



Australian **Science** and **Mathematics** School

# Context Statement



**Government of South Australia**

Department for Education and  
Child Development



**Flinders**  
UNIVERSITY  
ADELAIDE • AUSTRALIA

**AUSTRALIAN SCIENCE AND MATHEMATICS SCHOOL**  
**SCHOOL CONTEXT STATEMENT**  
**School number: 1800**

**General Information**

Principal: Susan Hyde

Deputy Principal: Glenys Thompson

**School e-mail address**

info@asms.sa.edu.au

**Staffing numbers**

44.0 Teaching Staff

13.0 Support Staff

**Enrolment trends**

2004	265 students (years 10, 11, 12)
2005	274 students with up to 30 of these being international students (years 10, 11, 12)
2006	250 students with up to 30 of these being international students (years 10, 11, 12)
2007	260 students with up to 30 of these being international students (years 10, 11, 12)
2008	265 students with up to 30 of these being international students (years 10, 11, 12)
2009	291 students with up to 30 of these being international students (years 10, 11, 12)
2010	336 students with up to 30 of these being international students (years 10, 11, 12)
2011	336 students with up to 30 of these being international students (years 10, 11, 12)
2012	357 students with up to 30 of these being international students (years 10, 11, 12)
2013	366 students with up to 30 of these being international students (years 10, 11, 12)
2014	348 students with up to 30 of these being international students (years 10, 11, 12)
2015	387 students with up to 30 of these being international students (years 10, 11, 12)

**Year of opening**

2003

**Public transport access**

The ASMS is located on the grounds of the Flinders University of South Australia. It is serviced by the same network of public transport that supports the university, including a bus service connecting different sections of the campus. The Tonsley railway station is approximately 1km northwest from the school.

## Charter

The ASMS serves as a statewide focal point for teaching and learning, professional development and research aimed at fostering improvement, innovation and reform in Science and Mathematics education. The school provides new ways of teaching and learning in Science and Mathematics through the creation of an environment for interaction between educators and professional scientists and mathematicians within institutions and industry in South Australia and beyond. The schools' partnership with Flinders University is its main source of interaction.

The ASMS is intended as a resource for every school in the state through its programs of professional development and curriculum enhancement. Students and teachers from across South Australia are invited and encouraged to engage in individual and group visits to the ASMS outreach, exchange and vacation programs.

Teachers from around the state are able to work alongside ASMS staff in the ongoing development of the curriculum and teaching and assessment strategies. This work also informs the review and planning of professional development priorities.

The ASMS:

- Responds to current and future interests and needs of its students to establish models of excellence in science and mathematics education
- Provides a learning environment of leading edge and enterprise oriented science, mathematics and technology
- Provides a learning culture for its students that derives from the learning culture of its staff, which in turn derives from their interaction with university and industry scientists and educators
- Is an agency for change and enhancement of science and mathematics education for the state of South Australia and then nationally and internationally
- Prepares young people to be creative, critical, informed and motivated contributors responding to professional, personal and social issues
- Increases participation and success of senior secondary students in science, mathematics and related technologies and transforms students' attitudes to science and mathematics as career paths

## **General Characteristics**

The Australian Science and Mathematics School (ASMS) draws students from metropolitan and rural areas in South Australia, and from interstate and overseas. This diversity reflects the global community in which students will work when they graduate.

The ASMS is sited within the campus of the Flinders University which abuts the Adelaide foothills and is adjacent to the residential areas of Bedford Park, Mitchell Park and Bellevue Heights

The school has a social as well as an academic heart. It provides a number of points within the building to give students an all important sense of having a 'home' base.

The school learning community is based on strong and trusting relationships with peers, teachers and other adults  
Each student has a tutor who is an advocate, counsellor and mentor

Each student has a personal learning plan that is regularly monitored and updated in collaboration with the tutor.

The school is located within the Flinders University. It has strong links with the campus, including sharing facilities, and access to its highly skilled staff. The school connects Science, Mathematics and related technologies directly to the issues in the world today with learning taking place in the university, the workplace, online and in the community.

The building provides for a range of learning settings including face to face and online, coaching, mentoring and students as researchers and teachers. Students may also make use of the extensive facilities within Flinders University such as additional laboratories, libraries, lecture theatres, canteens, sport, recreational facilities and university clubs.

