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Science Agency

STEM Together

Mid-Term Evaluation Report

Sarah Renals & Christopher Banks

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List of Acronyms

AES	Australian Evaluation Society
AFS	Adult Future Shaper
AGM	Annual General Meeting
ASTA	Australian Science Teachers Association
BHPF	BHP Foundation
CEdO	CSIRO Education and Outreach
CSIRO	Commonwealth Scientific and Industrial Research Organisation
CYRC	CSIRO Youth Reference Council
DAG	Directed Acyclic Graphs
DAP	Data Analytics Project
DIAT	Durable Impact Assessment Tool
DIP	Durable Impact Project
EDM	Electronic Direct Mailout
EPL	Educator Professional Learning
FS	Future Shapers
HTI	Human Technology Institute
LCP	Local Connection Project/Pilot
LSAY	Longitudinal Survey of Australian Youth
MEL	Monitoring, Evaluation, and Learning
QILSR	Queensland Indigenous Land and Sea Rangers
SERG	Science Educator Reference Group
SIN	STEM-INSIGHTS Network
STEM	Science, Technology, Engineering, and Mathematics
UTS	University of Technology Sydney
YFS	Young Future Shaper/s

How to read this report

	Executive summary	Contains a high-level overview of the STEM Together Program, participation, outcomes and impacts, participant experience, opportunities and evaluation.
Section 1	Mid-Term Evaluation Overview	Contains a brief overview of the evaluation approach, detailed later in section 11.
Sections 2	STEM Together Program Overview	Contains a summary of the STEM Together Program elements and journey to date.
Section 3-11	Program elements	Contains summaries of each program element followed by a more detailed analysis of data and findings.
Section 12	Summary of findings	Contains a summary of key findings, progress mapped against key performance indicators and a summary of opportunities.
Section 13	Appendices	Contains the STEM Together Program, program model, impact pathways, stories of impact, and additional supporting data.

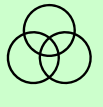
Executive Summary

Introduction

STEM Together is a national initiative delivered by CSIRO Education and Outreach (CEdO), through co-funding from the BHP Foundation and CSIRO. STEM Together intends to act as a catalyst to boost student engagement and diversity in STEM. It prioritises opportunities for underrepresented groups in STEM, namely Aboriginal and/or Torres Strait Islander students, girls, and students from regional or lower opportunity areas. It aims to help students and educators build their confidence, capability, and connection with STEM using evidence backed, strength-based approaches and real-world learning opportunities, supported by industry.

Strategic Approach

Funded from April 2022 to December 2026, STEM Together seeks to generate conditions for change generated via 9 program elements focused on young people (pink), educators (blue), communities (green), and evidence (purple).

	Future Shapers		Educator Professional Learning		Local Connections
	CSIRO Youth Reference Council		Science Educators Reference Group		STEM Insights Network
	Data Analytics Project		Durable Impact Project		Monitoring, Evaluation, and Learning

STEM Together's 3 phase program promotes conditions for change and enables continuous improvement and system-wide learning. The phases are: Incubate - pilot and test new approaches, Aggregate - learn, share, and build evidence, and Amplify - scale and sustain impact across the STEM ecosystem.

Mid-Term Evaluation

For this mid-term evaluation, a formative developmental evaluation approach has been applied using mixed methods. The purpose of the evaluation is to assess the progress of STEM Together towards its intended outcomes and impact, measured against 7 key evaluation questions. This evaluation report utilised data from 115 evaluation activities between August 2022 and June 2025, with over 1,000 instances of participation, applying eight different data collection methods (surveys, interviews, focus groups, observations, document review, workshops, learning logs, and Photovoice).

Key Outcomes and Impacts

Participation - The total number of instances¹ of participation for the first three years of the STEM Together Program July 2022-June 2025 included over 1,000 incidences of engaging young people, nearly 2,000 educators, nearly 100 allies, and close to 200 family members.

Young People - To date, 76 young individuals have been selected as Young Future Shapers, with 95 per cent coming from historically underrepresented groups in STEM. These participants have shown statistically significant increases in STEM awareness, confidence, aspirations, and identity, as measured through self-assessment. Adult Future Shapers have also reported enhanced confidence and capability in supporting youth engagement in STEM. Four successful STEM camps have been delivered nationally, fostering deep engagement and meaningful connections among participants.

Educators - Across 33 events, there have been 1,619 educator attendances recorded. Of those surveyed, 94 per cent reported an increase in knowledge, and 80 per cent expressed greater confidence in applying what they had learned. The “Classroom Brain” series was particularly well received, engaging over 1,000 educators and demonstrating strong interest in innovative teaching approaches.

Community - Ten Local Connection Projects have been established, resulting in 691 engagement instances with community leaders and industry professionals. Additionally, 17 training workshops have been delivered, with 93 per cent of participants reporting increased knowledge, and 87 per cent noting improved confidence. These initiatives have strengthened ties between STEM programs and local communities.

System-Level Initiatives - The CSIRO Youth Reference Council has been formed to embed authentic youth voices into program design. In collaboration with ASTA, the Science Educators Reference Group has been established to ensure alignment with classroom needs. Furthermore, the STEM-INSIGHTS Network has been launched to promote cross-sector collaboration and shared learning across the STEM ecosystem.

¹ Caveat: Young people, educators, allies and family will be counted more than once in program totals if they participate on multiple occasions in a STEM Together program element.

Evidence and Innovation - The Data Analytics Project has developed causal inference models to better understand STEM pathways. The Durable Impact Tool has been piloted and refined to assess and enhance long-term program sustainability. Monitoring, evaluation, and learning practices have been embedded throughout all program elements, driving continuous improvement and innovation.

Program progress against success criteria

Seven success criteria have been established for the mid-term evaluation along with a four-point rating system (Transformative - creating systemic change, Exceeding - going beyond goals, Effective - consistently meeting goals, and Emerging - established with early achievements).

Rating	Success criteria
Exceeding ●●●○	Engaging students from historically underrepresented groups and the educators who support them.
Exceeding ●●●○	Increasing young people's capability, confidence, and connection with STEM.
Exceeding ●●●○	Increasing students' aspirations and motivation towards STEM education and STEM-related careers.
Effective ●●○○	Increasing the capability and confidence of educators in creating inclusive and engaging STEM learning for their students.
Effective ●●○○	Increasing the capability and confidence of community leaders and industry professionals, to build capability and confidence in engaging young people in STEM.
Emerging ●○○○	Developing and embedding mechanisms for learning and sharing insights about works to increase engagement and diversity of underrepresented groups in STEM.
Emerging ●○○○	Developing and embedding mechanisms for durable impact.

The program demonstrates strong performance, with 3 success criteria rated as Exceeding and 2 as Effective, indicating significant progress in engaging underrepresented students and building STEM capability and confidence among youth and educators. However, 2 criteria that relate to newer program elements remain at the Emerging stage, particularly around embedding systemic mechanisms for long-term impact and diversity.

Notably, at this mid-point, no criteria have reached the Transformative level, highlighting an opportunity to shift from programmatic success toward systemic change. Overall, the program is well-positioned to consolidate its strengths over the next 18 months while prioritising strategies that accelerate durable impact and equity at scale.

Key learnings and their significance

Targeted, strengths-based approaches work - Programs like Future Shapers demonstrate that personalised, equity-focused strategies effectively engage underrepresented groups and build STEM confidence, capability, and connection.

Educators, community leaders, and industry partners are critical multipliers - Building the confidence and capability of adults to engage young people in STEM creates ripple effects for thousands of young people, making professional learning and local partnerships essential for systemic impact.

Culture and ways of working drive success - A positive, values-based team culture, underpinned by trust, flexibility, and psychological safety, is enabling innovation and resilience in a complex environment.

Evidence-informed practice is non-negotiable - Embedding Monitoring, Evaluation, and Learning (MEL), durability planning, and data analytics ensures decisions are grounded in evidence and supports continuous improvement.

Scaling and sustainability require planning now - Proven models and accumulated learnings offer opportunities for national scale and long-term impact through legacy resources, diversified funding, and system-wide dissemination.

Opportunities for the next 18 months

Scalability and Durability: Expand and adapt the model for lasting impact and strong return on investment.

Evidence and Evaluation: Use data, feedback, and tools to continuously improve and align with needs.

System Impact: Share insights, support replication, and shape broader engagement approaches.

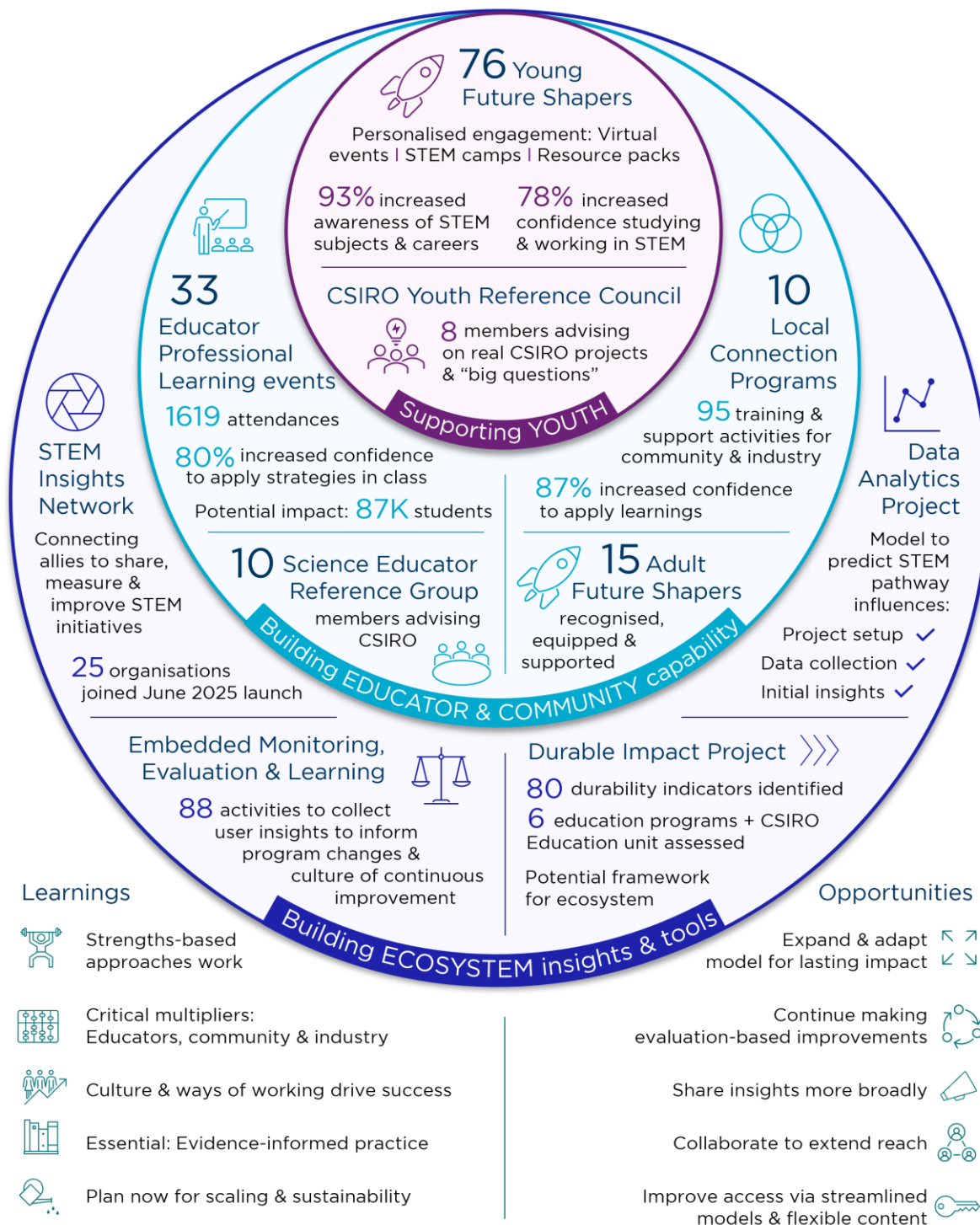
Collaboration: Work across sectors to coordinate efforts, co-design tools, and extend reach.

Accessible Delivery: Improve access and engagement through streamlined models and flexible content.

STEM Together: Program elements & highlights

April 2022 – June 2025

A series of interconnected program elements to ultimately help young people from underrepresented groups and their supporters strengthen their confidence, capability and connection with STEM.



1 Mid-Term Evaluation Overview

The mid-term evaluation of the STEM Together Program uses a mixed methods approach to synthesise quantitative and qualitative data to answer 7 key evaluation questions that can be seen in Table 1.

Table 1 Key Evaluation Questions

	Quality criteria	How successful has STEM Together been in...?	Element ²
YOUNG PEOPLE	ENGAGEMENT	1. ...engaging students from historically underrepresented groups and the educators who support them?	YFS, AFS, CYRC
	CONFIDENCE, CAPABILITY, AND CONNECTION	2. ...increasing young people's capability, confidence, and connection with STEM?	YFS, CYRC
	STEM ASPIRATIONS AND MOTIVATIONS	3. ...increasing students' aspirations and motivation towards STEM education and STEM-related careers?	YFS, CYRC
SUPPORTERS	CAPABILITY AND CONFIDENCE	4. ...increasing the capability and confidence of educators in creating inclusive and engaging STEM learning for their students?	EPL, AFS
	CAPABILITY AND CONFIDENCE	5. ...increasing the capability and confidence of community leaders and industry professionals, to build capability and confidence in engaging young people in STEM?	LCPs
SYSTEM	LEARNING	6. ...developing and embedding mechanisms for learning and sharing insights about what works to increase engagement and diversity of underrepresented groups in STEM?	CYRC, SERG, SIN, DAP, MEL
	DURABLE IMPACT	7. ...developing and embedding mechanisms for durable impact?	DIP

² Acronyms refer to the program elements which are presented in Table 3, page 15

The STEM Together monitoring, evaluation, and learning (MEL) project was established at the commencement of the program and is presented fully in Section 11 of this report. In addition, Section 13.8 contains an overview of the MEL framework, information about Triple-loop Learning, and Key Performance Indicators.

This mid-term evaluation report represents a point-in-time synthesis of monitoring and evaluation data and therefore evaluation ratings and conclusions are provisional. In addition, the 9 program elements are at different stages of implementation and have varying levels of evaluation evidence available at this time.

The evaluation rating scale used to indicate the STEM Together Program's progress towards intended outcomes and impacts uses a four-point scale as shown in Table 2 below.

Table 2 STEM Together's progress rating scale

Emerging	Effective	Exceeding	Transformative
• The program is established and functioning, with clear goals and early achievements. • It demonstrates promising practices and initial evidence of positive outcomes for participants/stakeholders. • The program builds a foundation for future growth with potential to expand reach, depth, or sustainability.	• The program is consistently meeting its stated goals and delivering strong outcomes for participants/stakeholders. • Practices are reliable, replicable, and supported by evidence of positive impact. • It demonstrates capacity to adapt and respond to participant/stakeholder needs and contexts.	• The program goes beyond its stated goals, generating outcomes of breadth and depth for participants / stakeholders. • It shows innovation and leadership, with practices that inspire or influence others. • The program builds strong partnerships and networks that amplify its reach and effectiveness.	• The program is creating systemic change, shifting policies, practices, or structures beyond its immediate scope. • It demonstrates sustained impact at scale, influencing sectors, communities, or ecosystems. • The program serves as a model or catalyst for broader positive shifts, enabling long-term change in how STEM education and opportunities are understood and delivered.

2 STEM Together Program Overview

2.1 What is STEM Together?

STEM Together³ is a national initiative delivered by CSIRO Education and Outreach (CEdO)⁴, through co-funding from the BHP Foundation⁵ and CSIRO. The STEM Together funding agreement was signed in April 2022 and is funded for delivery until December 2026.

The main goal of STEM Together is to act as a catalyst to boost student engagement and diversity in STEM. It prioritises opportunities for underrepresented groups in STEM, namely Aboriginal and/or Torres Strait Islander students, girls, and students from regional or lower opportunity areas.

It aims to help students and educators build their confidence, capability, and connection with STEM using evidence-backed and strengths-based approaches through real-world learning opportunities supported by industry. STEM Together aims to strengthen the support system around students – comprising educators, communities, and industry, and intends to reinforce STEM engagement for years to come.

STEM Together program elements

STEM Together comprises 9 diverse, but related, program elements (see Table 3). The 9 elements are interconnected by design and in practice and reinforce each other to contribute to the overarching goals of STEM Together.

The 9 program elements are comprised of individual-level, group-level, and system-level initiatives, all designed with the ethos of try, test, learn, and with the intent to generate knowledge around what works to increase engagement and diversity of underrepresented groups in STEM.

³ CSIRO (2025). *STEM Together*. <https://www.csiro.au/en/education/initiatives/stem-together>

⁴ CSIRO (2025). *Education and Outreach*. <https://www.csiro.au/en/education>

⁵ BHP Foundation (2025). *About us*. <https://www.bhp-foundation.org/en/>

Table 3 STEM Together Program Elements

 Future Shapers (FS) National recognition program selecting 25 Young Future Shapers (YFS) (Years 5-10) and 5 Adult Future Shapers (AFS) annually, for a tailored support opportunity to strengthen their capability, confidence, and connection with STEM.	 Educator Professional Learning (EPL) Workshops and seminars featuring cross-disciplinary experts, strategies, and practical tools to support educators in creating inclusive and engaging STEM learning for their students.	 Local Connection Projects (LCP) Facilitating collaboration and education for community leaders and industry professionals to build capability and confidence in engaging young people in STEM. Built local to be scalable.
 CSIRO Youth Reference Council (CYRC) A channel to amplify the voices of diverse young people to influence the design and delivery of STEM Together and CSIRO initiatives.	 Science Educator Reference Group (SERG) A channel for direct engagement with Science Teachers, to gather insights and recommendations to increase uptake and impact of school-focussed initiatives.	 STEM-INSIGHTS Network (SIN) A network of values-aligned individuals, groups, and organisations with shared goals of learning together and increasing diversity in STEM.
 Data Analytics Project (DAP) A research and development project harnessing digital technologies and machine learning to develop a framework for assessing STEM engagement programs and quantifying their impact in increasing STEM uptake.	 Durable Impact Project (DIP) Development of a durable impact assessment tool and action plan, to support strategic and operational actions to increase the durability and amplification of program outcomes.	 Monitoring, Evaluation, and Learning (MEL) A developmental MEL approach is applied to all STEM Together activities. It continuously and robustly assesses program outcomes and contributes to continuous improvement and the try/test/learn approach.

2.2 How do program elements work together?

It can be challenging to summarise or explain succinctly how the STEM Together Program elements work together, however, the interconnectedness can be understood through 3 frames: i) the program model, ii) impact pathways and collective impact, and iii) a try, test, and learn approach to innovation.

Program model

The 9 program elements of the STEM Together Program contribute to 3 phases of intended change:

Phase 1 – Incubate – creates a space for trying and testing out ideas for program element delivery informed by youth and educator voice, data analytics, and assessment of durable impact.

Phase 2 – Aggregate – focuses on learning, sharing and creating evidence, resources, and scalable approaches.

Phase 3 – Amplify – sees approaches, methods, and resources scaled and sustained through STEM education ecosystem adoption.

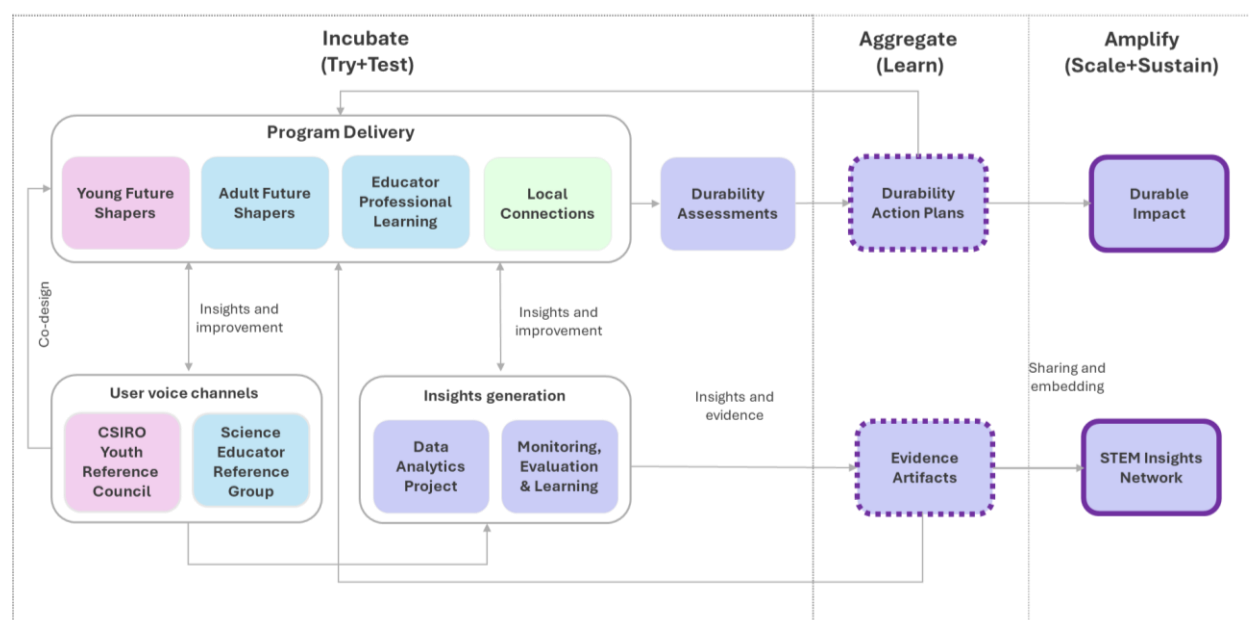


Figure 1 The STEM Together Program Model

Whilst the program model is depicted as a linear process for simplicity and clarity, in reality, the mechanisms are non-linear, complex, and influenced by many internal and external factors. Furthermore, the processes are iterative and, due to the try/test/learn approach the program operates under, has been refined, improved, and changed since its inception.

Impact pathway / collective impact

To help understand and communicate the mechanisms by which the program aims to generate outcomes and impacts, Impact Pathways have been developed for STEM Together as a whole and for some of the more developed program elements.



Click [HERE](#) to view the STEM Together Impact Pathways.

The screenshot shows a detailed table titled 'STEM Together Impact Pathways'. It maps various program elements (like 'Young Future Shapers', 'Adult Future Shapers', etc.) against different impact areas (such as 'STEM skills', 'Attitudes', 'Capabilities', etc.). The table is color-coded to show how different elements contribute to different parts of the overall impact framework.

The Impact Pathways (Section 13.2) are based on CSIRO’s Impact Model⁶ and show how each element contributes to overall areas of impact that STEM Together aims to achieve. Specifically, some programs build foundations (raising awareness, increasing confidence, building skills), some build bridges (between industry and community), and some sustain impact (building community capability). The elements work together in sequence or in parallel in the ecosystem to achieve impact. According to collective impact theory, success comes when diverse strategies are aligned to a shared vision. This applies to STEM Together, where some elements focus on individual skills, others build networks, others strengthen teacher capability, but together they produce impact that no single element could achieve alone.

Try, test, learn

As described in the program model, each program element plays a somewhat different role in the Try/Test/Learn approach, although all elements have a ‘try, test, and learn’ focus individually as well. That is, the elements contribute in different ways and to different degrees to the overall STEM Together learning and action cycle:

Try: Four elements (Young Future Shapers; Adult Future Shapers; Educator Professional Learning; Local Connections) have developed new program delivery approaches and are primarily focused on understanding what works and learning from it while practically applying new approaches to participants. Two additional elements related to user voice (Science Educators Reference Group and the CSIRO Youth Reference Council) have contributed to the design and implementation of the delivery elements.

⁶ CSIRO (2025). *A CSIRO-wide approach to impact*. <https://www.csiro.au/en/about/corporate-governance/ensuring-our-impact/a-csiro-wide-approach-to-impact>

Test and Learn: Two elements (Data Analytics Project; Monitoring, Evaluation, and Learning) are focused on generating insights, both from existing data sources and by generating data from STEM Together Program elements. These learnings from all 9 elements will be shared with the ecosystem.

Sustain: The Durable Impact element is focused on ensuring impact from all elements is sustained.

Each of the 9 elements therefore works together to individually and collectively apply the Try/Test/Learn approach.

2.3 What factors have influenced program implementation?

Program evolution

STEM Together's journey has been a process of deliberate evolution. From CEdO's foundation of proven expertise in delivering STEM engagement programs, through a phase of 'try, test, and learn' experimentation in unknown and often ambiguous circumstances, towards finding a clear vision to strengthen STEM capability, confidence and connection at an individual, organisational or community level, and at a STEM ecosystem level. Figure 2 below indicates the key phases of this evolution.

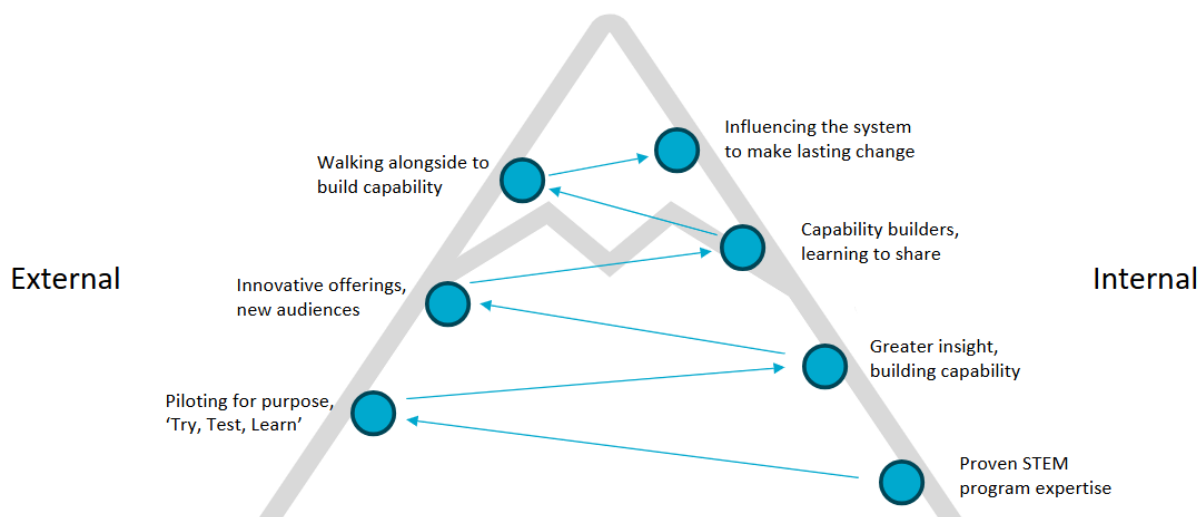


Figure 2 STEM Together's evolution (2022-2025)

The multi-level influence that STEM Together is aiming to have requires a detailed yet flexible program of work, the key activities and outputs of which are represented in Figure 3 on the following page⁷.

⁷ Some aspects of STEM Together delivery are not included in this diagram for practical readability reasons, more detailed information is provided in the respective sections of this report.

