



## South-East Queensland Program Offerings 2025



@QueenslandMineralsandEnergyAcademy



@qmeacademy



qmea.org.au



## Program Offering 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			
Powering our Future	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

# WHAT WE OFFER

## Pulleys for Productivity

Year 7 – Science  
(Physical Sciences)



A practical, hands-on investigation using pulley system 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:** ACSSU117, ACMNA180 or AC9S7U04, AC9M7A04

## Water: Yours, Ours and Mine

Year 7 – Science  
(Chemical Sciences)



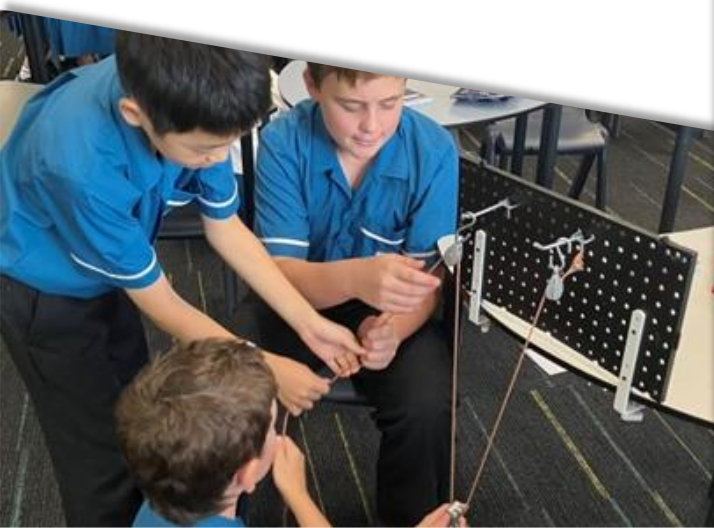
Students discover the key elements of water treatment by hands on exploration of water filtration, flocculation and sedimentation. Students make informed decisions about water quality using turbidity and pH testing, concluding with the design and testing of a water treatment method.

**Time:** half day or full day workshop

**Capacity:** 1 class per workshop

**Provided by school:** Some laboratory equipment

**Curriculum Links:** ACSSU113, ACSSU116, ACMNA158 or 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:** ACTDEK034, ACTDEP036 or 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:** ACTDIP029, ACTDIP027 or AC9TDI8P05, AC9TDI8P04

# WHAT WE OFFER

## 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:** ACMNA152, ACMNA157, ACMNA280, or AC9M7N04, AC9M7N07, AC9M8M04

## Powering our Future

Year 7/8 – Science  
(Chemical Sciences)



An in depth look at the origins of electricity generation through the exploration of the National Energy Market, and energy costs through a data analysis activity. Students perform experiments using different methods of electricity generation to measure energy production.

**Time:** Half day or full day workshop

**Capacity:** 1 class per workshop

**Provided by school:** Some laboratory equipment

**Curriculum Links:** ACSSU113, ACSSU152 or AC9S7U06, AC9S8U07



## 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:** ACSSU113, ACSSU152 or 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:** ACSSU153, ACSIS141 or AC9S8U04, AC9M8M05

# WHAT WE OFFER

## 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. Their 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:** ACSSU182, ACMNA208 or 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:** ACTDIP041 or AC9TDI10P05, AC9TDI10P09



