EDUCATION FUTURES

You are invited to participate in a hands-on, practical, and highly interactive professional learning experience that introduces the teaching of Science through an applied use of VR technology. No prior technical knowledge or experience of VR is required.

You will first participate in a fun interactive immersive experience.

This 'engage' activity provides insight on the experiential strength and educational merit of the immersive environment.

Second, you will 'explore' pre-made exemplars of VR inquiries and consider how these VR products apply rigor for engaging learners to think and work scientifically.

Third, as pairs you'll learn how to create an interactive VR Science Inquiry.

This involves setting of the inquiry question then design of an interactive storyboard to map each scenario of the inquiry. You and your buddy will then take 3D and 2D photos and import these contents into relevant scenes. During this editing stage, you'll also insert extra information as pop-Ups or HOT SPOTS into each scene.

Finally, as an 'explain' activity you and your buddy will present your VR project to the group. The workshop concludes with an open forum to workshop any other questions.

BIOLOGY: LEVELS OF LIFE

Brian LeCornu and Tony Diercks

\$29.95

Biology: Levels of Life - Australian Curriculum Edition Textbook (\$63.95)

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. 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. **A complimentary 15 month subscription to the e-book is available with every hard copy purchased.**

NEW for 2022

The Biology: Levels of Life Textbook is now available as an e-book!

For full details visit the SASTA website.

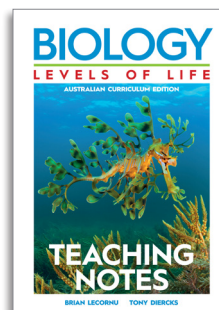
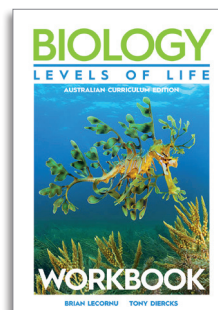


Biology: Levels of Life - Australian Curriculum Edition Workbook (\$24.40)

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.





Find out more at www.arvrededucation.com.au



EDUCATION STEM through Virtual Reality



AR VR Education presents **ClassVR** - an affordable, innovative Virtual Reality system for the classroom.

Complete with hardware, software and curriculum-linked activities and lesson plans- teachers will have everything they need to introduce this cutting-edge technology straight into the classroom!



ClassVR comes with 1000's of curriculum aligned educational Virtual Reality resources to help enhance the teaching and learning process.

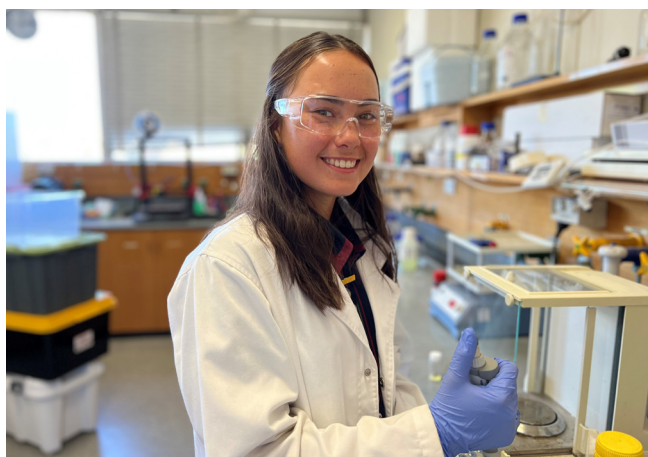
Let AR VR Education help your school to deliver an unparalleled way to transform any learning environment and captivate students of all ages.



Phone: 0413 978 104 Email: hello@arvrededucation.com.au

Tall Poppy Award for Scientific Inquiry - Prize Winner's Experience

My name is Sienna Hill, and I am a Year 10 student at Our Lady of the Sacred Heart College. Through the Tall Poppy Award that I was awarded last year, I was gifted with a Science mentor – Professor Justin Chalker. Professor Chalker serves as the research leader for the Molecular Science and Technology division at Flinders University. On Thursday, 17th of March, I met Professor Chalker along with other science researchers who work in his laboratory. I was in awe of the researchers' level of expertise and knowledge, along with the expensive and complex equipment that they use for their research. I found this visit to be an extraordinary experience and it has sparked some ideas for my 2022 Oliphant Science Awards entry.



My day began with Dr Max Mann, who introduced me to the scanning electron microscope (SEM). This extraordinary microscope uses a beam of high energy electrons to provide an image of the surface of the sample. Max was examining samples of e-waste to identify and determine the types of metals that are contained in e-waste. An energy dispersive x-ray (EDX) spectroscope was also used for elemental identification. Max was extremely knowledgeable about this special machine, and shared his wisdom about how the machine operates, and how to read the EDX spectrum. After this enlightening experience, I was taken through the maze of corridors to Professor Chalker's office. There, I learnt about the exciting projects across the lab and grasped a better idea of the Chalker Research Lab's overarching objective – to use innovative chemistry to address global challenges in sustainability and human wellbeing.