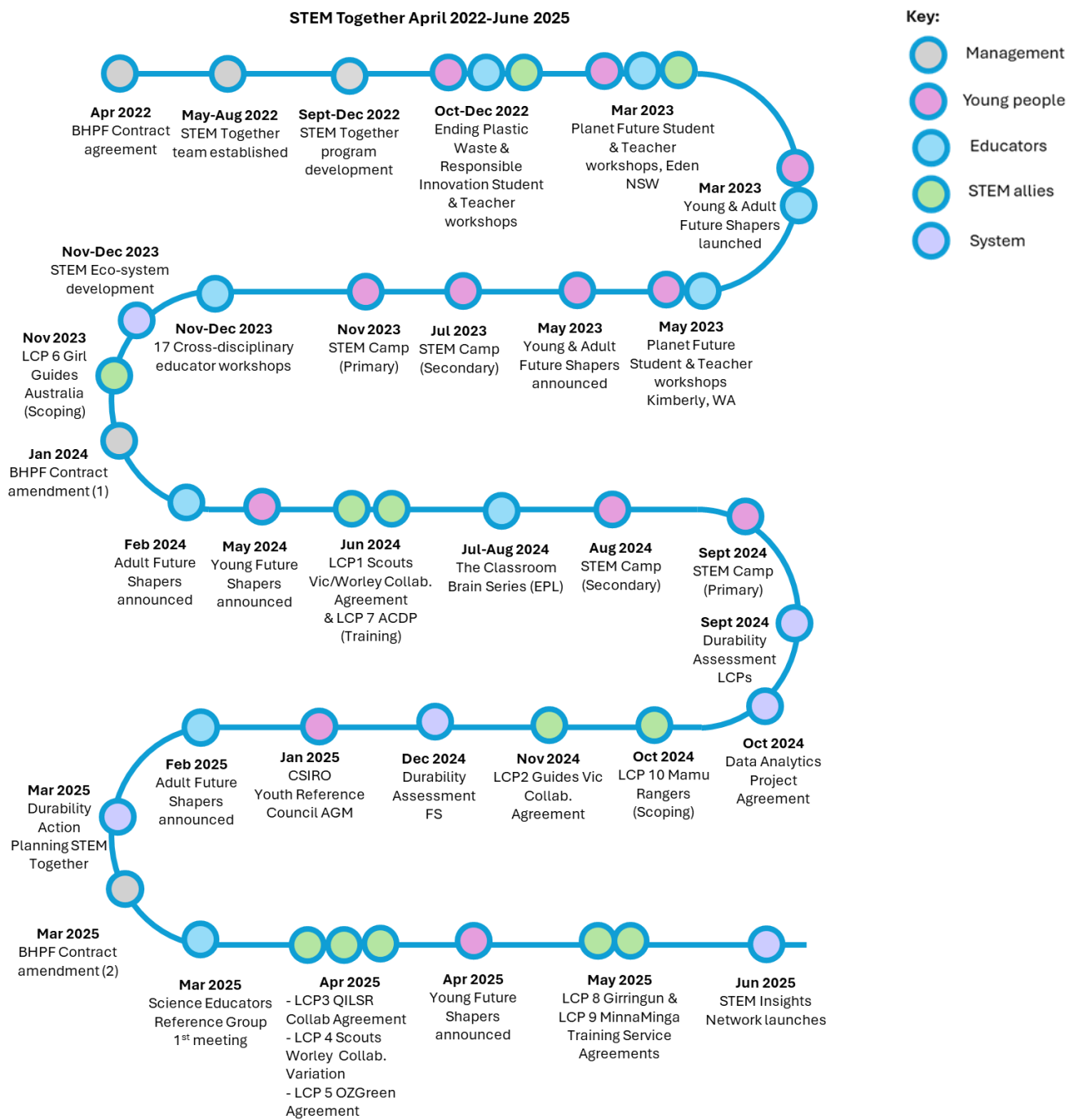


Figure 3 Timeline of key activities and outputs in the development of STEM Together Program

Team evolution

The STEM Together Program was launched in 2022 with an ambitious vision: to increase diversity and engagement in STEM through innovative and equity-focused approaches. Behind this vision stood a newly formed team tasked with designing and delivering multifaceted, interconnected program elements. Over 3 years, the team's evolution reflects a story of resilience, learning, and transformation, moving from ambiguity and complexity to clarity, confidence, and impact. The story of the team's journey has been co-created with each member of the team contributing through collective reflective practice activities initiated by the MEL project lead. This approach acknowledges the presence of subjective bias while valuing lived experience as a critical source of insight, ensuring that reflections inform continuous improvement and strengthen the authenticity of the team's story.



Figure 4 The STEM Together Team Journey (2022-June 2025)

Figure 4 depicts the 3 phases of the team's journey that have occurred and a fourth phase that is yet to come.

Phase 1: Foundations and Forming (2022)

The early days of the STEM Together team were marked by uncertainty. The team was building an innovative national program from scratch while navigating complex stakeholder expectations and new funding arrangements. Reflections from September 2022 reveal a strong appetite for collaboration and connection, with in-person planning days highly valued for fostering trust and shared understanding. Strengths-based activities helped identify individual capabilities and laid the groundwork for a culture of openness.

Enablers:

- Adaptable schedules and purposeful conversations built trust.
- Early commitment to equity and inclusion shaped program design.

Challenges:

- Lack of clarity in processes and decision-making slowed progress.
- Circular conversations and going off topic created frustration.

At the end of 2022, the team agreed to increase face-to-face planning sessions and embed Engagement Officer-led project design to improve ownership and accountability.

Phase 2: Structuring and Navigating Complexity (2023)

By 2023, STEM Together had expanded significantly, introducing Future Shapers, Educator Professional Learning (EPL), and Local Connection Projects (LCPs). This growth demanded stronger governance and coordination. The team delivered Future Shapers and EPL at scale despite contract negotiations and resource constraints, demonstrating resilience and adaptability.

Achievements:

- Successful delivery of Future Shapers and EPL programs.
- Maintained momentum through staff changes and complexity.
- Participant voice fed into program design through MEL learning loops.

Enablers:

- Team culture became its strength, featuring dedication, passion, and flexibility.
- Opportunities for team members' professional growth and ownership boosted morale.

Challenges:

- Decision-making layers and unclear leadership of work packages.
- External factors, including contract negotiations, disrupted planning.

Post-activity reviews and risk management processes became critical, while face-to-face time remained essential for cohesion.

Phase 3: Performing and Innovating (2024– June 2025)

By 2024, the team had “hit its stride.” Work packages and project lead/co-pilot models provided clarity and autonomy. A values-based culture gained further strength, providing a safe, supportive, and collaborative team environment, underpinned by trust and transparency. The June 2025 reflection (3 years in review) confirms this transformation: from confusion and at times frustration in the early days to empowerment and ownership.

Achievements:

- Maintaining a strong, connected team culture despite geographic spread.
- Creating shared language and vision across 9 diverse program elements.
- Successfully navigating complexity and scaling initiatives.

Enablers:

- Embedded culture of learning, continuous reflection, and adaptation, underpinned by MEL practices across all program elements.
- Strong, values-based leadership, role modelling inclusivity, trust, and strengths-based approaches.
- Flexibility and adaptability, ability to pivot plans while maintaining focus on goals.

Challenges

- Decision-making layers slowed progress on “low-hanging fruit.”
- Balancing inclusivity with speed in co-design processes.
- Managing multiple priorities while maintaining quality.

Phase 4: Realising opportunities (2025 -2026)

In June 2025, the STEM Together team reflected on the past 3 years and looked forward to the next 18 months to the end of the program funding and beyond. Key opportunities were identified to maximise the impact and durability of the team’s work.

Priority actions included:

- Embed principles of STEM Together team culture and MEL into CEoO business-as-usual.
- Create legacy resources, (playbooks, toolkits, impact guides) including ways of working.
- Continue prioritising staff wellbeing and psychological safety.
- Publish and share learnings widely through conferences and peer-reviewed papers.

What is the relevance of these findings?

The STEM Together team’s journey is a testament to the power of adaptability, collaboration, and shared purpose. From forming and storming in 2022, through structuring and navigating complexity in 2023, to performing with confidence in 2024–2025, the team has built not only a program but a culture of learning and innovation. As the program moves toward its final phase, the foundations laid by this team of trust, transparency, and tenacity has the capability to continue to shape STEM engagement in CSIRO and beyond. These insights matter because they show that team culture and leadership have been the strongest drivers of success, enabling resilience and innovation in a complex environment.

3 Future Shapers

3.1 Evaluation summary

Aims and objectives: Future Shapers is a national recognition program that annually selects 25 Young (Years 5–10) and 5 Adult Future Shapers for tailored support to strengthen their STEM capability, confidence, and connection. Young Future Shapers are selected on a number of criteria including their interest in STEM, lack of opportunity or barriers to STEM opportunities, and the potential impact the program can make to them.

Activities: Between March 2023 and June 2025, two and a half program cycles have been delivered. Evidence shows this model reliably generates individual outcomes for the annual cohort of underrepresented young people in STEM and the adults who support them.

Outcomes and impact: Young Future Shapers demonstrate increased awareness of STEM subjects and careers through hands-on, real-life experiences. They also build confidence and capability in 21st-century skills such as communication, teamwork, creative problem-solving, and resilience within a safe, inclusive environment. They gain valuable connections with like-minded peers and adults who share their STEM interests.

There is also clear evidence that recognition and opportunities provided to Adult Future Shapers serve as strong confidence boosters and motivators. Early success indicates potential for program expansion and scaling, however, decisions regarding this element's future direction post initial funding will require further consultation and decision-making.

Enablers: Factors included a targeted communications and marketing campaign, an inclusive nomination process with diversity measures, multi-round assessment using rubrics, personalised recognition planning with clear scaffolding, strategic camp location and scheduling, strong safety and child protection standards, active engagement of parents and carers, and alumni involvement through the CSIRO Youth Reference Council.

Challenges: Factors have included implementing an equity-based recognition model, providing reassurance to winners, balancing flexibility and guidance for recognition packs, managing scheduling for separate nomination rounds, and coordinating complex travel logistics for remote participants.

Opportunities: Areas to strengthen include developing a clear post-funding vision, enhancing communication and documentation to build program support, progressing a durability action plan, exploring scaling or transformation of the program model for sustainability, and sharing learnings system-wide through publications, conferences, and networks.

Relevance and significance: Future Shapers is not just recognising young people, it is transforming their confidence, aspirations, and connection to STEM. With 95 per cent of participants from underrepresented groups, the program is proving that targeted, strengths-

based support can unlock potential and shift trajectories. This matters because it shows how deep individual impact can be achieved with relatively small cohorts, offering a scalable model for equity-driven STEM engagement.

Table 4 Mid-point evaluation rating for the Future Shapers program element

Quality criteria	How successful has STEM Together been in...?	Rating
ENGAGEMENT	1. ...engaging students from historically underrepresented groups and the educators who support them?	Exceeding ● ● ● ○
CONFIDENCE, CAPABILITY, AND CONNECTION	2. ...increasing young people's capability, confidence, and connection with STEM?	Exceeding ● ● ● ○
STEM ASPIRATIONS AND MOTIVATIONS	3. ...increasing students' aspirations and motivation towards STEM education and STEM-related careers?	Exceeding ● ● ● ○
CAPABILITY AND CONFIDENCE	4. ...increasing the capability and confidence of educators in creating inclusive and engaging STEM learning for their students?	Effective* ⁸ ● ● ○ ○

3.2 Aims and objectives

Future Shapers is a national recognition program for both young people who have an interest in STEM but have barriers and/or limited access to STEM learning opportunities, and the adults who support young people. The Future Shapers Impact Pathway (Section 13.2) documents how the program element inputs, activities, and outputs are intended to generate outcomes and impacts for participants.



Click [HERE](#) to view the Future Shapers Impact Pathway



⁸ This element has been rated 'effective' based on current available evidence. If the interview sample size can be increased and measured over a longer duration, this rating could change.

Figure 5 below outlines a model for describing how a program might create different depths (impact) and breadth (size of cohort)⁹. Future Shapers can be seen as a ‘gorge’ program element, seeking to create deep individual level impact with a small number of young people and adults.

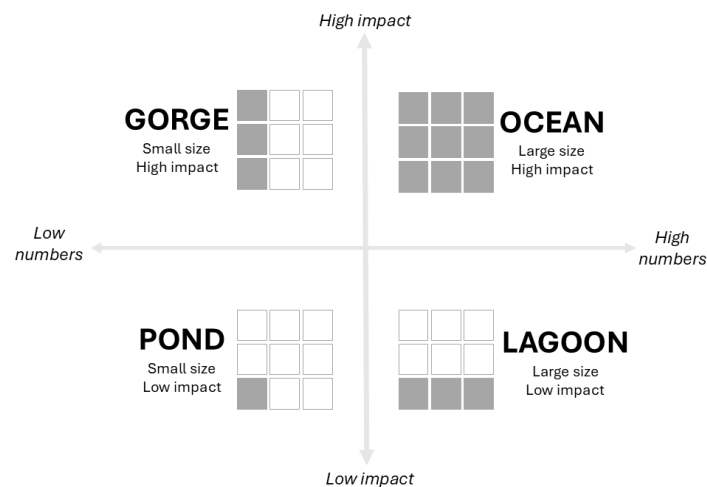


Figure 5 Breadth versus depth in STEM education programs

Young Future Shapers

Future Shapers aims to strengthen young people’s capability, confidence, and connection with STEM and strengthen their 21st century skills such as critical thinking, problem solving, teamwork, and communication to help them contribute towards solving some of Australia’s and the world’s biggest challenges. Young people can nominate themselves for Future Shapers or be nominated by an adult (e.g. teachers, family members) by completing an online application. Whether self-nominating or being nominated by an adult, demographic questions and questions relating to current access to STEM need to be answered in addition to the young person responding to the following two questions:

- Tell us what interests you about STEM and what you do at the moment.
- How would becoming a Young Future Shaper help you?

Future Shapers seeks to support young people who are curious about STEM, or who are interested in building or inventing things, and/or want to make a positive change. Future

⁹ Adapted from Farazi MS, Gopalakrishnan S, and Perez-Luno A (2019) ‘Depth and breadth of knowledge and the governance of technology alliances’, *Journal of Engineering and Technology Management*, 54: 28–40. <https://doi.org/10.1016/j.jengtecman.2019.08.002>

Shapers intentionally doesn't seek to recognise young people who are already well supported on a STEM path to success but rather provide opportunity for those that would benefit most from the STEM learning and connection opportunities that Future Shapers can provide.

Future Shapers is intended for young people in years 5 to 10 at school (or equivalent homeschool) and prioritises those who are from at least one of the following underrepresented groups in STEM:

- Aboriginal and/or Torres Strait Islander young people
- Girls
- Those from regional areas
- Those from lower opportunity areas.

Adult Future Shapers

Adult Future Shapers recognises those who support young people in Years 5 to 10 to strengthen their confidence, capability, and connection with STEM. Adult Future Shapers include, but are not limited to, educators, Elders, parents, STEM professionals, or other community members who help young people to build STEM skills. Applicants need to be 18 or over and support young people who are from at least one of the four underrepresented groups in STEM.

With a focus on supporting young people to strengthen their capability, confidence, and/or connection in STEM, nominees are asked to respond to each of the following:

- The nominee's current role in their community and why they are interested in applying as an Adult Future Shaper.
- The nominee's current work supporting young people to strengthen their capability, confidence, and/or connection in STEM.
- The kinds of young people being supported by the nominee and their access to STEM learning opportunities, including any barriers.
- The nominee's future goals in supporting young people and what do they need from Future Shapers to help achieve their goals.
- The nominee's vision of how being selected as an Adult Future Shaper would help increase their impact.

3.3 Activities

The delivery of the Future Shapers program element incorporates many activities spanning a 12-month rolling cycle (see Figure 6 Future Shapers year) and requires input from a large proportion of the STEM Together team. In addition, a circle of allies assists with assessment of the large number of Young Future Shaper nominations, and CSIRO Education and Outreach staff help with chaperoning Young Future Shapers travelling solo at airports around Australia.

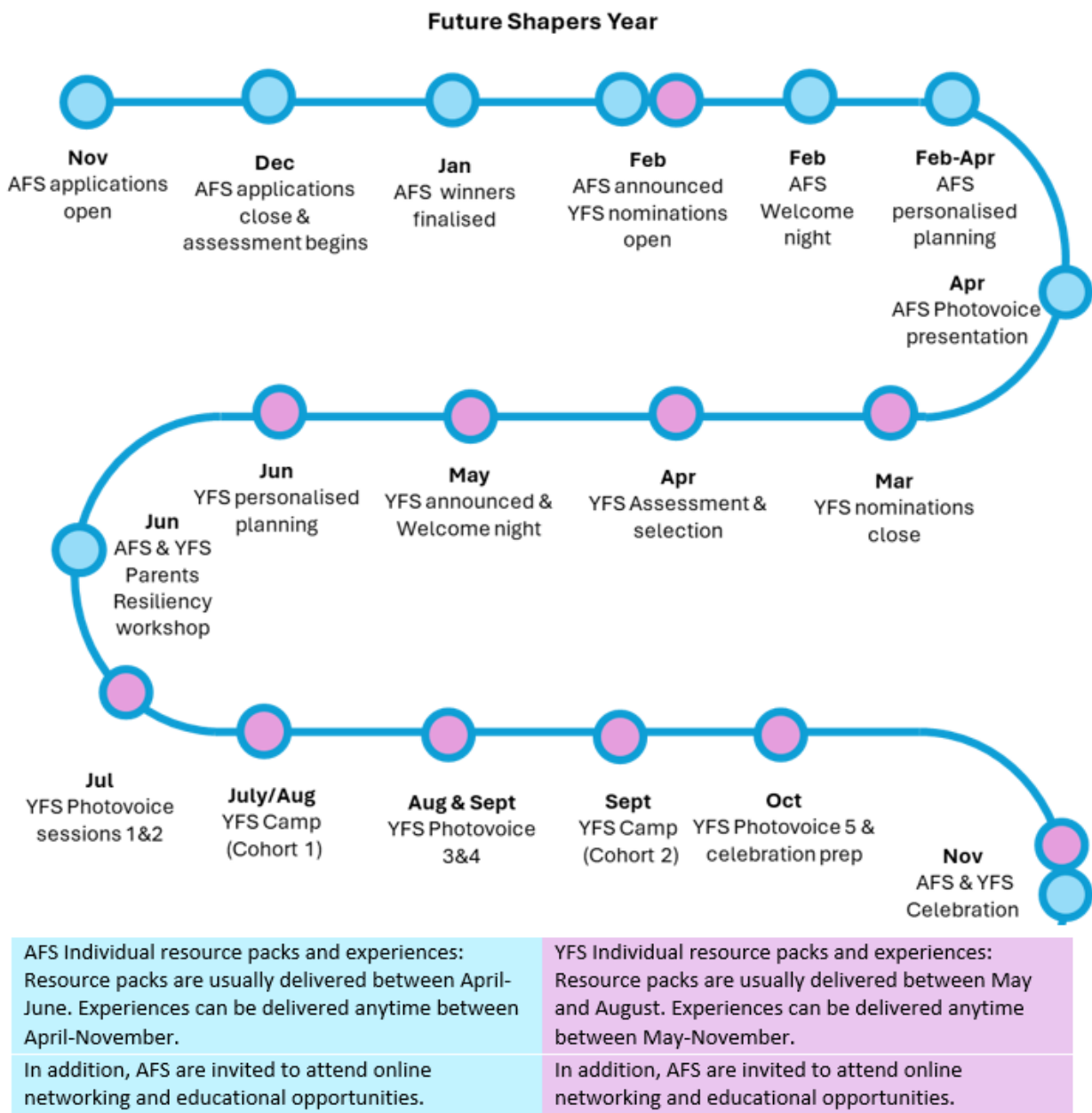


Figure 6 Future Shapers typical year in view.

Communications and marketing

An essential element of the Future Shapers program is its targeted communications and marketing campaign. As shown in Figure 7, this multi-stage approach reaches adults who support young people from historically underrepresented groups. More than two-thirds of nominations (65 per cent) followed the ‘last chance’ electronic direct mailout, consistent with research showing people often need multiple prompts before responding. Campaign length has been progressively refined based on application and website data (37 days in 2023, 29 in 2024, and 26 in 2025) yet application numbers remained steady. Timing balances teachers getting to know their students at the beginning of the year, school holidays, and providing applicants sufficient opportunity to revisit the site, seek consent, and prepare submissions.

Young Future Shaper Nominations 2025

Daily visits to Young Future Shapers application page, distribution of major communications tactics, and percentage of nominations received per day.

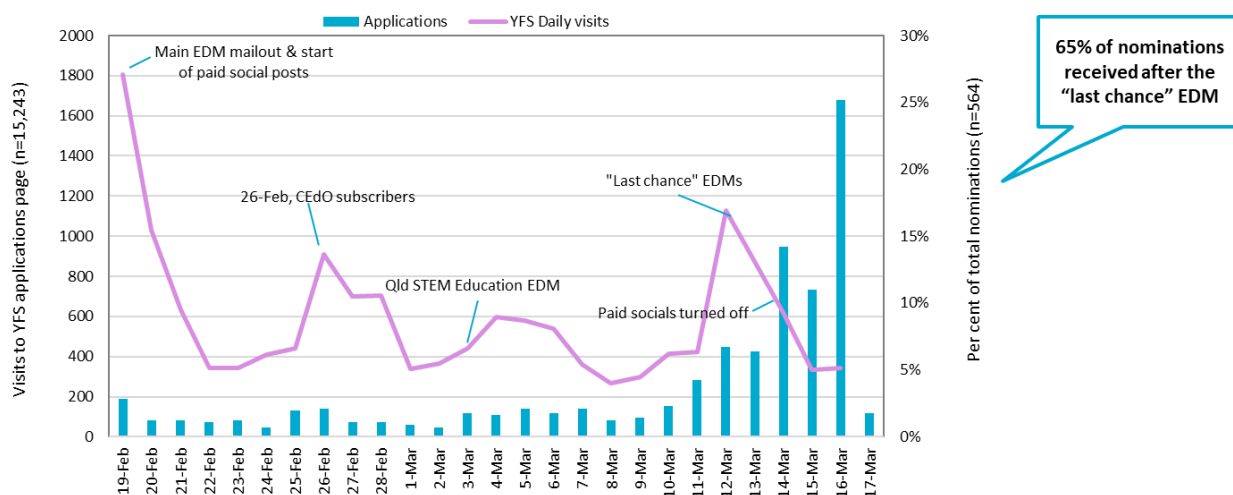


Figure 7 Young Future Shapers 2025 - Communications and Marketing Campaign

Selection of recognition packs and experiences

Young people and adults who are selected as Future Shapers are supported with personalised planning meetings to select a recognition pack or experience.

Young Future Shapers can choose one of the following:

- Attend a STEM Camp: Site tours and activities (4-5 days including travel and for Year 5 and 6 students this includes all costs for a parent/carer to come and share the experience).
- Have CSIRO organise a STEM expert come to them or take a group on a day-long excursion.
- Create a bespoke resource pack of equipment, technology, or other resources.

Adult Future Shapers can choose one of the following:

- A tailored resource package (e.g. equipment, technology, books).

- An experience (i.e. attending professional development opportunity in Australia).
- Receive support to run a STEM event.

Individual recognition packs and experiences delivered in 2023 and 2024 are detailed in Table 5 and the STEM camps are detailed in Table 6.

Table 5 Future Shapers individual recognition packs and experiences (2023-2024)

Young Future Shapers individual recognition packs and experiences	Adult Future Shapers individual recognition packs and experiences
2023 (n=5)	2023 (n=5)
1. Resource pack: Virtual reality headset, 8 x noise cancelling headphones for class 2. Resource pack: Microscope, books, and virtual meets 3. Industry experience: Flinders Uni STEM Experience - class excursion 4. Industry experience: Visit to CSIRO Lab 22, CSIRO Mixed Reality Lab, and Bosch 5. Industry experience: Trip to PAX Melbourne, and virtual meets with industry	1. Child and Adolescent Conference - Gold Coast in April 2024 2. Conference 3. Laptop and communications piece 4. Maker space – student robotics and 3D printing 5. Screen printing and design resources
2024 (n=3)	2024 (n=5)
1. Resource pack: Laptop, microscope with screen and slides, forensic science activity and book, medical research kit, 4D human torso, stethoscope, bacteria growing kit and fungi book 2. Resource pack: Microscope with screen and slides, bacteria growing kit, book to document findings. Cells and molecules book, snorkel kit, marine biology book, Go Pro kit. Meet a Marine biologist 3. Resource pack: LEGO Education SPIKE Prime Set (1 and 2), Apple iPad, keyboard, pencil (and Apple Care), Wi-Fi, headphones (over and in ear), external storage hard drive	1. STEM Education Conference package 2. 3D resin printer and inks 3. Space themed educational resources 4. Mini drone and STEM educational resources 5. Class set of programmable robots

Young Future Shapers also participate in virtual events, briefings, and development activities (10 to 12 hours over the year). Young Future Shapers that need tech to engage online are provided with a headset, webcam, and internet connection. At the end of the year, Young Future Shapers can express an interest in joining the CSIRO Youth Reference Council and bring their perspectives to projects with CSIRO Education and Outreach. Adult Future Shapers are also invited to participate in a number of online meetings and activities.

STEM Camps

Since 2023, four STEM Camps have occurred in Townsville, Brisbane, Adelaide, and Newcastle. Table 6 indicates the range of activities and the collaborating organisations and departments that have contributed to the STEM camp experiences. A selection of Future Shapers experience photographs can be viewed in Section 13.4.

Table 6 Future Shapers STEM camp activities (2023-2024)

Camp and Activity	Organisations delivering corresponding activities
Townsville 2023 (Yrs 7-10) Participants n=11	
Welcome to Country	Saltner Consulting
Astronomy – star gazing evening	CSIRO Education & Outreach
Agricultural pasture research	CSIRO Lansdown Pasture Research Station
Cyclone Testing station	James Cook University
Marine research – reef education	Great Barrier Reef Marine Park Authority
Communication and Pitching workshop	CSIRO Education & Outreach
eResearch - Biology and big data	James Cook University
Robotics workshop	BHPF SEA alumni
Brisbane 2023 (Yrs 5 and 6) Participants n=9	
Robotics and 3D Printing	Queensland Centre for Advanced Technologies
Space laboratory experience cube satellites	Griffith University and Gilmour Space
Environmental Science presentation	CSIRO Scientist
BioFoundry tour and activity	CSIRO BioFoundry tour
Adelaide 2024 (Yrs 7-10) Participants n=16	
Welcome to Country and Cultural Tour	Living Kauna Centre
Drone workshop	CSIRO Remotely Piloted Aircraft Systems
Communication skills workshop	CSIRO Education & Outreach
Astronomy night	Astronomical Society of South Australia
Innovation workshop – assistive technology	Flinders University
Codebreaking workshop	Flinders University
Marine Discovery Centre Tour	Marine Discovery Centre
Science communication workshop	BTN (Behind The News) - ABC Adelaide
Forensic Soil Science Presentations and Tour	CSIRO Centre for Australian Forensic Soil Science
Speed meet a scientist (Interviewing skills)	CSIRO scientists
Newcastle 2024 (Yrs 5 and 6) Participants n= 6	
Welcome to Country and Cultural Tour	Murrook Centre
Geology, meteorology, marine biology	University of Newcastle – Earth Sciences
Drones experience	CSIRO Remotely Piloted Aircraft Systems
Mechanical Engineering – Nu Teams	University of Newcastle - Engineering
Robotic engineering – i3 Lab	University of Newcastle - Engineering
Software engineering – NU bots	University of Newcastle - Engineering
CSIRO Energy Centre Tour	CSIRO Energy Centre
Innovation Workshop	CSIRO STEM Together

3.4 Participation

As Future Shapers seeks to provide opportunity for young people from traditionally underrepresented groups in STEM, monitoring demographic information from nominations and the considered selection of Future Shapers is an important aspect of the program element. The communications campaign is targeted, and a nominations assessment rubric is implemented to ensure that demographic information for young nominees is captured, and information about who the adult nominees support is captured as this forms part of the overall selection process.

Nomination and Selection 2023-2025

- **1,189** nominations have been received for Young Future Shapers
- **76** young people have been selected as Young Future Shapers
- **335** nominations have been received for Adult Future Shapers
- **15** adults have been selected as Adult Future Shapers

Young Future Shapers - Target cohorts

Selected Young Future Shapers have the following demographic characteristics:

- **38 per cent** identify as Aboriginal and/or Torres Strait Islander
- **68 per cent** identify as female
- **79 per cent** are from outer regional, remote, or very remote areas
- **79 per cent** attend schools with an ICSEA value below 1,000

The following data indicates the intersectionality of the Young Future Shapers cohort, which is taken into consideration in the assessment process, and in delivering the program element.

- **95 per cent** of Young Future Shapers align to one or more target groups¹⁰
- **14 per cent** are from 4 target groups
- **38 per cent** are from 3 target groups
- **34 per cent** are from 2 target groups
- **8 per cent** are from one target group



Click [HERE](#) to find out more about Future Shapers nominations and selection data.

¹⁰ The 4 target groups are prioritised but are not the entire basis for selection. Therefore, a small number of selected Young Future Shapers were assessed as benefiting from the program but were not a part of the 4 target groups.

Geographic distribution

Selected Young Future Shapers have been selected from all states and territories¹¹ and are distributed across Australia.

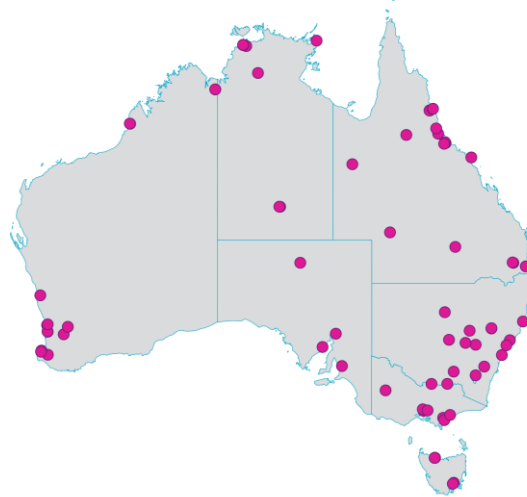


Figure 8. Young Future Shapers (n=76) by geographic distribution (2023-2025)

To date, 100 per cent of the 15 selected Adult Future Shapers support young people from one or more of the 4 target cohorts, and they are distributed across Australia across 6 jurisdictions¹².



Figure 9. Adult Future
geographic distribution

Shapers (n=15) by
(2023-2025)

¹¹ Young Future Shapers 2023-2025 by Jurisdiction: ACT 1%, NSW 17%, NT 12%, QLD 26%, SA 4%, TAS 9%, VIC 11%, WA 20%.

