Australian Science and Mathematics School

CHOOSE YOUR OWN ADVENTURE

2014 Annual Report
1. CONTEXT

School Name: Australian Science and Mathematics School  
School Number: 1800

Principal: Susan Hyde  
Partnership: Marion Inland & Fleurieu

The Australian Science and Mathematics School was founded in 2003 to provide leadership for reform and innovation in science and mathematics education through curriculum development, research and professional learning services.

Situated on the grounds of the Flinders University, the school enjoys the benefit and leadership from the partnership between the university and the Department for Education and Child Development.

The ASMS contributes to the Science Technology Engineering and Mathematics (STEM) Skills Strategy for South Australia.

Over the last 11 years, the school has supported many other schools to develop innovative approaches to mathematics and science education based on the approaches developed at ASMS. The school has a number of key successes such as the development of an open learning environment, interdisciplinary learning programs and pedagogy that enhances the success of students in STEM learning. The school has a high rate of articulation into science, medical and engineering studies at Universities across Australia.

2. REPORT FROM GOVERNING COUNCIL

ASMS 2014 Governing Council Chair Report. Mike McAfee.

The 2014 Governing Council largely focussed on the implementation of the Strategic Plan, the groundwork for which was laid down by the 2012 and 2013 Governing Councils under the Chairmanship of my predecessor Mr Darren Oemcke.

It was pleasing to see the plan published this year and for the council to be treated to regular updates from teachers and students on progress toward realisation of various aspects of the plan throughout the year.

The Governing Council can rightly be proud of what has been achieved in terms of defining the strategy for the future evolution of the ASMS and can be confident that the principles outlined have been embraced by the School leadership team, teaching staff and students alike.

Some highlights of the year include:

- Sponsorship of, and assisting with securing further sponsorship for, the successful International Space Settlement Design Competition team who brought home an impressive trophy which is proudly displayed on the school’s trophy shelf.
• Support and guidance of the Innovation Space which ties in nicely with aspects of the Strategic Plan and is in the throes of expanding its reach amongst the student population by being integrated into the main school building.

• Presentations by staff, students and guests including:
  o Karla Pobke on the nature of ASMS students
  o Karen Palumbo, coordinator – Girls in STEM
  o Dr Sivam Krish, Innovation Space outcomes
  o David McAfee and Phillip Grozinger – EduTech 2014 report

Another pleasing aspect of the 2014 Governing Council was the degree of interest in participation from the parent body. This resulted in all formal parent-sourced roles being filled and regular attendance of meetings by interested parents who did not secure a formal role.

My experience with the Governing Council over the last three years has been personally fulfilling. It has been my privilege to have worked with such a talented group of educators, students and parents and I whole-heartedly recommend becoming a member of the Governing Council to help steer the school forward and achieve its strategic goals.

3. 2014 HIGHLIGHTS

The year started with the good news that the ASMS Space Design Team won the Australian Space Settlement Design Competition in Brisbane in January 2014. Most of the team, David McAfee, Philipp Grozinger, Jaewook Lee, Yun sik Kim, Mischa Batelaan and Nick Arman went on to the Kennedy Space Centre, USA, and were part of the winning team in the International Space Design Competition. Sponsored by The Sir Ross and Sir Keith Fund, Flinders University, Adelaide University and the ASMS Governing Council the team came back with the trophy.

In June, year 12 student Rachel Leung was the only Australian to be chosen to participate in the biannual Millennium Youth Camp sponsored by the Technology Academy Finland, where 60 young people from around the world worked with scientists on current scientific problems.

Soon after this the ASMS was hosting the 11th ASMS International Science Fair where teachers and students from 8 nations joined the ASMS students to work on challenges such as breaking the rocket car record, exploring the dragons den, defending the earth from cataclysmic events, finding a lost aircraft, sleeping in space and more. Led by our new Deputy Principal, Glenys Thompson and International Programs Coordinator, Julie Cassidy, staff, students and visitors were challenged and had fun with science.

Earlier on in the year, the Department for Education and Child Development approached us to join their exhibit at the Royal Adelaide Show. Led by teacher Tisha Beasley, 83 students and 16 staff were involved for 1148 hours during the 10 days of the show. The DECD estimated that 8000 people visited the pavilion each day.

This year we renamed the elective time (formally known as University Studies) to Adventure Space, in line with the ASMS brand, Choose your Own Adventure. The Innovation Space continues with student led projects and a spin off from those activities has been the introduction of programming into the school. Other courses included the Junior Venture Dorm (an entrepreneurial program run by Flinders Uni New Venture Institute), the model aeroplane building, screen studies and RoboGals.
Run by Karen Palumbo (Girls and STEM Coordinator) and Cat Stone, RoboGals got a lot of interest from the press.