Each student is recognised as an individual, with the relationships developed with others being pivotal to success. The physical and emotional wellbeing of each student is supported by a strong connection with their teachers and a climate of trust and mutual respect that inspires and encourages everyone.

Having a school population of 366 students (in 2013) ensures that each student becomes personally known, supported and valued as a member of a dynamic learning community. Movement of students around the university and off-campus facilities occurs under the guidance and duty of care of the ASMS staff.

## Learning Programs of the ASMS

### Learning Vision

The Australian Science and Mathematics School (ASMS) is a senior secondary school promoting excellence in teaching and learning in science and mathematics education.

The ASMS will be recognised for its leadership of innovation and reform of learning and teaching in science and mathematics.

The ASMS is constantly in the process of creating a learning environment for the future that will prepare young people with a passion for study in science and mathematics to be creative, critical, informed and motivated contributors responding to professional, personal and social issues.

### Learning Principles

Learning programs at the ASMS are built around the following key principles.

#### ***New Sciences:***

emerging areas of science such as nanotechnology, aquaculture, biotechnology, photonics, genomics, polymer science, robotics and communication technologies are incorporated into school curriculum.

#### ***Inquiry Learning:***

students engage in deep study in personal projects of major significance, especially through problem based and inquiry based learning approaches.

#### ***Interdisciplinary Curriculum:***

programs with a focus on scientific and mathematical processes in ways that are closely linked with learning from all areas of study.

#### ***Standards of Significance:***

a systematic approach to allow students to meet school, state-wide, national and international educational standards.

#### ***Authentic Experience:***

students study real world ideas, problems and issues and to make connections with their learning that are meaningful to them in their present and possible future life circumstances.

#### ***Engagement and Retention:***

increased participation and success of senior secondary students in science, mathematics and related technologies and transforms students' attitudes to science and mathematics as career paths.

## **Capabilities**

The ASMS actively promotes the development of a designated set of capabilities in all of its students.

Capabilities are diverse knowledge, skills and dispositions that students develop for their roles as citizens, workers and members of local and global communities. A focus on capabilities is a powerful way to develop balance and connectedness across diverse areas of learning and to promote learning that is transferable to many future elements of life.

The ASMS has a focus on seven declared capabilities. These capabilities reflect the unique nature of the school and its broad aspirations for our students.

The ASMS certificate of Graduate Capabilities is a statement of the student's demonstration of their capacity to:

- ***Literacy***
- ***Numeracy***
- ***Information and communication technology (ICT) capability***
- ***Critical and creative thinking***
- ***Personal and Social capability***
- ***Ethical understanding***
- ***Intercultural understanding***

## **Central Studies**

The learning program for students in Years 10 and 11 at the ASMS is based on the unique courses developed by the school called Central Studies. There are three separate Central Studies presented in each semester over a two year program. There is also a Special Inquiry Project presented as a specific unit of study in the second semester of each year.

### **Maths and Abstract Thinking**

(Semester 1 & 2, 2016, 2017 & 2018)

The focus of this central study is for students to develop the ability to apply mathematical reasoning and logic so they can engage with, explore, and explain, the intricate, and at times chaotic, relationships found within the field of mathematics. The program uses constructivist methodology and an investigative approach to mathematics education.

Students will:

- Explore the relationships between functions, graphs, coordinate geometry and trigonometry.
- Engage in modelling of real world contexts with exponential, logarithmic and periodic functions.
- Use statistical reasoning in the study of data in context.
- Expand their knowledge of functions through an analysis of the family of polynomials, with an emphasis on quadratics.

All students actively explore alternative learning methodologies throughout the course to develop their conceptual understanding. A wide range of scaffolds and resources are available to assist in the student's personal learning journey. Transferability of the mathematical skills developed in Maths and Abstract Thinking is explicitly addressed through connections with other Central Studies.

### **Biodiversity**

(Semester 1, 2016 and 2018)

This study involves the understanding of the origins, development and diversity of life on planet Earth. Major areas of investigation include geological time scales, evolution, Earth processes such as continental drift and plate tectonics and ecosystems. Biodiversity is underpinned by a philosophical basis where students explore issue in the topics above using a range of philosophical frameworks.