¹² Adult Future Shapers 2023-2025 by Jurisdiction: NSW 13%, NT 33%, QLD 27%, SA 7%, TAS 7%, WA 13%.

3.5 Outcomes

Young Future Shapers

Young Future Shapers are invited to complete a survey at the end of their camp experience if they attend camp, and a destination survey at the end of the year that they were a Future Shaper. In total 32 Young Future have completed a camp survey and 27 have completed a destination survey. The following provides a summary of self-reported change in Future Shapers' STEM awareness, interest, knowledge, 21st Century skills, confidence, connections, and STEM student identity. Retrospective pre-post self-reported surveys using a 10-point numeric scale is used for all questions, except for the STEM student identity question which uses an image scale adapted from McDonald (2019)¹³. Some respondents gave a maximum score of 10 both in their pre- and post- rating in some of their question responses, meaning their ratings could not increase further through participation.

Self-reported changes

Over 90 per cent of Future Shapers respondents self-reported an increase in their STEM awareness across 4 measures following their Future Shapers experience. These measures were: awareness of STEM subjects they could study, awareness of STEM careers they could work in, different ways STEM can be helpful to my community, and different ways STEM can be helpful for Australia. Pre-post matched pairs analysis indicated that this increase was statistically significant ($p < .0001$).

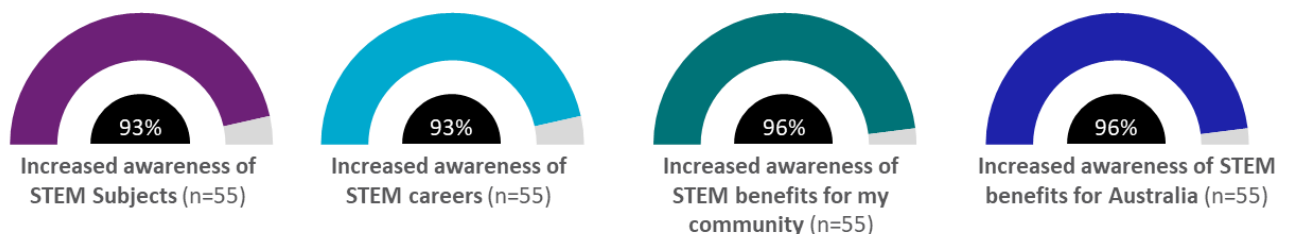


Figure 10 Self-reported changes in awareness (of STEM subjects, STEM careers, and community / societal benefits)

¹³ McDonald MM, Zeigler-Hill V, Vrabel JK and Escobar M (2019) 'A Single-Item Measure for Assessing STEM Identity', *Front. Educ.* 4:78. Doi: 10.3389/feduc.2019.00078

Increased interest

Over 80 per cent of Future Shapers self-reported an increase in their STEM interest across 3 measures following their Future Shapers experience, and 79 per cent for a fourth measure. These measures were: interest in studying STEM subjects (93 per cent), interest in working in STEM careers (93 per cent), interest in using STEM skills in whichever career they choose (96 per cent), and interest in STEM in general (96 per cent). Pre-post matched pairs analysis indicated that this increase was statistically significant ($p < .0001$).

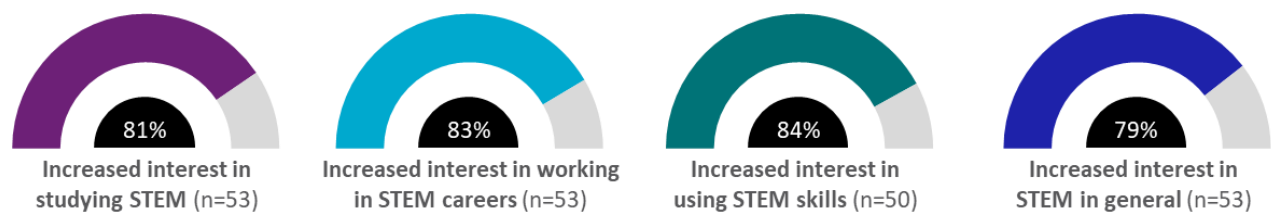


Figure 11 Self-reported changes in interest (in STEM subjects / careers, applying STEM skills, and STEM in general)

Increased STEM knowledge and 21st century skills

Increased knowledge of STEM was self-reported by 100 per cent of Future Shapers completing the destination survey, with a further 91 per cent reporting an increase in their 21st century skills. Pre-post matched pairs analysis indicated that this increase was statistically significant ($p < .0001$).

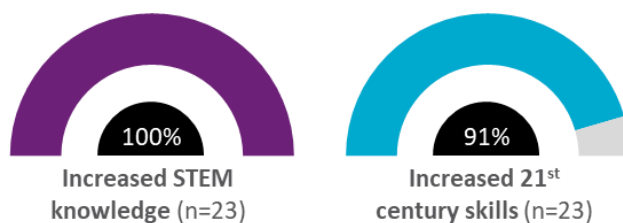


Figure 12 Self-reported changes (in STEM knowledge and 21st century skills)

Increased STEM student identity and STEM confidence

Future Shapers self-reported an increase in their STEM student identity (74 per cent) and their level of confidence that they could do well in studying STEM subjects (78 per cent) and be successful in a STEM career (84 per cent). Pre-post matched pairs analysis indicated that this result was significant ($p < .00096$, $p < .000146$ and $p < .0001$ respectively).

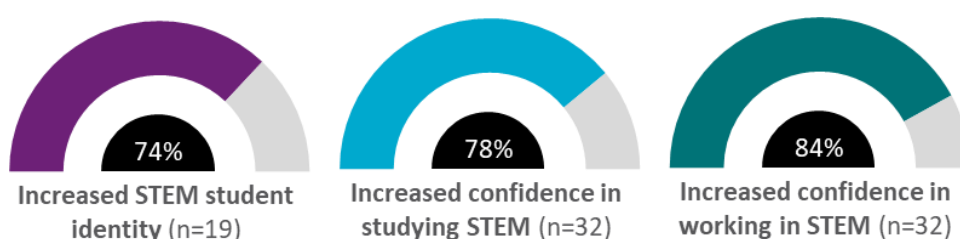


Figure 13 Self-reported changes (in STEM knowledge and 21st century skills)

Increased STEM connections

Over 90 per cent of Future Shapers self-reported increases in connection to peers (94 per cent) and adults (94 per cent) that they could share their STEM interests with (selecting 'agree' or 'strongly agree' on a five-point Likert scale). In addition, 80 per cent reported an increased connection to STEM opportunities.

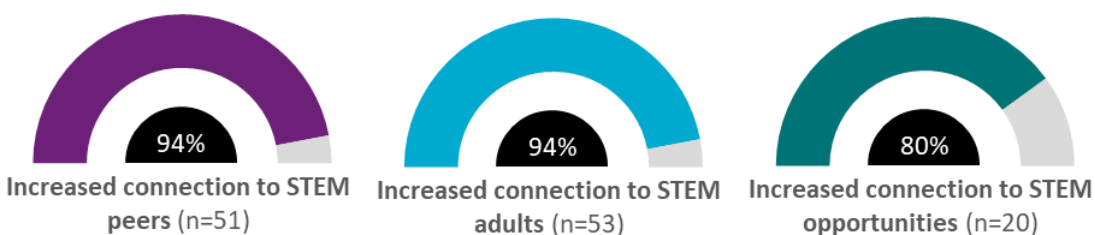


Figure 14 Self-reported changes (in STEM knowledge and 21st century skills)

Adult Future Shapers

Surveys were not used to collect outcome data from Adult Future Shapers due to the small sample size. Instead, Adult Future Shapers, where jurisdictional ethics approval was obtained or not required, were invited to take part in an interview where more contextualised outcome and impact information could be gathered and recorded as a story. Four of these stories can be viewed in Section 13.5.

3.6 Impact

Impact themes

The following is a summary of key impact themes that have been communicated through interviews with 7 Young Future Shapers (and their parents) and 4 Adult Future Shapers.

Table 7 Impact themes and example quotes from interviews with 11 Future Shapers.

Theme	Summary	Young Future Shapers	Adult Future Shapers
Recognition	Young and Adult Future Shapers were often surprised to be recognised by CSIRO as a Future Shaper. The recognition in itself boosted self-efficacy.	<i>Well, I feel like it's been great to just get recognised. I guess as a bit of a swell for my ego and that. (Mathieson)</i>	<i>When I was announced as a STEM Together Future Shape for my work with the Young Astronauts Club, it felt like my skills were being acknowledged and validated, and it encouraged me to keep going. (Jen)</i>
Opportunity	Through the opportunities that Future Shapers provided, Young and Adult Future Shapers got to expand the breadth and depth of their previous experience with STEM. These opportunities were highly valued.	<i>The most rewarding thing for me is that it not only exposed me to different STEM areas that I liked, it also exposed me to different STEM areas that I didn't know and never thought of. Like marine biology and engineering with the 3D printers as well. (Agnes)</i>	<i>I was immersed in this world for three days and it was the best of the best around the country, top psychiatrists and psychologists, policy makers...it was absolutely mind-blowing. (Jayne)</i>
Capability	Young and Adult Future Shapers developed capabilities in areas they hoped for and also where they were not expecting. Capabilities were often strengthened through their interactions with peers, indicating the vital role that the program plays in connecting Future Shapers to likeminded people.	<i>I was just hoping to build skills like teamwork and just help interact with people because sometimes I get really kind of nervous and shy. And it was all about finding other connections with likeminded people...I definitely got better at communicating... I do feel a lot more confident. And my interest in STEM has peaked after attending [camp]. (David)</i>	<i>It was actually kind of serendipitous, the conference had three of our local schools there... It ended up being a really great experience because they not only helped me with my actual work that I was struggling to get done. But then we're also talking about how we can do a partnership together and put a program in together. (Adult Future Shaper)</i>

Theme	Summary	Young Future Shapers	Adult Future Shapers
Confidence	Many Future Shapers expressed gaining confidence through their experience as a Future Shaper. Parents of Young Future Shapers, commented on the value of the program in boosting their children's confidence, often through travelling solo, meeting new people, and the opportunities provided.	<i>He had a really good time, and the extra parts of the program were really good for Jack, that confidence building... he probably doesn't realise it, but he has benefited from doing those activities as much as he benefited from the actual science and technology stuff. So yeah, I think that was really valuable for him. (Jack's Mother)</i>	<i>I think it really helped give me a burst of confidence. (Jen)</i>
Connection	The Future Shapers program has provided participants with opportunities to connect with peers, STEM experts, and also through resources. The investment in each Future Shaper creates exponential impact when connections are formed.	<i>Probably one of my favourite things about this Future Shapers thing is how much networking it's allowed me to do, see before because we're so remote, I didn't really know anybody, but now I've got like heaps of companies that are all willing to help me out. And it's great. Like I can just talk to people. I get lots of information and now I kind of have an idea of where I wanna go and what I'm doing. (Mathieson)</i>	<i>We're now able to connect with other schools that do the Lego League and which we would never have been able to do before. (Sharni)</i>
Inspiration	Moments of inspiration are being generated by real life STEM experiences that is putting STEM quite literally in the hands of Future Shapers. These moments are inspiring and igniting interests and fuelling a passion for STEM.	<i>Going to the robot was amazing...me personally, I was like, blown away, because I've seen this on TV, but in reality, it's just so amazing the way it works. (Mika)</i>	<i>I love that you didn't have to be a science teacher to be successful, I hope I've stressed the value I've gotten from the [student support] side of things...nothing has got me this excited in years. (Jayne)</i>

Theme	Summary	Young Future Shapers	Adult Future Shapers
Motivation	Future Shapers are experiencing a motivation boost through the program. For Adult Future Shapers this is providing a critical uplift, helping them stay passionate in their roles as supporters of young people. For supporting parents, this is helping to see how important STEM is for their children.	<i>This program...what a brilliant idea, you guys should keep it up, because it actually really makes a big difference...you actually get to touch and see [STEM]...But it's not only that, you guys also give this opportunity for us parents...it's important for us to understand...to know a little bit of what they want to be. (Mika's Stepfather)</i>	<i>I feel like it just gave me the confidence to go 'right, this work has been acknowledged, so now let's do something!'...You know those kinds of opportunities don't really come along very often, so I've got to make the most of it! (Adult Future Shaper)</i>



Click [HERE](#) to read the Future Shapers stories of impact

Photovoice

The following are examples of 4 Photovoice submissions from Young Future Shapers in 2024. Each depicts important impact themes such as increased confidence and capability to talk to new people (David), increased connection to peers (Jack), building resilience (Sarah), and having STEM horizons broadened (Aaron). The Photovoice methodology is explained in Section 11.4, and David and Jack's stories can be read in Section 13.5



Name: David
Age: 14
Title: Danger Ahead
Medium: Web image
Challenge: My strengths

What is in the image? *In the image there is a road sign with the words, Awkward Silence.*

Why did you choose this image? *I chose this image as it relates well to the area I want to improve in, which is being able to talk to new people easier.*



Name: Jack
Age: 10
Title: Newcastle
Medium: Photograph
Challenge: My growth

What is in the image? *This was at the beach on the young future shapers camp. I learnt that I can make new friends from all over Australia.*

Why did you choose this image? *I learnt more about other people and that I can make new friends from all over Australia and be able to socialise more. I found out that STEM is used in lots of stuff, not just technology and things that fly. I think Young Future Shapers has made me more responsible and that it doesn't matter that I don't like sports I can be good at other things.*



Name: Sarah
 Age: 12
 Title: I am
 Medium: Word cloud
 Challenge: Growth

What is in the image? *A word map showing my journey so far. The program took me out of my comfort zone by travelling interstate on my own for the first time and letting me experience what my future could look like. This has given me confidence to further pursue a career in science. I really would like to combine nature, the outdoors and adventure into a Science career.*

Why did you choose this image? *It reminds me of how I am still learning and how I can continue to grow as a person.*

Hi, Its Aaron here with my final photovoice task. What has changed since the start? Lots has changed. At the start I didn't really know what CSIRO was, but now that I do know what CSIRO is, I've been seeing the logo and the stuff it's contributed to everywhere. I've learned a lot about the huge range of jobs within CSIRO, and I've had some great experiences at the STEM camp and the online virtual tours. I've made some really great friends with other Future Shapers. And it's just been a lovely experience.

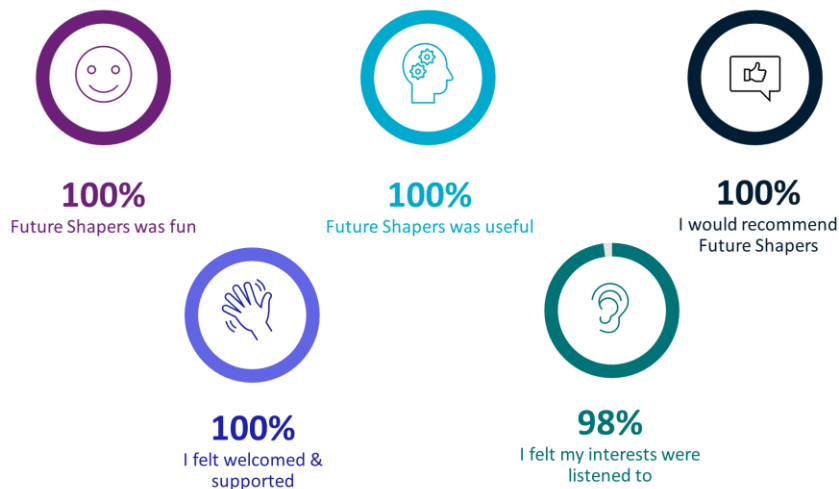
Thank you, CSIRO Future Shapers, for the great opportunity, Bye!

Name: Aaron
 Age: 12
 Medium: Audiofile
 Challenge: What's changed since day one Future Shapers?

3.7 Experience and Satisfaction

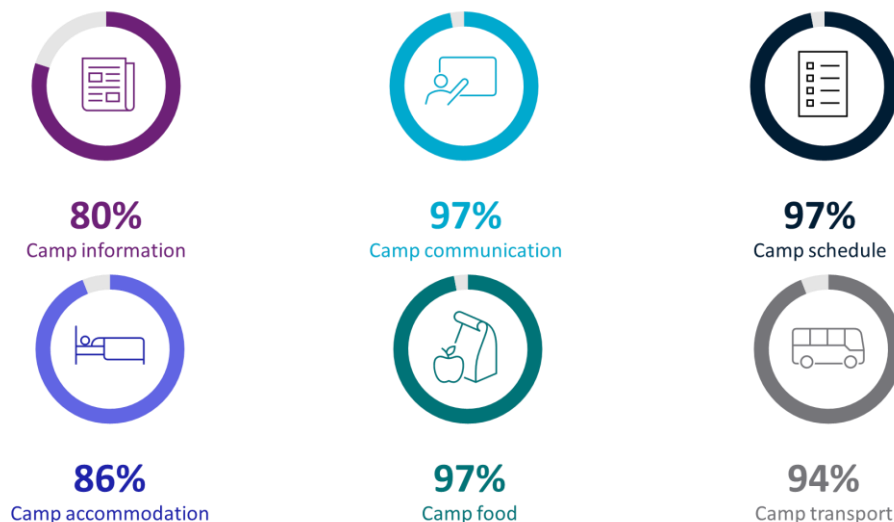
Experience – Young Future Shapers

Young Future Shapers were asked to rate their Future Shapers experience across 5 quality measures in camp and destination surveys. Four out of five measures received 100 per cent ratings of good, very good, or excellent, and one measure received a rating of 98 per cent (n=52).



Satisfaction – Young Future Shapers STEM camp

Young Future Shapers who attended a STEM camp were asked to rate their level of satisfaction with the STEM camps across 5 quality measures. Four out of six measures received over 90 per cent rating of good, very good, or excellent, and two measures received a rating of 80 per cent or over (n=35).



3.8 Challenges and Enablers

Challenges

Challenges that have been identified for the Future Shapers program (from participants and program staff) include:

Equity – Creating an equity-based recognition program represents a shift away from many current and former programs that seek the highest achieving students to one that seeks young people that have the biggest potential to be impacted by the program. This has required iterative development of the communications and marketing strategy, development of an equitable nominations and selection process, and holistic personalised planning.

Reassurance – Many of the Young Future Shapers and some of the Adult Future Shapers can be somewhat overwhelmed at the realisation that they have been selected as Future Shapers out of many hundreds of applications. It often takes lots of reassurance before they accept that they are a deserving winner, and that they are equally worthy of the recognition amongst the other winners.

Recognition packs and experiences – In the first round of Future Shapers (2023), advertising a dollar amount for recognition packs or experiences was deemed unhelpful and inequitable, as travel costs vary greatly between remote and urban winners. Being rigid about spending also limited individualisation and creativity. Feedback from Adult and Young Future Shapers, parents, and staff highlighted that having no guidance was stressful for some participants. In 2024, a scaffold of 3 recognition options was introduced, and for adults, a dollar value of up to \$3,000 was publicly advertised in the communications campaign.

Scheduling – Initially the Young and Adult Future Shapers nominations were conducted at the same time, using the same online application tool. This created multiple challenges for communications, assessment, onboarding, and delivery of recognition packs and experiences. From 2024 onwards nominations were separated by a school term, term 4 (November - December) for Adult Future Shapers, and term 1 (January/February) for Young Future Shapers.

Logistics – Each year, the STEM Together team coordinates travel for about 15 young people (aged 11–15) travelling alone and 8 with a parent/carer, many from remote locations. For some, it's their first time flying or visiting a major city. Journeys often involve multiple stages—taxis, trains, connecting flights—requiring careful planning and funding. Parents must support their child emotionally and practically, often overcoming their own concerns. CSIRO staff act as airport chaperones, while a dedicated ground crew monitors departures and arrivals and communicates with families. Severe weather and delays have posed challenges, yet every year participants arrive safely and ready for their camp experience.

Enablers

Enabling factors identified for the Future Shapers program element (from participants and program staff) include:

Communications and marketing – A targeted communications and marketing campaign which draws on a wide range of networks to reach the intended audience.

Nominations – A nomination process that incorporates diversity and inclusivity measures such as allowing recorded responses to questions.

Assessment – A multi-round nomination assessment and selection process that utilises assessment rubrics and a mixture of program and volunteer assessors.

Personalisation – Personalised planning to determine a suitable recognition pack or experience, which is scaffolded by information on the types of recognition packs or experiences that can be selected and for adults the maximum cost that can be spent (\$3K).

Camp location – The camp location is selected based on STEM opportunities including availability of CSIRO facilities, cost considerations, suitable accommodations, and the location of the Young Future Shapers to minimise travel time and connecting flights for remote travellers. Locations with universities that have onsite accommodation for regional students are also sought out to provide an example of a possible future pathway.

Camp schedule – A balanced schedule of STEM camp activities that have been researched and developed over time, which incorporate as many participant's interests as possible along with a balance of high, medium and low energy activities.

Safety – A strong focus on creating a welcoming, psychologically safe, and inclusive environment both in-person and online. In addition, ensuring that all activities comply with the highest standards of child safety and risk management.

Parents and carers – An increased focus on engaging parents and carers, for example providing information sessions, access to a resiliency workshop, and inviting parents/carers attending the Year 5 and 6 camp to attend a focus group to discuss their experience supporting their family member.

Alumni – Eight Young Future Shapers from 2023 and 2024 have become the inaugural CSIRO Youth Reference Council, working together to contribute youth voice to multiple CSIRO education and outreach projects. In doing so, these 8 young people are continuing to build their confidence, capability and connection to STEM, and strengthening their 21st century skills.

3.9 Opportunities

To assess and improve the durability of the impact of Future Shapers, a Durable Impact Assessment was undertaken using the Durability Assessment Tool¹⁴ in February 2025 and a post-funding future visioning workshop with program staff was undertaken in June 2025. The outcomes of the durability assessment and future visioning workshop are summarised below:

- The Assessment Tool process highlighted several self-assessed areas of strength and areas of improvement in terms of durability of Future Shapers (and STEM Together as a whole). Specifically, the areas of action included developing an agreed post-funding vision; enhanced communication to build program support; and better documentation of how the program was implemented.
- A STEM Together Durability Action Plan was developed to progress activities that would enhance durability at the program level, including Future Shapers. In addition, actions at the business unit level (CSIRO Education & Outreach) were also developed and agreed on, which would provide contextual and direct support to program-level durability more generally (primarily through two thematic areas: building support through communications, engagement, and champions; and financial independence/fund sourcing strategies).
- A post funding vision workshop for Future Shapers (and 2 other program elements) comprising representatives from the internal program delivery team, communications team, and impact and evaluation team resulted in valuable insights into the potential future states of the program. Specifically, the preferred future for Future Shapers was of expansion and scaling of the program model based on successful implementation and early outcomes to date. However, the final decision on the post-funding vision will be established through further consultation and decision-making processes.

Young Future Shapers is a ‘gorge’ program that seeks to have a substantial impact among a relatively small number of participants. The individualised and strengths-based approach requires a proportionate amount of resources, and given this program approach, there is an opportunity to scale or transform the program model to ensure it is sustainable and delivers return on investment. At a minimum, the significant volume of learnings that the program has accumulated in relation to understanding and meeting the needs of underrepresented young people can be shared for system-wide benefit, for example through publication of a practice paper, conference presentations, and through networks such as the STEM-INSIGHTS Network.

¹⁴ The Durability Assessment Tool and Plans are discussed in Section 10.

4 Educator Professional Learning

4.1 Evaluation summary

Aims and objectives: The Educator Professional Learning (EPL) program element aims to deliver workshops and seminars featuring cross-disciplinary experts, providing strategies and practical tools, to support Educators in creating inclusive and engaging STEM learning for their students.

Activities: In total, 33 Educator Professional Learning (EPL) events have been delivered over 3 financial years, generating 1,619 educator attendances.

Outcomes: Self-reported feedback¹⁵ from 265¹⁶ survey responses indicated:

- 94 per cent agreed the activity had increased their knowledge of the topic
- 80 per cent agreed the activity increased their confidence to apply the knowledge
- 93 per cent agreed the topic was relevant to their work
- 93 per cent were satisfied or very satisfied with the activity
- 90 per cent agreed they would recommend the activity to colleagues

Enablers: Factors included matching topics to educator needs, showcasing presenters with expert knowledge and enthusiasm, developing clear communications and utilising a paid marketing approach, the focus on practical application, providing resources, and providing time for educators to interact with the presenter and where possible, each other.

Challenges: Factors have included low participation rates in FY 22/23 and FY 23/24, balancing duration and timing, managing educator expectations, providing widely applicable content, and occasional technical issues.

Opportunities: Areas to strengthen include CSIRO Education and Outreach's new streamlined professional learning delivery platform, utilising learning from a successful communications and marketing campaign, delivering more asynchronous learning events, and integrating advice from the Science Educators Reference Group.

Relevance and significance: Educators are the gateway to STEM for thousands of students. The EPL program has reached over 1,600 educators, with 94 per cent reporting increased knowledge and 80 per cent increased confidence. This matters because when teachers feel equipped and inspired, they create inclusive classrooms that spark curiosity and open doors for students who might otherwise miss out.

¹⁵ Educator Professional Learning outcomes were collected via an online 2 minute 'post-event survey' after all virtual and most in-person events.

¹⁶ Educator Professional Learning response rate was 16 per cent (265 survey responses out of 1,619 attendances).

Table 8 Mid-point evaluation rating for the Educator Professional Learning program element

Quality criteria	How successful has STEM Together been in...?	Program element
CAPABILITY AND CONFIDENCE	1. ...increasing the capability and confidence of educators in creating inclusive and engaging STEM learning for their students?	Effective

4.2 Aims and objectives

The Educator Professional Learning (EPL) program element aims to deliver workshops and seminars featuring cross-disciplinary experts, providing strategies and practical tools, to support Educators in creating inclusive and engaging STEM learning for their students.

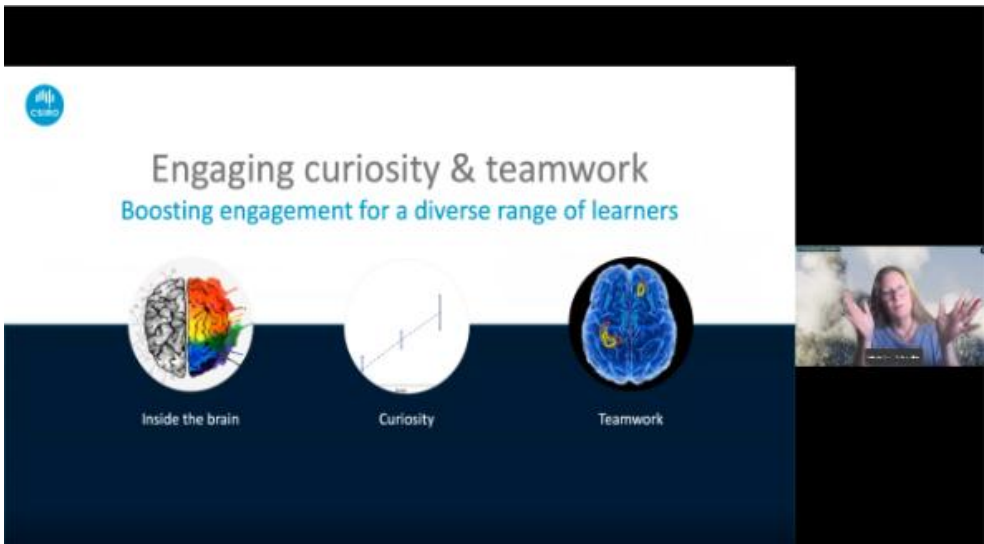


Figure 15. Dr Dana Bradford, Principal Research Scientist in the CSIRO’s Australian eHealth Research Centre, presenting ‘The Classroom Brain’ Educator Professional Learning August-September 2024.

4.3 Activities and participation

Table 9 provides an overview of the 33 Educator Professional Learning activities that have been designed and delivered by the STEM Together team over the last 3 financial years.

