Exceed all Expectations

Corinda State High School Mathematics Science Excellence Program

(CRICOS Number 00608A)
Provider: Department of Education, Training and Employment

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RATIONALE

Corinda State High School prides itself on providing learning pathways which allow students to pursue courses of study which support their academic goals. Our commitment to this philosophy has led to the implementation of the Mathematics Science Excellence program to support the development of special interests and provide a rigorous and challenging platform for real world issues.

Students will still study the prescribed Australian Curriculum for Mathematics and Science subjects, but these students will experience learning above and beyond these curriculum frameworks. This is described in further detail below.

AIMS

The Mathematics Science Excellence program aims to:

- provide high level, rigorous and tailored learning to motivated students who are talented critical and creative thinkers
- motivate and encourage students to reflect on world issues at a sophisticated level
- engage students in competition and enrichment programs beyond the school curriculum.

A highlight of the program is the opportunity to participate in the Science Technology, Engineering and Mathematics Convention at the University of Queensland. It is a forum where students will engage in real life investigative inquiries and present their learning to their peers and academics. They will also be involved in the Creativity in Science and Technology Award and the International Competitions and Assessments for Schools.

PROGRAM INFORMATION

ENTRY REQUIREMENTS

To be eligible for participation in the Mathematics Science Excellence program, applicants must indicate their preference for this program at enrolment. An ideal applicant for this program will:

- have a high achievement in Mathematics and Science in Year 7
- have high level of proficiency in literacy and numeracy (NAPLAN results reviewed by Junior Secondary HOD)
- Willing to commit personal time to competitions and other elective programs.
- have the capacity to meet course costs
- be prepared to embrace the three Cs of Corinda SHS – courtesy, cooperation and commitment.

PROGRAM OVERVIEW

<table>
<tr><th colspan="4">Year 8 Mathematics</th></tr>
<tr><th></th><th>Focus Depth Study</th><th>Differentiation</th><th>Enrichment</th></tr>
<tr><td rowspan="2">Semester 1</td><td>Number and Algebra:
Rational numbers
Expanding and factorising
Linear relationships
Profit and loss</td><td rowspan="2">Students explore concepts in greater depth using abstract mathematics.

The modelling and problem solving tasks are of increased complexity and require more initiative for their solution.

Enrichment tasks broaden scope and depth of mathematical concepts and develop both independent thinking and collaboration with others.

Teaching and assessment tasks track the development of this higher thinking.</td><td>BRAINways - The Mathematics of Astronomy

Maths Challenge for Young Australians - Euler Series</td></tr>
<tr><td>Number and Algebra:
Linear equations
Rate and Ratio
Measurement and Geometry:
Area, volume, time
Congruence
Statistics and Probability
Investigating chance
Sampling and analysis</td><td>BRAINways –Logic and Critical Reasoning

Maths Challenge for Young Australians - Euler Series</td></tr>
</table>

<table>
<tr><th colspan="4">Year 9 Mathematics</th></tr>
<tr><th></th><th>Focus Depth Study</th><th>Differentiation</th><th>Enrichment</th></tr>
<tr><td rowspan="2">Semester 1</td><td>Number and Algebra:
Indices
Algebraic expressions
Distance and midpoint
Linear and non-linear relationships
Measurement and Geometry:
Pythagoras
Statistics and Probability
Investigating chance</td><td rowspan="2">Students explore concepts in greater depth using abstract mathematics.

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Maths Challenge for Young Australians - Gauss Series</td></tr>
<tr><td>Number and Algebra:
Rate and proportion
Simple interest
Non-linear relationships
Measurement and Geometry:
Surface area and volume
Transformations and similarity
Trigonometry
Statistics and Probability
Interpretation of data</td><td>BRAINways – Number Theory

