Australian Science and Mathematics School

Context Statement
AUSTRALIAN SCIENCE AND MATHEMATICS SCHOOL
SCHOOL CONTEXT STATEMENT
School number: 1800

General Information
Principal: Susan Hyde
Deputy Principal: Graeme Oliver

School e-mail address
info@asms.sa.edu.au

Staffing numbers
39.0 Teaching Staff
11.0 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)

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 six 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:

**Operate scientifically**

Draws upon scientific knowledge and scientific methodology for the purpose of questioning, understanding and modifying their view of the world.

**Operate mathematically**

Can apply mathematical structures and thinking to situations and problems, and use mathematical problem solving strategies and techniques in solving complex problems.

**Communicate effectively**

Can give and receive ideas and information to a range of audiences in a range of forms for a range of purposes.

**Work both autonomously & collaboratively**

Can maintain a sustained effort in personal work and work productively with others in a range of circumstances.

**Demonstrate personal & social enterprise**

Can actively connect with local, national and international communities by taking an interest in or engaging with projects of significance to them and their future.

**Demonstrate critical literacy**

Can use a range of research and investigation strategies and make purposeful decisions about the appropriateness and usefulness of resources and data to carry out projects of significant inquiry.
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.

Order and Chaos

(Semester 1 & 2, 2012 and 2014)

This unit will look at the ideas of order and chaos in several contexts. Focusing on the mathematical concepts of function and data, the unit has been designed as a constructivist investigatory journey of discovery in the areas of exponential and logarithmic functions, right-angle trigonometry, coordinate geometry, probability, statistics, quadratics and other polynomials and periodic functions. Students will use a variety of resources to develop an understanding of the concepts so that they can transfer their learning to investigations that have their roots in ‘real world’ problems. Numerous opportunities exist for cross-links to other disciplines of the Central Studies offered at the ASMS.

Biodiversity

(Semester 1, 2012 and 2014)

This study involves the understanding of the diversity of life on planet Earth through the role of evolution in the development of species. Major areas of investigation include geological time scales, natural selection, Earth processes such as continental drift and plate tectonics, dating methods and the extinction of species. Other concepts and content include animal and plant structure and function, ecosystems, biodiversity and classification systems.

Nanotechnology

(Semester 1, 2012 and 2014)

Nanotechnology is the science of working directly at the atomic and molecular level and its potential to greatly change the world in which we live. This study involves the understanding of materials and their properties at macro and micro level and will move towards an understanding of the potential of nanotechnology. Applications and challenges include the working of lasers, fibre optics, communications and the creation of molecular machines to manufacture safer chemicals, detect and remove pollution and for the diagnosis and cure of disease.

Biotechnology

(Semester 2, 2012 and 2014)

This study begins by considering how to use natural processes such as genetics and selective breeding to improve fermentation, crop yield and disease resistance to best advantage. Key concepts and content include cell physiology and function, using proteins and the immune system to assay plant and animal health and the interplay between microbiology, public health and the environment. Other content and concepts include the analysis and use of DNA markers and fingerprinting, genetic modification, gene technology and bioinformatics.

The Earth & the Cosmos

(Semester 2, 2012 and 2014)

This study explores understandings of the sun, moon and stars and their social, spiritual and technological roles. 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 space exploration. Computer simulation and mathematical modelling of physical phenomena is used to enhance students’ understandings.
Student Inquiry Project


In the Special Inquiry Project students undertake a detailed self-directed study in an area of interest. The Special Inquiry Project promotes the development of research, investigation and inquiry skills as well as the skills and abilities connected with organising and managing a sustained independent work effort. The Special Inquiry Project can be related to and build on learning in an existing area of study for the student, or can be with a separate declared area of interest. Completing the Student Inquiry Project leads to a SACE subject result in either Community Studies (Stage 1) or Research Project (Stage 2).

A Technological World

(Semester 1, 2013 and 2015)

In this unit students investigate various social impacts of developments 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. The historical, scientific and technological perspectives of the invention are investigated.

Body in Question

(Semester 1, 2013 and 2015)

This Central Study explores the human body as a system through a number of different disciplinary lenses. Students examine how personal perspectives are formed (through senses and cognition), study the nature of health and disease from the physiological, mental or immunological basis and investigate the impact of physical forces such as extreme motion on the body. Students investigate current local and global human health issue.

Communication Systems

(Semester 2, 2013 and 2015)

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.