Following that, I met Dr Lynn Lisboa, who taught me about synthetic and organic chemistry. She shared the background on her PhD, which completely blew my mind! Dr Lynn completed her PhD looking at the synthesis of stimuli responsive heterometallic cages. She showed me around one of the research labs and gave me a run down of her journey as a scientist. Dr Lisboa is an experienced researcher and is an important female figure in Chemistry research. After lunch, I met Sam Tonkin who led me to a room brimming with fascinating equipment relating to polymer production. He introduced me to an STA machine (simultaneous thermal analysis), which is used to analyse the time and temperature at which the substance physically changes state, a Dynamic Mechanical Analyser (DMA) machine, which measure the viscoelastic properties of materials when deformed under strain, and finally a piece of equipment that measures the molecular weight and length of polymer chain. He was an inspiring scientist, with the equipment providing me much inspiration for my project.

Then, I met Dr Harshal Patel who discussed some of his research and current projects with me, before getting in the practical component of my visit. I put on a lab coat, safety glasses and with the guidance of Dr Patel, I made a polymer consisting of Sulfur, Canola Oil, and dicyclopentadiene. It was a surreal experience being in a research lab, surrounded by exciting experiments and such knowledgeable scientists! To conclude my time in the chemical sciences building, Dr Mann took me for a tour of the labs, whereby I was able to see what other scientists were working on. I got to see a nuclear magnetic resonance spectroscopy (NMR) machine! Then, I attended a seminar about metal ion homeostasis in *A.baumannii*. I loved the university atmosphere, overall, it was a very inspiring, eye-opening experience!



**STUDENT REGISTRATIONS
CLOSE FRIDAY 20 MAY**

2022

SASTA

OLIPHANT

SCIENCE AWARDS

**SA'S LARGEST
SCIENCE
COMPETITION**

Don't forget student registrations close on Friday 20 May! If you haven't registered / re-registered as a School Coordinator you will need to do this before registrations close so you can enter your student registrations online: www.oliphantscienceawards.com.au

The website and booklet have everything you need to know about this year's competition, including registration fees, deadlines, rules, forms, and titles (where relevant).

Key dates

- **Friday 20 May:** Student registrations close
- **Friday 20 May:** Judges registrations close
- **Friday 10 June – Friday 1 July:** Multimedia, Science Writing and Scientific Inquiry entries and Reports for Programming, Apps and Robotics **MUST** be submitted online
- **Monday 25 July – Friday 29 July:** Crystal Investigation and Models & Inventions reports / risk assessments **MUST** be submitted online - **NEW for 2022.** Supporting documents for Games may also be submitted
- **Saturday 30 July:** Programming, Apps & Robotics Judging Day (strictly by appointment)
- **Tuesday 2 August:** Crystal Investigation, Games, Models & Inventions, Photography & Poster entries to be delivered.
- **Friday 5 – Sunday 7 August:** Open Day at Science Alive!
- **Friday 21 October:** Presentation Ceremony

Rowe Scientific Regional Science & Engineering Awards

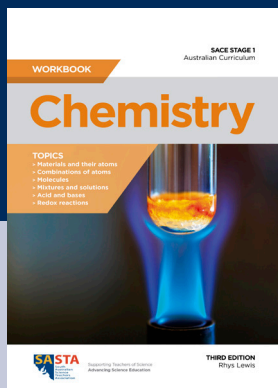
- Entry is open to students in remote and regional schools*
- Entry in Models & Inventions and Scientific Inquiry categories only
- Entries will be judged in both the overall competition and the Regional Science & Engineering Awards.

**See the Information Booklet for more details.*

New Sponsor Prizes

We're excited to have some new sponsors supporting the Oliphant Science Awards this year who are offering some amazing opportunities for students!

- **The South Australian Museum** is sponsoring the Photography category and winning entries of natural fauna, flora or natural land formations may be eligible to enter the South Australian Museum Nature Photographer of the Year competition. More details to come!
- **The Clean Air Society of Australia & New Zealand (CASANZ)** is sponsoring the Science Writing category and the best student entry from Science Writing or Science Inquiry that addresses Air: Emissions and Monitoring will be selected to speak at the National Clean Air Society of Australia and New Zealand (CASANZ) conference to be held in Adelaide in September 2022.
- **Wine Australia** will be awarding prizes for the most outstanding entries, from either Posters or Science Inquiry, that highlight food chemistry



SACE Stage 1 Workbooks

ALL NEW

Third Edition available!

\$59.00 each

The Third Edition of the popular SASTA Stage 1 Workbooks set students on the path to success in their study of science through their clear and engaging narrative, innovative use of art and photos, and superior contextual questions that enhance teaching and learning.

The workbooks provide an unmatched comprehensive text fully mapped to the Stage 1 Biology, Chemistry and Physics courses in South Australia.