Maths Challenge for Young Australians - Gauss Series</td></tr>
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Year 8 Science			
	Focus Depth Study	**Differentiation**	**Enrichment**
Semester 1	Particle Theory • Exploring matter • Examining scientific evidence • Investigating states of matter • Examine the periodic table Materials • Physical and chemical changes • Investigating chemical reactions • Investigating useful applications of reactions	Adjust content by using different methods of inquiry Adjust process by using open ended tasks Adjust product by using real world problem based learning Adjust environment by using a variety of learning spaces, complex intellectual tasks	BRAINway program The science of Mining Engineering Science and Engineering challenge CSIRO: Bronze award
	Rock never dies • Types of rocks and mineral composition • Dynamic nature of the rock cycle Rocks in our world • Uses of minerals and rocks • Evaluating environmental impact of mining		
Semester 2	Energy in my lifestyle • Exploring different forms of energy • Investigating energy transformation What's Up? • Energy efficiency • Efficiency of energy transformation • Motor vehicle development over time	Extended experimental investigation: Open-endedness of Contraption building. Adjust product: Task validity using real world problem based learning Enquiry based learning Extended assessment and evaluation	STEM project Science and engineering challenge BRAINway program: Brain power
	Building blocks of life • Cells as the basic unit of living things • Microscopes and digital images • Functions of the main structures • Cell division, repair reproduction and purpose Survival • Sexual reproduction and immunity • Organ systems • Function and structure of reproductive system • Reproductive technologies • Functions of the immune system		

Year 9 Science			
	Focus Depth Study	**Differentiation**	**Enrichment**
Semester 1	Electricity, Heat and Energy • Energy transferred through different materials • Investigate variations to electricity and energy transmission Making waves • Sound and light energy • Explore uses of sound and light energy • Design investigations on energy transmission Chemistry • Historical development of atomic structure • Explore practical application of natural radiation • Reflect on the practical limitations of carbon dating Earth Science • Explore scientific theories via investigation of earth movement • Technological development in the study of tectonic plates • Impact of earthquakes, tsunamis and volcanoes	Adjust content by using different methods of inquiry Adjust process by using open ended tasks Adjust product by using real world problem based learning Adjust environment by using a variety of learning spaces, complex intellectual tasks	BRAINway program: Predicting Earthquakes or Thermodynamic modelling Science and engineering challenge CSIRO: Bronze award
Semester 2	My Life in Balance • Human Body systems • Analyse and predict the effects of environment on body systems • Body's response to diseases • Health based claims and advertisements Energy Flow through Ecosystems • Life, ecosystem and changes to its balance • Investigate and reflect on the state of Australian environments • Sustainability of ecosystems Chemical patterns • Chemical reactions and their application to daily life Heat and Eat • Investigate energy source reactions for heat and eat. • Chemical reactions in food preparation, bushfires and remedies for indigestion.	Extended experimental investigation: (Heat and Eat) Adjust product: Task validity using real world problem based learning: Effects of environments on body systems Enquiry based learning: Extended assessment and evaluation of EEI	STEM/ CREST BRAINway program Polymer chemistry Science and Engineering challenge

Assessment and Reporting

The Mathematics Science Excellence program will adhere to the requirements of the Australian Curriculum: Mathematics and Australian Curriculum: Science. Students will be assessed according to the requirements of this syllabus on a semester basis.

Participation in the class will not disadvantage students' results by assessing them against a standard beyond that of their peers.

Pathways

Students graduating these classes at the end of Year 9 may also be eligible to continue on this extension pathway if they study the Year 10 Mathematics Extension and / or Year 10 Science Extension and Year 10 Advanced Maths and Science program. Enrolment in these subjects is offered only to our highest performing Year 9 students. These Year 10 extension subjects are designed as pre-requites for Year 11 academic Mathematics and Science subjects such as Mathematics B, Mathematics C, Physics, Earth Science and Chemistry.

Costs

Course fees for Year 8 and 9 will apply to Mathematics and Science Excellence class students. In addition, students will be asked to pay for participation in the BRAINways intensive courses.

Throughout the year, students will be required to participate in competitions and excursions that may attract an additional cost. For example:

- Australian Mathematics Competition
- Maths Challenge for Young Australians
- ICAS Science competition
- STEM Program
- Science CREST award

Expert Staff

Teachers of the Mathematics Science Excellence Program will be experienced Mathematics and Science specialists, with a commitment to talented and motivated students demonstrated through their:

- Training as a Gifted Education Mentor (GEM)
- Coordination of extra-curricular academic programs

CONTACT DETAILS

For further information concerning Corinda State High School's Mathematics Science Excellence program please contact:

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