### **Concept and Create**

(Semester 1, 2016 and 2018)

The world is changing, with rapidly emerging opportunities for innovation. This central study has as its focus the innovation cycle, with students identifying a problem and designing, prototyping and marketing a solution. This will culminate in an Innovation Expo, where students will compete to market their innovation. Students will explore a range of contents to support this from materials and their properties at a range of scales to historical views on innovation and its drivers, while moving towards an understanding of the potential of current developments and applications such as nanotechnology and biomimicry. This Central Study will have a significant practical component, with use of 3-d printers, laser cutters, programming and technical drawing as students turn their ideas into reality.

## **Truth and Perception**

(Semester 2, 2016 and 2018)

As students of language, philosophy and science we not only describe the world as we see it, but also challenge others by asking “Why” and “What if?”

In Truth and Perception, students will examine some of the theories about light, chemical reactions, biological processes and the purpose of language and images. They will explore scientific knowledge as a collection of overlapping models, each with their own limitations in describing nature. By exploring the same phenomena through these different levels of abstraction, they will confront the notion that science is about understanding doubt as much as discovering truth.

Can two people ever truly understand each other’s meaning?

## **The Earth & the Cosmos**

(Semester 2, 2016 and 2018)

This study explores understandings of the sun, moon and stars, and the challenges of human space exploration. The concepts and content covered include the structure and size of the universe, understandings of time and space, composition of the planets, evolution of the Earth’s atmosphere, oceans and geological formations and human space exploration. Computer simulation and mathematical modelling of physical phenomena is used to enhance students’ understandings.

## **Student Inquiry Project**

(Semester 2, 2016, 2017 & 2018)

This programme has been designed to be taught over an 18 week semester where students have 200 minutes a week class time. Students have been asked to undertake an extended project which incorporates elements of inquiry and research. Students have been given the choice of working individually or in small self-managed groups to complete their project. They are requested to make a topic choice which is STEM related in regards to the focus area for their project and are free to choose the format of the final outcome.

All students have a nominated teacher who will mentor and support students in completing their contracts via a blend of group learning activities focused upon research and project management skill development and individual discussion and assistance. If required, students can utilize one of their 100 minute lessons to conduct activities related to their contract outside of the school. Students are expected to offer peer support not only within their working groups but to classmates during group discussions.

## **A Technological World**

(Semester 1, 2017 and 2019)

In this unit students investigate various social impacts of innovations in science and technology over time. There is a particular focus on understanding developments in the uses of energy and materials over time and the social implications of these developments. In the major research task students collaborate to present an item of technology for display at the ASMS Techno-History Museum exhibition, where students explore the historical scientific and technological perspectives of the technologies.

## **The Body in Question**

(Semester 1, 2017 and 2019)

This Central Study explores the human body as a system from a number of different perspectives. The key focus is that there are multiple influences on human health. Students examine how personal perspectives are formed (through senses and cognition), study the nature of health and disease from the physiological, social, emotional, nutritional or immunological basis. Students investigate human health issues from a historical perspective, looking at major impacts on a health issue over time

## **Communication Systems**

(Semester 2, 2017 and 2019))

In this Central Study students study different communication systems: electronic, biochemical, geographical, digital and visual. They look at how humans interpret, change, adapt, transform and control communication systems. There is a detailed focus on the physics of electrical communication to understand electrical currents and micro-processors, with a special focus on how this is applied in airborne communication. The chemistry of biochemical communication is studied to understand the structure and function of chemicals such as neurotransmitters and hormones.

## **Sustainable Futures**

(Semester 2, 2017 and 2019)

The sustainability of the Earth is explored in concert with human systems and behaviour. Topics of interest include population studies, food production, water quality and availability, waste management, environmental chemistry and bioremediation. Students are encouraged to undertake investigations that lead to the design of a house and garden following principles of sustainability. Responsible citizenship and global collaboration are key ideas encouraged to offer solutions while respecting regional political, economical and cultural priorities.

## **SACE Accreditation**

The work undertaken by students in the Central Studies is mapped against, and formally accredited through, the following SACE Stage 1 subjects under the authority of the SACE Board of SA.

