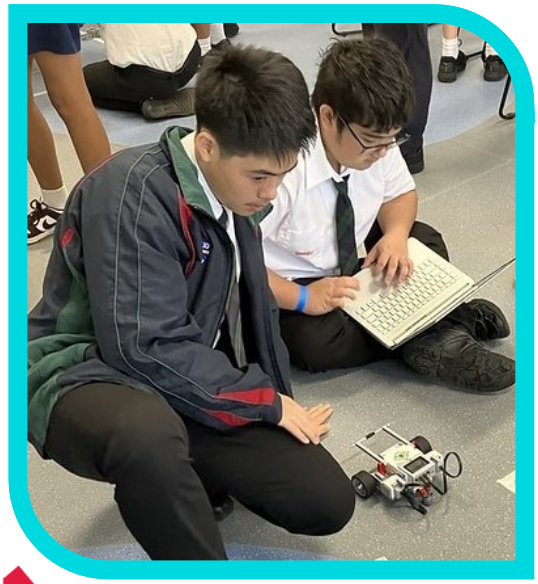
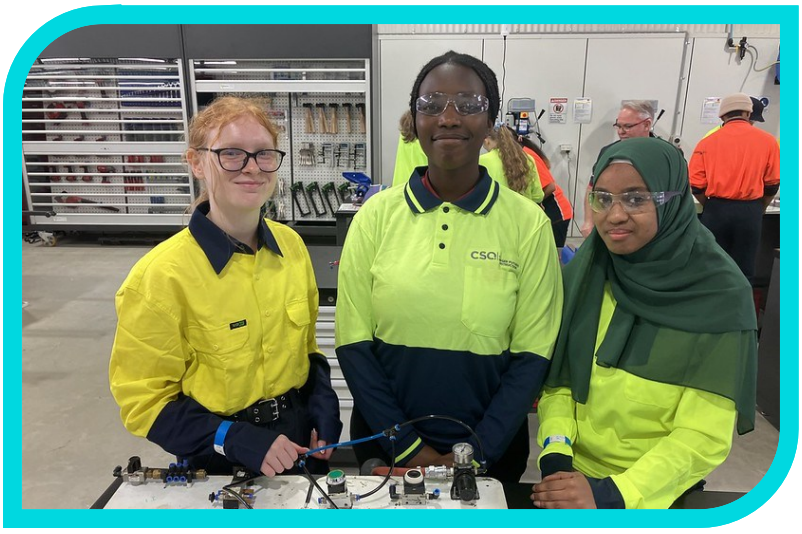
Queensland Minerals and Energy Academy

South-East Queensland schools Program Offering 2026





RESOURCES SKILLS ACADEMY

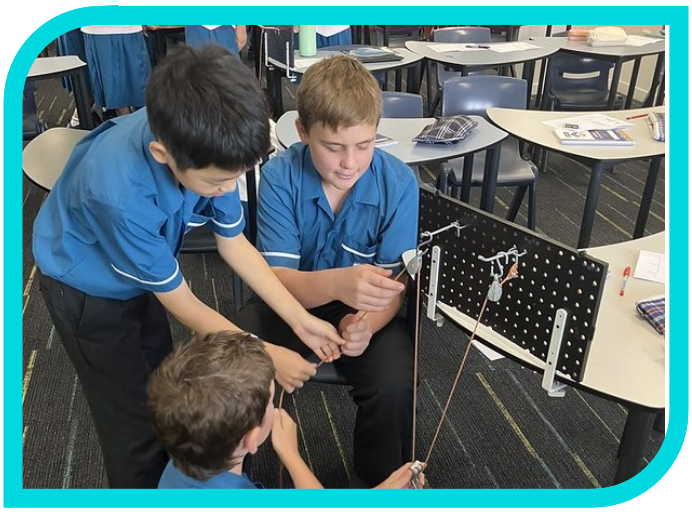
YEAR 7 and 8

Pulleys for Productivity

Year 7 – Science
(Physical Sciences)

A practical, hands-on investigation using pulley systems as simple machines. The workshop is linked to various mining machinery to understand how they have been designed to account for mechanical advantage in industry.

