UniSA College
Connect Programs: Partnering with Secondary Schools
As educators it is our role to satisfy curiosity and we’re delighted to be able to help satisfy the curiosity of people involved in science, technology, engineering or mathematics, the STEM subjects. UniSA College offers fee free programs in some of the most exciting developments in STEM subjects through the UniSA College: Connect programs. These are interactive experiential programs for secondary school students, teachers and the community. The programs offer inspiration and insight into how and why things work; they offer pathways into studying and even development opportunities to turn curiosity into a career.

For you or anyone else who has ever asked the question: “why?” the UniSA College: Connect programs are a must. You’ll also have fun doing them.

**Professor David G. Lloyd**
Vice Chancellor and President

UniSA College offers programs which foster a community culture of innovation. We invite you to join us in this work to inspire secondary school students in STEM study. Promoting STEM careers to meet future workforce demands aligns the university with an international focus on this important direction and is another outcome we are working to achieve.

You can select one of our Connect programs or negotiate the design and delivery to meet your community’s needs. Whichever option you choose we’re keen to establish a collaborative and productive partnership which engages secondary school students in rich experiential learning activities and teachers in tailored professional learning.

UniSA College looks forward to working with you to offer exciting STEM learning.

**Stephen Dowdy**
Head of UniSA College
UniSA College: Connect Programs

UniSA College: Connect programs engage with secondary schools and the community to inspire further STEM study and educational attainment.

Secondary School programs
UniSA College draws upon the expertise of professors, researchers and lecturers to identify current and emerging Science, Technology, Engineering and Mathematics (STEM) ideas to develop interactive experiential UniSA Connect programs.

Inquiry based learning is used as a key approach in the programs, with authentic learning links to the secondary school curriculum. The Connect STEM programs are delivered at UniSA’s Mawson Lakes campus utilising specialised equipment and facilities. Regionally, UniSA College programs are delivered at the Whyalla and Mount Gambier campuses and in Port Lincoln and Ceduna.

UniSA College: Connect secondary school programs also connect with careers. The Career Awareness Program is designed to give secondary school students (years 10-12) the opportunity to explore career options and pathways, and links with the SACE Personal Learning Plan curriculum.

UniSA College: Connect offers a range of teacher professional learning opportunities for secondary school teachers. Programs focus on new technologies and career awareness.

Community programs
UniSA College partners with a range of community organisations to provide ongoing educational support through tailored offerings. Collaboration with community centres allows UniSA College to develop working relationships to encourage their clients to re-engage with education.

Bookings
To book into a UniSA Connect program, visit unisa.edu.au/UniSA-Connect

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Connect to STEM

UniSA College: Connect is focused on building secondary school students’ academic skills in the areas of STEM.

By forming productive secondary school partnerships, UniSA College: Connect is able to work in consultation with secondary schools and respond to STEM policy at the local community, state, national and international level.

UniSA College: Connect impacts on the STEM skills of over 8,000 senior secondary students annually.

Student feedback:

- 89% recommend programs to other students
- 97% identify excellent information provided
- 94% want to attend another UniSA Connect program

Teacher feedback:

“Quality presentations that are inspirational and motivational to students.”
- Secondary School Teacher

“UniSA College shatters myths about who can get into university.”
- Secondary School Teacher
Connect to STEM Student Networks

Like-minded students are brought together in high performance learning programs. All Connect programs involve university mentors.

**Science Booster**
**For: Year 12**
A two-day program for Year 12 Physics and Chemistry students interested in tertiary study at the University of South Australia. It aims to motivate and support students, explore study pathways and reinforce Year 12 Physics and Chemistry studies through experiential learning. Students will be involved in laboratory sessions based on summative assessments, learning and study methods, exam preparation and career insight sessions. All activities are tailored to review and support curriculum in the Stage 2 SACE subjects.