### **Semester 1 (2016)**

Mathematics - *Maths and Abstract Thinking* (10 Points)  
Scientific Studies - *Biodiversity* (10 Points)  
Scientific Studies - *Concept and Create* (10 Points)  
  
English/EALD (10 Points)  
Integrated Learning (10 Points)

### **Semester 2 (2016)**

Mathematics - *Maths and Abstract Thinking* (10 Points)  
Scientific Studies - *Truth and Perception* (10 Points)  
Scientific Studies - *Earth and Cosmos* (10 Points)  
English/EALD (10 Points)  
Research Practices/Research Project (10 Points)  
Personal Learning Plan (10 Points)

### **Semester 1 (2017)**

Mathematics - *Maths and Abstract Thinking* (10 Points)  
Scientific Studies - *Body in Question* (10 Points)  
Scientific Studies - *Technological World* (10 Points)  
  
English/EALD (10 Points)  
Cross Disciplinary Studies (10 Points)

### **Semester 2 (2017)**

Mathematics - *Maths and Abstract Thinking* (10 Points)  
Scientific Studies - *Communication Systems* (10 Points)  
Scientific Studies - *Sustainable Futures* (10 Points)  
English/EALD (10 Points)  
Research Practices/Research Project (10 Points)  
Personal Learning Plans (10 Points)

## Enrichment Opportunities

### **University Studies**

University Studies is an enrichment and extension program conducted in a dedicated session on Thursday mornings. The aim of the University Studies program is to promote a high degree of interaction with Flinders University with short courses provided by university staff. Students have the opportunity to work in mentored projects using university facilities. The University Studies courses provided in recent sessions have been:

- How to be an Umpire
- Plant Tissue Culture
- Science and the Arts
- How to be a Researcher
- Music
- Service Club
- Maths Club
- Fencing
- Experience the App
- Tonsley – Phone Project
- EALD
- Think like an Economist
- Hacking
- Aviation
- Ideation Space
- Chess Club
- MOOCs & Oos
- Digital Journalism
- Apocalypse
- ISF Ambassadors
- Screen Studies
- Designer Space
- STEM Challenges

### **Supplementary Studies: SACE Focus**

These courses enable students to participate in particular areas of interest and expertise. These studies are available for students in Years 10, 11 and 12 and include:

- Languages
- English as a Second Language (ESL)
- Music
- Other, by negotiation

Students can choose ONE Supplementary Study – SACE focus per year (20 credit equivalents). Some of these studies are conducted at alliance schools and involve travel to those schools. Negotiations take place with students to join classes in alliance schools as part of that school's timetable.

Students generally identify their preferred Supplementary Study – SACE during the enrolment process or meetings with their Tutor.

### **Workplace Studies**

Experience placements. These are done through individual negotiation with students to suit their particular needs and interests. All Work Experience placements are conducted according to guidelines provided by the Department of Education and Child Development.

### **Learning Studies Program**

The ASMS conducts a Learning Studies program to ensure that students feel a sense of belonging within the school, and to provide a high level of care and guidance. Each Learning Studies Group is vertically grouped with students from Years 10 to 12 who meet for 40 minutes every day with their Learning Studies teacher. Students work with one Learning Studies teacher for their time at the school. The student / teacher relationship is an essential part of the school's high quality learning environment. Through their expertise and experience, Learning Studies teachers are expected to support and mentor students to plan and achieve their goals.

The Learning Studies Program is a central part of the curriculum of the ASMS and provides the focus for the

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following aspects of developing student learning

- Personal integration into the school life of the ASMS
- Engagement with a program of activities to promote student well-being and learner resilience
- A program to allow students to examine their beliefs towards learning and how they can use neuroscience to maximise learning outcomes
- The development of an ePortfolio that showcases their growth as a learner
- The preparation and presentation of Learning Conversations
- Activities to support the development of active, responsible 21st century citizens
- Support for pathway planning and making transitions beyond schooling
- Ongoing development of the ACARA general capabilities
- The compilation of a personal profile of achievement in relation to the designated Graduate Capabilities of the ASMS.

Learning Conversations are an integral part of our learning program. It is an opportunity for students to reflect on their learning journey and share this with their parents and Learning Studies teacher. These occur twice a year in Term 1 and 3 and are a compulsory part of the school reporting process.

### **Demonstration of Learning**

The ASMS is committed to transforming the way student learning and achievement are defined and measured. It is developing and using multiple assessment strategies.