Time: *70-100 minutes per workshop*
Capacity: *1 class per workshop*
Provided by school: *Nil*
Curriculum Links: *AC9S7U04, AC9M7A04*



Water: Yours, Ours and Mine

Year 7 – Science
(Chemical Sciences)

Students discover the key elements of water treatment by hands on exploration of water filtration, flocculation and sedimentation. Students make informed decisions about water quality using turbidity and pH testing, concluding with the design and testing of a water treatment method.

Time: *half day or full day workshop*
Capacity: *1 class per workshop*
Provided by school: *Some laboratory equipment*
Curriculum Links: *AC9M7N06 , AC9S7I03 AC9S7U06*

Heavy Hydraulics

Year 7 & 8 Technologies

Students work in groups to assemble and complete a model hydraulic arm. They then use technology and apply the design thinking process to model and ideate a product for use within a mining and energy context. Students use basic makerspace items to construct and present their working prototype before an evaluation of the process and product.

Time: *Full day workshop*
Capacity: *1 class per workshop*
Provided by school: *Nil*
Curriculum Links: *AC9TDE8K06, AC9TDE8P02*

Mining for Code

Year 7 & 8 – Digital Technologies

This workshop is an introductory session to Arduino coding that uses Grove Beginner Kit sensor packs. Students identify pseudocode and key coding language, then explore designs that incorporate the ideas of input and output to increase safety in the resources industry.

Time: *70-100 minutes per workshop*
Capacity: *Up to 24 students is ideal per session*
Provided by school: *Student laptops may be required*
Curriculum Links: *AC9TDI8P05, AC9TDI8P04*

YEAR 7 and 8

Pit to Port

Year 7/8 – Mathematics
(Number/Measurement)

This whole day workshop explores the way our resources are extracted, transported and exported. Students learn about the use of automation, focusing on extraction methods, logistics and shipping. They apply project management and communication skills, which are important within the resource sector.

Time: *Full day workshop*
Capacity: *1 class per workshop*
Provided by school: *Large paper and coloured markers/pencils for each group*
Curriculum Links: *AC9M7N04, AC9M7N07, AC9M8M04*

Treasures of the Earth

Year 8 – Science
(Chemical Sciences)

This session investigates the linkages between elements on the Periodic Table and their uses in everyday life. The associated activity is conducted as a scavenger hunt using the "30 Things" publication, produced by the Minerals Council of Australia.

Time: *70-100 minutes per workshop*
Capacity: *1 class per workshop*
Provided by school: *Nil*
Curriculum Links: *AC9S7U06, AC9S8U04*

Watch it Cool

Year 8 – Science
(Earth and Space Sciences)

A look at how the cooling rate of an igneous rock can create crystals of different shapes and sizes, which allows geologists to make inferences about rock formation conditions. Students conduct an experiment that investigates how the speed of cooling affects crystal size and shape.

Time: *70-100 minutes per workshop*
Capacity: *1 class per workshop*
Provided by school: *Some laboratory equipment and chemicals*
Curriculum Links: *AC9S8U04, AC9M8M05*

YEAR 9 and 10

Lighting the Way

Year 9 – Science
(Physical Sciences)

Building on their knowledge of how light travels, students investigate the method by which retroreflectors are a means of passive light reflection. The use of retroreflectors within the resources sector is explored and how they underpin safety on a mine site.

Time: *70-100 minutes per workshop*
Capacity: *1 class per workshop*
Provided by school: *A room that can be darkened*
Curriculum Links: *AC9S9U04, AC9M9M05*

Resourceful Robots

Year 9 & 10 – Digital Technologies

Students work collaboratively using Lego robots to navigate a course to solve a problem related to the resources sector. The workshop is designed as an introductory session for students with little to no prior experience with Lego robotics.

Time: *2 lessons/half day per workshop*
Capacity: *Up to 24 students is ideal per workshop*
Provided by school: *Nil*
Curriculum Links: *AC9TDI10P05, AC9TDI10P09*

Tradies for a Day

Year 10 – Design and Technologies/
Pre-Apprenticeship

This program includes numerous hands-on activities relating to different trade skills needed in the resources sector. Students will have the opportunity to hear from, and work alongside, tradespeople from the resources industry.