**Connect to Sport Science**
**For: Year 12**
An exciting opportunity for Year 12 students to engage with leading Sport Science experts at the Connect to Exercise and Sport Science student conference. The one-day student conference supports students to develop research skills, is relevant to the Major Issues Analysis tasks (specific to the SACE Stage 2 Physical Education subject) and provides an opportunity to experience a variety of presentations and interactive workshops.

**Maths Experience**
**For: Year 10**
An intensive one-day experiential program. Schools are invited to nominate two enthusiastic, high achieving Year 10 students to attend the program. Selected students should have an aptitude for mathematics and have shown an interest in pursuing a mathematically based career.

**STEM Girls**
**For: Year 11**
A learning and networking opportunity for Year 11 girls studying Science and Mathematics who wish to explore STEM careers. STEM Girls aims to support young women to continue studying science and mathematics through their schooling and into university. The girls will participate in two inquiry based learning days at UniSA, a STEM Girls Networking Dinner and a full day Industry Tour.

**STEM Innovation Experience**
**For: Year 10 and 11**
The STEM Innovation Experience (STEMIE) aims to increase STEM engagement in schools and increase awareness of STEM in the wider community. Students participate in a series of STEM-based curriculum tasks. STEMIE has three major components - a Learning Phase, the STEMIE Regional Showcase, and a STEMIE State Final. STEMIE is conducted in secondary schools in the Adelaide metropolitan area and regionally at Whyalla and Mount Gambier.
Connect to STEM Enrichment

Programs utilise Inquiry Based Learning approaches, integrate the use of technology and immerse students in STEM learning.

**Clinical Biology**
**For: Year 10 and 11**
A program held in the Clinical Education Centre; Students investigate conditions related to blood using the nursing training facilities. Students gain a better understanding of conditions such as shock and how to recognise and treat the symptoms through interactive activities including diagnosing the Simulation Nursing Anne, which is used by nursing students in their practical based learning.

**Electronic Games**
**For: Year 10**
Electronic activity boards assembled and soldered together by students. Students develop soldering and assembly skills while constructing two interactive electronic games. They develop their ability to identify and understand the function of electronic circuitry components.

**Sport Science Innovative Technology**
**For: Year 11 and 12**
Offers students the opportunity to gain valuable experience and knowledge in completing sport science practicals using innovative technology. Students use smart basketballs, Bluetooth technology and Vernier Spirometers to conduct and collect data from sport science applications.

**Sport Science VX Sport GPS Technology**
**For: Year 11 and 12**
Uses GPS technology and links to SACE curriculum. Students are introduced to GPS technology and use VX Sport units, to develop their knowledge and understanding of sport science related concepts. After participating in a hands-on GPS activity, students will analyse their individual data.

**STEM for Humanity**
**For: Year 10**
Explores ways that Science and Engineering can be used to improve the lives of people living in developing communities. Students learn how map making, satellite communication and GPS can be applied to solving environmental and humanitarian problems, how using simple materials with sensible engineering processes can make dirty water clean, and how renewable energy technologies can bring effective and accessible power to the poorest people in the world.

“The day provided students excellent opportunities to link everyday living with science, maths and technology.”
- Secondary School Teacher
Focus on Physics
For: Year 12
In the Focus on Physics series, each of the four programs links with the SACE Stage 2 Physics curriculum. The four programs are as follows:

Momentum in Two Dimensions
Links with the ‘Motion and Relativity’ section of the SACE Stage 2 Physics curriculum. Students carry out an experimental procedure, involving large air tables and plastic pucks to investigate the law of conservation of momentum.

The Motion of Charged Particles in Electric and Magnetic Fields
Links with the ‘Electricity and Magnetism’ section of the SACE Stage 2 Physics curriculum. An important focus of the session is the production and interpretation of graphs from experimental data. Two experimental procedures, both of which demonstrate the effect of electric and magnetic fields on electrons, are conducted in this workshop. These involve the use of Teltron Tubes and Hall Effect apparatus.