Assessment is ongoing and regular to provide feedback that assists, extends and improves learning. Students' Personal Learning Plans and their individual Tutors are an essential part of providing appropriate and constructive feedback that is meaningful to students, supports and empowers their learning, and contributes to their development.

There is an emphasis on active approaches to assessment involving the students themselves, their families, industry partners, and school and university staff.

The Central Studies involve students in learning in authentic contexts. Learners and teachers work together to negotiate an agreed context for learning to ensure learners have ownership of their learning. Once this is decided, teachers and learners negotiate a method of demonstrating the learning, providing an opportunity to share the knowledge, skills and understandings.

Full copies of the Assessment Plans used for each of the Central Studies are available on the ASMS website under Curriculum – Central Studies – Central Studies Program Outline.

Demonstration of learning and subsequent assessment of this learning may occur in the community, industry or work environments other than the classroom, providing the opportunity to present to an authentic audience. It is important that such environments recognise and value the student's involvement in training, work and community responsibilities.

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## **Staff**

### **Staff Support Systems**

The ASMS places a high priority on the professional learning of all staff. Essential to establishing and maintaining the strong learning community, staff are supported to work in collaborative ways. Teams are based around working relationships and include non-teaching staff. All staff are members of a Professional Development team. Supported by a designated team leader, staff report on their Individual Professional Development plans (IPD's), their PD activities and progress in achieving their identified PD goals. Regular review meetings are held with team members providing support for each other to achieve planned outcomes.

Central Studies teams work to develop and implement curriculum for year 10 & 11 students. Each team is lead by a Coordinator: Interdisciplinary Curriculum and as a team are responsible for collaboratively writing curriculum and teaching materials, planning teaching approaches with a strong emphasis on inquiry, ICT and collaboration, monitoring, assessing and reporting on student learning. Central Studies teams consist of teaching staff representing a range of subjects and Flinders University staff with expertise related to the Central Study. Regular meeting times are scheduled for the collaborative work of Central Studies teams.

New staff are supported with an extensive Induction Program that involves ongoing activities and checkpoints to monitor the effectiveness of the program. Specialised professional development sessions are scheduled to ensure new staff are able to develop an understanding of the underpinning principles that drive the teaching and learning approach of the school.

Time is set aside within the timetable of all staff members to participate in a planned professional development program each week. The program is planned each term to address identified staff and school needs and to support staff IPD's. Each staff member is actively involved in Action Research, reflecting on their practice in a focused manner. Linked to the ASMS Strategic Plan, AR projects aim to support staff in making evidence based decisions aimed at improving student learning outcomes.

### **Performance Appraisal**

A staff member's IPD forms the basis of performance appraisal process at the ASMS. Each staff member reports on the connection between the goals of their IPD, their PD activities and changes they have been able to make to their practice in order to better meet the learning needs of ASMS students. In addition Performance Appraisal meetings with the Principal, Deputy or Assistant Principal are also scheduled when the need is identified. Each staff member is entitled to written feedback on their performance and through their IPD team is able to demonstrate strategies to meet the requirements of their role in the school community.

### **Staff Roles**

Teaching staff are employed as Graduating Teacher, Teacher, Co-ordinator 2 or 3, Assistant Principal level 2, Deputy Principal and Principal. Teaching staff are involved in collaboratively teaching, developing and reviewing curriculum, monitoring student learning, and according to their role, professional development program planning, implementation, review and evaluation accordingly. Non-Teaching staff are employed to support student learning and perform administration tasks of the school. Personal Advisory Committee (PAC) provides advice on staff loads and responsibilities in conjunction with Learning Futures and Learning Community Groups and Central Studies teams.

To support the ASMS charter to provide professional development opportunities for teachers and educators across South Australia, staff are provided with opportunities to develop expertise in PD facilitation, coaching & mentoring as well as writing and publishing. For some this may include completion of post graduate studies offered in conjunction with Flinders University and accredited at Graduate Certificate, Masters and Education Doctorate level. Others may participate in workshops or short courses focused on developing their skill and understanding in a particular aspect of this role. As part of IPD's staff have access to resources to support their involvement in programs of this nature.

At the ASMS each teacher is seen as a leader. As a member of a collaborative teaching team they are a leader of learning, effectively empowered to make decisions that impact on student learning through their contributions to decisions related to curriculum, timetabling, approaches to teaching and assessment and school structures that

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impact on learning. This distributed leadership model is evident in teacher role descriptions and linked to the Strategic Directions and Professional Development program of the ASMS. Staff involvement in particular leadership activities enables the learning community of the school to learn through their leadership activities and for each to share their insight with other educators.