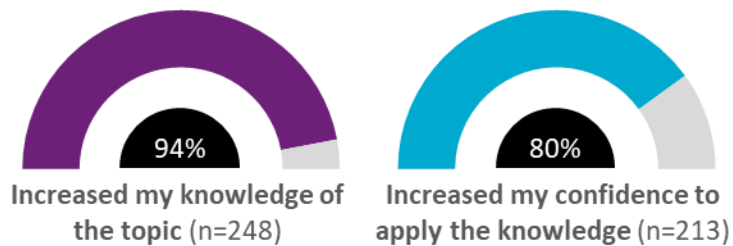
Table 9 Educator Professional Learning delivery and participation (2022-2025)

Term	Activity titles	Activity (number)	Educators (number)
	FY22/23	13	147
Q2	Responsible Innovation - UWA-ASPIRE	1	23
	Guest Speaker series - Dr Lorna Hepburn	1	19
	Guest Speaker series - Stephen Pinel	1	11
	Next Generation Responsible Innovation	1	6
	Ending plastic waste Year 5 and 6	2	8
	Ending plastic waste Year 7 and 8	2	5
Q3	Planet Future	2	22
Q4	Cultivating a Questioning Classroom, Dr Charlotte Pezaro	1	27
	The General Capabilities in Your Classroom, Amy Dennis	1	17
	Dutton Park teacher incursion, Logan teachers	1	9
	FY23/24	14	164
Q1	Strength-based learning in your classroom	1	7
	Taming evil genius: Tools to teach Responsible Innovation	1	22
	Responsible Innovation-CONASTA	1	15
Q2	Counting sleep: Teach data science skills without the snoozefest	2	25
	Culturally responsive STEM education	1	16
	Growing from strength to strength: Strength-based learning in your class-SASTA	1	20
	Teaching in the AI Revolution, Dan Fitzpatrick	1	24
	Big Data in Your Classroom, Linda McIver	1	19
	Growing from strength to strength: Strength-based learning in your class	1	6
Q3	Unleashing students' strengths for more inclusive classrooms	1	1
Q4	Building resilience: Empowering students in strength-based classrooms	1	9
	Blending structured and strength-based learning for improved engagement	1	0
	Unleashing students' strengths for more inclusive classrooms	1	0
	FY24/25	6	1,308
Q1	Classroom Brain Series - Engaging curiosity and teamwork-P1 (Dr Bradford)	1	327
	Classroom Brain Series - Boosting attention and memory-P2 (Dr Bradford)	1	390
	Classroom Brain Series - movement and mindfulness-P3 (Dr Bradford)	1	215
Q4	Classroom Brain Series - Engaging curiosity and teamwork-P1 (Recorded)	1	115
	Classroom Brain Series - Boosting attention and memory-P2 (Recorded)	1	133
	Classroom Brain Series - movement and mindfulness-P3 (Recorded)	1	128
	TOTAL	33	1,619

4.4 Outcomes and impact

Educator Professional Learning outcomes were collected via an online two minute 'post-event survey' after all virtual and most in-person events. In total, 265 survey responses were received, equating to a response rate of 16 per cent.

Of the educators that responded to the survey, 94 per cent increased knowledge of the topic (n=248/264), and 80 per cent increased confidence to apply this knowledge (n=213/265).



Just nice to have access to data and a run through of how to use the resources available from the side of the student so I can understand how to show them how to use it.

Educator, Big Data in our classroom

Figure 16 Self-reported changes in Educator knowledge and confidence

4.5 Experience

Of the educators that responded to the survey, 93 per cent reported the activity was relevant to their work (n=239/256), 93 per cent were satisfied/very satisfied with the activity (n=241/258), and 90 per cent were likely to recommend the activity (n=233/258).

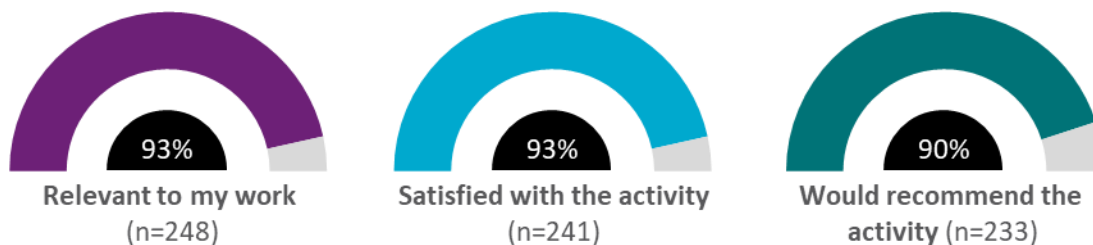


Figure 17 Experiential feedback on activity relevance, satisfaction with delivery and likeliness to recommend

Teaching notes are a wonderful resource to review and contain detailed examples of applying the strategy to teaching. They allow to get a lot more of an in-depth look at and explore concepts.

(Educator, Strength-based learning in your classroom)

Dr. Bradford's passion is inspiring and has inspired me to do further research into strategies to promote curiosity and plan teamwork.

Educator, Classroom Brain Series, Session 1

4.6 Challenges and Enablers

Challenges

Challenges identified (by program staff) for the Educator Professional Learning program element include:

Registration and participation – STEM Together’s Educator Professional Learning activities are free and, as a consequence, registrations often don’t transfer into participation as there is no cost disincentive to not attend, and educators are often too busy to attend when the scheduled day arrives. The three-part Classroom Brain Series, saw 3,217 registrations convert into 1,259 attendees (40 per cent conversion rate), which equated to a good return on the time invested. However, low registration rates and low attendee conversion rates for a number of prior activities created the most significant challenge for the program.

Duration and timing – Educator Professional Learning activities are usually online outside of school hours and last for one hour. Feedback is often received from participants that they would like sessions to be longer to cover topics at a slower pace and provide more opportunity for discussion. For national delivery of an education program, both term timing and time of day can be a challenge to delivery as different jurisdictions have term breaks at different times and time zones also need to be taken into consideration.

Recorded activities – The program team are often asked for recordings of the activity for educators unable to attend live sessions. It is proposed that interactive workshops would lose their unique nature for participants if recorded. Recording also raises privacy issues and additional resources would be required for editing. More recently, planned recorded content has started to be developed and made available.

Expectations – STEM Together’s Educator Professional Learning activities are focused on providing opportunities to learn from cross-disciplinary experts and provide strategies and practical tools to support educators in creating inclusive and engaging STEM learning for their students. Activities are not focused on teaching educators about science topics. There is sometimes a mismatch between program intent and participant expectations.

Application – Survey feedback on occasion from educators has indicated that sometimes their expectations have not been met in relation to being provided with sufficient examples that can be delivered in their classroom settings, content at a technical level that suits their needs, and that can be applied across different student age ranges.

Technical issues – On occasion there have been technical issues relating to information technology which, for example, caused a delay in the transmission of the third part of the Classroom Brain Series that saw participants drop out of the session before the issue was overcome. These issues were mostly unforeseeable and were not preventable, but the program delivery team has the experience to respond quickly when issues arose.

Enablers

Enabling factors identified for the Educator Professional Learning program element include:

Topic of interest – Teachers invest time in professional learning when they’re interested, have capacity, and see value for themselves and/or their students. High attendance at the Classroom Brain webinar series suggests educator interests and needs were well met.

Presenters – Feedback highlights that knowledgeable and enthusiastic presenters—particularly Dr Dana Bradford—greatly engaged attendees.

Communications – Clear messaging for each activity has been refined and improved over time.

Paid marketing – A single paid campaign in 2025 for the Classroom Brain series increased attendance from a previous maximum of 25 to 390 for one session.

Practical application and resources – Activities focusing on applying theory to classroom practice and providing usable resources received the most positive feedback.

Interaction – Many educators value engaging with presenters and peers. Interactive workshops were offered alongside more didactic seminars.

4.7 Opportunities

Streamlining – A decision was made to shift from siloed programs to a streamlined, centrally coordinated system launched in June 2025. This offers a more effective way to reach educators and a more efficient way to develop content.

Communications and marketing – Lessons from the Classroom Brain campaign—paid promotion, relevance to participants, expert presenters, and topical content—can inform broader educator professional learning efforts across CSIRO Education and Outreach.

Resources – Classroom Brain webinars have been developed into asynchronous interactive videos to boost accessibility and impact.

Educator voice – The Science Educator Reference Group (SERG), launched in March 2025 with the Australian Science Teachers Association, offers a new way to involve educators in designing, testing, and evaluating initiatives.

5 Local Connection Projects

5.1 Evaluation summary

Aims and objectives: Local Connection Projects (LCPs) are a STEM Together initiative linking local industry, community, and education partners to build capability and confidence in delivering sustainable, scalable STEM learning to target audiences.

Activities: Key activities to date include:

- 10 LCPs established
- 95 collaboration activities delivered, resulting in 691 engagement instances
- 17 training workshops delivered totalling 150 participants

Outcomes and impacts: Self-reported outcomes indicate:

- 93 per cent increased knowledge
- 87 per cent increased confidence to apply knowledge
- 93 per cent found activities relevant to their work
- 93 per cent were satisfied or very satisfied
- 90 per cent likely to recommend the activity

Key impacts include the development of collaborations with state, national, and volunteer-led community organisations seeking better STEM access for local youth.

Challenges: Factors include the complex, time-intensive process of establishing collaboration agreements across diverse stakeholders with differing expectations around co-design and scaling.

Enablers: Early needs assessment with both strategic leaders and local implementers, and more consistent approaches to LCP design and delivery.

Opportunities lie in better communicating LCPs' unique value, while progress in governance, agreements, and documentation has laid a foundation for scale and long-term impact.

Relevance and significance: LCPs are building local ecosystems of STEM support by connecting community leaders, educators, and industry. With 10 projects and 691 engagement instances they're proving that place-based collaboration can drive sustainable change. This matters because it shows how STEM can be embedded in communities not just classrooms, creating lasting impact where it's needed most.

Table 10 Mid-point evaluation rating for the Local Connection Projects program element

Quality criteria	How successful has STEM Together been in...?	Rating
CAPABILITY AND CONFIDENCE	5. ...increasing the capability and confidence of community leaders and industry professionals, to build capability and confidence in engaging young people in STEM?	Effective ●●○○

5.2 Aims and objectives

Local Connection Projects (LCPs) are a STEM Together initiative that connect local industry, community, and education partners. These projects explore ways to build capability and confidence in local communities to deliver sustainable, impactful STEM learning to the program’s target audience. LCPs are designed to be sustainable locally and, once the project is completed and reviewed, scalable nationally. Below provides an excerpt of the BHPF – CSIRO Contract amendment from January 2024 that articulates the intended nature and approach of LCPs (previously referred to as ‘Pilots’).

Excerpt: BHPF & CSIRO Contract Amendment (1) January 2024

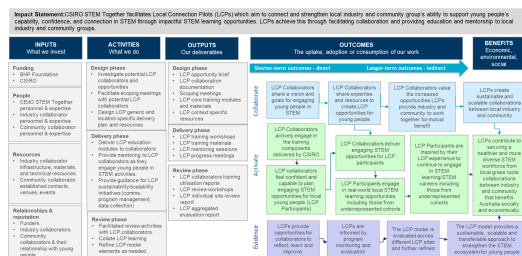
Local Connection Pilots (LCPs) are trialling the community delivery of STEM Together. LCPs connect local industry, community, and education partners within a given location to build their capability and confidence to deliver sustainable, impactful STEM opportunities to young people in their local area.

The LCP locations are assessed on need, readiness and growth potential. This includes the review of schools’ data, local industry opportunities, community strengths and challenges, access to tertiary education and the nearest CSIRO site. Engagement with local industry and community will happen in accordance with STEM Together Partnering for Impact that outlines engagement principles, engagement types, and due diligence and includes consideration of BHPF’s Minimum Requirements and Risk and Resiliency Framework. STEM Together will deliver a minimum of 11 Local Connection Pilots over the course of the Project.

An Impact Pathway has been developed to articulate the intended outcomes and impacts of LCPs.



Click [HERE](#) to view the Local Connection Projects Impact Pathway



5.3 Activities

LCPs as a program element have incorporated engagement with community organisations and industry partners across 10 projects. As can be seen in Table 11, the LCPs have been engaged in different activities to date.

Table 11 STEM Together Local Connection Projects (2023-2025)

	Scoping	Agreement	Design	Delivery	Evaluate	Scale
1. Scouts Hamlyn Heights and Worley (VIC)	✓	✓	✓	✓	✓	
2. Girl Guides Victoria (VIC)	✓	✓	✓		✓	
3. Queensland Indigenous Land and Sea Rangers (QLD)	✓	✓	✓	✓	✓	
4. Scouts Bannockburn and Worley (VIC)	✓	✓	✓	✓		
5. OzGREEN (National)	✓	✓	✓	✓		
6. Girl Guides Australia (National)	✓					
7. Australian Centre for Disease Preparedness (National)	✓			✓		
8. Giringun Rangers (QLD)	✓	✓	✓	✓		
9. MingaMinga Rangers (QLD)	✓	✓	✓	✓		
10. Mamu Rangers (QLD)	✓					17

¹⁷ A note on LCP measurement in this table: In the STEM Together FY23/24 Annual Report, 8 Local Connections were reported, each testing different engagement models through collaborations with charitable, education, and industry organisations. LCPs were classified as either Local Connection Pilots (formal agreements) or Local Connection Activities (short-term events that may or may not evolve into pilots). During

Delivery summary

Table 12 provides a summary of key activities in the delivery phase of the LCP program element, which focus primarily on providing training.

Table 12 Local Connection Projects summary of delivery phase activities (2023-2025)

Local Connection Projects	Summary of delivery
1. Scouts Hamlyn Heights and Worley (VIC)	• Delivered 'Engaging with young people' training to Worley staff, and 'Creating an inquiry activity' to Scout leaders, May 2024 • Facilitated design and mentorship for Scout Leaders and Worley staff to deliver 5 STEM engagement workshops for scouts.
2. Girl Guides Victoria (VIC)	– Facilitating a Steering Group, a Guide Leader working group, co-designed a survey tool, and collected data around needs of Leaders.
3. Queensland Indigenous Land and Sea Rangers (QLD)	• Delivered "Engaging with young people' and 'How to create an engaging activity' training to Rangers representing 20 organisations at Junior Ranger conference, June 2025.
4. Scouts Bannockburn and Worley (VIC)	– Delivered 2 training sessions.
5. OzGREEN (National)	– Delivered 2 'Engaging with young people' and 2 'Creating an engaging activity' training workshops, April and May 2025.
6. Girl Guides Australia (National)	– NA Scoping phase.
7. Australian Centre for Disease Preparedness (National)	– Delivered 'Engaging with young people' June 2024 and 'How to be an effective mentor', June 2025.
8. Girringun Rangers (QLD)	- Delivered 'Engaging with young people' training to Rangers, October 2024.
9. MingaMinga Rangers (QLD)	- Delivered "Engaging with young people' training to Rangers, March 2025.
10. Mamu Rangers (QLD)	• NA Scoping phase.

FY24/25, STEM Together learned that these classifications were not practical, some activities expanded, while some pilots did not progress. As a result, in this report, all Local Connection partnering work is classified as a Local Connection Project (LCP).

5.4 Participation

The LCPs have facilitated 95 activities resulting in 691 incidents of engagement across 10 collaborations, including 17 training workshops, with 150 STEM allies.

Table 13 Local Connection Projects summary of participation (2023-2025)

Year	Activities (n)	Attendances (n)
FY22/23	1	36
FY23/24	26	255
FY24/25	68	400
TOTAL	95	691

5.5 Outcomes

LCP training outcomes were collected via an online two minute ‘post-event survey’ after all virtual and most in-person events. In total 71 survey responses were received (47 per cent response rate). Of the LCP training participants that responded to the survey, 93 per cent reported increased knowledge of the topic (n=66/71), and 87 per cent increased confidence to apply this knowledge (n=62/71).

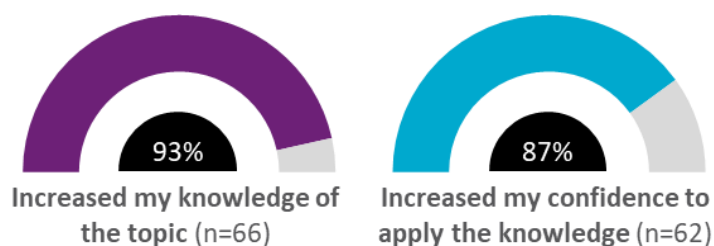


Figure 18 Self-reported changes in participant knowledge and confidence

5.6 Experience

Of the LCP training participants that responded to the survey, 93 per cent reported the activity was relevant to their work (n=62/69), 93 per cent were satisfied/very satisfied with the activity (n=64/69), and 90 per cent were likely to recommend the activity (n=62/69).

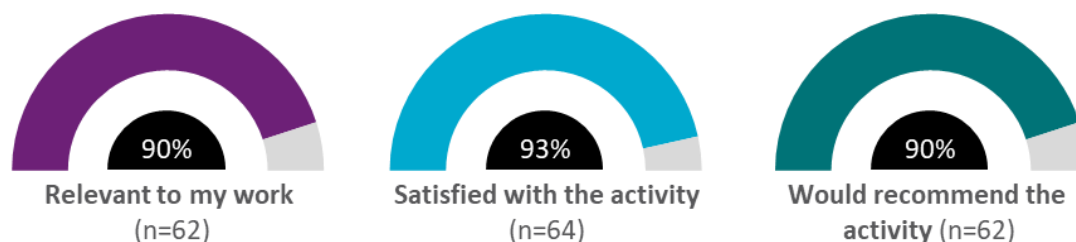


Figure 19 Experiential feedback on activity relevance, satisfaction with delivery and likeliness to recommend

5.7 Impacts

LCPs have started to see the impact of their collective work. The following provides brief excerpts of three LCPs, with more detail provided in Section 13.6.



I think the group have done so well to get the Pilot going and finishing. The next step will be the momentum to keep it going.

(Scout Leader)



CSIRO STEM Together have worked with Scouts Victoria and Worley since October 2023 to develop two LCPs. The successful collaboration of the first LCP with Scouts Hamlyn Heights and Worley mentors generated the impetus to develop a second LCP with Worley mentors at Scouts Bannockburn.



This work is hugely transformational — and we're seeing real growth in participation and momentum.

(Chris Chesher, QILSR)



CSIRO STEM Together is working with the Queensland Land and Sea Rangers Program to help establish four LCPs. To date, eight training workshops have been delivered, seven in person and one virtually. Six workshops were delivered across multiple Ranger Groups at a three-day conference held in Cairns in June 2025, and the remaining two workshops were delivered to individual Ranger Groups. The training has focused on equipping the Junior Ranger Coordinators with capability and confidence in inclusively engaging young people through strengths-based, student-led inquiry.



Creating the survey with CSIRO was a great step. It gave us valuable insights from our Guide Leaders and helped ensure the decisions we made were driven by the needs of our Guiding community.
(Linda Kors, State Commissioner of Girl Guides Victoria)

CSIRO STEM Together are working with Girl Guides Victoria to:

- Develop an easily accessible online resource hub of ready-to-use practical STEM activities.
- Build knowledge, skills, and competency in GGV leaders through training and development workshops.
- Support GGV-led delivery of local/regional STEM events through a Leader learning day followed by a GGV STEM EXPO for Girl Guides.



Click [HERE](#) to view the Local Connection Project stories of impact.

5.8 Challenges and Enablers

LCPs have adapted challenges into enabling factors which are discussed together below.

Needs assessment – A small and interested group of Scout Leaders were critical to the initiation of the LCP but they were not representative of the broader Scouts Leaders community. They also did not have an organisational governance structure that enabled broader top-down influence or communications. From this, the STEM Together team learned that working with the leadership to access and ask the Leaders on the ground about their STEM learning needs and interests was an important step in designing relevant programming and in socialising and communicating the opportunity to participate.

Time – Most LCPs have taken a long time to reach the delivery phase. This has been influenced by the need to fully understand what the aims of the collaboration are and to then have this documented into a formal collaboration or training agreement. Feedback has indicated that whilst LCPs could progress at a faster pace, collaborators haven't been deterred by the length of time; rather they have appreciated the time taken to truly understand organisational needs and culture and explore opportunities.

Communication – LCPs have a core set of principles that underpin the collaborations. LCPs also have a generalised series of steps through which it is assumed the LCP will progress (scoping, agreement, design, delivery, evaluation, and scale). Clearly communicating what LCPs are and

their unique value proposition has been a challenge. However, with more examples of LCPs progressing through delivery onto evaluation, it is envisaged that the story of LCPs will become easier to tell.

Defining success - Initial scoping with organisations has not always led onto the development of an LCP. This can sometimes lead to a feeling of failure but should rather be considered an avenue that was not appropriate to take at this time. Each time this has occurred the STEM Together team have incorporated learnings into refined ways of working with industry and community collaborators.

5.9 Opportunities

A Durable Impact Assessment was undertaken of LCPs using the Durability Assessment Tool¹⁸ in September 2024 and a post-funding future visioning workshop with program staff was undertaken in June 2025. The outcomes of the durability assessment and future visioning workshop are summarised below:

- The Assessment Tool process highlighted several self-assessed areas of strength and areas of improvement in terms of durability of LCPs. Specifically, the areas of action included aiming for an agreed post-funding vision; raising awareness and building the value proposition of the program; and better documentation of how the program was designed and implemented.
- A STEM Together Durability Action Plan was developed to progress activities that will enhance durability at the program level, including LCPs. In addition, actions at the business unit level (CSIRO Education & Outreach) were also developed and agreed on, which would support programs durability more generally (related to two primary areas: financial independence/fund-sourcing, and building support through communication, engagement, and champions).
- A post funding vision workshop for LCPs (and two other program elements) comprising representatives from the program delivery team, communications, and impact and evaluation resulted in valuable insights into the potential future states of the program. Specifically, the preferred future for LCPs was of expansion and scaling of the program model, which has been tested and formalised.

More broadly, as a pilot program element, LCPs have the opportunity to consolidate learnings and formalise the model and related processes to ensure it is as efficient, simple, and effective as possible for further expansion.

¹⁸ The Durability Assessment Tool and Plans are discussed in Section 10.

6 CSIRO Youth Reference Council

6.1 Evaluation summary

Aims and objectives: CSIRO Youth Reference Council (CYRC) aims to amplify the voices of diverse young people to influence the design and delivery of STEM Together and CSIRO initiatives.

The CYRC is evaluated against its self-determined measures of success through surveys, focus groups, and observations.

Activities: In November 2024, young people were selected to form the CYRC. As young people aged 13-18, they identify as coming from one or more underrepresented groups in STEM (Aboriginal and/or Torres Strait Islander, female, regional/ remote, from low opportunity areas). In January 2025, the CYRC held its first Annual General Meeting, an in-person, two-day event at CSIRO Clayton and began to consider the 'Big Question': How can we support and engage young Australians so that diversity in Australian STEM represents diversity in Australian society?

Outcomes: In the past 6 months, the CYRC have contributed youth voice to 3 CSIRO Education and Outreach projects, in addition to working on the big question.

Enablers: Factors included creating a psychologically and culturally safe space for collaboration, fostering a strong long-term vision for the Council's success, and promoting mutual respect among Council members, STEM Together staff, and guests.

Challenges: Factors have included balancing guidance with autonomy for Council members, managing perceptions of slow progress on the 'Big Problem,' addressing ethical requirements for youth-led research, and navigating varied expectations and workloads without overburdening members, particularly those in senior school years.

Opportunities: Areas to strengthen include building a robust foundation for youth voice within CSIRO Education and Outreach and across CSIRO, leveraging the uniqueness of CYRC in STEM education, and continuing to develop an innovative evaluation approach shaped by Council members to capture outcomes, impacts, and lessons learned.

Relevance and significance: The CYRC is giving young people a seat at the table and they're using it to shape national STEM initiatives. With members from diverse backgrounds, the Council is helping CSIRO understand what works (and what doesn't) from a youth perspective. This matters because authentic youth voice isn't just nice to have, it's essential for designing programs that actually resonate.

Table 14 Mid-point evaluation rating for the CSIRO Youth Reference Council program element

Quality criteria	How successful has STEM Together been in...?	Rating
ENGAGEMENT	1. ...engaging students from historically underrepresented groups?	Exceeding 
CONFIDENCE, CAPABILITY, AND CONNECTION	2. ...increasing young people's capability, confidence, and connection with STEM?	Effective 
STEM ASPIRATIONS AND MOTIVATIONS	3. ...increasing students' aspirations and motivation towards STEM education and STEM-related careers?	Not assessed
LEARNING	6. ...developing and embedding mechanisms for learning and sharing insights about works to increase engagement and diversity of underrepresented groups in STEM?	Emerging 

6.2 Aims and objectives

CSIRO Youth Reference Council (CYRC) aims to amplify the voices of diverse young people, to influence the design and delivery of STEM Together and CSIRO initiatives.

The CYRC Impact Pathway (Section 13.2) documents the intended outcomes for the CYRC program element.



[Click HERE](#) to view the CSIRO Youth Reference Council Impact Pathway

[illegible]

6.3 Activities

Training

In August 2024, prior to the establishment of the CYRC, members of the STEM Together team undertook youth-centred co-design training with not-for-profit social enterprise, YLab. The process validated the approach taken by the STEM Together team in its engagement and delivery. One additional benefit of the training was the focus on embedding the co-design spectrum approach developed by IAP2, used for working with young people by Vic-Health¹⁹, and endorsed by YLab.



Figure 20 The co-design spectrum (initially developed by IAP2)

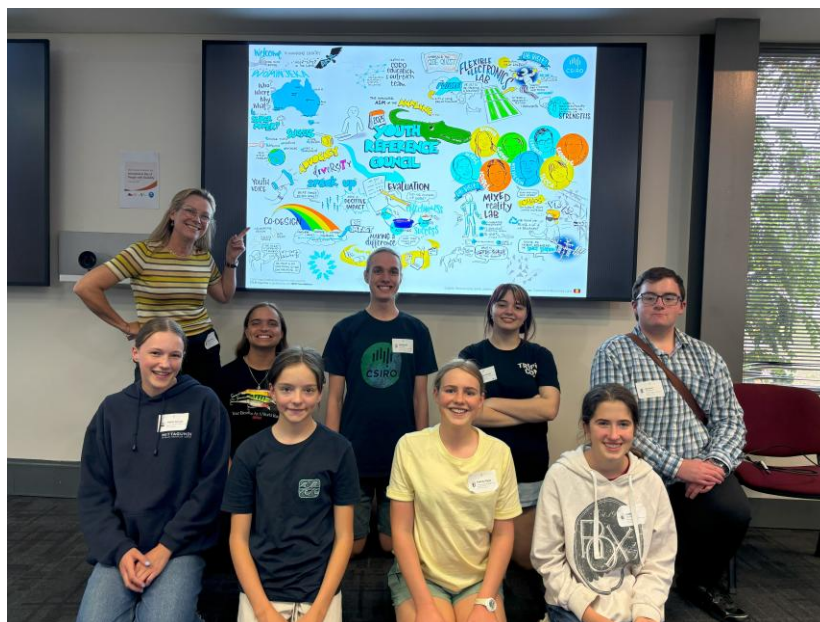
Recruitment

In November 2024, an Expression of Interest was circulated to Young Future Shapers from the 2023 and 2024 cohorts inviting self-nomination to the CYRC. Members were required to be aged 13-18 years. Eight Council members were selected and initially onboarded in individual meetings, followed by a group meeting to commence team building and the initial development of the Council's terms of reference.

Annual General meeting

In late January 2025, the 8 Council members travelled to CSIRO Clayton, Victoria with a parent/carer, to attend a two-day Annual General Meeting facilitated by 4 members of the STEM Together team. The image below shows the Council members with Graphic Facilitator, Debbie Wood, who was employed to capture key moments in the Council's development and work.

¹⁹ Co-design-alongside-other-approaches.pdf



The Council's principal focus is to help CSIRO to gain insight into the 'Big Problem' – Australian STEM is less diverse than Australian society – and the accompanying 'Big Question' – How can we support and engage young Australians so that diversity in Australian STEM represents diversity in Australian society? The Council was provided with a copy of the 'Pathway to Diversity in STEM Review' report²⁰ to consider and discuss.

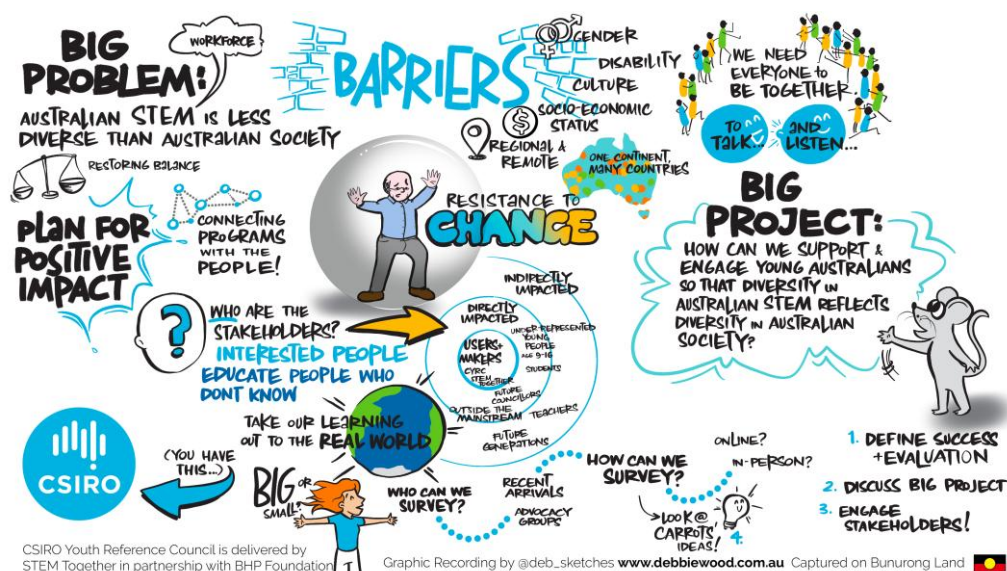


Figure 21 One of the CYRC's graphic recordings, January 2025, captured by Debbie Wood, Graphic Facilitator.

