



# Indigenous STEM Education Project

## Executive summary – third evaluation report

The Indigenous STEM Education Project comprises six programs that aim to increase the participation and achievement of Aboriginal and/or Torres Strait Islander students in STEM. The Third Evaluation Report outlines the degree to which each program has achieved intended outcomes and reviews progress towards whole-of-project outcomes. The methodology included interviews and focus groups with students, teachers, parents, and community members; online surveys; and analysis of program and administrative data.

Indications of increased student engagement and academic results were found across all programs. Other indicators, such as increased teacher capacity and student attendance, and choosing STEM pathways, varied across programs.

The impact of the Aboriginal Summer School for Excellence in Technology and Science (ASSETS) on students has been significant, often life-changing, in terms of supporting study and career directions and creating peer networks. The unique combination of components that make up the ASSETS model are critical to the success of the program.

Students participating in the Bachelor of Science (Extended) program have had positive experiences and have felt supported in a culturally responsive environment. There was a high retention rate of 95 per cent in 2018. Overall, encouraging progress has been made towards supporting Aboriginal and Torres Strait Islander students to complete a Bachelor of Science at the University of Melbourne and then go on to STEM careers. A detailed case study on the program was published in 2019.

The PRIME Futures program has demonstrated gradual positive change at both a teacher and a whole of school level. Evidence highlights teacher perceptions of improvements in student engagement and achievement in mathematics.

Program staff report strong engagement in the Science Pathways for Indigenous Communities program by teachers and students, among schools and their communities. The program has assisted in the development of effective partnerships, increased community and parental involvement, and improved teacher capacity.

The reach of the Indigenous STEM Awards increased by over 160 per cent from 2016 to 2017, indicating strong engagement with the Awards program across Australia.

Following participation in the Inquiry for Indigenous Science Students (I2S2) program, many students had increased levels of engagement and academic achievement, particularly low-achieving students. Specifically, 40 per cent of all, and 51 per cent of low-achieving, Aboriginal and Torres Strait Islander students had increased engagement after an inquiry. Similarly, 27 per cent of all, and 44 per cent of low-achieving, Aboriginal and Torres Strait Islander students increased their academic achievement. An even larger increase was observed among low-achieving non-Indigenous students, with 59 per cent improving their academic achievement after an inquiry.

Forthcoming in-depth case study reports on the I2S2, ASSETS, and the Science Pathways for Indigenous Communities programs will provide further evidence on the impact and effectiveness of these programs.

The Indigenous STEM Education Project is funded  
by BHP Foundation and delivered by CSIRO.



### For further information

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# Indigenous STEM Education Project

## Our engagement

Increasing participation and achievement of Aboriginal and Torres Strait Islander students in science, technology, engineering and mathematics (STEM)

1 September 2014 to 31 August 2019

[csiro.au/Indigenous-education](http://csiro.au/Indigenous-education)

### Science Pathways for Indigenous Communities

Targets primary and middle school students in remote Indigenous communities and uses on-country projects as the context for learning science linked to Indigenous ecological knowledge.



11 communities



9 schools



162 teachers



198 Aboriginal education workers

1887

Aboriginal and Torres Strait Islander students

### PRIME Futures

Targets foundation to Year 9 students in mainstream metropolitan and regional schools and uses the YuMi Deadly Maths (YDM) approach to improve student outcomes in mathematics.



10 clusters



75 schools



425 teacher-trainers

8173

Aboriginal and Torres Strait Islander students

### Inquiry for Indigenous Science Students (I2S2)

Targets middle-school students in mainstream metropolitan and regional schools, and uses Indigenous science concepts and contexts to engage all students through hands-on inquiry-based projects to increase student engagement and achievement in science.



97 schools

10929

Aboriginal and Torres Strait Islander students



290 teachers



633 student applications



13 summer schools

430

Aboriginal and Torres Strait Islander students

### Indigenous STEM Awards

Recognises, rewards and celebrates the achievements of Aboriginal and Torres Strait Islander students and scientists who are studying and working in the science, technology, engineering and mathematics (STEM) field, as well as the integral role schools, teachers and mentors have in supporting Aboriginal and Torres Strait Islander students in pursuing STEM education and careers.



196 entries



33 winners

### Bachelor of Science (Extended)

A four-year degree which provides a supported pathway for Indigenous students to complete a mainstream Bachelor of Science at the University of Melbourne.



45 students