In the meantime, the Deputy Principal Glenys Thompson, and Assistant Principal Bronte Nicholls, have been working with students as they design their own learning programs. This is a “watch this space” item as we work with our students to help them pursue STEM learning from their own interests and abilities. At the same time, our year 12 students doing a first year university course did well in the first semester topic, achieving 8 High Distinctions, 6 Distinctions, 2 Credits and 1 Pass in subjects such as Mathematics, Chemistry, Physics, Psychology, Biology and Indonesian.

The 2014 ASMS Governing Council, under the leadership of Chair, Mike McAfee, has been overseeing the progress of the ASMS 2014-2023 Strategic Plan. Prepared by the 2013 Governing Council, the staff are busy working to achieve the goals set by the plan;

- Co-Design Curriculum,
- Capabilities & Dispositions,
- Community and Industry Partnerships
- Impact and Influence.

Our partner, Flinders University has managed the production of the Strategic Plan documents which you see on the website.  www.asms.sa.edu.au/strategic-plan/

### 4. SITE IMPROVEMENT PLANNING AND TARGETS

Site Improvement Processes have been focused on

  - Four Strategy groups were formed to guide and contribute to the targets (indicators) set by the plan.
  - 2014 targets have been achieved and will be reported to and approved by the 2015 Governing Council.

- Revising and redeveloping the data management systems to enable a more timely and relevant use of data in quality assurance cycle of the school.

- As the ASMS turns over one third of its students each year, targets for improvement will be set at the beginning of 2015 after various tests are conducted and analysed to guide targeted improvement processes.

- Focusing the professional learning program to assist teachers to review, update and improve their teaching and assessment practices through a focus on the use of feedback to for learning, as learning and of learning.

### 4.2 Better Schools Funding

ASMS received $9568 and used this to provide tutorial support to identified students.

### 5.2 STUDENT ACHIEVEMENT

The ASMS is not a selective school. Our students are encouraged to develop their self-directed learning capabilities and challenge themselves to complete their study programs to the best of their abilities. To complete their SACE they can pursue a combination of accredited subjects at school, TAFE and the University.
In the central studies (year 10 /11) students can also choose to design their own learning programs. The Co-design team assist the students to achieve SACE accreditation.

In the Year 12, students can choose to design a learning program and document this in a portfolio. Working with the Director, Pedagogical Innovation and relevant academic staff of the Flinders University, the students can negotiate portfolio accreditation to some course at Flinders.

The Year 12 ASMS students also have the opportunity to study a subject at Flinders University as part of Stage 2 (year 12) SACE. Called Extension Studies, 18 ASMS 2014 year 12 students studied two semester topics in the following subjects; Mathematics, Physics, Biology, Indonesian, Nutrition, Chemistry and Multimedia. Between them they achieved 16 High Distinctions, 11 Distinctions, 5 Credits, and 3 Passes.

Extension Studies do qualify for an ATAR but they do not qualify for SACE Merits. This their results impact on the comparison of the ASMS and State results in these subjects.

In 2014, of the 85 potential candidates, 80 completed the SACE. Of the 15 year 12 subjects studied by the ASMS students, only 13 students failed (less than a C-) a subject in 7 of those subjects. Three SACE merits were awarded to 2 year 12 students. One student was awarded the Governors Medal for the highest achieving indigenous student in the SACE. Interestingly, all ASMS students who applied to the SATAC were offered a university course.

### Students in Yr 12 Undertaking Vocational or Trade Training

11 students (13.75%) completed the SACE and a Vet Qualification. No students needed to use a Vet Qualification to complete their SACE.

6. **STUDENT DATA**

The ASMS students come from far and wide. Of the 340 students in attendance at the ASMS in 2014, 132 of them were born in a country (34) other than Australia. As well, 217 parents were born in
another country. Enrollments to the ASMS include 30% from private schools and 30% from schools with low socio-economic indicators.

The ASMS learning environment and culture is enhanced by the diverse nature of our school community.

6.1 Attendance

Figure 1: Attendance by Year Level

National Attendance Rates Semester 1
Table 1: Attendance by Year Level

<table>
<thead>
<tr>
<th>Attendance by Year Level</th>
<th>% Attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2012</td>
</tr>
<tr>
<td>Year 10</td>
<td>91.9</td>
</tr>
<tr>
<td>Year 11</td>
<td>91.4</td>
</tr>
<tr>
<td>Year 12</td>
<td>96.6</td>
</tr>
<tr>
<td>Total All Year Levels</td>
<td>93.4</td>
</tr>
<tr>
<td>Total ACARA 1 TO 10</td>
<td>91.9</td>
</tr>
</tbody>
</table>

Attendance rates remain in the acceptable range. The school operates in an online environment for both curriculum and student management. The communication between teachers and parents is an ongoing focus for improvement. The 2014 Governing Council reviewed the state of the communication and negotiated standards to guide practice.