²⁰ <https://www.industry.gov.au/publications/pathway-diversity-stem-review-final-recommendations-report#about-the-report-1>

In addition, the Council will provide insights into 'Bite Size projects' which inform CSIRO Education and Outreach initiatives that seek youth perspectives. At the annual general meeting (AGM), the Council chose to explore a 'Bite Size project' around reaching young people like them through Future Shapers and considered how to introduce and embed the CYRC in CSIRO Education and Outreach, and CSIRO.

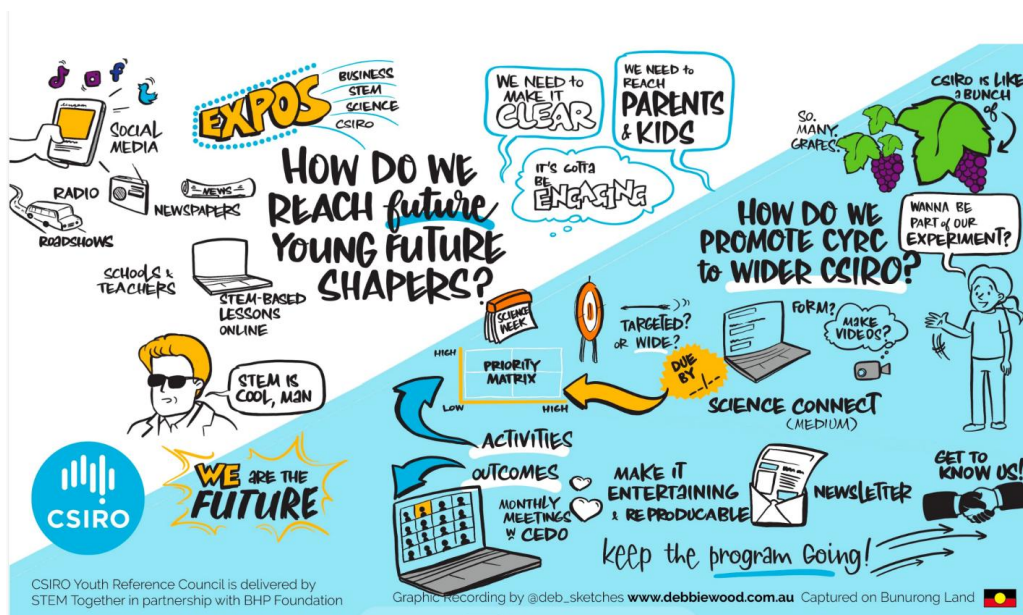


Figure 22 CYRC graphic recording, January 2025, captured by Debbie Wood, Graphic Facilitator. Council business was interspersed with two STEM engagement opportunities to CSIRO's Flexible Electronics Laboratory and CSIRO's Mixed Reality Lab. For young people excited about STEM, these 2 lab tours offered information and inspiration.



6.4 Participation

Since the AGM in January 2024, there have been 2 council meetings (March and May 2025). Three more council meetings are scheduled for the remainder of the year (July, September, and November 2025).

The CYRC is represented by young people from underrepresented groups in STEM. Of the 8 members:

- 6 are female
- 2 identify as Aboriginal and/or Torres Strait Islander
- 5 live in outer regional/remote areas
- 5 go to schools with an ICSEA below 1,000 which is used as a proxy measure for a low opportunity area

In addition, the 8 Council members are geographically distributed across 5 Australian states and territories.

Key engagement measures across the 2024 AGM and 2 council meetings include:

- 96 per cent meeting attendance rate (over 3 meetings)
- Seven out of eight members have taken on the role of chair, secretary, moderator or mediator
- All 8 members have been involved in designing CYRC measures of success

All 8 members participated in six-month reflection activity

The CYRC is fully operational with Council members onboarded, actively engaging in Council meetings, and providing perspectives to contribute to projects. Council members have quizzed a co-author of the 'Pathway to Diversity in STEM Review' report regarding the current evidence regarding diversity in STEM to help inform their approach to the 'Big Problem' project and are interested in conducting their own research.

6.5 Outcomes and impact

The Council has influenced the direction of a number of CSIRO initiatives ('Bite Size projects') that are intended to reach and engage young people, including:

- CSIRO National Science Experiment – advised on topic selection ('CSIRO Wild Watch').
- CSIRO #WithSTEMYouCan – advised on messaging to young people.
- CSIRO Trellis – advised on how to engage young people in data collection.

Council members have presented to roughly 80 CSIRO Education and Outreach staff on 2 occasions, providing information about the Council and its work, and inviting staff to consider

asking the Council for advice. A number of “Ask the CYRC” responses are scheduled to be presented by staff and responded to by the Council in the next 2 meetings.

Ongoing awareness and advocacy from CSIRO leadership has allowed this initiative to gain interest and investment internally, as seen by the establishment of a partnership with CSIRO Publishing to upskill Council Members in STEM journalism capabilities; and interest shown in CYRC from other CSIRO Research Units such as CSIRO Agriculture and Food.

6.6 Experience

A self-assessment of the AGM was conducted by the Council members as the last agenda item. Details of the evaluation process are located in Section 11.4.

In summary, feedback identified the following success factors had been rated strongly by the Council:

- respect shown to different points of view
- different opinions were shared before making decisions
- there were few disagreements
- the opportunity to meet and talk to new people was valued
- the Council had effectively agreed on roles and responsibilities

In June 2025 the Council were asked to reflect on the first 6 months of CYRC operations. Feedback indicated that Council members were most proud of their effective collaboration, generation of ideas, and respectful ways of working. Looking forward to the end of the year, their biggest goals are to set the Council up for future success, provide advice and solutions to multiple problems posed, and make meaningful impact.

6.7 Challenges and Enablers

Challenges

The Council and STEM Together team have identified a few challenges including:

Guidance – Providing the Council members with sufficient scaffolding and support, whilst also standing back and allowing them to chart their own course can be challenging, however staff have frequently communicated to the Council that they are there if required, and will step in to offer advice if requested or needed.

Progress – The pace of progress in making an impact for the ‘Big Problem’ for some Council members can seem slow, however others have recognised that they are contributing to

increasing the diversity in STEM by being themselves and contributing to decisions about how CSIRO should engage with young people.

Research and ethics – Some of the Council members would like to undertake research with other young people through designing a survey. Explaining the ethical requirements of engaging young people in research, especially in school environments has caused some challenges for the Council, however they remain optimistic that this is a path worth pursuing.

Balancing expectations – Some Council members want to do more than is currently expected of them, whilst for others it is sometimes hard to respond to the requests made for input.

Balancing expectations and opportunities whilst being mindful to not overburden Council members, especially those in Year 11 and 12, is a challenge.

Enablers

The Council and STEM Together team have in themselves created numerous enabling factors including:

Safe space – The staff and Council members have a commitment to providing a psychologically and culturally safe environment, and to be individuals on a journey of learning together.

Long-term vision – Council members are committed to the long-term success of the CYRC, beyond the involvement of the first round of Council members.

Respect – Council members bringing their individual perspectives to share with great respect of the perspectives and experiences of other Council members, STEM Together staff, and meeting guests.

6.8 Opportunities

There is an opportunity for the CYRC to continue to lay a strong foundation for youth voice at CSIRO Education and Outreach, and more broadly in CSIRO. Whilst youth reference and advisory councils are not unique per se, an environmental scan conducted by a CSIRO vacation scholar in December 2023 indicated that most youth councils are targeted at 'older' young people. Additionally, no other youth councils of this kind are known to exist in the area of STEM education, making the CYRC experience unique.

The approach taken to evaluate the CYRC (discussed further in Section 11.4) may also be relatively novel, in that the Council members themselves are strongly influencing how the CYRC should be evaluated, based on measures they have primarily designed. The evaluation of the CYRC is and will continue to document the important elements of the CYRC, its outcomes, impacts, and lessons learnt.

7 Science Educators Reference Group

7.1 Evaluation summary

Aims and objectives: The Science Educators Reference Group (SERG) has been created through a collaboration between CSIRO Education and Outreach and the Australian Science Teachers Association (ASTA) to provide a channel for direct engagement with Science Teachers, and to gather insights and recommendations to increase uptake and impact of school-focussed initiatives.

Activities: SERG commenced operation in March 2025 and has engaged 10 science teachers in a community of practice in 2 meetings.

Outcomes: To date outcomes have included giving feedback and sharing insights on how to increase the relevance and efficacy of STEM initiatives and resources.

Opportunities: An evaluation of the SERG model and its initial outcomes will occur in late 2025 and will provide opportunity for CSIRO and ASTA to determine if the SERG model is meeting its intended outcomes and if the model is scalable and sustainable.

Relevance and significance: SERG is bridging the gap between policy and practice by bringing science teachers into the design process. Their insights are helping CSIRO tailor resources and programs to real classroom needs. This matters because when educators are co-creators, STEM initiatives become more relevant, usable, and impactful.

Table 15 Mid-point evaluation rating for the Science Educators Reference Group program element

Quality criteria	How successful has STEM Together been in...?	Rating
LEARNING	6. ...developing and embedding mechanisms for learning and sharing insights about works to increase engagement and diversity of underrepresented groups in STEM?	Emerging 

7.2 Aims and objectives

The Science Educators Reference Group (SERG) has been created through a collaboration between CSIRO Education and Outreach and ASTA, the Australian Science Teachers Association²¹. SERG provides a channel for direct engagement with Science Teachers, to gather insights and recommendations to increase value, uptake, and impact of school-focussed initiatives. This community of practice is intended to provide advice and contribute to the development of Educator Professional Learning programs and classroom resources delivered nationally by CSIRO Education and Outreach, which would in turn enable CSIRO Education and Outreach to better meet the needs of Australia's science teachers. SERG also supports ASTA's strategic priorities around advocating for the profession of science teaching and providing professional development opportunities and networking to ASTA members.

7.3 Activities and participation

Since October 2024, planning, co-design, and launch of the Science Educator Reference Group (SERG) with ASTA has occurred and included:

- Management and risk plan
- Execution of contract
- Inclusive recruitment guidelines for diverse representation
- Recruitment and onboarding of 10 SERG members
- Internal CSIRO Education and Outreach working group and an 'Ask the SERG' form established to facilitate agenda setting
- Two SERG meetings (March, May 2025) with 8–10 educators plus STEM allies.

Planning is now underway for 2 more SERG meetings in August and November 2025, followed by formal evaluation.

7.4 Outcomes

Outcomes of SERG to date have included:

- Collaborative partnership developed between CSIRO and ASTA, facilitating the creation and launch of the Science Educator Reference Group.
- Internal awareness raising and invitation to engage with SERG has resulted in more connection between CSIRO Education and Outreach and the teachers many of our programs are designed to support.

²¹ About us - Australian Science Teachers Association

- SERG has met twice in 2025, giving feedback and sharing insights on how to increase the relevance and efficacy of STEM initiatives and resources. Discussion topics have included uptake of CSIRO’s STEM Inquiry program, how to ensure relevance of National Science Week offerings to schools across the country, and what would make for a great classroom resource around Giant Kelp.

7.5 Opportunities

The development and delivery of a Human Research Ethics Committee approved evaluation for SERG in late 2025 will provide an opportunity to understand the extent to which CSIRO Education and Outreach are:

- Using the SERG group to better align CSIRO Education and Outreach resources and STEM initiatives with the curriculum and the requirements of classroom teachers, which will have the intended benefit of increasing program value and relevance, leading to increased uptake.
- Working together with ASTA to enable greater sharing of our products, services, and reputation to science teachers across Australia through their established networks.

The evaluation will also help determine if the SERG model is suitable for replication across other organisations, increasing access to educator voice for STEM initiatives across Australia.

8 STEM-INSIGHTS Network

8.1 Evaluation summary

Aims and objectives: The STEM-INSIGHTS Network seeks to strengthen STEM education and engagement across Australia by fostering inclusive, evidence-informed collaboration among stakeholders. Objectives include building a community of practice, co-design tools and frameworks, coordinate sector-wide efforts, and support system-level change through facilitation rather than control.

Activities: Previously named the ‘STEM Ecosystem Alliance’ (SEcA) internally, the STEM-INSIGHTS Network (SIN) publicly launched in June 2025. The first meeting engaged 33 participants from 25 organisations. This network will be hosted by CSIRO with a goal to amplify impact and support systemic change.

Evaluation methods that have ethics approval included gaining consent from workshop participants to use observations and inputs for evaluation purposes.

Challenges: Aligning two projects under different reporting lines into one working group with shared objectives and processes, and managing variations in stakeholder engagement systems.

Enablers: Strong leadership support, open and constructive communication, willingness to collaborate across programs, clarity on unique contributions, and positioning the Network as an extension of existing relationships rather than a new initiative.

Opportunities: Co-creating shared frameworks and tools for impact assessment, fostering cross-sector collaboration to reduce duplication, and driving systemic change toward a more coordinated, evidence-informed STEM ecosystem.

Relevance and significance: SIN is laying the groundwork for systemic change by connecting organisations across the STEM education ecosystem. It’s not just another network, it’s a platform for shared learning, evidence-informed practice, and collective impact. This matters because solving complex challenges like STEM diversity requires coordinated, cross-sector action.

Table 16 Mid-point evaluation rating for the STEM-INSIGHTS Network program element

Quality criteria	How successful has STEM Together been in...?	Rating
LEARNING	6. ...developing and embedding mechanisms for learning and sharing insights about works to increase engagement and diversity of underrepresented groups in STEM?	Emerging ●○○○

8.2 Aims and objectives

The STEM-INSIGHTS Network aims to strengthen the impact of STEM education and engagement across Australia by bringing together individuals, groups, and organisations working in this space. Its core purpose is to foster inclusive, evidence-informed collaboration, and shared learning to help address systemic challenges and increase diversity and participation in STEM.

The objectives of the Network are to:

- Build a collaborative community of practice that supports mutual learning, capacity building, and knowledge exchange.
- Co-design shared tools, frameworks, and approaches to improve the use of evidence in STEM education.
- Act as a platform for sector-wide coordination while remaining flexible and responsive to evolving needs.
- Support system-level change through facilitation, not direction. CSIRO Education and Outreach’s role is as host to enable collaboration, not to control or own the Network.

The Network is a joint initiative of CSIRO Education and Outreach, co-led by the STEM Together and STEM-INSIGHTS project teams. By creating a space for collaboration and amplifying existing efforts, the Network supports the long-term goals of CSIRO.

8.3 Activities

Key activities of SIN are included in Table 17 below.

Table 17 STEM-INSIGHTS Network activities (August 2024-June 2025)

Aug-Dec 2024	Conceptualisation of STEM Ecosystem Alliance An internal working group was established to explore how best to bring together a formal alliance of individuals and organisations focused on engaging and supporting underrepresented young people in STEM. A review and environmental scan were conducted to assess existing frameworks, identify gaps, and define the unique contribution a collective effort could offer. This included mapping alignment with key policy and strategy documents such as the <i>Diversity in STEM Review</i>, <i>National Science and Research Priorities</i>, <i>National STEM School Education Strategy 2016–2026</i>, <i>Australia’s National Science Statement</i>, and <i>Australia 2023: Prosperity through Innovation</i>. STEM Ecosystem Allies workshop, November 2024, BHPF Offices, Melbourne Stakeholder meeting with the BHP Foundation in November 2024 to share and refine the network brief.
Jan-May 2025	Re-scoping of the initiative as the STEM-INSIGHTS Network A shared endeavour with the STEM-INSIGHTS project, enabling greater impact and alignment. This period focused on developing core principles and a shared vision for the Network.
Early June 2025	Launch of the STEM-INSIGHTS Network web presence https://www.csiro.au/en/education/Programs/STEM-INSIGHTS-Network
12 June 2025	STEM-INSIGHTS Network Collaboration Workshop: Inaugural meeting of the Network held online.
Future/ Ongoing	Next steps - Working groups (e.g. STEM-INSIGHTS Framework working group) - Collaborative workshops - Emergent and incidental outputs such as knowledge-sharing meetings initiated by members of the Network

8.4 Participation

STEM-INSIGHTS Network membership

Membership in the STEM-INSIGHTS Network is informal and simply means an individual or organisation is included on a communications list and receives relevant updates, invitations, and information about activities aligned with the Network's aims.

The STEM-INSIGHTS Network is not the formation of an entirely new entity, but an expression of longstanding stakeholder relationships held across CSIRO Education and Outreach and the wider sector. The current list of members has primarily emerged through the STEM-INSIGHTS Capability Enhancer project, including those previously involved with the STEM-INSIGHTS project (19) and those who submitted an expression of interest for the Capability Enhancer collaborations (13), in addition to those who joined following the launch of the new STEM-INSIGHTS Network web presence (35). This list only includes those who have engaged with the network directly and does not yet include the wider groups of stakeholders engaged through the STEM-INSIGHTS and STEM Together project, many of whom are expected to be incorporated into the Network over time.

Table 18 STEM-INSIGHTS Network membership.

	Education Sector	Government / Policy	Industry	Program Delivery	Grand Total
Capability Enhancer EOI	5		2	6	13
Previous STEM-INSIGHTS involvement	2		4	13	19
Website enquiry	2	1	2	3	8
Workshop event registration	19	1	2	5	27
Grand Total	28	2	10	27	67

Participation in launch workshop, June 2025

Table 19 Participation at launch workshop June 2025 shows the number of individuals and organisations who registered for and attended the Collaboration Workshop on the 12th of June 2025. This included 11 individuals registered (and 7 attendees) from CSIRO.

Table 19 Participation at launch workshop June 2025

	Individuals	Unique organisations
Registered	74	Minimum 40 ²²
Attended	33	25

Engagement during session

At the inaugural STEM-INSIGHTS Network meeting in June 2025, participants from across the STEM education sector engaged in real-time collaboration using Mentimeter. Activities included ranking priority tools and frameworks and submitting and voting on ideas for network functions and shared resources. The input reflected a strong shared purpose, with diverse needs and priorities that will inform the focus of emerging working groups.

Engagement after session

Following the meeting, 45 per cent of participants engaged with follow-up actions. Sixteen people expressed interest in joining a working group on frameworks, and 11 asked to contribute to shaping the Network’s terms of reference. Eight participants offered to help facilitate shared learning on specific topics, and 5 requested meetings to share further ideas or input. This strong early engagement reflects momentum and commitment to co-designing the Network's next steps.

8.5 Outcomes and impact

At this mid-term point, the STEM-INSIGHTS Network is in its foundational and early developmental phase. While it is premature to report on long-term outcomes or systemic impact, value is already being generated across several stages of Wenger-Trayner and Wenger-Trayner’s (2020) Value Creation Cycles²³, which provide a lens for understanding how social learning spaces such as the STEM-INSIGHTS Network create value over time.

²² Not all registrants provided their organisation.

²³ Wenger-Trayner, E., & Wenger-Trayner, B. (2020). Learning to make a difference: Value creation in social learning spaces. Cambridge University Press.

Table 20 STEM INSIGHTS Network outcomes and impacts

Value Cycle	Framing / Aspirational Outcomes	Outcomes Realised So Far
1. Immediate Value	Members feel connected, seen, and inspired. They experience useful exchanges, affirmation, and a shared sense of purpose.	Professional peer support and knowledge sharing occurred during the inaugural meeting. Informal feedback indicated that many participants valued the opportunity to connect with others across sectors. Strong post-meeting engagement is an early indicator of goal alignment.
2. Potential Value	Knowledge assets, tools, frameworks, and relationships are built that can be mobilised in future work. Trust and shared language deepen.	Two working groups have formed: one to co-develop the Terms of Reference and another to shape overarching frameworks for the network. Initial principles are emerging.
3. Applied Value	Network members adapt or apply shared frameworks, ideas, or practices within their organisations or projects. Connections are leveraged for mutual benefit	Informal and incidental meetings between network members and various CSIRO Education and Outreach project teams. For example, two organisations working on similar projects were introduced to support collaboration and knowledge sharing.
4. Realised Value	Changes in practice, policy, or resource allocation are evident. Contributions from the network help improve STEM engagement or outcomes.	Too early to observe. Expected to emerge from shared learning across multiple aspects of the network.
5. Strategic Value	CSIRO and other anchor organisations are seen as sector leaders, influencing national dialogue and catalysing cross-sector STEM collaboration.	Intentional conversations have been held with other groups who lead or have led strategic networks or collaborations for the STEM education sector to ensure that there is shared understanding of the aims and place of the STEM-INSIGHTS network and reassure them as key stakeholders of CSIRO's neutral role in enabling cross-sector participation and trust-building.
6. Enabling Value	CSIRO's hosting role provides structure, legitimacy, and resourcing that allows the network to operate effectively and foster shared learning.	A web presence has been established; governance and working groups are resourced, and internal ways of working have been established for supporting the network.

8.6 Challenges and Enablers

A reflection session was held with internal stakeholders in June 2025 during which the following enablers and challenges were discussed regarding the changed approach from SEcA to the STEM-INSIGHTS Network.

Challenges

- Bringing together two projects sitting under different reporting lines and program areas to form one working group with shared objectives, processes, and ways of working.

Enablers

- Key CEdO and BHPF decision makers investing time to fully analyse the purpose and intentions of SEcA and in doing so spotted overlap/duplication (potential collaboration!)
- Open discussion and honest constructive input from CEdO working group.
- Being ready and willing to collaborate with other CEdO programs to deliver the best, most efficient and effective outcomes for all stakeholders.
- Understanding of the unique value that we (both CEdO and STEM Together) can contribute in holding space for impactful collaboration.
- Understanding who and what [collaborations and networks] already exist in the space.

Additional challenges and enablers identified by project leads at the time of evaluation included the variation in stakeholder management processes and systems across different projects. This presents an opportunity to strengthen internal approaches to stakeholder engagement and collaboration.

An important enabler identified was the clear framing and communication of the Network as an expression of existing relationships and informal networks across the sector. This positioning, as a host and enabler rather than a new initiative, was seen as valuable in conversations about the Network, helping stakeholders place it within the broader STEM landscape.

8.7 Opportunities

The STEM-INSIGHTS Network provides several opportunities to catalyse change in the broader STEM education ecosystem, including:

- Co-creation of shared and consistent approaches, frameworks, tools, indicators, outcomes, etc. in an Australian context. There is a widespread expressed need and desire to develop a shared understanding and way of assessing impact, and the SIN can play a key role in achieving this along with other existing MEL and research related forums and communities

of practice. Similar projects have been undertaken internationally, for example, the ISEE Strategic Outcomes Framework²⁴.

- Although initially focused on STEM education program providers, the STEM-INSIGHTS Network can also bring together cross-sector partners (e.g. funders, industry, program providers, government) to ensure greater coordination and sharing of evidence resources. The STEM-INSIGHTS Network focus on evidence and learning provides a near-universally agreed mission that can engage diverse stakeholders to improve the impact of STEM education and career programs and experiences. The STEM-INSIGHTS Network may be able to contribute to the reduction of competition and an increase in reimagining what a more seamless, evidence-informed STEM ecosystem could be. However, these ambitious goals will require substantial and sustained effort from CSIRO as the host and enabler.

²⁴ Wasserman D and Popson C (2021) *ISEE Strategic Outcomes Framework for Measuring Informal Education Outcomes and Institutional Impact*. <https://informalscience.org/wp-content/uploads/2022/01/Strategic-Outcomes-Framework-Conference-White-Paper-2022.01.17.pdf>

9 Data Analytics Project

9.1 Evaluation summary

Aims and objectives: A joint initiative between CSIRO and University of Technology Sydney's (UTS) Human Technology Institute was established in October 2024 to develop a data-driven framework using causal inference to identify key influences on STEM pathways, especially for underrepresented groups.

Activities: Key activities have included mapping of national datasets; conducting exploratory analysis using longitudinal data; developing prototype Bayesian network graphs; holding expert workshops; and implementing a large language model pipeline to support literature and variable discovery.

Outcomes: Based on observation, reflection, and analysis of project outputs, early outcomes and insights have included a raised awareness of causal inference methods and production of initial findings that show complex relationships between student attitudes, backgrounds, and STEM career intentions.

Challenges have included hurdles accessing longitudinal data and communicating complex methods. Enablers included strong collaboration and expertise. Future phases aim to simulate intervention impacts, offering a transformative approach to STEM program design and evaluation.

Relevance and significance: DAP is pioneering a new way to understand what drives STEM engagement using causal inference and national datasets. Early findings are revealing how attitudes, backgrounds, and career expectations shape STEM pathways. This matters because better data means better decisions and smarter, more targeted interventions.

Table 21 Mid-point evaluation rating for the Data Analytics Project program element

Quality criteria	How successful has STEM Together been in...?	Rating
LEARNING	6. ...developing and embedding mechanisms for learning and sharing insights about works to increase engagement and diversity of underrepresented groups in STEM?	Emerging 

9.2 Aims and objectives

The aim of the Data Analytics project (DAP) is to develop a data-driven decision framework that uses new causal-structure learning to reveal which students' attitudes, experiences, and contexts most influence STEM pathways, particularly for underrepresented groups. The project is a collaboration between CSIRO and the Human Technology Institute (HTI) at the University of Technology Sydney (UTS). The identification of activities, outcomes, challenges, and enablers is based on observation, reflection, and analysis of project processes and outputs by the CSIRO Impact & Evaluation team.

9.3 Activities

From January to June 2025, the key activities comprised:

- **Data landscape mapping.** HTI audited many national and administrative surveys and shortlisted several high-value longitudinal datasets. The Longitudinal Survey of Australian Youth (LSAY) has already been analysed, while access requests are being processed for the others.
- **Exploratory analysis.** Using LSAY 2003 and 2006, HTI created defensible (theoretically and empirically) composite scales (including confidence, interest, utility, self-efficacy) and benchmarked them against demographic factors.
- **Prototype graph development.** HTI ran the first round of Bayesian networks structure learning, producing Directed Acyclic Graphs (DAGs) that expose conditional independencies among attitudes, aspirations, and Year 12 STEM enrolment (See Figure 23 for an example).
- **Stakeholder knowledge elicitation.** Two workshops captured expert 'priors' knowledge (existing knowledge of STEM education and careers pathways from research and first-hand experience) as prototype methodology, and HTI will conduct larger scale prior elicitation for the next phase of the project.
- **Large Language Model STEM Assist.** A retrieval-augmented language-model pipeline was put in place to accelerate literature reviews and variable discovery across massive data dictionaries.

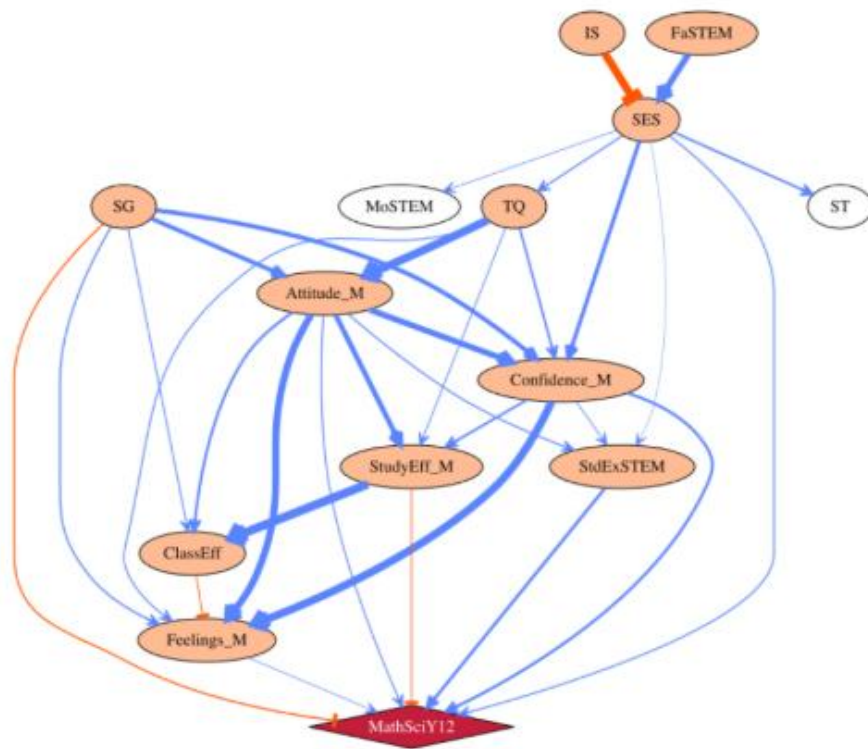


Figure 23. Example of early version of an Estimated Bayesian network structure, incorporating student expectation in STEM careers

9.4 Outcomes and impact

Given the project only commenced in early 2025, the main outcomes achieved to date are focused on:

- Raising awareness of the Bayesian causal inferencing methodology and its benefits, including within CSIRO, and among Australian Government and STEM education ecosystem stakeholders. Put simply, Bayesian Causal inferencing is a smart learning process, starting with what is already known (prior research and data), collecting new data from a program, and updating understanding of what works, for whom, and under what conditions.
- The first tranche of analyses, which included variables such as student perceptions of subject value, enjoyment, and confidence (from the Longitudinal Survey of Australian Youth), produced some initial insights. These include key differences between male and female students, and that students' career expectations (which careers they expect to have in the future) mediate the relationship between their perceptions of STEM and STEM subject choice.

