

Maths@Saints.



St Peter's College
ADELAIDE, AUSTRALIA



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The Maths@Saints program promotes mathematics within St Peter's College and the wider community. This unique program complements the work undertaken by the boys in the classroom, deepening their understanding and appreciation of mathematics.



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A message from the Headmaster.



Mr Simon Murray,
Headmaster.

St Peter's College is committed to providing the very best education to our boys and our holistic approach will enrich your son in many ways.

The boys of Saints have many wonderful opportunities to broaden their academic experience beyond what is offered in the curriculum. The Maths@Saints program complements the work done by the boys in the classroom, deepening their understanding and appreciation of mathematics. One of the most pleasing aspects of the program is the power of collaborative learning, mentoring and positive student role modelling for the entire student body.

Saints has a proud tradition of excellence in mathematics with many of our students achieving outstanding success in state, national and international competitions and programs.

The Maths@Saints program, which is unique to Saints, is in line with the School's strategic goals and the experienced and highly qualified Saints staff are dedicated to its success and enjoying the development of our young men.

A handwritten signature in black ink that reads "Simon Murray". The signature is fluid and cursive.

Mr Simon Murray,
Headmaster.

A message from the Mathematics Faculty.

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The Maths@Saints program provides a huge variety of opportunities for boys who wish to explore their passion and interest in mathematics from both a recreational and competitive perspective with like-minded students. I also believe that the collaborative learning opportunities are outstanding and help build confidence and fluency in the subject.

- Mark Robson, Head of Mathematics Faculty,
St Peter's College.

The Maths@Saints program is a fantastic initiative that provides opportunities for boys at St Peter's College to study mathematics that lies either in the abstract realm of pure mathematics or else delves into the complex world of applied mathematics in which mathematicians seek to describe and model physical phenomena and systems. I believe it is so important for the boys to be able to undertake mathematical enrichment activities beyond the classroom which give them real insight into the life of a mathematician, and this program delivers that experience, and so much more.

- Alex Smith, Maths@Saints Coordinator,
St Peter's College.

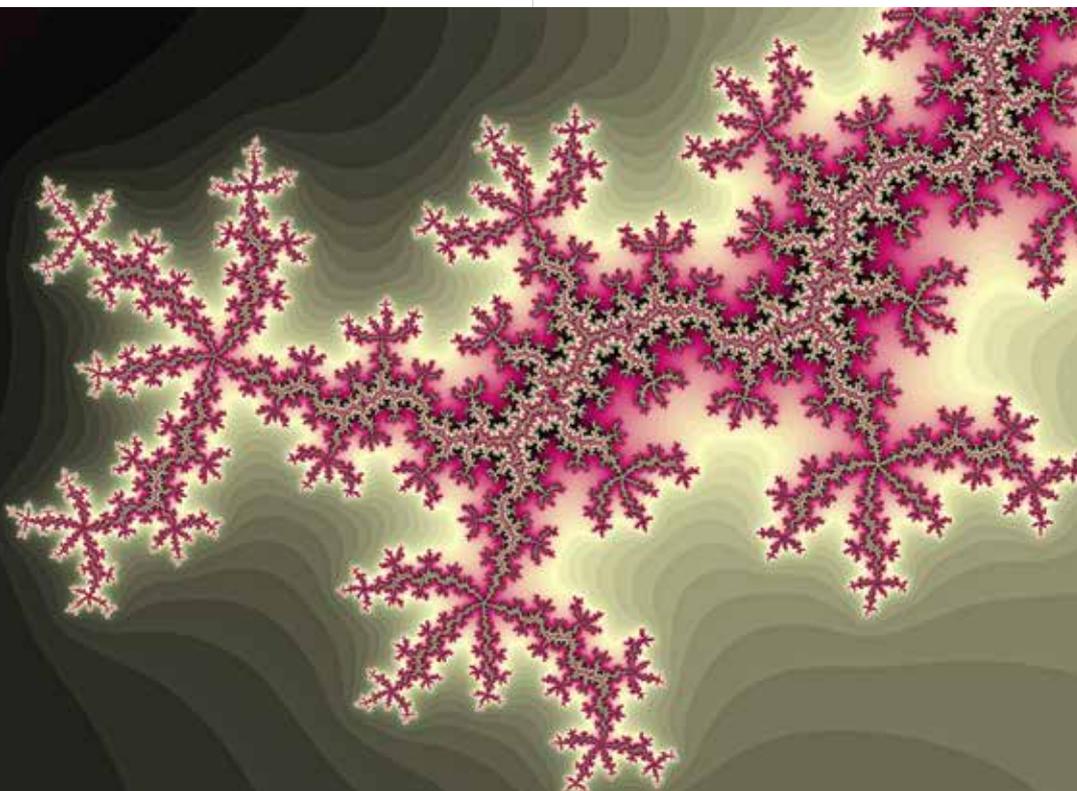


Mark Robson,
Head of Mathematics Faculty,
St Peter's College.