- concise, accessible, and engaging with a clear emphasis on developing the reader's ability to apply their knowledge in new and familiar contexts rather than simply recalling it.
- develops critical thinking, problem-solving skills, comprehensive factual knowledge.
- new Chapter Questions incorporating Science Understanding, Science Inquiry Skills and Science as a Human Endeavour (SHE).
- new Review Tests.
- comprehensive set of solutions to all Chapter Questions and Review Tests.
- hundreds of new illustrations that engage students while simplifying complex concepts.

SASTA Stage 1 & 2 Trial Exams

All new for 2022

The SASTA SACE Stage 1 & 2 Trial Exams are a 'must have' resource, developed by leading teachers to support SACE Stage 2 Teachers. This vital resource will familiarise teachers and students with the SACE Stage 2 exam format. Teachers will be able to use the resource for students, a stand alone assessment tool or to develop exam preparation skills.

- A range of questions that cover nearly every statement on the subject outline.
- A blending of questions that incorporate concepts from different sections of the course to demonstrate connections between different areas of the course.
- Questions that allow students to demonstrate near and far transfer of knowledge.
- Science as a human endeavour (SHE) questions that allow students to develop their knowledge and understanding and explore the connections between science and society.
- Science inquiry skills questions that allow students to interpret data and make logical and relevant conclusions.
- Fully worked solutions for each question including a lengthy response to the SHE questions.

Stage 2 Biology, Chemistry & Physics are available now.
Stage 2 Psychology & Nutrition will be available mid-year.

Stage 1 Biology, Chemistry & Physics mid-year and end of year exams are available now.

You can also bundle your Stage 1 & 2 Trial Exams with Topic Tests for a discounted price!

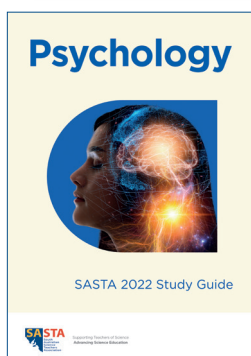
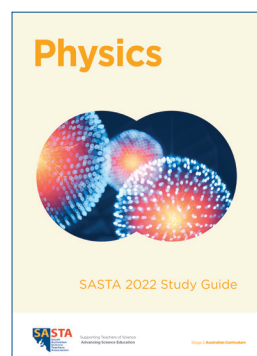
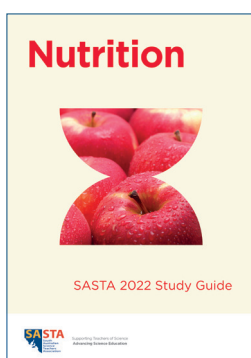
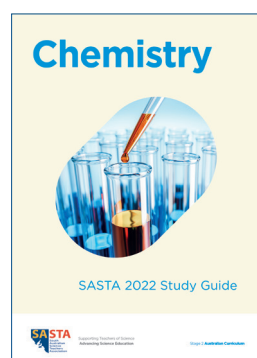
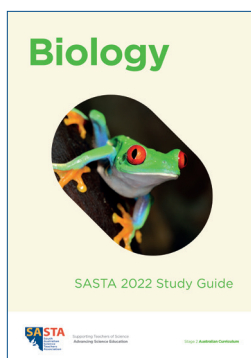
Available from sasta.asn.au

2022 STUDY GUIDES

Pre-order your copies now to ensure you don't miss out!

SASTA Study Guides are the complete resource for students preparing for Stage 2 SACE exams. These guides include questions with worked solutions covering each topic of the Subject Outline and address all sections of the exam.

\$29 each
+ delivery
or collect
orders from the
SASTA office



All new for 2022:

- Suggested solutions to the 2021 exams.

Biology

- All sections reviewed and any parts to questions beyond the scope of the course have been removed or modified.
- New questions have been added to all sections.
- New SHE questions added.

Chemistry

- All sections reviewed and any parts to questions beyond the scope of the course have been removed or modified.
- New exam-style questions added.

Nutrition

- A range of questions with worked solutions for each topic of the Subject Outline.
- Science Inquiry Skills & Science as a Human Endeavour chapters have been reworked allowing students to successfully prepare for both assessment types.
- Additional SHE exam-style questions have been added to allow for greater test and exam preparation.
- The inclusion of the 2021 SASTA Trial Examination and worked answers further supports students in their exam preparation.

Physics

- Revision questions updated and new questions added.
- Solutions to questions updated to align with course requirements and expectations.
- Updated formatting of questions and solutions.
- All sections reviewed to align with the 2022 Subject Outline.

Psychology

- All sections reviewed.
- The Study Guide reflects the NEW Course for Stage 2 Psychology to be taught in 2022.
- All sections reviewed and any parts to questions beyond the scope of the course have been removed or modified. New questions added to support the new subject outline.
- Inclusion of a Trial Examination and suggested answers.

Study Guides are due for delivery to SASTA in June 2022

Available to pre-order at sasta.asn.au