Time: *Half day or full day workshop*
Capacity: *Max 20 students per workshop*
Provided by school: *ITD workshop, PPE and some facilities as required*
Curriculum Links: *AC9TDE10P03, AC9TDE10K01*

STEM Unearthed

Year 10 – Science/Mathematics

This program is packaged from a selection of activities outlined below that link to different stages of the resources industry, including exploration, processing and rehabilitation.

Time: *Half day (2 activities) or full day (3 activities) workshop* | ***Capacity:*** *1 class per workshop*

Finding Ore

From geological exploration to rehabilitation in a gamified context, teams compete to be the most financially viable and sustainable in their practice. Strategy and teamwork are the keys to success when completing this activity.

Provided by school: *Nil*
Curriculum Links: *AC9S10H02 AC9HG10K01*

Engineering the Perfect Solution

Students aim to create a product within specific parameters. With all the elements of process engineering, students explore the ideas of inputs and outputs in their quest to design the ultimate, replicable process.

Provided by school: *Some laboratory equipment*
Curriculum Links: *AC9S10I02, AC9S10I03*

Copper Extraction

Chemical and physical processing is a fundamental concept in turning ore into usable metals. Copper extraction is a laboratory set activity where students investigate different methods of extracting copper.

Provided by school: *Some laboratory equipment*
Curriculum Links: *AC9S10U07*

Core Drilling Analysis

Students learn how geologists explore beneath the Earth's surface. Working in teams, students model, map and pinpoint a hidden economic deposit.

Provided by school: *Nil*
Curriculum Links: *AC9S10I05, AC9M10M05*

Pipeline Pressures

Aspects of gas exploration, extraction and transportation are investigated in this activity. Students use data loggers and laboratory skills to understand concepts within the gas industry.

Provided by school: *Some laboratory equipment*
Curriculum Links: *AC9S10I03, AC9S10I05*

Reshaping the Land

In this hands-on activity, students use mathematics to understand environmental awareness while designing an optimal rehabilitation site. They calculate the slope and topsoil needed for effective environmental rehabilitation.

Provided by school: *Nil*
Curriculum Links: *AC9M10M01, AC9HG10K01*

SEQ School Program Overview

Program Name	Suitable Year Level	Curriculum Area	Time Allocation	School Requirements
Pulleys for Productivity	7			
Water: Yours, Ours and Mine	7		OR	
Heavy Hydraulics	7 8			
Mining for Code	7 8			
Pit to Port	7 8			
Treasures of the Earth	8			
Watch it Cool	8			
Lighting the Way	9			
Resourceful Robots	9 10			
STEM Unearthed	10		OR	
Tradies for a Day	10		OR	

Curriculum Area Legend

- Chemical Sciences
- Design & Technologies
- Digital Technologies
- Earth and Space Sciences
- Mathematics
- Physical Sciences

Time Allocation Legend

- 1-2 lessons per workshop
- Half day per workshop
- Full day workshop

School Requirements Legend

- Nothing to provide
- ITD specific PPE
- ITD workshop access
- Some laboratory equipment
- Some stationery required
- Student laptops may be required

"The interactive activities are a very good methodology to introduce the mining industry to young students."

- Industry Representative, Tullawong State High School

"The workshop is a great experience for the students to develop problem solving skills and learn about how mining, minerals and elements are a part of their everyday lives."

- Teacher, Wavell State High School

MORE INFORMATION

All QMEA workshops are **free** for schools and are funded through the Queensland Resources Council Education Levy.

Book in early to secure your spot as QMEA's programs often book out well in advance. We appreciate your flexibility when suggesting preferred dates in case your first preference is not available.

Preference will be given to schools who are able to commit to a half or full day of engagement at their school. This could be with one group for the whole day, or a mixture of programs, students and year levels across the sessions.

For more information about these programs or if you have questions about what might be right for your school, please email **seq@qmea.org.au**.

» BOOK YOUR SESSION

Limited dates are available throughout 2026 and are filled on a first-come, first-served basis.
Please email seq@qmea.org.au or visit the QMEA website to submit your preferred dates, times and workshops:

www.qmea.org.au/seq-bookings

QMEA RESOURCES SKILLS ACADEMY

QUEENSLAND resources COUNCIL

MINERALS AND ENERGY
Gateway to Industry Schools program