9.5 Challenges and Enablers

Challenges

- The most significant challenge with this project is accessing longitudinal datasets. Despite substantial effort by the HTI project team, some data custodians are risk-averse and unwilling or unable to provide access to datasets relevant to STEM education and career outcomes. Although often not explicitly stated, the assumed reasons for the reluctance to share datasets with third-party researchers relates to concerns about privacy, security, potential misuse of data, and the costs associated with making data accessible and useable. HTI has focused on building relationships and presenting robust plans and rationales with their data requests.
- Besides data access, other challenges experienced over the first 6 months of the project have included: HTI experienced some issues recruiting appropriate data scientists, and the causal inferencing methodology is sometimes difficult to communicate to non-experts.

Enablers

- Close collaboration between CSIRO and HTI (e.g. two-way flow of information and ideas that has resulted in iterative improvements and new approaches).
- The prior expertise and knowledge of the HTI project team which meant the underpinning techniques had already been tried and tested and were applied quickly to the STEM education context.

9.6 Opportunities

The HTI project has generated significant interest among STEM education and enrichment program deliverers and others across the STEM ecosystem. This interest has centred around the potential to uncover causal influences on STEM education and career outcomes, but also to quantify the expected causal effects of an interventions program, which is the focus of the next phase of the project (July to December 2025). By incorporating information about a program's characteristics, and forward simulating through the learnt causal flow diagrams, it is possible to identify the predicted impact a specific intervention will have on any outcome, such as further study, or future occupation. This opportunity will represent an innovation in the STEM education context and is anticipated to create a more evidence-driven approach to program design, delivery, and evaluation.

10 Durable Impact Project

10.1 Evaluation summary

Aims and objectives: The purpose of the Durable Impact Project is to build a tool to assess the durability of STEM education programs and to develop durability action plans for STEM Together program elements (and beyond).

Activities: A comprehensive assessment tool (Durable Impact Assessment Tool or DIAT) was developed (from mid-2024 to early 2025) with 80 indicators across 10 durable impact areas to assess the long-term impact and resilience of STEM education programs. In addition, Durable Impact Action Plans for STEM Together and other CSIRO programs were developed in the first half of 2025.

The DIAT was based on a literature review and was refined through the collaborative assessment of 6 programs. A workshop was also held to shape post-funding visions for 3 STEM Together program elements.

Outcomes: To date the outcomes of the durability work included increased awareness of durability, detailed program insights, and operationalised multi-level action plans.

Challenges: The project faced challenges balancing structured project management with experimental development, embedding action planning into routine work, and reconciling the complexity of the tool. Success was driven by stakeholder enthusiasm and iterative refinement of the tool.

Opportunities: The Durable Impact Project is positioned to influence program design amid funding uncertainty, with potential to fill research gaps, enhance post-funding planning, and contribute systemically through the STEM-INSIGHTS network.

Relevance and significance: DIP is helping programs plan for long-term impact, not just short-term success. With a new assessment tool and action plans in place, CSIRO is leading the way in designing STEM initiatives that last. This matters because durable impact is the difference between a good program and a transformative one.

Table 22 Mid-point evaluation rating for the Durable Impact Project program element

Quality criteria	How successful has STEM Together been in...?	Rating
DURABLE IMPACT	7. ...developing and embedding mechanisms for durable impact?	Emerging

10.2 Aims and objectives

The purpose of the Durable Impact Project is to build a tool to assess the durability of STEM education programs and to develop durability action plans for STEM Together program elements (and beyond). Durability is the measure of how long-lasting the impact of a program or project is over time, and its ability to withstand counteracting forces. The identification of activities, outcomes, challenges, and enablers in this section is based on observation, reflection, and analysis of project processes and outputs by the CSIRO Impact & Evaluation team.

10.3 Activities

The key activities, which were led by a small team within the Impact & Evaluation unit of CSIRO Education & Outreach, undertaken since the project commenced in 2024 include:

- A literature review identified key factors of durability from related fields, primarily health and environment (Durable STEM Education Programs: Evidence from Diverse Fields – CSIRO).
- The DIAT comprising 80 indicators was developed based on the literature review (see Table 23 for example indicators and Durable Impact Areas).
- Several testing rounds and iterations/refinements were undertaken on the DIAT.
- Teams from 6 programs self-assessed durability using the DIAT (4 from CSIRO and 2 from another similar organisation).
- Durable Impact Action Plans were developed for STEM Together and for CSIRO Education & Outreach as a whole.
- A post-funding vision workshop was held for Future Shapers, LCPs, and User Voice (young people and educators).

Impact Area:
Stakeholders understand what the program is trying to do, how it is going to do it, and have confidence that it will have impact

Rating	Durability indicator
	1. Vision. The program has a clear, agreed vision of what it aims to achieve during the funding period
	2. Post-funding vision. The program has a clear, agreed vision of what the program will look like after the current funding ends
	3. Shared vision. The program has a shared vision and goals across all participating stakeholders and partner organisations (if applicable)
	4. Specific goals. The program has specific, achievable, and transparent goals in the short, medium, and long-term
	5. Theory of change. The program has a clear, realistic theory of change/impact pathway, including identifying the expected outcomes and the mechanisms of change.
	6. Theoretical models. The program is based on evidence-based theoretical models of education, identity, behaviour change, etc that are established in the research literature (i.e., not generic approaches)
	7. Approaches. The program uses frameworks or approaches that are understood and supported by stakeholders (i.e., the program is not so bespoke and unique that it's not recognised by stakeholders)
	8. Metrics. The program utilises clear, validated metrics to measure progress and impact so stakeholders can understand what success looks like



Scoring legend

5 – Yes, the indicator is present, and it's very effective (the strongest areas for this program and little more could be done)

4 – Yes, the indicator is present, and it's effective but small adjustments/improvements could be made

3 – Yes, the indicator is present, but it could be strengthened or improved

2 – Yes, the indicator is present, but it requires substantial improvement

1 – No, it's not present at all

N/A – the indicator is not relevant for this program

- definitions
- likely degree of difficulty of improving each indicator
- whether improving each indicator is a one-off or ongoing task
- the level each indicator exists in (program, business unit, or organisation level)
- example key performance indicators

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- rationale for why each indicator is important
- how each indicator is relevant to STEM education
- a calculation of where to focus effort among the indicators requiring attention (the ‘high need + low difficulty’ ones being the primary indicators to focus on)
- references and evidence that the indicators were based on
- resources to assist action planning (in progress)

Table 24 Durable Impact areas

Durable Impact Area		Number of indicators (n = 80)
Understanding	Stakeholders understand what the program is trying to do, how it is going to do it, and have confidence that it will have impact	8
Alignment	The program aligns with and contributes to the policy and local environments	6
Needs	The program is accessed by and meets the needs of participants	8
Management	The program is effectively managed and led, and uses resources efficiently to further its goals	8
Support	The program attracts and maintains support from stakeholders	9
Agility	The program is adaptable and agile	3
Credibility	The program and host organisation are credible and trusted	9
Impact	The program has impact, has evidence for impact, and continuously improves	12
Funding	The program can source and sustain funding and maintain stability	10
Durability	The program is designed and implemented so that it can be durable, expand and/or be transferred	7

10.4 Outcomes and impact

The key outcomes include:

- Increased *awareness* of durability (as a concept and the individual indicators that influence durability) among staff in CSIRO Education and Outreach and with some external stakeholders.
- Detailed data on 6 programs' areas of strength and improvement which has led to greater *understanding* of areas of action. Overall, there was a wide diversity of strengths among the programs, suggesting that the tool is adept at identifying individual program differences. The areas of weakness were more closely aligned among different programs and centred on improving documentation of program operations and establishing a post-funding vision.
- A multi-level action plan was *operationalised*, including at the overall business unit level, at the STEM Together initiative level, and with individual programs.
- Greater *consensus* among program teams around specific areas of program design and implementation (e.g. program vision) that resulted from the assessment process. That is, the DIAT both uncovered several under-examined issues that were valued by program teams (e.g. power imbalances) but also surfaced differences in understanding and perspectives about the program and its goals that were discussed and resolved in real-time.

10.5 Challenges and Enablers

Challenges

- Balancing a project management approach with contractually set timelines, milestones, and deliverables with the more experimental try/test/learn approach that is often required when developing new tools. The balance was achievable, but initial timing and resourcing forecasts needed to be revised to account for emerging complexity and the iterative process of discovery, relationship building, and user testing.
- Program teams were enthusiastic contributors and engaged deeply in the durability assessment processes, however, it was more difficult to embed the action planning process into business-as-usual work, partly due to a lack of time and resources. That is, teams were keen to understand where the durability of their program could be improved (and where it was performing strongly), but it was more difficult to progress the actions necessary to address the gaps or areas of improvement. This was also likely due to the novelty of durability action planning and the lack of supporting systems and processes, which are currently being developed.
- The tension between developing a DIAT that prioritised parsimony (succinctness or how few indicators would be sufficient to assess durability) versus comprehensiveness (covering all potentially relevant elements of durability) was challenging to reconcile. To resolve this,

the tool has a nested feature, where most users will use all 80 durability indicators, but there is an option to self-assess against higher-level durability outcomes (28 items) or impact areas (10 items) for users that don't require high levels of specificity.

- There is a substantial gap in the research literature on which indicators of durability are more influential on long-term outcomes. That is, the literature review identified the set of factors that were influential, but not which individual ones have more or less impact (and therefore should be a priority to action). Related to this, there are some indicators that are difficult to forecast the amount of effort required to address them, and only continued use of the DIAT and progression of action plans will uncover this.

Enablers

- Enthusiasm from project stakeholders and external stakeholders for the project led to high levels of engagement and discussion. There was a universal feeling that the durable impact work was needed, highly relevant, and was an often-overlooked area of consideration.
- The try/test/learn approach meant that multiple iterations to the DIAT were undertaken. The time invested to continuously improve and build understanding and support for the DIAT paid dividends in terms of developing a high-quality tool that was broadly recognised and supported, but initial timelines were not met.

10.6 Opportunities

In the current climate of funding uncertainty and rising funder expectations around sustaining impact, the durability work presents a number of opportunities. The DIAT and durability action plans can contribute to the durability of existing programs and influence the design of new programs. Within CSIRO Education and Outreach, the concept of durability has progressed from unknown and not discussed, to an emerging core feature of program design and implementation. Further development of the post-funding vision workshop process will also assist in strengthened durability planning, as the workshop helps establish a shared concept of what programs will look like after the current funding ends, and how they can continue to contribute to impact. In future, the durability work will also examine how to fill the gaps in the research literature to better understand the relative influence of different indicators of durability, for example, by assessing the factors that led to higher or lower levels of durability among former programs that either ceased or continued. Finally, there are significant opportunities to contribute to the durability of STEM programs throughout the STEM education and career ecosystem, and possibly beyond²⁶. CSIRO Education and Outreach's STEM-INSIGHTS Network can provide a channel for this systemic dissemination to occur.

²⁶ The core features of the DIAT are transferrable to other sectors and contexts (i.e. indicators, levels of difficulty, etc.).

11 Monitoring, Evaluation, and Learning

11.1 Meta-evaluation summary

Aims and objectives: Embedding a developmental evaluation approach aims to support continuous learning and adaptation in the implementation of the STEM Together program through real-time feedback and stakeholder engagement.

Activities: The STEM Together program has an embedded monitoring, evaluation, and learning (MEL) approach, methodology, and methods, with frequent reflective practice cycles adopting a triple loop learning approach.

Outcomes: The emphasis on close to real-time feedback and continuous learning has been valued by the staff team. Opportunity for Future Shapers and CYRC members to shape their own evaluation stories has also been valued. The array of different data collection methods, data sources, and data timepoints has strengthened the validity and reliability of MEL insights.

Challenges: Adapting MEL plans to an evolving program, managing multiple ethics amendments, addressing parental concerns about evaluation intent, navigating time-intensive jurisdictional approvals, and ensuring generalisability of findings from a 'gorge' program model.

Enablers: Strong commitment to MEL from staff and participants, valued reflection cycles, active parent engagement, and innovative methods like Photovoice to support self-reflection and communication.

Opportunities: Increasing MEL impact through publishing and presenting, reconnecting with past participants to explore longer-term outcomes, and conducting comparative research to benchmark MEL approaches against other STEM programs.

Relevance and significance: MEL is more than measurement, it's a culture of learning. By embedding evaluation into every element, STEM Together is continuously improving and adapting. This matters because in complex, evolving environments, real-time feedback and reflection are key to staying relevant and effective.

Table 25 Mid-point evaluation rating for the Monitoring, Evaluation and Learning program element

Quality criteria	How successful has STEM Together been in...?	Rating
LEARNING	8. ...developing and embedding mechanisms for learning and sharing insights about works to increase engagement and diversity of underrepresented groups in STEM?	Effective 

11.2 Aims and objectives

The purpose of this point-in-time formative evaluation is primarily to check progress toward goals, identify strengths and challenges, inform adjustments and improvements, support accountability and transparency, and to communicate findings to stakeholders.

A developmental evaluation approach has been taken for the monitoring, evaluation, and learning (MEL) of the STEM Together program. Developmental evaluation is a type of evaluation designed to support innovation and help programs adapt to change in complex or unpredictable environments. It emphasises real-time feedback and continuous learning to inform decisions as a program or initiative evolves²⁷. This approach to evaluation is particularly helpful when a project or program is still taking shape or operating in uncertain conditions. Rather than focusing on measuring success or failure, it supports ongoing learning and adaptation²⁸. Developmental evaluation involves the evaluator as an embedded member of the team providing ongoing feedback that helps refine strategies during implementation²⁹.

Both CSIRO Education and Outreach's and BHP Foundation's approaches to measuring outcomes and impact also inform the MEL approach.

CSIRO Education and Outreach's evaluation approach is strengths-based, focusing on positive change and existing capabilities while acknowledging challenges. It aims to understand the program's contribution to individual and community outcomes over time, recognising the complexity of influencing factors. A multi-method strategy is used, tailored to context and participants, including appropriate First Nations methodologies. The evaluation prioritises utility, ensuring findings are shared with stakeholders, and used to improve program effectiveness and inform broader STEM education practice.

The BHP Foundation uses the Impact Management Project (IMP) framework³⁰ to assess the effects of a program across 5 key dimensions. What identifies the specific outcomes and their significance to stakeholders. Who focuses on the people or groups affected and how underserved they are in relation to those outcomes. How Much looks at the scale, depth, and duration of change experienced. The Contribution dimension considers whether the results are attributable to the program or would have happened anyway. Lastly, Risk assesses the likelihood that actual impact differs from what was expected, helping to account for uncertainty and external influences.

²⁷ Patton MQ (2011) *Developmental Evaluation: Applying Complexity Concepts to Enhance Innovation and Use*. Guilford Press.

²⁸ Canadian Evaluation Society (CES) (2012) *What is Developmental Evaluation?* <https://evaluationcanada.ca>

²⁹ BetterEvaluation (n.d.) *Developmental Evaluation*. https://www.betterevaluation.org/en/approach/developmental_evaluation

³⁰ Impact Management Project (n.d.) *Impact Management Norms*. <https://impactmanagementproject.com>

Key Evaluation Questions

The key evaluation questions (KEQs) that are relevant for this point-in-time formative evaluation are in Table 26 below and include reference to the program elements that will be the focus for answering each KEQ.

Table 26 STEM Together Key Evaluation Questions (2025)

Quality criteria	How successful has STEM Together been in...?	Program element
ENGAGEMENT	1. ...engaging students from historically underrepresented groups and the educators who support them?	YFS and AFS
CONFIDENCE, CAPABILITY, AND CONNECTION	2. ...increasing young people's capability, confidence, and connection with STEM?	YFS
STEM ASPIRATIONS AND MOTIVATIONS	3. ...increasing students' aspirations and motivation towards STEM education and STEM-related careers?	YFS
CAPABILITY AND CONFIDENCE	4. ...increasing the capability and confidence of educators in creating inclusive and engaging STEM learning for their students?	EPL and AFS
CAPABILITY AND CONFIDENCE	5. ...increasing the capability and confidence of community leaders and industry professionals, to build capability and confidence in engaging young people in STEM?	LCPs
LEARNING	6. ...developing and embedding mechanisms for learning and sharing insights about what works to increase engagement and diversity of underrepresented groups in STEM?	CYRC, SERG, SIN, DAP, MEL
DURABLE IMPACT	7. ...developing and embedding mechanisms for durable impact?	DIP

Methodology

The MEL methodology provides a structured yet flexible way to investigate the program's effectiveness against the 7 KEQs. It enables the program to monitor progress, evaluate impact, and embed learning to ensure the program is continuously improving and delivering useful, lasting outcomes for underrepresented groups in STEM.

The methodology is:

- **Strengths-based:** Focusing on capabilities, what's working, and how success is achieved.
- **Utilisation-focused:** Designed to generate practical, actionable insights.
- **Culturally responsive:** Incorporating First Nations and community-informed methods where appropriate.
- **Iterative:** Adapting the MEL tools and questions based on ongoing learning and stakeholder input.

Methods

To address the key evaluation questions and support adaptive program learning, a multi-method and participatory approach has been used. These methods are designed to generate both quantitative and qualitative data across the program's lifecycle and to involve participants and stakeholders in meaningful, respectful ways. Key methods include:

- **Co-development of MEL plans** with program staff and participants (e.g. CSIRO Youth Reference Council and Local Connection Projects), ensuring the evaluation is grounded in lived experience and relevant to all stakeholders.
- **Human Research Ethics approval** to support ethical implementation of all data collection activities, including future iterations of the MEL design.
- **Program document and activity data analysis** to monitor implementation, participation trends, and alignment with intended program activities.
- **Surveys** with participants (students, educators, community and industry partners) to assess outcomes such as confidence, capability, motivation, and overall experience.
- **Interviews and focus groups** to explore individual and group experiences, perceived impacts, and how engagement in STEM has shifted over time.
- **Observational data** collected at key events (e.g. STEM Camps) to understand interactions, engagement, and the inclusive and participatory nature of the activities.
- **Reflective practice tools** including surveys, workshops, and focus groups with the program team to support internal learning, sensemaking, and iterative improvement.
- **Creative and participatory methods** such as *Photovoice* with program participants to deepen insight into personal experiences and change over time, especially for those from underrepresented groups.



Click [HERE](#) to view STEM Together MEL Framework

STEM Together Evaluation Monitoring, Evaluation and Learning Framework Overview

	Quality criteria	How successful has STEM Together been	Evidence source	Method	Program element
YOUNG PEOPLE	ENGAGEMENT	1. ...engaging students from historically underrepresented groups and the educators who support them?	Program data	Document & dataset review	YFS, AFS, CYRC
	CONFIDENCE, CAPABILITY & CONNECTION	2. ...increasing young people's capability, confidence, and connection with STEM?	Program participants	Interviews, focus groups	YFS, CYRC
	STEM ASPIRATIONS & MOTIVATIONS	3. ...increasing students' aspirations and motivation towards STEM education and STEM-related careers?	Program participants (and parents of YFS)	Surveys, interviews, Observations, Reflective practice including Photovoice	YFS, CYRC
		4. ...increasing the capability and confidence of educators in creating inclusive and engaging STEM learning for their students?	Program data	Document & dataset review	EPL & AFS
SUPERVISORS	CAPABILITY & CONFIDENCE	5. ...increasing the capability and confidence of community leaders and industry professionals, to build capability and confidence in engaging young people in STEM?	Program participants Program staff	Surveys (EPL) & interviews (AFS) Reflective practice	LCPs
		6. ...developing and embedding mechanisms for learning and sharing insights about work to increase engagement and diversity of underrepresented groups in STEM?	Program data	Document & dataset review	CYRC, SERO, SRN, DAP, MEL
SYSTEM	LEARNING	7. ...developing and embedding mechanisms for durable impact?	Program participants Program staff	Surveys, interviews, focus groups Reflective practice	DIP
			Program data	Document & dataset review	

11.3 Activities and participation

A schedule of MEL activities are delivered throughout the year and involve both STEM Together Program participants as can be seen in Table 27 and STEM Together Program staff in Table 28.

Table 27 MEL data collection activities engaging STEM Together program participants (July 2022 - June 2025)

Data collection	MEL activities (n=88)	Program participants (n=524)
Surveys	(instances of delivery)	(instances of participation)
Young people (YFS and CYRC)	6	75
Educators (EPL)	33	265
STEM allies (LCPs)	2	40
Interviews		
Young people (YFS)	8	8
Parents (with YFS)	8	8
Educators (AFS and EPL)	6	6
STEM allies (LCPs)	6	6
Focus groups		
Parents (YFS)	1	5
STEM Allies (LCP)	1	3
Workshops		
Collaborators (LCPs)	1	3
Photovoice submissions		
Young people (YFS)	8	36
Educators (AFS)	1	3
Observations		
Young people (YFS and CYRC) ³¹	7	66
TOTAL	88	524

³¹ Observations are undertaken at YFS camps and CYRC meetings – the purpose of observations is to gain insights into enablers and challenges to effective engagement of young people.

Table 28 MEL data collection activities engaging STEM Together program staff (July 2022 - June 2025)

Staff reflective practice	MEL activities (n=27) (instances of delivery)	Program staff (n=482) (instances of participation)
Learning log (continuous)	1	314
Surveys	6	50
Post camp debriefs	4	28
Focus groups	5	14
Workshops	4	45
Observation (YFS and CYRC) ³²	7	31
TOTAL	27	482

11.4 Outcomes and Impacts

This section focuses on assessing how delivery of MEL is contributing to STEM Together outcomes and impacts and considers 3 examples: Embedding learning at the centre of the STEM Together team; Enabling evaluative self-determination in the CSIRO Youth Reference Council; and assisting Future Shapers to capture their journeys using Photovoice.

Embedding learning

Learning is a critical element of the STEM Together MEL framework. In this context it relates to an ongoing process of review and decision making based on MEL evidence and program team reflection. Transformational Triple-loop Learning³³ has been adopted by the STEM Together team, an adaptation of Double-loop learning³⁴, and focuses on three layers of questioning seen in Table 29.

Table 29 Triple-loop learning questions

Loop	Focus	Question
Single-loop	Actions	Are we doing things right?
Double-loop	Assumptions and goals	Are we doing the right things?
Triple-loop	Learning process	How do we decide what is right?

Learning is embedded in STEM Together using a range of methods including a continuous learning log, annual reflective practice surveys, annual reflective workshops, and ad hoc activities such as debrief sessions and focus groups when required. The staff team are

³² See point above.

³³ Peschl MF (2007) 'Triple-loop learning as foundation for profoundly understanding and enacting innovation', *Constructivist Foundations*, 2(2-3), 136–145.

³⁴ Argyris C and Schön DA (1978) *Organizational Learning: A Theory of Action Perspective*, Addison-Wesley.

considered MEL participants and are included in the STEM Together MEL Project ethics approval.

Learning Log

A live learning log was established in July 2022 to capture the learning journey of STEM Together. In addition to completing the date, staff name, program element, and title of the learning, the staff member is asked to respond to one or more of the following questions:

- What worked or is working well?
- What didn't or isn't working well?
- What needs strengthening?

And then complete the final two questions:

- What do you think is the level of actual or potential impact of this issue to the program?
- What do you think should happen next and who needs to assist?

Table 30 indicates the STEM Together team's notable engagement with capturing learnings through the learning log.

Table 30 STEM Together learning log entries and classifications (July 2022-June 2025)

Year	Learning Log	Positive or negative impact ³⁵		
		Minor	Moderate	Major
Calendar years	Number of entries			
2022 July-Dec	45	12	7	3
2023 Jan-Dec	105	31	32	8
2024 Jan-Dec	100	52	37	11
2025 Jan-June	65	37	27	1
TOTAL	314	132	103	23

Reflective practice surveys and workshops

Reflective practice surveys are administered annually, and an additional survey has recently been conducted as part of a reflection and future visioning workshop in June 2025. Each cycle of reflection includes a survey and analysis of learning log entries. A report is prepared for internal circulation to the program team and is presented at the beginning of the workshop (see Figure 24).

³⁵ Staff members are asked to respond to this question: What do you think is the level of actual or potential impact on the program?

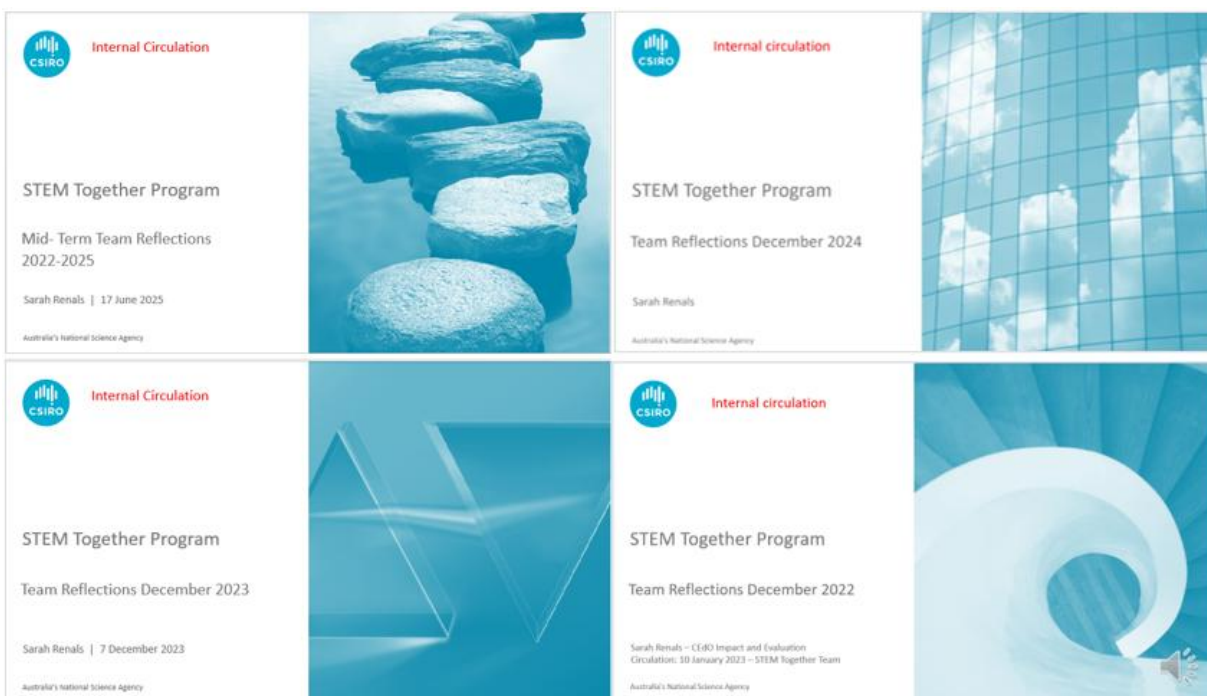


Figure 24 STEM Together team reflection reports (2022-2025)

The reflective practice reports accompany other MEL insights reports prepared by the Impact and Evaluation staff throughout the year. These reports include Future Shapers STEM camp insights reports, EPL insights reports, and LCP insights reports. After the presentation of insights, the team use the remainder of meeting time to workshop the plan for the following 12-18 months.

CYRC defining their own success

In January 2024, the CYRC were provided with a brief presentation on evaluation. In addition, they were asked to consider what would be good measures of success for the two-day annual general meeting. A simple sticky note exercise (see Figure 25) on the first day of the AGM led to the generation of 17 measures of success (refined to 14). For the last activity on day 2 of the AGM, the CYRC were asked to rate the amount of evidence of success to encourage reflection on what might be achieved in the future. A summary of the rating was provided back to the CYRC which indicated that they felt there was lots of evidence that they had worked well together on a number of measures. Council members were invited to provide feedback about the exercise. This generated some suggestions for scale improvement which were later taken on board.

The method is used both as a skill building program activity in reflection and communication, and as a means to evaluate the impacts of the Future Shapers program as experienced by the young people.

Young Future Shapers are presented with the Photovoice method and provided with a set of questions to respond to and access to an online survey to upload their Photovoice submissions. These submissions can be photographs, videos, artwork, voice recordings, symbols, and potentially other ways to communicate. Opening up the medium for submission is intended to encourage creativity and individuality.