6.2 Destination

2014 Destination data is not available from DECD at this stage.

<table>
<thead>
<tr>
<th>Leave Reason</th>
<th>2013</th>
<th>School</th>
<th>Index</th>
<th>DECD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Employment</td>
<td></td>
<td>0</td>
<td>0</td>
<td>2.0%</td>
</tr>
<tr>
<td>Interstate/Overseas</td>
<td></td>
<td>9</td>
<td>5.3%</td>
<td>10.9%</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td>1</td>
<td>0.6%</td>
<td>0.5%</td>
</tr>
<tr>
<td>Seeking Employment</td>
<td></td>
<td>1</td>
<td>0.6%</td>
<td>1.3%</td>
</tr>
<tr>
<td>Tertiary/TAFE/Training</td>
<td></td>
<td>6</td>
<td>3.5%</td>
<td>5.4%</td>
</tr>
<tr>
<td>Transfer to Non-Govt Schl</td>
<td></td>
<td>14</td>
<td>8.2%</td>
<td>12.9%</td>
</tr>
<tr>
<td>Transfer to SA Govt Schl</td>
<td></td>
<td>23</td>
<td>13.5%</td>
<td>46.1%</td>
</tr>
</tbody>
</table>

7. CLIENT OPINION

The ASMS has collected the views of students using this ACER tool since 2003. The trends shown over the last 4 years are indicative of the opinions of students since the school opened.

Student Opinion Survey: ACER School Life Questionnaire
Students respond positively to questions about their school life. When analysed, the higher negative responses relate to the stress of senior secondary studies.

2014 PARENT OPINION SURVEY: 91 Parents of ASMS students responded to an online survey, rating the questions as 1, strongly disagree to 5, strongly agree. The ACARA does not provide comparative data.
8. ACCOUNTABILITY

8.1 Behaviour Management

The ASMS has an active pastoral care program, Learning Studies, which enables students to explore their self-development as a person and a learner.

The Learning Culture team, led by Director, Pedagogical Innovation, explores, designs and improves the program that assist students to develop balanced and respectful relationships.

Since 2010 the students have reported their feelings about relationships between students with a focus on bullying and harassment. Figure explores the views of students about whether they feel safe to be themselves. Other questions in the survey compare their experience in their previous schools. The students are telling us that the learning environment promotes a safe school culture. Students talk about this [http://www.asms.sa.edu.au/enrolment-information/](http://www.asms.sa.edu.au/enrolment-information/).
During 2014 we have two reports of bullying both which were resolved with a resolution meeting between the students. The incidents arose from misunderstanding. The school culture data is presented to Governing Council.

8.2 Relevant History Screening (formerly Criminal History Screening)

The school complies with the guidelines detailed in the instructions provided by the DECD. http://www.decd.sa.gov.au/docs/documents/1/RelevantHistoryScreenin-1.pdf

Records are kept at the school in accordance to these instructions. The school is due for an audit in February 2014.

8.3 HUMAN RESOURCES - Workforce Data

8.3.1 Teacher Qualifications

All teachers at this school are qualified and registered with the SA Teachers Registration Board.

<table>
<thead>
<tr>
<th>Qualification Level</th>
<th>Number of Qualifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelor Degrees or Diplomas</td>
<td>67</td>
</tr>
<tr>
<td>Post Graduate Qualifications</td>
<td>68</td>
</tr>
</tbody>
</table>

Please note: Staff that have more than 1 qualification will be counted more than once in the above qualification table. Therefore the total number of staff by qualification type may be more than the total number of teaching staff.
8.3.2 Workforce Composition including Indigenous staff

<table>
<thead>
<tr>
<th>Workforce Composition</th>
<th>Teaching Staff</th>
<th>Non-Teaching Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Indigenous</td>
<td>Non Indigenous</td>
</tr>
<tr>
<td>Full-time Equivalents</td>
<td>0</td>
<td>35.1</td>
</tr>
<tr>
<td>Persons</td>
<td>0</td>
<td>39</td>
</tr>
</tbody>
</table>

9. FINANCIAL STATEMENT

Income by Funding Source

<table>
<thead>
<tr>
<th>Funding Source</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Grants: State</td>
<td></td>
</tr>
<tr>
<td>2 Grants: Commonwealth</td>
<td></td>
</tr>
<tr>
<td>3 Parent Contributions</td>
<td></td>
</tr>
<tr>
<td>4 Other</td>
<td></td>
</tr>
</tbody>
</table>