The Interference of Light
Links with the ‘Light and Atoms’ section of the SACE Stage 2 Physics curriculum. Students conduct a number of procedures that explore concepts involved in the interference and diffraction of light, including double slit interferometry, calculating the wave length of red and green lasers, and measuring the diameter of a human hair. In addition to the above procedures, two sets of Photoelectric Effect apparatus are available and can be used by school visitors. The equipment in this session can also be used for design practicals.

Nuclear Physics
Links with the ‘Atoms and Nuclei’ section of the SACE Stage 2 Physics curriculum. Students conduct three procedures that explore concepts of radiation and radioactive decay – calculating the half-life of an indium isotope, exploring the attenuation of gamma rays, and determining the penetrative range of beta particles through aluminium. In addition to the above procedures, a small Cloud Chamber is available for demonstration purposes and can be viewed by school visitors. The equipment in this program can also be used for design practicals.

Foundations of Physics
For: Year 11
In the Foundations of Physics series, teachers can combine two programs suitable for Year 11 Physics students – Defence Science and Technology (DST) Group Radar Technology, Sensor Technology or Nuclear Physics – to create a full day program.

DST Group Radar Technology
Links with the ‘Waves’ section of the SACE Stage 1 Physics curriculum. Links to the ‘Energy and Momentum’ section of the SACE Stage 1 Physics curriculum are also included. Developed in collaboration with the Defence Science and Technology (DST) Group to demonstrate applications of radar technology. Students use an audio radar as a learning tool in an experimental program looking at the radar concepts of reflection and Doppler shift.

Sensor Technology
Links with the ‘Waves’ section of the SACE Stage 1 Physics curriculum. Students use myDAQ equipment to investigate two types of sensors in a laboratory setting: infra-red and ultrasonic sensors. They make predictions and test hypotheses, take measurements, and collect and interpret data. Students then consider the applications of the technology based on their new understanding of the sensors and come to appreciate how much technology improves and enhances our lives.

Nuclear Physics
Links with the ‘Nuclear Models and Radioactivity’ section of the SACE Stage 1 Physics curriculum. Students conduct three procedures that explore concepts of radiation and radioactive decay – calculating the half-life of an indium isotope, exploring the attenuation of gamma rays, and determining the penetrative range of beta particles through aluminium. In addition, a small Cloud Chamber is available for demonstration purposes and can be viewed by school visitors.

Details about each of these sessions can be found here: unisa.edu.au/UniSA-Connect
Connect for Teachers

UniSA College offers a range of STEM and Career Awareness teacher professional learning opportunities for secondary school teachers.

The programs focus on new STEM technologies such as 3D Printers, Electronics and VX Sport units which utilise GPS technology.

Career Awareness provides teachers with career profile training which can be utilised in the Year 10 SACE Personal Learning Plan subject.

Professional development programs include:

- An Introduction to 3D Printing
- Improving your 3D Printing
- Career Awareness
- Electronic Games
- Engineers Without Borders
- VX Connect to Sport Science

These programs are free of charge and will be held at the Mawson Lakes Campus, Whyalla campus and Mount Gambier campus. At the completion of the program, teachers are provided with certificates which align with the Teacher Professional Learning standards.

Details about each of these sessions can be found here: unisa.edu.au/UniSA-Connect
UniSA College: Connect provides opportunities for students to explore career pathways and to work alongside university mentors.

Career Awareness Program
For: Year 10
Designed to enhance the SACE Personal Learning Plan subject by incorporating a career profile to raise the awareness and aspiration for higher education. Students complete a career profile analysis and engage in skill-based conversations regarding career pathways with UniSA School of Psychology student mentors.

Connect to University
For: Year 10
A University-based experiential learning program for rural and remote secondary students who are considering tertiary study. Students will experience University life first-hand as they participate in a range of interactive activities at metropolitan campuses across Adelaide and at the Mount Gambier and Whyalla campuses. Students will explore career pathways, learn about University programs and services, and gain practical knowledge in a range of subject areas. University mentors for this program are from a rural background.