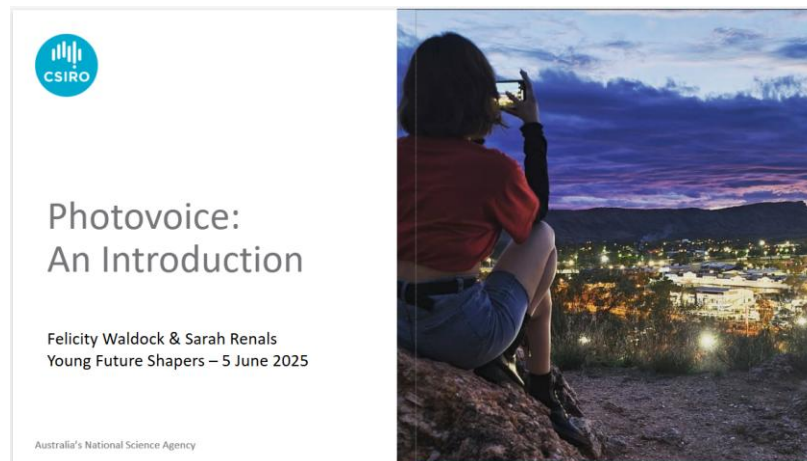


Figure 26 Photovoice presentation pack for Young Future Shapers

In 2025, a virtual gallery of Photovoice submissions has been created for Young Future Shapers from the year to be guided through in an informal two-way discussion. In 2024, 10 Future Shapers submitted 36 Photovoice entries. Early indications from the 2025 cohort suggest that engagement will be much higher.

11.5 Challenges and Enablers

Challenges

Evolving program – STEM Together as a program has been evolving since its launch in 2022. The number and shape of elements has grown and changed and, as such, the MEL plan and implementation has needed to evolve alongside it. This has created some challenges with respect to the number of adaptations required and therefore the number of research ethics amendment requests that have been forwarded and approved by the CSIRO Social and Interdisciplinary Human Research Ethics Committee.

Parental concerns – MEL activities conducted at CSIRO involving young people require approval by their parent or guardian. Parents and guardians can sometimes be concerned that the 'evaluation' activities we seek their consent for involve evaluating their child, rather than our

intent which is evaluating the program. Participant information sheets are provided to all parents/guardians and program participants, but there is opportunity to improve the consenting process to make it more easily understood.

Jurisdictional approvals – Whilst jurisdictional approvals have been sought and granted by most state and territory educational research departments, the process has taken a large investment of time. As the program developed it became apparent that young people were not going to be recruited by schools to take part in evaluation activities and would not be involved in evaluation activities whilst at school but rather when they were on STEM camp or when they were at home with their families. For adult educators, the situation has been similar in that the evaluation does not recruit participants from schools or conduct evaluation on school grounds or during school time. The need for jurisdictional approvals remains an area for ongoing consideration as STEM Together continues to adapt and change according to opportunities.

Generalisability of findings – Whilst the STEM Together program has a national presence, the way the program engages with young people, educators, and STEM allies can usually be described as a ‘gorge’ program, meaning smaller numbers of participants are engaged but deeper impact is generated (see Figure 5 on page 25). The generalisability of observed outcomes and impacts from program elements such as Future Shapers and LCPs is therefore difficult to predict. Such challenges are acknowledged and counteracted by triangulated evidence including multiple sources, methods, and time points.

Enablers

Valuing MEL – The most notable enabler of MEL within STEM Together is the openness of the program staff and participants to engage with it as a process of reflection and learning. Feedback from staff team members indicates that the annual reflection and planning cycle is highly valued and provides useful perspective when viewing reports year on year. Similarly, program participants who take part in interviews, and who help shape their own stories of impact, have commented on the benefits of taking time to stop and reflect back. Parents and carers of Young Future Shapers who have taken part in interviews and focus groups have given feedback that they appreciate having a voice in the process of evaluation.

Photovoice is a program enabler but has also had some challenges. When it was introduced to the 2024 Future Shapers, the method was presented to Adult Future Shapers as something to consider trialling and was taken up by one participant. For Young Future Shapers it was presented in a workshop and was taken up by 10 of the 25 Future Shapers, with a smaller number responding to up to 8 Photovoice challenges. Reflecting on the benefits that could be seen through the Photovoice submissions, it was decided in 2025 to increase the focus on Photovoice, embedding it over 5 events in the Young Future Shapers program of activities with the intention to ensure that all Young Future Shapers are supported to self-reflect and gain capability and confidence in communicating what is important to them, whilst connecting with their peers. Opportunities

11.6 Opportunities

The following provides a number of opportunities identified for MEL over the next 2 years, and potentially beyond:

Publishing and presenting – there are many opportunities to increase the impact of MEL, for example by sharing MEL methods, insights, and lessons learned to relevant audiences. This has occurred at the Australasian Science and Technology Engagement Network conference in 2024 and will be occurring at the Australian Evaluation Society Conference in Canberra in September 2025. There is opportunity to increase the accessibility of MEL information by looking at more interactive and visual storytelling.

Impact data – There is opportunity towards the end of the evaluation to connect back with past program participants from the first years to try to investigate if their STEM Together experience has influenced decisions or actions relating to STEM.

Comparative research – There is opportunity to undertake an environmental scan to investigate whether MEL methods, insights, and lessons learned are comparable to evaluations of other STEM or educational programs.

12 Summary of findings

This section of the report provides a summary of evaluation findings at this point-in-time formative evaluation across all 9 program elements. A four-point rating scale has been applied, which uses a strengths-based outcomes and impact measurement approach (Transformative ●●●●, Exceeding ●●●○, Effective ●●○○, and Emerging ●○○○). Colours represent different focus areas for the evaluation rating, pink – young people, blue – educators, green – community/industry, and purple – learning/impact.

12.1 Summary of performance against key evaluation questions

Quality criteria	How successful has STEM Together been in...?	Overall rating
Engagement	1. ...engaging students from historically underrepresented groups ³⁷ and the educators who support them?	Exceeding ● ● ● ○
	Future Shapers ● ● ● ○ Over the last 2 years, program activity data has indicated: – 95 per cent of Young Future Shapers identify as coming from one or more underrepresented groups in STEM (60 per cent or more is the performance target). – 100 per cent of Adult Future Shapers support young people from one or more underrepresented groups in STEM. CSIRO Youth Reference Council ● ● ● ○ In the first 6 months of operation, the CYRC successfully recruited and supported 8 young people, each identifying as coming from one or more underrepresented groups in STEM.	

³⁷ Underrepresented groups in STEM are people that identify as Indigenous, female, from regional/remote, or low opportunity areas.

Confidence + Capability + Connection	2. ...increasing young people's capability, confidence, and connection with STEM?	Exceeding 
	Young Future Shapers  Over the last 2 years, through multiple data sources (surveys, interviews, camp observations, and Photovoice submissions), strong evidence suggests that the program has contributed significantly to increasing Future Shapers' confidence, capability and connection to STEM, and also increased connection to peers and STEM professionals with whom STEM interest can be shared. CSIRO Youth Reference Council  In the 6 months that the CYRC has been in operation, evaluative observations have indicated good evidence that Council members are strengthening their connections to CSIRO science and each other, have increasing confidence to advise on STEM youth engagement, and, through taking on formal Council roles, are strengthening their 21st century skills.	
STEM Aspirations + Motivations	3. ...increasing students' aspirations and motivation towards STEM education and STEM-related careers?	Exceeding 
	Young Future Shapers  Over the last 2 years, through multiple data sources (surveys, interviews, and Photovoice submissions), strong evidence suggests that the program has contributed significantly to increasing Future Shapers' aspirations and motivations to follow study STEM subjects, work in STEM jobs, and use STEM skills in any job they work in in the future. CSIRO Youth Reference Council – Not measured at this time.	

Capability + Confidence	4. ...increasing the capability and confidence of educators in creating inclusive and engaging STEM learning for their students?	Effective ● ● ○ ○
	Educator Professional Learning ● ● ○ ○ Over the last 3 years, there is substantial evidence from educators' surveys that EPL has been increasing educator awareness and confidence to create inclusive and engaging STEM learning for their students. It is not known if educator capability is increased or if their increase in confidence is maintained over time due to the short nature of the program's engagement with most educators. Adult Future Shapers ● ● ○ ○ Over the last 2 years, through interviews conducted with half of the Adult Future Shapers, there is evidence to suggest that the program is increasing the capability and confidence of educators in creating inclusive and engaging STEM learning for their students. Indicators of this include self-reported increase in confidence through recognition, STEM learning opportunities, and through the provision of resources that can be used to engage young people in STEM.	
Capability + Confidence	5. ...increasing the capability and confidence of community leaders and industry professionals, to build capability and confidence in engaging young people in STEM?	Effective ● ● ○ ○
	Local Connection Programs ● ● ○ ○ Over the last 2 years, LCPs have steadily grown their collaborations. Now at 10 LCPs, the program is starting to gather compelling evidence through surveys that the training component of program delivery is increasing the confidence of community leaders and industry professionals to engage young people in STEM. The translation of the training into increased capability in engaging young people in STEM is at an earlier stage but is showing substantial promise.	

Learning	6. ...developing and embedding mechanisms for learning and sharing insights about what works to increase engagement and diversity of underrepresented groups in STEM?	Emerging ●○○○
	Monitoring, Evaluation and Learning ●●○○ Over the last 3 years, MEL has developed and embedded numerous mechanisms for localised learning and sharing of insights about what works to increase engagement and diversity of underrepresented groups in STEM. Progress has been initiated to share insights beyond CSIRO Education and Outreach by being accepted to present at conferences. Publication in peer reviewed journals and further presentations could generate transformative impact. CSIRO Youth Reference Council ●○○○ In the first 6 months of operation, the CYRC is developing mechanisms for learning and sharing insights in this area. Science Educators Reference Group ●○○○ In the last 4 months of operation, SERG has started to develop mechanisms for learning and sharing insights in this area. STEM-INSIGHTS Network ●○○○ Launching in June 2025, SIN is at the very earliest stages in developing mechanisms for learning and sharing insights in this area. Data Analytics Project ●○○○ In the first 6 months of the project, DAP is undertaking analyses and producing initial findings which will be the foundation for sharing insights in future.	

Durable Impact	7. ...developing and embedding mechanisms for durable impact?	Emerging 
	Durable Impact Project  Over 9 months, DAP has developed and started to embed mechanisms for durable impact in a number of STEM Together program elements, in addition to extending to other CSIRO Education and Outreach programs.	

12.2 Summary of performance against targets

Performance against the program's key indicators are summarised in Table 31. Table 32

Table 31 Summary of performance against targets (July 2022-June 2025)

Indicators	FY22/23		FY23/24		FY24/25		Total	
	Target	Actual	Target	Actual	Target	Actual	Target	Actual
Per cent of Future Shapers finalists from underrepresented groups	60%	84%	≥ 60%	100%	≥ 60%	100%	≥ 60%	95%
Educators from underrepresented schools	60%	100%	≥ 60%	100%	≥ 60%	100%	≥ 60%	100%
Increased student confidence in STEM	75%	* ³⁸	75%	100%	75%	83%	75%	91.5%
Increased student self-efficacy in STEM	90%	*	90%	100%	90%	91%	90%	95.5%
Increased educator confidence and capability ³⁹ in inclusive STEM education	n/a	78%	60%	75%	65%	81%	62.5%	78%
Program reach (communications and promotions)	250,000	388,158 ⁴⁰	400,000	1,398,686	450,000	1,539,238	1.1M	3.3M
Number of educators in Professional Learning	150	147	200	173 ⁴¹	250	935 ⁴²	600	1,255
Multiplier ⁴³ – students of educator participants	10,500	10,290	14,000	12,110	17,500	65,450	42,000	87,850

³⁸ * This data was collected the first time in FY23/24.

³⁹ Confidence to apply knowledge is assessed for educators.

⁴⁰ FY22/23 includes an additional 4 months from March-June 2022.

⁴¹ Of the 173 attendees, 9 were allies involved in the EPL.

⁴² Total educators attending EPL in FY24/25 = 1,308 of which 932 were live attendances and 376 asynchronous.

⁴³ Multiplier of 1 teacher to 70 students.

Indicators	FY22/23		FY23/24		FY24/25		Total	
	Target	Actual	Target	Actual	Target	Actual	Target	Actual
Number of local connection projects	n/a	-	2	3	3	7	5	10
Number of participants in local connection projects	n/a	-	200	249	300	400	500	649
Willingness to recommend	90%	78% ⁴⁴	90%	82%	90%	89%	90%	83%
STEM Together Allies meetings	n/a	-	n/a	-	n/a	-	-	-

⁴⁴ Willingness to recommend FY22/23 – data was from EPL only

12.3 Summary of opportunities

The key opportunities for each of the 9 program elements are summarised in Table 32.

Table 32 Summary of key opportunities by program element

Program element	Key opportunities
Young Future Shapers	– Potential expansion and scaling of the program based on early success. – Potential to adjust the model for sustainability and return on investment. – Sharing learnings system-wide to benefit underrepresented youth.
Educator Professional Learning	– Development of streamlined delivery model. – Broader application of successful marketing strategies. – Increased accessibility through asynchronous interactive videos. – Engagement with educators via the Science Educator Reference Group.
Local Connection Pilots	– Expansion and formalisation of the pilot model. – Improved documentation and communication to support scaling. – Consolidation of learnings for efficiency and effectiveness.
Youth Reference Group	– Leverage unique positioning in STEM education ecosystem. – Progression of youth-led evaluation methods. – Potential to shape youth engagement models across CSIRO.
Science Educators Reference Group	– Evaluation to assess alignment with curriculum and teacher needs. – Collaboration with ASTA to broaden reach. – Potential for replication across other organisations.
STEM-INSIGHTS Network	– Co-creation of shared frameworks and tools for impact assessment. – Cross-sector collaboration to reduce duplication and enhance coordination. – Systemic dissemination of evidence and learning.
Data Analytics Project	– Predictive modelling of program impact using causal flow diagrams. – Evidence-driven program design and evaluation. – Innovation in understanding STEM education outcomes.
Durable Impact Project	– Use of the Durability Assessment Tool, Durability Impact Action Plans, and post-funding visioning workshops to enhance program sustainability. – Potential to influence broader STEM education program design and contribute to research on program durability.

Monitoring, Evaluation, and Learning	– Increased visibility through publishing and presenting. – Use of visual storytelling to enhance accessibility. – Longitudinal tracking of participant outcomes. – Comparative research with other STEM program MEL approaches.
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Across all the 9 program elements, the opportunities can be synthesised into 3 broad themes:

Theme 1. Scaling and sustainability of impact

Across Future Shapers and Local Connection Projects, and supported by the Durable Impact Project, there are opportunities to expand successful models and ensure they are sustainable post-funding. This includes:

- Formalising program models for replication and scaling.
- Further developing post-funding visions and durability action plans.
- Exploring financial independence and fund-sourcing strategies.

Theme 2. Strengthening communication and engagement

Multiple program elements have opportunities to build support through strategic communication and engagement including:

- Enhancing visibility and value propositions of programs.
- Leveraging champions and networks (e.g. ASTA, SERG).
- Applying successful marketing strategies, for example, from activities like the Classroom Brain.

Theme 3. Evidence-informed design and evaluation

Programs such as the Data Analytics Project, MEL, and the STEM-INSIGHTS Network are driving a shift toward data-driven program design and implementation including:

- Using causal modelling to predict and design for program impact.
- Sharing MEL insights through conferences and visual storytelling.
- Co-creating shared frameworks and indicators for impact assessment.

13 Appendices

13.1 STEM Together Program Model

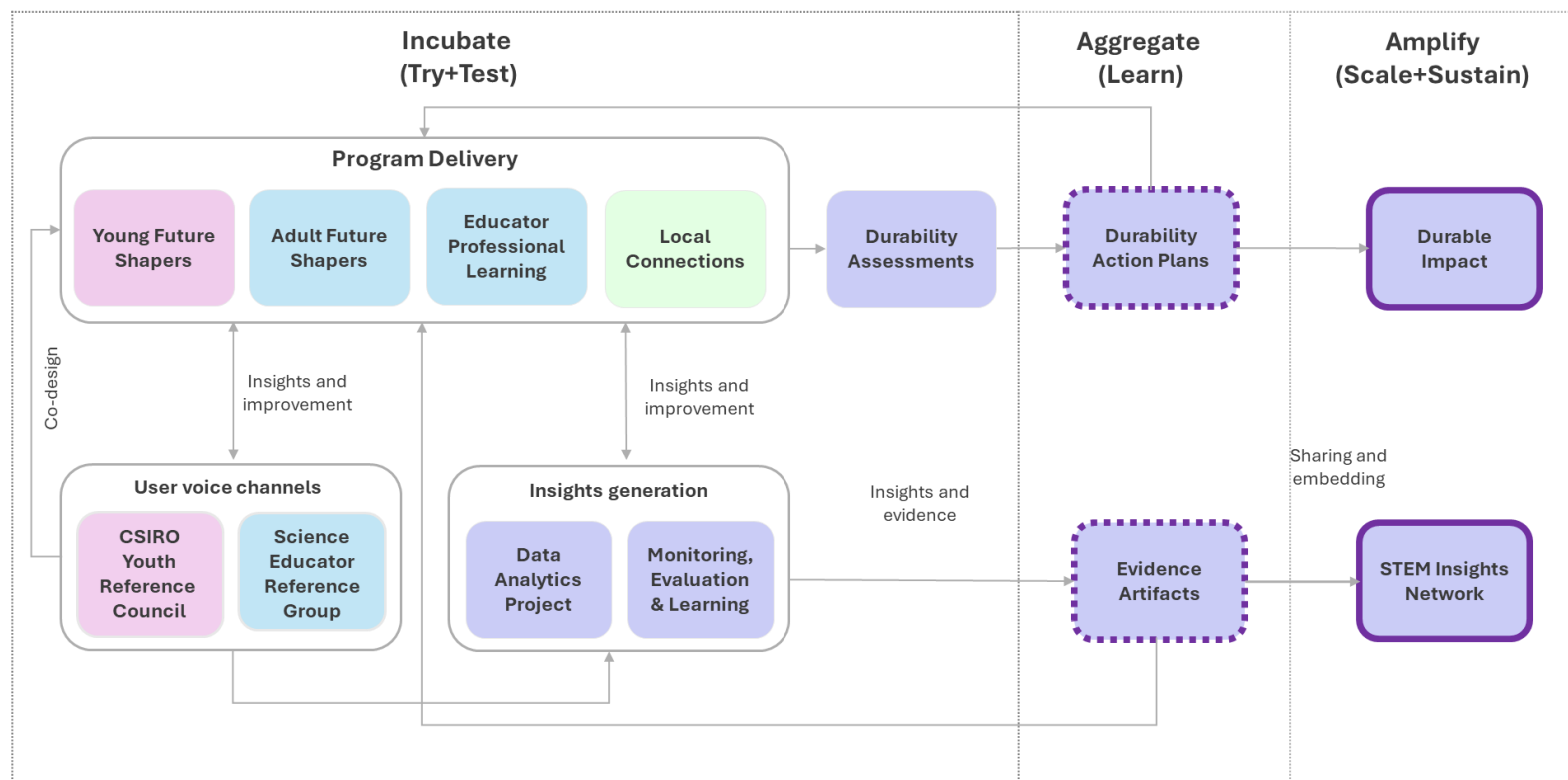
The STEM Together Program Model incorporates 3 phases:

Phase 1 – **Incubate** – creates a space for trying and testing out ideas for program element delivery informed by youth and educator voice, data analytics, and assessment of durable impact.

Phase 2 – **Aggregate** – focuses on learning, sharing and creating evidence, resources, and scalable approaches.

Phase 3 – **Amplify** – sees approaches, methods, and resources scaled and sustained through STEM education ecosystem adoption.

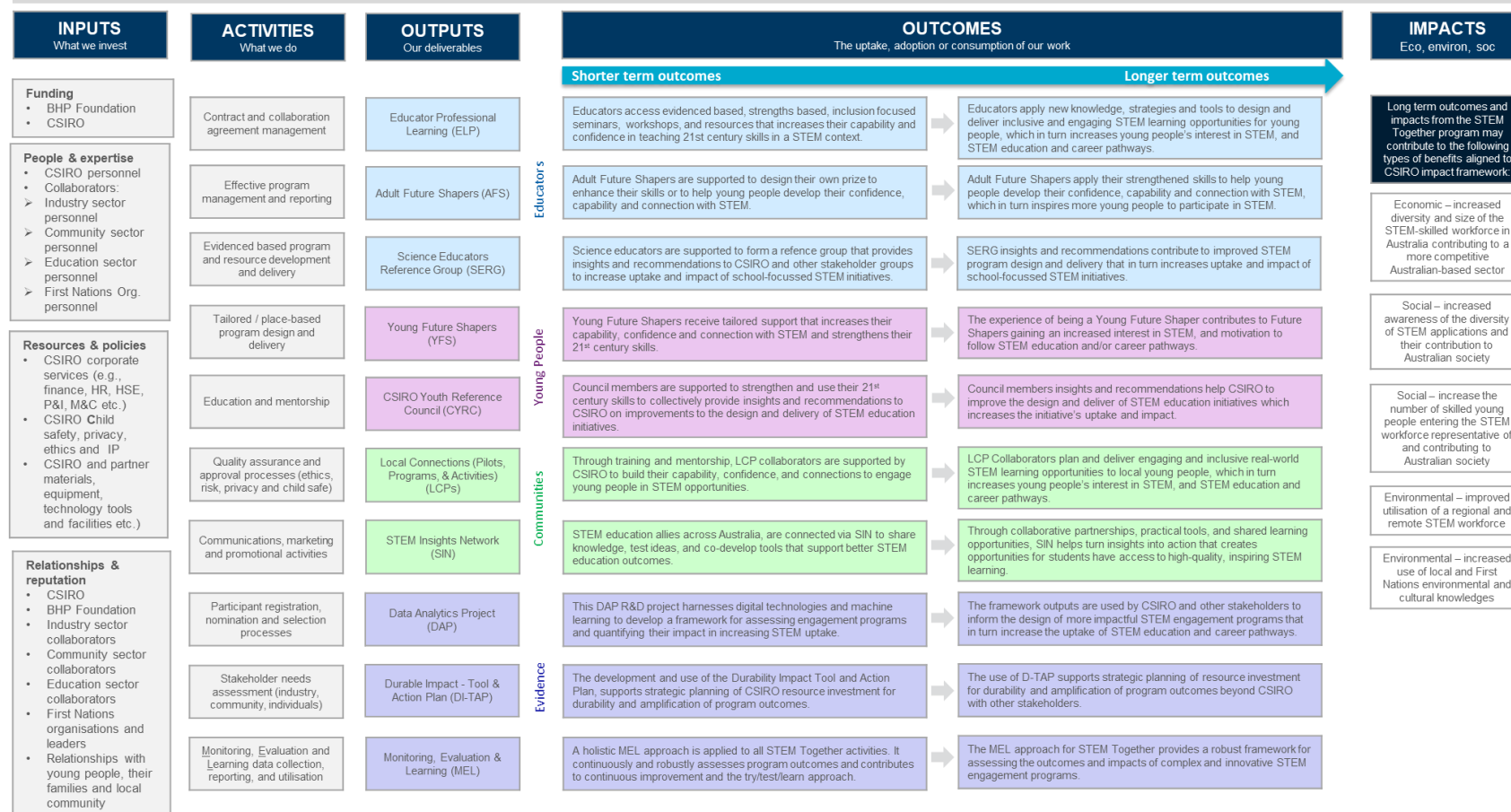
STEM Together Program Model



13.2 Impact pathways

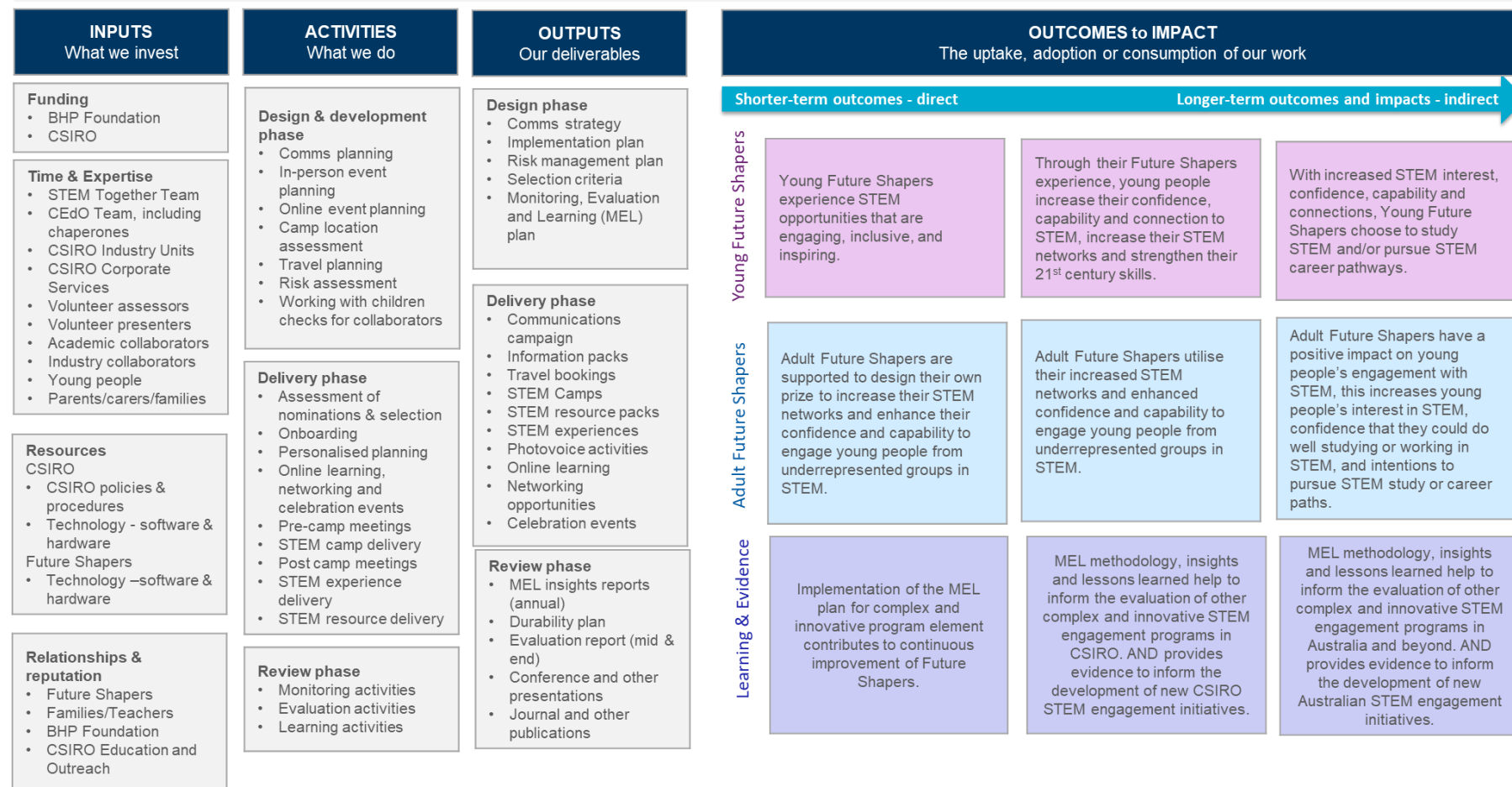
STEM Together Impact Pathway

Impact Statement: STEM Together provides greater access to STEM learning opportunities for young people from underrepresented groups in Years 5-10 to strengthen their confidence, capability, and connection with Science, Technology, Engineering and Maths (STEM). We also recognise and upskill educators, industry professionals and community members to further boost their impact in supporting these groups. Underrepresented groups in STEM are: Girls, Aboriginal and/or Torres Strait Islander students, those from lower opportunity areas, and those from regional areas.