Alex Smith,
Maths@Saints Coordinator,
St Peter's College.

*Winning entry in the 2013 student
fractal art competition*



Objectives of the Program.

The Maths@Saints program originated in 2006 following a generous donation from Old Scholar Alastair Wood who wished the gift to be used to promote mathematics within St Peter's College and the activities of the School in the wider community.

The objectives of the Maths@Saints program are:

- To enhance the teaching and learning of mathematics at St Peter's College.
- To further develop the St Peter's College Mathematics Department as a leader in mathematics education through innovation and best practice.
- To provide opportunities for students to engage in a range of exciting learning opportunities in addition to the standard curriculum.
- To provide opportunities for professional development of mathematics teachers.
- To provide opportunities for critical reflection on current practice and developments in mathematics education.
- To extend the range of resources available to support student learning in mathematics.

The Maths@Saints program complements the strong curriculum offering provided by the School. Mathematics at St Peter's College is a core subject and is compulsory to Year 11, with the majority of students opting to continue their studies into Year 12.

All students are exposed to enrichment activities commensurate with their interests and abilities as part of our broad curriculum offering. Recent examples of these opportunities include students competing in the ASX Sharemarket Game, visits from the Commonwealth Bank StartSmart team, Engineers Without Borders and lectures concerning fractal geometry.

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Visiting mathematicians.

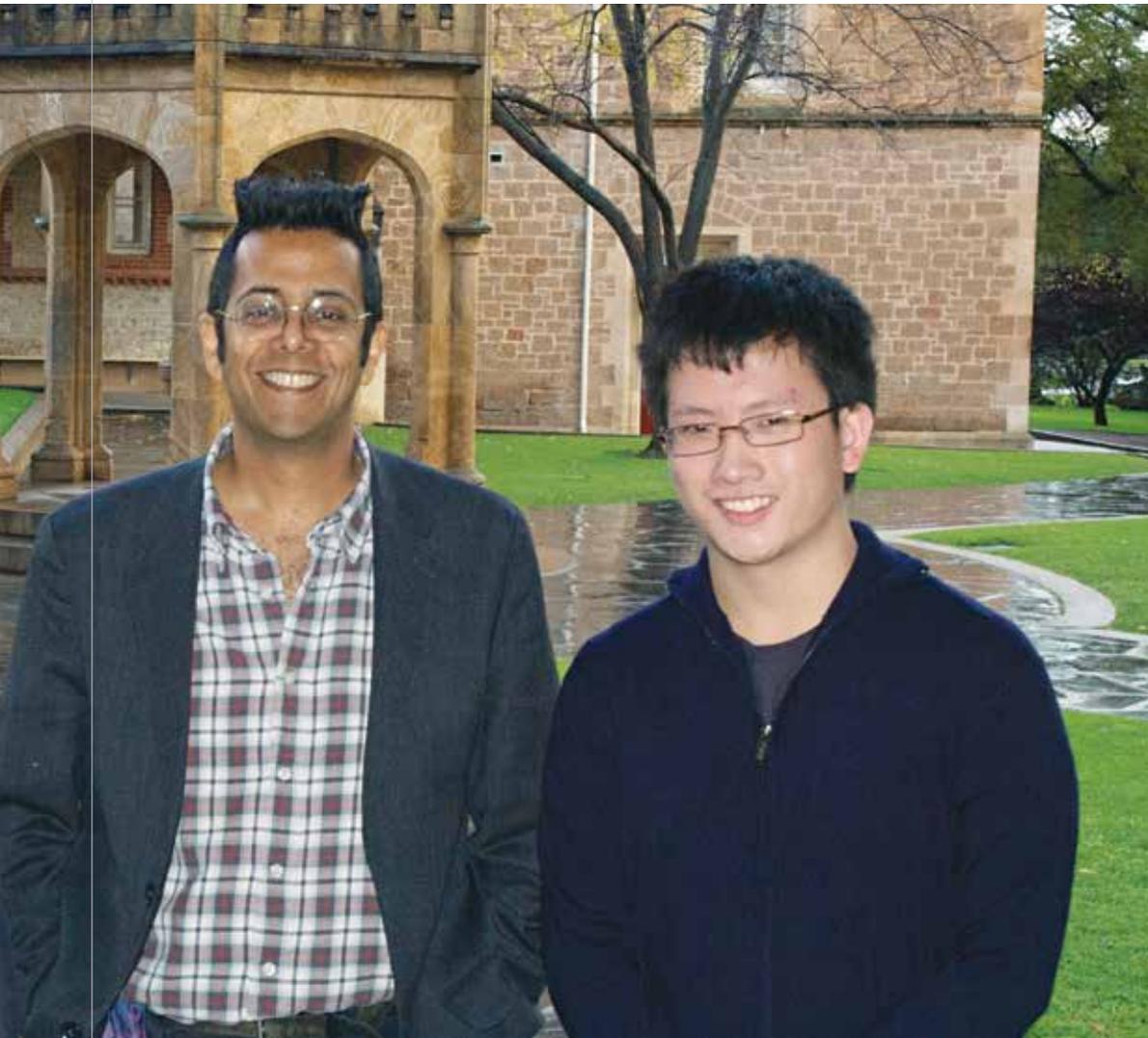
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An important aspect of the Maths@Saints program is to host local, national and international visiting mathematicians. This has been very effective in inspiring our boys, with presentations ranging from the abstract to how mathematics is at the heart of cutting edge technology.