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## ASMS Research Agenda

### The school's charter.

*The ASMS serves as a statewide focal point for teaching and learning, professional development and research aimed at fostering improvement, innovation and reform in STEM education.* Page 1 ASMS Strategic Plan, 2014 – 2023

### Research question.

*What are we doing to transform STEM education and how do we know if it works?*

### The context.

Young people are turning away from STEM for various reasons. The long term effect of this is that our education systems are not producing enough people with the capacity to develop new ideas and solve problems in our technology rich world.

Young people say that STEM is too boring, too hard and not connected to the world they live in. This may result from their experience of their science and mathematics education.

The ASMS curriculum attempts to address these issues in three broad ways.

The interdisciplinary Central Studies program is designed to *engage* our students through

- the study of the new sciences; the science that scientists do in our 21<sup>st</sup> Century world
- combining themes from the humanities that help connect the purpose of science to human progress and the ethical issues that need attention in the application of the sciences
- developing the skills to communicate effectively.

The inquiry based learning activities in the curriculum are designed to strengthen and deepen the students' learning in the discipline through the interrogation of fertile questions. This process allows students to make choices that interest them, the opportunity to learn deeply and *challenge and motivate* them to find ways to make a difference. There are many opportunities in the learning program for students to learn how to *collaborate to learn* effectively, helping them to understand how knowledge is co-constructed.

The Mathematics and Abstract Thinking program explicitly develops our learners' *metacognitive strategies and knowledge* (learning about learning) so they can learn autonomously, deeply and solve complex problems.

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### The research agenda

The ASMS learning program develops self-directed learners, those that can personalise their learning because they can make strategic decisions about how to learn.

ASMS teachers develop their repertoire of interventions to assist our students to become responsible for their own learning.

### CATEGORIES for engagement in the research agenda.

The question	The outcome	Research strategies
What attributes of a self-directed learner do we develop?	Understand and document the development of students as self-directed learners.  To recognise and document the stages of development.	Students as researchers.  Literature research.  Observation, journal writing.  Survey instrument to track growth.  Case study.
What pedagogy supports the development of self-directed	To develop and document the repertoire of intervention	Students as researchers.  Teachers codifying, observing,

learners?	methodologies.	documenting practice. Case study.
What curriculum design supports the development of the self-directed learner?	Identify, document and articulate if and how the curriculum design helps students to personalise their learning experience.	Literature research. Analysis of learning demands. Interviews. Grade analysis.
What support do teachers need to develop a repertoire of teaching strategies that will help students become self-directed learners?	Document the level of collegial support. Document the stories.	Analysis of journal writing. Observations of discussions. Survey instrument to track growth.
What school leadership and organisational features support teachers in their quest to develop the self-directed learner?	Strengthen and document distributed leadership. Identify and coordinate resources.	Interviews, survey instruments, analysis.

## PROCESS

Staff at the ASMS are invited to engage with the ASMS Research Agenda through their Individual Professional Development Plans.

The Individual Professional Development Plans (IPD Plans) are for all staff at the ASMS. They recognise the value of professional learning for the improvement of student learning outcomes and acknowledge the professional development value of the diverse range of activities in which staff engage as part of their work.

IPD Plans are designed to enable staff to self-manage, collaborate and to explore those aspects of their practice that they believe have the greatest potential to improve student learning outcomes and collectively assist the school to address the identified key directions.

**The ASMS IPD Plans aim to enhance the quality of student learning by supporting the development of a school which is able to:**

- develop, disseminate and adopt leading edge teaching and learning practices in science and mathematics;
- promote and adopt pedagogical practices which support and engage all students;
- contribute to the development of a culture of continuous learning for teachers involved in mathematics and science education focusing on the new and emerging sciences; and
- develop partnerships between DECS, Flinders University, industry, government agencies, professional associations and educators from around Australia & the world for the purposes of improving teaching and learning practices in mathematics and science.
- provide a focussed engagement with the declared ASMS research agenda 2011-.

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## **School Facilities**

### **Buildings and Grounds**

The ASMS is a world-class, purpose-built school. Its design serves to inspire those who use and visit it.