Reasoning & Relationships

(Semester 1 & 2, 2013 and 2015)

The ability to apply mathematical reasoning and logic to engage with, explore, and explain, the intricate relationships found within the field of mathematics is the focus of this central study. The program draws significantly from 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 and probabilistic 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 Reasoning & Relationships is explicitly addressed through connections with other Central Studies.
**Sustainable Futures**

(Semester 2, 2013 and 2015)

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 action in their local area to counter degradation, scientific misconceptions and to promote sustainable practices. 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 (2012)**
- Mathematics - *Order and Chaos* (10 Points)
- Scientific Studies - *Biodiversity* (10 Points)
- Scientific Studies - *Nanotechnology* (10 Points)
- English/ESL (10 Points)
- Philosophy (10 Points)

**Semester 2 (2012)**
- Mathematics - *Order and Chaos* (10 Points)
- Scientific Studies - *Biotechnology* (10 Points)
- Scientific Studies - *Earth and Cosmos* (10 Points)
- English/ESL (10 Points)
- Community Studies/Research Project (10 Points)
- Personal Learning Plan (10 Points)

**Semester 1 (2013)**
- Mathematics - *Relationships and Reasoning* (10 Points)
- Scientific Studies - *Body in Question* (10 Points)
- Scientific Studies - *Technological World* (10 Points)
- English/ESL (10 Points)
- Cross Disciplinary Studies (10 Points)

**Semester 2 (2013)**
- Mathematics - *Relationships and Reasoning* (10 Points)
- Scientific Studies - *Communication Systems* (10 Points)
- Scientific Studies - *Sustainable Futures* (10 Points)
- English/ESL (10 Points)
- Community Studies/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:

- 3D Worlds
- Adventures in Architecture
- Australian Space Design Competition
- Aviation
- Biological Dissections
- Cryptography
- Dance
- Drugs against Disease
- Electronic Engineering
- English as a Second Language
- Film Competitions
- Games Design
- Global Enterprise Challenge
- Music Performance
- Paramedical Pathways
- Photography
- Phytotechnology
- Robotics
- Science and Art
- Screen Studies
- Sustainable Development
- Visual Basic Programming

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

Students have opportunities to develop and apply their learning in the workplace and community. Many of these opportunities are incorporated in the Central Studies. Student learning outcomes will be accredited within the SACE and against Vocational Education and Training (VET) packages as appropriate.

Through Workplace Studies students will develop an understanding of the world of work and a range of knowledge, skills, competencies and attributes relevant to a wide range of work environments.

Students also have the opportunity to undertake individual Work 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.
Tutoring and Mentoring Support

The ASMS conducts a Tutor Group program to ensure that students feel a sense of belonging within the school, and to provide a high level of care and guidance. Each Tutor Group is vertically grouped with up to 15 students from Years 10 to 12 who meet for 40 minutes every day with their Tutor. Students work with one Tutor for their time at the school. The student / tutor relationship is an essential part of the school’s high quality learning environment. Through their expertise and experience, Tutors are expected to support and mentor students to plan and achieve their goals.

- The Tutor Program is a central part of the learning programs of the ASMS and provides the focus for the following aspects of developing student learning
- Personal integration into the school life of the ASMS
- The development of a designated Personal Learning Plan (PLP) and a supporting e-Portfolio
- Engagement with a program of activities to promote student well-being and learner resilience
- Support for pathway planning and making transitions beyond schooling
- The preparation and presentation of Learning Conversations
- 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 tutor. These occur twice a year 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.
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
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.
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 Science and Mathematics education. Page 1 ASMS Strategic Plan, 2010 – 2014

Research question.

What are we doing to transform science and mathematics education and how do we know if it works?

The context.

Young people are turning away from science and mathematics 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 science and mathematics 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 21st 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.

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.

<table>
<thead>
<tr>
<th>The question</th>
<th>The outcome</th>
<th>Research strategies</th>
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<tbody>
<tr>
<td>What pedagogy supports the development of self-directed</td>
<td>To develop and document the repertoire of intervention</td>
<td>Students as researchers. Teachers codifying, observing,</td>
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<table>
<thead>
<tr>
<th>Question</th>
<th>Methodology</th>
<th>Analysis</th>
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<tbody>
<tr>
<td>What curriculum design supports the development of the self-directed learner?</td>
<td>Identify, document and articulate if and how the curriculum design helps students to personalise their learning experience.</td>
<td>Literature research. Analysis of learning demands. Interviews. Grade analysis.</td>
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<tr>
<td>What school leadership and organisational features support teachers in their quest to develop the self-directed learner?</td>
<td>Strengthen and document distributed leadership. Identify and coordinate resources.</td>
<td>Interviews, survey instruments, analysis.</td>
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**PROCESS**

Staff at the ASMS 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-.
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 leaning 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, 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.
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.
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. Students will be issued with an identification badge, which they will be expected to wear at all times.

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 4.55pm 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.
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 2013, 64% of its enrolment came from the public school sector, 28% from Independent and Catholic schools and 8% 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

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
- 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 headquarters

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
Website:  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

- 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