Over recent years the School has benefitted from many esteemed visitors from the field of mathematics. The visitors have included Professors Keith Devlin, Art Benjamin, Mike Eastwood, Dr Tony Gardiner and best selling authors Dr Simon Singh and Dr Rob Eastaway.

The Maths@Saints program also has strong links with local academic institutions. In 2012 Maths@Saints commenced a partnership with Dr Simon Tuke, lecturer in Statistics at the University of Adelaide, as part of the Australian Government *Mathematicians in Schools* program.

Dr Simon Singh with Thomas Khoo (St Peter's College Dux 2010)



Friday Afternoon Maths Enrichment.

The enrichment program is a wonderful opportunity for boys to meet to tackle mathematical problems, engage in discussions and explore areas of mathematics that are only hinted at in class.

Some enrichment sessions are dedicated to enabling boys to prepare for mathematics competitions, including the SA Mathematics Competition (SMC), the Australian Mathematical Olympiad (AMO), the Asia Pacific Mathematical Olympiad (APMO) and the Australian Mathematics Competition (AMC).

Other sessions allow boys to meet with professional mathematicians from industry and academia to learn about modern trends in mathematics and how mathematics is applied to fields as diverse as telecommunications, Formula 1 racing, bushfire prediction, fraud detection, encryption and climate modeling,

"I believe the best thing about Maths@Saints are the many opportunities provided. There are a whole range of activities from Friday Afternoon Maths Enrichment to the Maths Quiz Night and even further to some of the national competitions. Students are able to extend their maths knowledge as well as having a lot of fun through the Maths@Saints program.

Eventually this path led me to representing Australia in the International Maths Olympiad for two years, which was a fantastic experience. All this would not have been possible without Maths@Saints program and the help from many of the Mathematics Faculty at Saints.

Maths@Saints is so important as it provides a space for students who want to extend their maths knowledge beyond the classroom and acquire more problem solving skills."

- Yanning Xu, (St Peter's College Dux 2012, two times Silver Medalist at the International Mathematics Olympiad, currently reading Mathematics at Trinity College, Cambridge).



Mathematical Society.

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The Mathematical Society is the student arm of the Maths@Saints program comprising of like-minded boys looking to further develop their skills and knowledge in this area.

One of the features of the Maths@Saints program is the collaborative learning opportunities it provides. On a weekly basis senior boys from the Mathematical Society take part in one-to-one peer support Maths Help sessions with junior students. The boys assist in the development of our younger students by helping to deepen their understanding of mathematics.

Another popular initiative is the Maths Challenge program in the Junior School. Senior School students spend time with Junior School boys conducting enrichment activities and developing problem solving skills which focus upon perseverance, creativity, ingenuity and cooperation.

“The teachers understand the value of mathematical thinking and seek to inspire such an ethos within the classroom environment.

Maths@Saints has given me an appreciation for formal mathematics that is essential for success in the sciences.

The important problems of today are largely technological, political or economic, and require a quantitative approach to understand. Providing the next generation of leaders with a comprehensive mathematical education is essential if they are to tackle the issues that matter to society.”