Integrated within the campus of Flinders University, south of the city of Adelaide, it comprises a two level building at the Sturt Campus and also has teaching spaces within the adjacent Sturt Building of Flinders University.

The ASMS also shares the use of a library, cafeteria, gymnasium, students services facility, sports fields and recreational spaces at the Sturt Campus and is able to book the extensive range of other facilities such as lecture theatres, rooms and laboratories on a needs basis.

The building design is based on extensive world wide research and analysis of emerging best practice in teaching and learning and is designed to stimulate learning anytime, anyplace and anyhow.

Its floor plan comprises nine learning commons, nine studios, large open circulation break out spaces and range of meeting/ seminar rooms which provides for flexibility and adaptability to cater for the principle elements of the school's charter:

- Provide a reforming environment in the teaching and learning of Mathematics, Science and associated technologies for students
- Provide professional development for teachers across the state of South Australia.
- Provide learning enhancement opportunities for students in other state schools.
- Play an active role in preservice / inservice training of teachers.

### **Learning Commons**

Each caters for up to fifty students and has an open plan teacher preparation area associated with it. Modular furniture sited around a teaching wall in each learning common allows for flexible teaching and learning groupings.

### **Specialist Facilities**

Learning studios – multimedia, mathematics, physical sciences, applied technology (IDEATION Studio), presentation/performance, environmental sciences, life sciences, human performance, for practical and research work are integrated with and are directly accessible from the learning commons.

The ASMS also has teaching spaces within the adjacent Sturt Building of Flinders University.

### **ICT Facilities**

The ASMS is a leader in the use of ICT throughout all aspects of teaching and learning. All staff and students have access to a significant number of ICT facilities utilising the desktop computers provided on site, staff provided Tablet PC's or personal devices through the Flinders University provided wireless network infrastructure or from home. The ASMS provides access to an internet portal for all staff students and parents to provide access to teaching and learning materials and facilitate communication throughout the school community.

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### **Student Facilities**

- Outside learning areas
- 24/7 ICT and audio visual systems
- Central common spaces for circulation, social interaction, assemblies, lectures and informal learning spaces.
- Students have access to the university library system which houses the ASMS resource collection.
- Students and staff have access to the university canteen, sporting, leisure and other retail facilities.

### **Joint Use Agreement**

The school has a joint use agreement with Flinders University that provides for ongoing ASMS access to the university's playing fields, libraries, gymnasiums, cafeteria, ICT and other facilities on an occasional use basis.

### **Staff Facilities**

- Staff Room
- Preparation / office areas
- Board / meeting room with an associated kitchen
- Meeting / seminar rooms

### **Access for Students and Staff with Disabilities**

- The building has access ramps for physically disabled students and contains an internal lift for access to the upper level
- The facility provides for a first aid / sick room and a fully scoped special access toilet service facility
- Extensive external ramping
- Braille signage and ground mounted pedestrian access pads

### **Environmental Sustainable Development Features**

The ASMS building incorporates extensive Environmental Sustainable Development (ESD) features within it, including:

- Computer controlled mixed mode airconditioning services.
- Intelligent high performance lighting complemented by extensive natural lighting through large glazed areas.
- High performance glazing with strategically placed sun screening and electronically controlled blinds.
- Controllable water and waste services.
- Building materials chosen for their high energy efficiency and environmentally friendly ratings.
- The building's computer controlled management systems can be accessed by students and used for educational purposes to understand how its environment is controlled. Many of its services have also been deliberately exposed to complement understanding of its operation.

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## **School Operations**

### **Year Levels**

The ASMS is a Year 10 to 12 senior high school.

All Year 10 and 11 students work together on a common program called Central Studies. This gives Year 10 students an opportunity to gain some SACE Stage 1 credits. Year 12 subjects follow the defined SACE curriculum statements and students can meet all of the criteria for their South Australian Certificate of Education and ATAR at the school.

### **Dress**

Although there is no ASMS uniform, dress must always be neat and appropriate and must not be offensive to others. Guidelines have been agreed through consultation with students and are distributed to new students.

### **School Canteen**

Students have access to the cafeteria on the adjacent Sturt Campus of the Flinders University and the ASMS has kitchen facilities (microwave, hot water and sink) for student use in the student café area.