Aviation
For: Year 10 and 11
Engages and excites students, through university aviation mentors, about the possibility of careers in the aviation industry. Students have the opportunity to think about aviation as a career and enjoy a number of hands-on experiences as they explore the skills, attitudes and disciplines essential for a future in aviation.

“...when the students are talking with the mentors, I can sense the energy and excitement of the students as they work out the next stages of their career. They are realising that these opportunities are just around the corner, and for some it’s the first time that they’re discussing their next step.”
- Secondary School Principal
Connect Community Partnerships

UniSA College has developed a range of partnerships with community organisations to support learning and provide career opportunities.

**Aboriginal Power Cup**
The Aboriginal Power Cup contributes to an early intervention strategy that engages with Aboriginal secondary students through sporting activities to provide inspiration towards, and information regarding, higher education and positive life choices. This partnership involves a range of community groups including the Government of South Australia, Port Adelaide Football Club and Santos.

UniSA College provides assistance during the Aboriginal Power Cup Carnival, a steering committee member, and university resources by acting as a liaison between Port Adelaide Football Club, the School of Health Sciences, the School of Psychology and Wirringka Student Services.

Aboriginal Power Cup secondary student participation is linked to the study of a SACE unit, coordinated by the South Australian Aboriginal Sports Training Academy. The unit culminates with a carnival which incorporates the football competition, leadership skills, workshops and career information.

The Aboriginal Power Cup is a three-day event and involves approximately 400 secondary school students from schools across South Australia.

**South Australian Aboriginal Sports Training Academy (SAASTA)**
The South Australian Aboriginal Sports Training Academy (SAASTA) is part of the Department for Education and Child Development and utilises sport to engage secondary students across senior years 10, 11 and 12. The primary focus of SAASTA is overall educational success with academy students required to complete an academic program, as part of their enrolment within SAASTA. Through their participation, academy students are supported and encouraged to increase and maintain their attendance, participation and educational achievement.

UniSA College in partnership with SAASTA is strengthening curriculum engagement and providing new approaches to learning, including STEM subject options. Students are provided with educational and experiential learning opportunities to raise awareness of career and university pathways.

**The Smith Family**
The Smith Family is a children’s charity helping disadvantaged Australian children to get the most out of their education, so they can create better futures for themselves.

UniSA College provides University Experience days for secondary school students. These programs enable students to participate in career awareness and experiential STEM programs at a University campus.

**Australian Indigenous Mentoring Experience (AIME)**
AIME provides a dynamic educational program that gives Aboriginal and Torres Strait Islander high school students the skills, opportunities, belief and confidence to finish school at the same rate as their peers. AIME has proven to dramatically improve the chances of indigenous students finishing school. AIME also connects students with post Year 12 opportunities, including further education and employment.

"UniSA College: Connect has significantly raised the profile of UniSA and its programs in the secondary school sector in South Australia, and in the community."
- Secondary School Principal Focus Group
School networks
Close collaboration with secondary school networks like NASSSA (Northern Adelaide State Secondary Schools Alliance) and WASSN (Western Area State Schools Network) provides understanding about the needs of the communities. UniSA College: Connect has assisted the development of targeted programs such as Year 10 High Achievers, STEM Girls and STEM Innovation Experience. Ongoing collaboration, deep understanding and linked strategies expose STEM and Career pathways to the community.

Regional Engagement
The University of South Australia is committed to regional engagement with campuses based at Whyalla and Mount Gambier. As part of this strategy, UniSA College: Connect provides student programs and teacher professional learning workshops in these areas.

Regional schools are invited to negotiate programs in Science, Technology, Engineering, Mathematics (STEM) and Career Awareness.

For Whyalla and Mount Gambier campus dates please refer to the site listed below. Interested schools can contact UniSA Connect to discuss possible offerings or enquire via the website unisa.edu.au/UniSA-Connect

“Students want to attend UniSA because they have seen what happens there and they feel excited by its programs and facilities.”

- Secondary School Principal Focus Group