- Emilio Pace (St Peter’s College Dux 2011).



Connections with the wider mathematical community.

One of the most valuable aspects of the Maths@Saints program is the relationships it fosters with local and national academic and mathematical institutions.

The programs have developed close links with the University of Adelaide. Through this association boys engage with the Faculty of Engineering, Maths and Computer Science, as well as attending hands-on events such as *MegaMaths* and *MathsSearch*.

The Mathematical Association of South Australia (MASA) Quiz night and Saturday morning enrichment sessions are also very popular with Saints students.

“When I was a student the Maths@Saints program offered me opportunities to meet really interesting mathematicians, take part in competitions that broadened my mathematical horizon and gave me support in a branch of learning that I was passionate about. As an adult, it gives me the opportunity to come back and share my understanding and passion for maths as well as develop my teaching skills.

I received some funding from Maths@Saints to attend an International Mathematical Olympiad where I represented Australia in mathematics. I have also benefited, in the sense that my passion for maths was nurtured and encouraged allowing me to succeed in my career as a mathematician.

I think Maths@Saints is paramount to the success of the academic program at Saints. It shows students that there is support for those who would like to pursue their academic interests. For those who attend the enrichment sessions, it teaches not just mathematical techniques, but to view the world in a more logical way, which no doubt will be very helpful in all their academic and other endeavours.”

- Konrad Pilch (St Peter's College Dux 2006, Australian Maths Olympian 2005 and 2006, Tutor Friday Afternoon Maths Enrichment).



Mathematical Competitions.

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Many boys enjoy the competitive opportunities provided by their interest in mathematics and the resulting skill development these competitions provide.

Boys are encouraged and supported to enter a wide range of local, national and international mathematical competitions including the South Australian Schools Mathematics Competition and the Australian Mathematical Competition. Boys who show evidence of promise may be invited to enter the Australian Mathematical Olympiad.

Saints boys are regularly selected to represent the State at the National Mathematics Summer School in Canberra in January each year which seeks to nurture the development of outstanding young Mathematicians.

“The best thing about the Maths@Saints program is the diverse range of opportunities it offers for all types of maths students. For instance, Maths Help supports those students who struggle with maths and require extra assistance, whilst the Friday Afternoon Maths Enrichment challenges more advanced students. Additionally, the recent expansion into informatics provides another avenue for students to explore.

Personally, I have benefitted from the Maths@Saints program immensely, as it has allowed me to expand my horizons and as one of the many Year 11 and 12 students who assisted at Maths Help sessions, I found the facilitation of these sessions not only assisted the students being helped, but also expanded my skills at explaining mathematics to others.

Maths@Saints is certainly vital for St Peters College, as it provides a means through which interested, passionate students can expand their mathematical abilities outside the classroom. The most important aspect of this is that much of the maths learnt through Maths@Saints is completely different to classroom mathematics. This helps students to learn more about the world of mathematics, both out of interest, and in preparation for later life.”

- George Bouras, (St Peter’s College Dux 2013, Past President of St Peter’s College Mathematical Society).

Informatics.

Informatics is the science underlying computing, communication and the internet. Students studying informatics learn the basic algorithms, data structures and computational techniques that underlie information and communication, and demonstrate the learning through computer programming tasks. This relatively new field has also allowed for some excellent collaborative learning opportunities where boys learn how to program in a peer supported environment. Some students have successfully completed external certificates in programming from Harvard University.

Each year a number of students enter the Australian Informatics Competition. In past years, following success in this competition Saints boys have been selected to attend the Infomatics School of Excellence, which is an intense 10-day training school at the Australian National University in Canberra. Indeed former student Patrick Coleman represented Australia twice at the International Olympiad for Informatics, securing a bronze medal in 2003.

"In 2013, as part of the Maths@Saints program, I facilitated a weekly workshop with a group of interested students on Friday lunchtimes. The workshop helped students attain basic programming and computer science skills, focusing on C programming in a UNIX environment. Computer science is an excellent, practically applicable field for the mathematically inclined. The informatics sessions allow students to learn mathematical skills that underpin the digital world in a cooperative environment."

- Matthew G, Year 11 student.

"I enjoyed learning about programming, computers and problem solving, and it was great fun to show my friends projects I had made, like a bot to post comments to a website, and a program to calculate the most efficient number of troops to train in a video game. I see my interest in coding increasing continually. I look forward to the Informatics competition next year and an EdX course I am participating in."

- Jack M, Year 10 student.





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