### **Community Involvement**

Students have the opportunity to take part in wide range of extra-curricular activities. One of these is the ASMS Service Club where students coordinate a range of fundraising activities to support charities and community organisations.

### **School Times**

Lessons commence at 8.40am and normally conclude at 3.20pm. On Tuesdays the formal day ends at 1.00pm. The school is open from 7.45am on weekdays and remains open until 4.30pm for students to continue their research and learning. The adjacent Sturt Library annexe of the Flinders University is open from 8.30am to 9.00pm Monday to Thursday and 8.30am to 6.00pm on Fridays. Australian Science and Mathematics School students have full access to this facility.

### **Sport**

A variety of sports are on offer for all students at the ASMS. The lunch time sport program includes cricket, ultimate Frisbee and soccer. The ASMS competes in several interschool competitions (after school hours) including table tennis, indoor soccer, netball and basketball.

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## Community

Flinders University contributes its expertise in teaching and research in science and education to support the continued development, improvement, innovation and reform in science and mathematics education at the ASMS.

The operation of the ASMS involves on-going collaboration between the ASMS and Flinders University, particularly in the following areas:

- Curriculum development through a focus on the exploration and creation of new ways of teaching and learning for science and mathematics by creating an environment for interaction between practising teachers, professional scientists, educators and students within the University and industry.
- Enhanced learning opportunities through the provision of a unique opportunity for students to develop their skills and talents in an environment of innovative and enterprise-oriented science, technology, engineering and mathematics teaching and learning, research and development at the ASMS and the Flinders University.
- Evaluation and quality improvement processes associated with mathematics and science curriculum, teaching and learning at the ASMS.
- Pre-service teacher education and inservice professional development of teachers of science and mathematics in curriculum development, the new sciences, and in associated models of pedagogy.
- Establishment and enhancement of industry and community partnerships that provide authenticity to the learning opportunities within the ASMS.
- Enhancement of the international focus of the ASMS through attracting international student enrolments and engagement of international educators in the schools' professional development programs and in its broader development.

## Parent and Community Involvement

- Parents are fully represented on the ASMS Governing Council
- A number also support the conduct of the emerging sporting teams within the school

## Feeder Schools

- The ASMS is served from approximately 65 schools in metropolitan, rural and interstate locations.
- In 2015, 62% of its enrolment came from the public school sector, 27% from Independent and Catholic schools and 11% from overseas or interstate.

## Other Local Care and Educational Facilities

- The ASMS has access to facilities within the Flinders University (including child care) the Flinders Medical centre complex, the Open Access College, the School of Languages and surrounding "Alliance" schools.
- The ASMS works closely with the Marion Inland and Fleurieu Partnership groups.

## Commercial/Industrial and Shopping Facilities

- The ASMS is close to the Marion Shopping Town complex, the shopping and industrial precincts on the South Road Corridor.
- Flinders University services are located through the university

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- It is also in close proximity to a range of commercial sites including Tenneco LTD, Science Park and Hills Industries

#### **Other Local Facilities**

- City of Marion offices
- Darlington Police head quarters

#### **Local Government Body**

- City of Mitcham, 131 Belair Road, Torrens Park

#### **Postal Address:**

Australian Science and Mathematics School  
Flinders University  
Sturt Road  
BEDFORD PARK SA 5042

#### **Telephone:**

+61 8 8201 5686

#### **Facsimile:**

+61 8 8201 5685

**Email:** [info@asms.sa.edu.au](mailto:info@asms.sa.edu.au)

**Website:** [www.asms.sa.edu.au](http://www.asms.sa.edu.au)



#### **Public Transport to the ASMS**

Train and Bus Routes to Australian Science and Mathematics School

Train Tonsley Line to Tonsley Station

Bus Specific route numbers can be obtained from [www.adelaidemetro.com.au](http://www.adelaidemetro.com.au)

- City to Flinders Uni
- Aberfoyle Park to Cabra College
- City to Happy Valley
- West Lakes Shops to Flinders Uni
- Sheidow Park to Flinders Uni
- Hallett Cove to Flinders Uni
- City to Noarlunga Centre
- City to Flinders Uni
- City to Seaford Rise
- City to Chandlers Hill
- Blackwood Stn to Marion Shop Cntr
- Marion Access MA 1/2