## Tradies for a Day

Year 10 – Design and Technologies/  
Pre-Apprenticeship



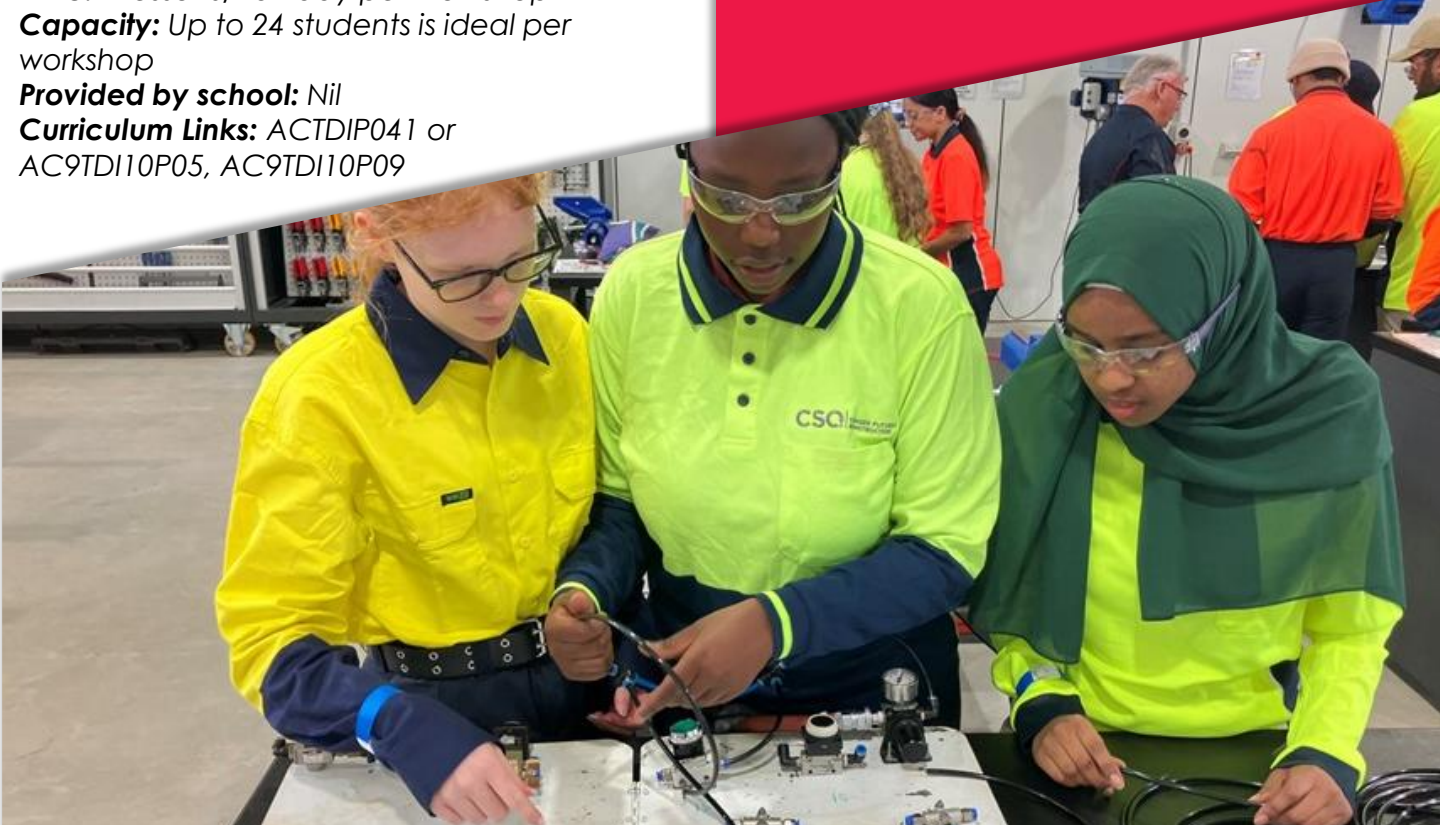
This program includes numerous hands-on activities relating to different trade skills needed in the resources sector. Students will have the opportunity to hear from, and work alongside, tradespeople from these resources industry.

**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:** ACTDEK043, ACTDEP050 or AC9TDE10P03, AC9TDE10K01





# WHAT WE OFFER



## 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

<p><b>Finding Ore</b></p> <p>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.</p> <p><b>Provided by school:</b> Nil  <b>Curriculum Links:</b> ACHGK071, ACHEK054 or AC9S10H02, AC9HG10K01</p>	<p><b>Engineering the Perfect Solution</b></p> <p>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.</p> <p><b>Provided by school:</b> Some laboratory equipment  <b>Curriculum Links:</b> ACSIS200, ACSIS199 or AC9S10I02, AC9S10I03</p>	<p><b>Copper Extraction</b></p> <p>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.</p> <p><b>Provided by school:</b> Some laboratory equipment  <b>Curriculum Links:</b> ACSSU187 or AC9S10U07</p>
<p><b>Core Drilling Analysis</b></p> <p>Students learn how geologists explore beneath the Earth's surface. Working in teams, students model, map and pinpoint a hidden economic deposit.</p> <p><b>Provided by school:</b> Nil  <b>Curriculum Links:</b> ACSIS203 or AC9S10I05, AC9M10M05</p>	<p><b>Pipeline Pressures</b></p> <p>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.</p> <p><b>Provided by school:</b> Some laboratory equipment  <b>Curriculum Links:</b> ACSIS200, ACSIS203 or AC9S10I03, AC9S10I05</p>	<p><b>Reshaping the Land</b></p> <p>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.</p> <p><b>Provided by school:</b> Nil  <b>Curriculum Links:</b> ACMMG242, ACHGK070 or AC9M10M01, AC9HG10K01</p>



"I personally get a lot out of spending time with these students. It's important to support the future of our industry."

- Industry Representative, Resourceful Robots, Bundamba

"Glenala State High School loves when QMEA comes to visit. The balance of career development, real world applications and hands-on activities is great!"

- Teacher, Glenala State High School

## » BOOK YOUR SESSION

Limited dates are available throughout 2025 and are filled on a first-come, first-served basis.

Please visit this webpage to submit your preferred dates, times and sessions:

[www.qmea.org.au/seq-bookings](http://www.qmea.org.au/seq-bookings)

## MORE INFORMATION

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 [info@qmea.org.au](mailto:info@qmea.org.au).



gateway to industry schools  
**minerals and energy**