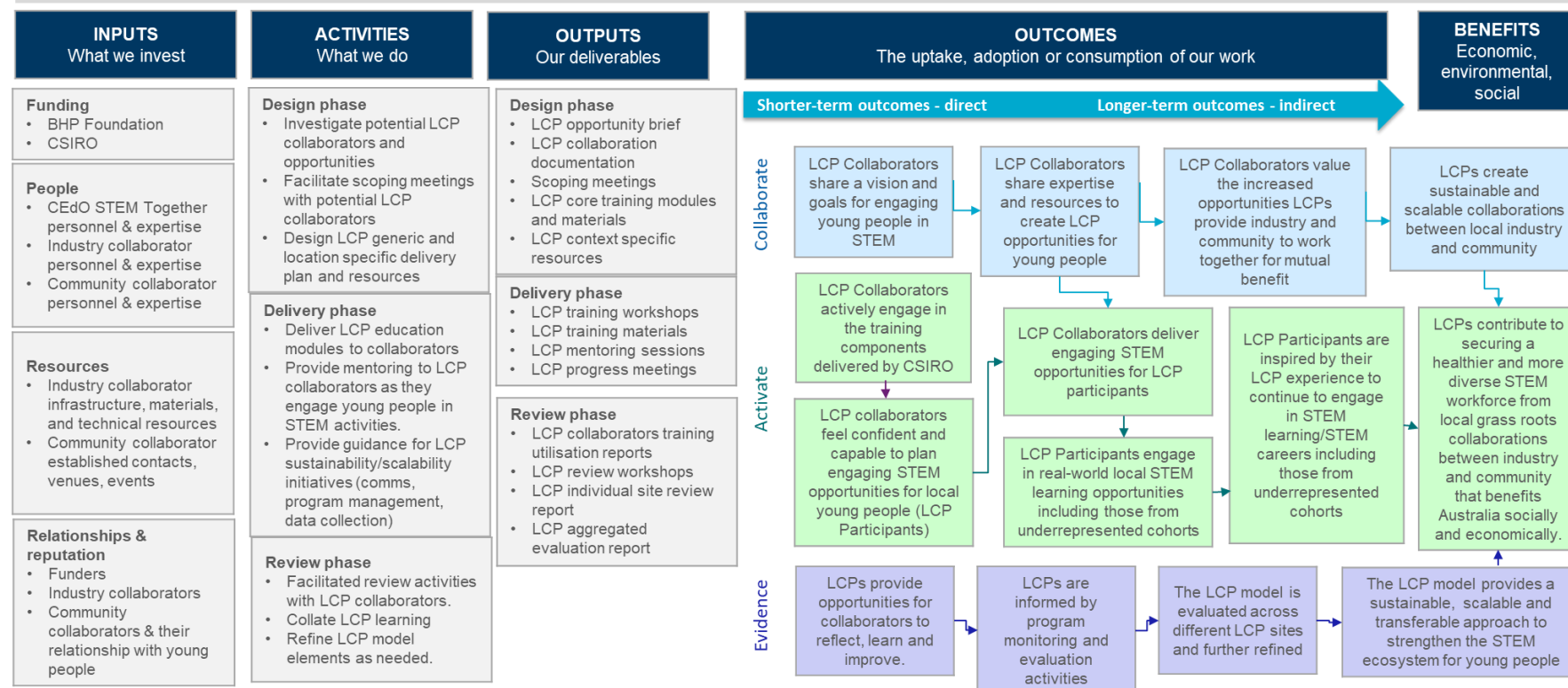
Future Shapers Impact Pathway

Impact Statement: Future Shapers helps build young people's capability, confidence, and connection to STEM and strengthen their 21st century skills, such as critical thinking, problem solving, teamwork, and communication. Future Shapers achieves this through delivering an inclusive national recognition program that selects 25 Young (Years 5-10) and 5 Adult Future Shapers annually, who are supported to select a prize and to attend learning opportunities and networking events.



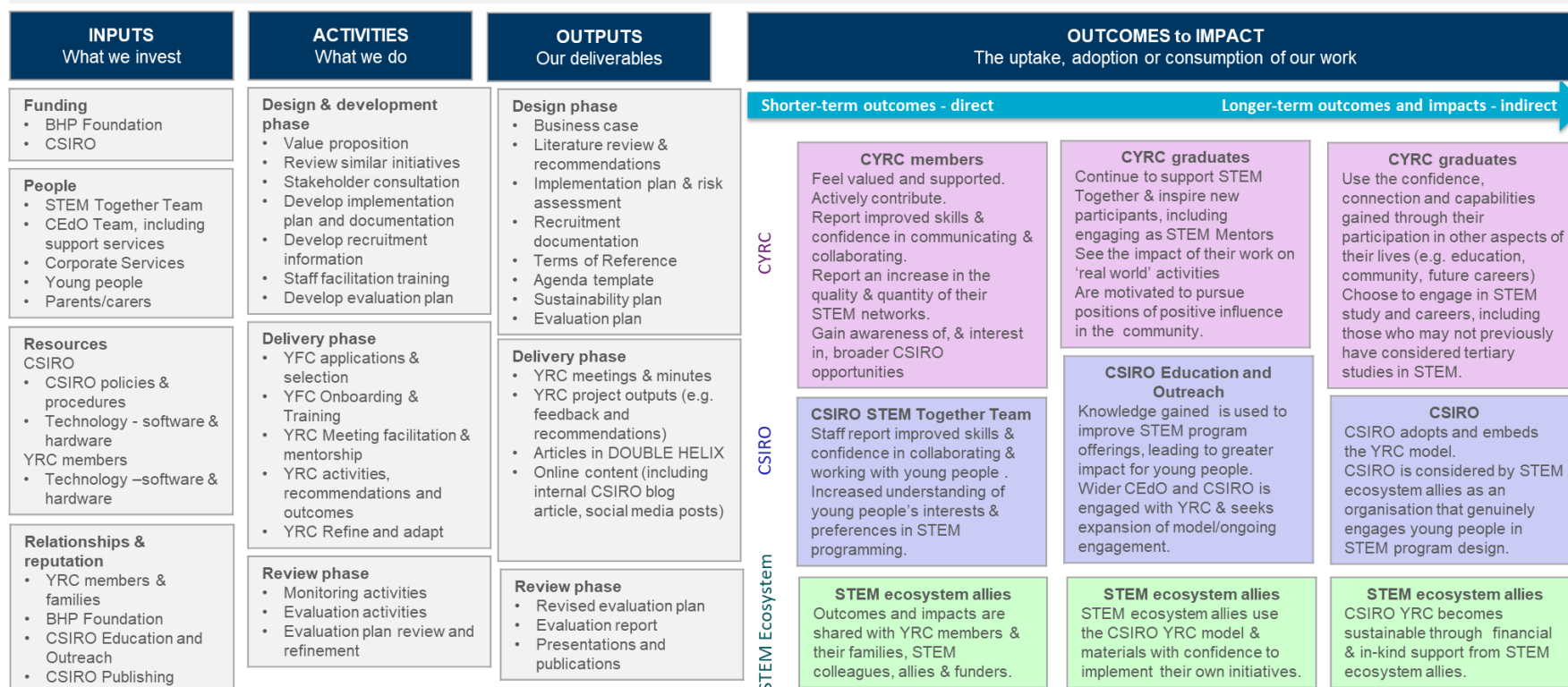
Local Projects Impact Pathway

Impact Statement:CSIRO STEM Together facilitates Local Connection Pilots (LCPs) which aim to connect and strengthen local industry and community group's ability to support young people's capability, confidence, and connection in STEM through impactful STEM learning opportunities. LCPs achieve this through facilitating collaboration and providing education and mentorship to local industry and community groups.



CSIRO Youth Reference Council Impact Pathway

Impact Statement: CSIRO STEM Together will provide valued opportunities for young people to work collaboratively with CSIRO through the Youth Reference Council (YRC) to contribute ideas and feedback to CSIRO Education and Outreach (CEdO). Through this process it is intended that YRC members will gain additional capabilities, confidence and connection with STEM projects, STEM peers and STEM Ecosystem Allies (e.g. STEM professionals, STEM industries, STEM educators). In addition, it is intended that CEdO will gain valuable insight into the interests and preferences of young people.



Young Future Shapers Nominations and Selections

Table 33 Young Future Shapers nominations and selections by Indigeneity (2023-2025) - Percentage

[illegible]

Table 34 Future Shapers nominations and selections by Gender (2023-2025) - Percentage

[illegible]

Table 35 Young Future Shapers nominations and selections by Opportunity (2023-2025) - Percentage

[illegible]

Table 36 Young Future Shapers nominations and selections by Regionality (2023-2025) - Percentage

Regionality	2023-25		2023		2024		2025	
	Nominations (n=1,189)	Selected (n=76)	Nominations (n=92)	Selected (n=25)	Nominations (n=560)	Selected (n=25)	Nominations (n=537)	Selected (n=26)
Very Remote	21.4	21.1	19.6	28.0	24.5	20.0	18.6	15.4
Remote	55.1	18.4	42.4	28.0	55.0	20.0	57.4	7.7
Outer regional	17.7	39.5	31.5	32.0	15.9	32.0	17.3	53.8
Inner Regional	4.0	10.5	2.2	4.0	4.1	20.0	4.1	7.7
Major cities	1.7	10.5	3.3	8.0	0.5	8.0	2.6	15.4
Unknown	0.1	0.0	1.1	0.0	0.0	0.0	0.0	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table 37 Young Future Shapers nominations and selections by Jurisdiction (2023-2025) - Percentage

State/ Territory	2023-2025		2023		2024		2025	
	Nominations (n=1,189)	Selected (n=76)	Nominations (n=92)	Selected (n=25)	Nominations (n=560)	Selected (n=25)	Nominations (n=537)	Selected (n=26)
ACT	5.0	1.3	1.1	4.0	5.5	0.0	5.0	0.0
NSW	28.3	17.1	23.9	16.0	29.6	24.0	27.6	11.5
NT	2.8	11.8	5.4	12.0	2.3	16.0	2.8	7.7
QLD	17.4	26.3	31.5	28.0	13.8	24.0	18.8	26.9
SA	4.6	3.9	1.1	4.0	3.4	0.0	6.5	7.7
TAS	4.4	9.2	12.0	16.0	5.2	4.0	2.2	7.7
VIC	22.0	10.5	22.8	12.0	24.1	4.0	19.7	15.4
WA	15.6	19.7	2.2	8.0	16.1	28.0	17.3	23.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table 38 Young Future Shapers nominations and selections by School Type (2023-2025) - Percentage

School Type	2023-25		2023		2024		2025	
	Nominations (n=1,189)	Selected (n=76)	Nominations (n=92)	Selected (n=25)	Nominations (n=560)	Selected (n=25)	Nominations (n=537)	Selected (n=26)
Catholic	16.0	9.2	17.4	4.0	20.2	20.0	11.4	3.8
Government	63.3	77.6	62.0	64.0	61.8	72.0	65.2	96.2
Home School	2.2	2.6	3.3	8.0	2.1	0.0	2.0	0.0
Independent	18.3	10.5	16.3	24.0	15.9	8.0	21.0	0.0
Unknown	0.3	0.0	1.1	0.0	0.0	0.0	0.4	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table 39 Young Future Shapers nominations and selections by Nomination Type (2023-2025) - Percentage

Nomination type	2023-2025		2023		2024		2025	
	Nominations (n=1,189)	Selected (n=76)	Nominations (n=92)	Selected (n=25)	Nominations (n=560)	Selected (n=25)	Nominations (n=537)	Selected (n=26)
Self-nominated	41.5	38.2	19.6	8.0	36.8	48.0	50.1	57.7
Adult-nominated	58.5	61.8	80.4	92.0	63.2	52.0	49.9	42.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Adult Future Shapers Nominations and Selections

Table 40 Adult Future Shapers nominations and selections by Jurisdiction (2023-2025) – Percentage

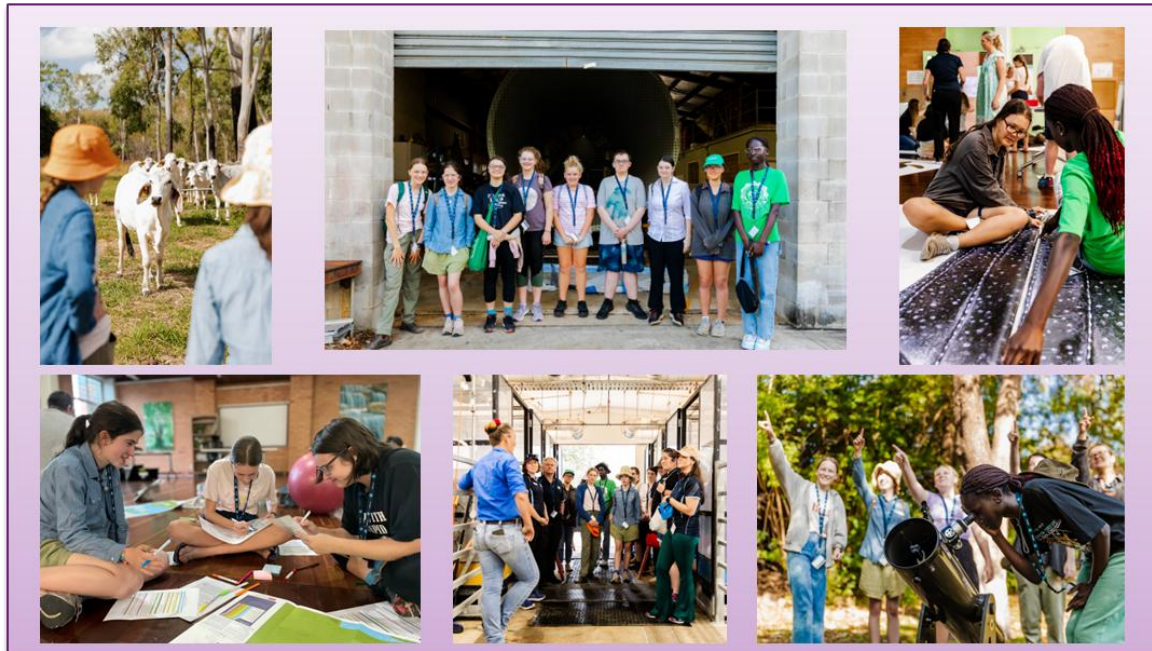
	2023-2025		2023		2024		2025	
Jurisdiction	Nominations (n=335)	Selected (n=15)	Nominations (n=19)	Selected (n=5)	Nominations (n=169)	Selected (n=5)	Nominations (n=147)	Selected (n=5)
ACT	2.4	0.0	0.0	0.0	3.0	0.0	2.0	0.0
NSW	22.4	13.3	63.2	40.0	20.1	0.0	19.8	0.0
NT	4.8	33.3	5.3	20.0	3.6	20.0	6.1	60.0
QLD	22.7	26.7	5.3	20.0	23.7	40.0	23.8	20.0
SA	8.4	6.7	0.0	0.0	10.6	20.0	6.8	0.0
TAS	4.7	6.7	10.5	20.0	5.3	0.0	3.4	0.0
VIC	21.2	0.0	15.7	0.0	21.9	0.0	21.1	0.0
WA	13.4	13.3	0.0	0.0	11.8	20.0	17.0	20.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table 41 Adult Future Shapers nominations and selections by Gender (2023-2025) -Percentage

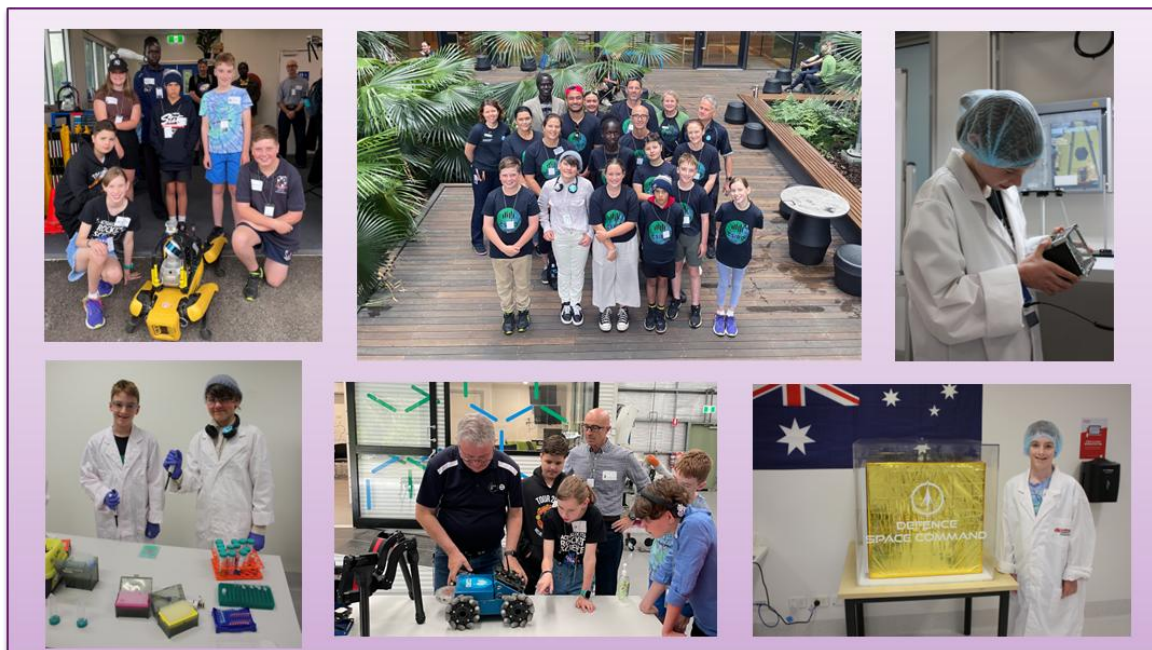
	2023-2025		2023		2024		2025	
Gender	Nominations (n=335)	Selected (n=15)	Nominations (n=19)	Selected (n=5)	Nominations (n=169)	Selected (n=5)	Nominations (n=147)	Selected (n=5)
Female	61.2	60.0	47.4	60.0	60.9	80.0	63.3	40.0
Male	36.7	40.0	47.4	40.0	37.9	20.0	34.0	60.0
Other specified	0.9	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Unknown	1.2	0.0	5.2	0.0	1.2	0.0	0.7	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

13.4 Future Shapers selection of photographs

Townsville STEM Camp, Years 7-10, July 2023



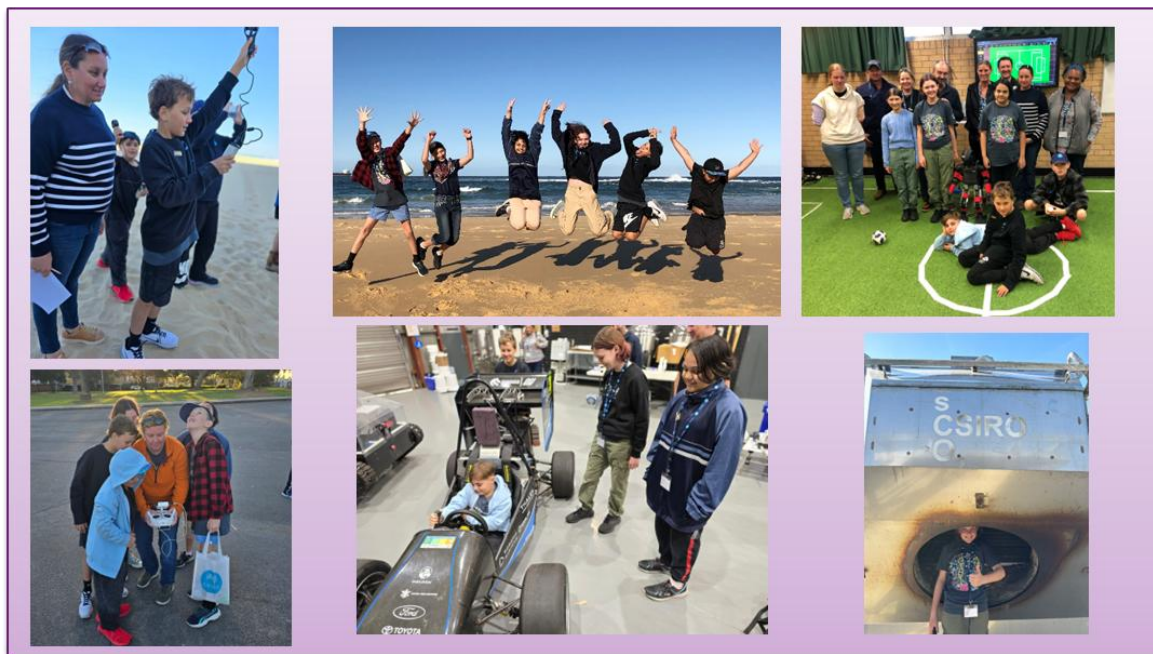
Brisbane STEM Camp, Years 5 and 6, November 2024



Adelaide STEM Camp, Years 7-10, August 2024



Newcastle STEM Camp, Year 5 and 6, September 2024



Individualised recognition packs and experiences, 2022-2024



13.5 Future Shapers Stories of Impact

This section presents 10 Future Shapers' stories which highlight the impact being generated by the Future Shapers program element. The stories document the aspirations and challenges experienced by 7 Young Future Shapers and their parents/carers, and 3 Adult Future Shapers. The stories demonstrate the opportunity that Future Shapers is providing to build capability, confidence, and connection and is helping to create meaningful and significant impact at an individual, family, and community level.

The stories were developed through interviews, followed up by review and approval of the story by each participant. The Future Shapers were asked to respond to a series of questions, including are there any opportunities to improve Future Shapers. Comments regarding potential improvements are included as an opportunity for learning and development.

Young Future Shapers Stories

- Agnes Year 9, interested in physics and astronomy
- David Year 9, interested in biomedical science
- Jack Year 5, interested in airplanes, drones, and technology
- Mathieson Year 10, interested in game development and programming
- Maya Year 5, interested in space
- Mika Year 6, interested in biology and microbiology
- Yuki Year 5, interested in robotics

Adult Future Shapers Stories:

- Jayne, school student support specialist dedicated to helping students thrive
- Jen, developer of the Young Astronauts Club
- Sharni, primary school teacher who launched STEMathon



Agnes was in Year 9 in 2023, attending school in a metropolitan suburb in Queensland that is considered a low opportunity area when she was nominated as a Future Shaper by her high school science and maths teacher.

Agnes entered the Future Shapers program with a keen interest in physics and astronomy. Agnes explained:

I'm still sort of exploring, but I really like science, especially physics and space science and also maths.

Opportunities

As a Future Shaper, Agnes had the opportunity to attend a number of different activities including meeting an astrophysicist at Griffith University's Gilmore Space Technologies lab, learning about the Mars Rover and operating robots at Queensland Centre for Advanced Technologies, learning farming research at CSIRO's Lansdown Pasture Research Station, and learning about cyclone preparedness at James Cook University's Cyclone Testing Station.

Agnes explained how witnessing firsthand STEM professionals in action was a highlight of being a Future Shaper.

The most rewarding thing for me is that it not only exposed me to different STEM areas that I liked, it also exposed me to different STEM areas that I didn't know and never thought of. Like marine biology and engineering with the 3D printers as well.

STEM goals

Agnes explained that being exposed to new STEM career pathways has made her re-think her STEM goals.

Before I was part of the Future Shapers program, I only thought of space related things and physics because those were the only ones I was exposed to at school...but then when they exposed me to robotics and engineering, I kind of rethought my career choice to do something that involves coding and robotics because it was really interesting.

Challenges

Agnes explained that being away from home on camp with people she had only met online was daunting at first.

That was pretty scary cause I've only met them from the video calls and not in real life. I've been away from home with my classmates, but not with, like, complete strangers.

But Agnes explained that she overcame her worries by the supportive STEM Together team who helped her and the other Young Future Shapers quickly get to know each other through playing games and a buddy system.

Future Shapers difference

When asked what difference has Future Shapers made to you, Agnes replied:

One is confidence because everyone they've exposed me to, like different in gender and cultural backgrounds and that gave me confidence that if they could do it, then I could. It made me look up to them because they were sort of different in some way but still did STEM, which was inspiring.

Parental insights

Agnes's father explained how much he valued Agnes having the opportunity to be a Future Shaper. As an African family entering Australia as refugees, Agnes's father explained:

Despite my financial background being poor as well as my educational background, if my kids are doing well for themselves through the form of education, especially Agnes because she is a role model to the rest of her younger siblings, it outshines every problem that I have and I am really happy.

He explained further,

...those [Future Shapers] children are the future of this country. Through your efforts they will acquire more knowledge and this knowledge they will employ it in the future for the benefit of this country...

Agnes's father explained that by being able to see his daughter take part in Future Shapers he got to see the opportunities for Agnes. He also got to meet other parents and to see how well the Future Shapers children were cared for by the STEM Together team. Agnes's father hopes that Agnes can continue to study STEM if she wants to and go to university. He is hopeful that an educational scholarship might become available to help out financially.



David was in Year 9, attending high school in a remote mining town in Queensland, when his mother nominated him for Future Shapers. David's mother explained that her son is always wanting to learn and research things, and he is recognised at school as an Emerging Leader with a First Nations background.

David was selected as a Future Shaper in 2024, having a keen interest in biomedical science.

I think what really interests me [about biomedical science] is properly learning how things work...so I can make a positive impact on people and society as a whole.

As a Future Shaper, David's goals included gaining skills and confidence in meeting new people and to make friends with peers who have STEM interests.

I was just hoping to build skills like teamwork and just help interact with people because sometimes I get really kind of nervous and shy. And it was all about finding other connections with likeminded people.

The experience

As a Future Shaper, David attended the Adelaide STEM Camp in July/August 2024 along with 15 other young people. David particularly enjoyed spending time touring CSIRO's Centre for Australian Forensic Soil Science and learning about solving crimes from Dr Rob Fitzpatrick. David also learnt how to interview scientists from an ABC BTN science communicator and was able to practice the skills on five scientists.

The soil forensics, that was really cool.

In addition, whilst on camp David had the opportunity to attend a drone workshop, view distant constellations at an astronomy night, tour Flinders University, and spend time at a Marine Discovery Centre. David also attended online activities with his fellow Future Shapers which included a virtual tour of CSIRO's Lab 22 to see 3D printing, a resiliency workshop, and a post-camp catch up. To help David interact fully online with his fellow Future Shapers, CSIRO had provided a webcam, microphone, and headset.

David also took part in Photovoice, a method for communicating stories and messages through images and words (see section 3.6 for David's Photovoice submission).

The benefits

David explained how becoming a Future Shaper had provided opportunities to make friends, gain confidence, and has expanded his STEM interests.

I reckon it went pretty well. I made a couple friends. I definitely got better at communicating...I do feel a lot more confident. And my interest in STEM has peaked after attending [camp].

David has stayed connected to another Future Shaper since his camp experience and is now interested in electrical engineering as well as biomedical science.

David's mother has also recognised changes in her son:

He just seems to have grown a lot this year, and I really put it down to being part of this. He's a lot more sure of himself and confident, especially talking to people. He'll go and have a conversation with people around his interests. And he's found a few other kids at school with the same interest, which is really good.

Challenges

David's mother explained that she is always looking for STEM educational opportunities for David, his brother, and other young people in the area. She explained that the town has limited STEM opportunities, and its geographic isolation and high flight costs makes travelling to reach STEM experiences very expensive.

Whilst David didn't appear worried or anxious about travelling solo and being away from home for the first time, his mother felt differently, especially because David has some additional needs, but David's mother was very happy with the inclusive measures woven into Future Shapers and felt able to call camp staff when she needed reassurance.

Future STEM goals

David is planning on studying biology, chemistry, physics, and engineering in year 10. In addition to biomedical science, attending the Future Shapers STEM camp generated a new interest for him in electrical engineering. He is hoping to take part in an introductory course in electrical circuitry, if an online course can be tracked down.



Jack is one of just 7 students attending his primary school in his remote township of just over 100 people in Queensland. Jack was in Year 5 in 2024 when he nominated himself for Future Shapers.

Jack wanted an opportunity to learn more about his STEM interests of airplanes, drones, and technology, and with a goal to make some new friends that shared his interests.

Opportunities

As a Future Shaper, Jack attended the Primary STEM Experience in Newcastle with 5 other Future Shapers over 2-5 September 2024. Whilst in Newcastle, Jack experienced a talk on Indigenous use of native plants, and took part in geology, meteorology, and marine biology activities at the beach facilitated by staff from the University of Newcastle's Earth Sciences department. He also took part in a brief introduction to drones facilitated by CSIRO's Chief Remote Pilot, visited the University of Newcastle's engineering department learning about Mechanical Engineering (Nu Teams), Robotic engineering (i3 Lab) and Software engineering (NU bots), and toured CSIRO's Energy Centre. Jack also partnered with another Future Shaper to pitch a product design in an innovation workshop to peers, parents, and CSIRO staff.

In addition, Jack participated in online activities with his fellow Future Shapers which included a virtual tour of CSIRO's Lab 22 to see 3D printing, a resiliency workshop, and pre- and post- meetings with his peers that took part in the Adelaide STEM Experience.

When asked what he liked about his STEM Experience Jack said:

The VR group, they are pretty cool... I didn't know you could play Fruit Ninja on VR.

When asked if there was anything he didn't like about his experience, Jack said that he wished he could have gone swimming at the beach. As a young person that loves the ocean and lives over 1,200km from the nearest beach, this was particularly disappointing.

STEM goals

Jack's wants to be a pilot when he grows up. Whilst in Newcastle his mum took him to an aircraft museum so that he could experience a full-sized flight simulator, which was also a highlight of Jack's trip. They also discussed the potential future opportunity of becoming an Air Force Cadet.

Benefits of Future Shapers

Jack explained how becoming a Future Shaper had provided him the opportunity to make friends (also see Section 3.6 for Jack's Photovoice submission).

I don't have too many friends, because there's barely any people here... [but in Newcastle] from the first day we weren't too confident in talking to each other, [but] by the end we were very confident talking to each other.

Jack's mum also noted an increase in Jack's confidence since becoming a Future Shaper.

He had a really good time, and the extra parts of the program were really good for Jack, that confidence building...he probably doesn't realise it, but he has benefited from doing those activities as much as he benefited from the actual science and technology stuff. So yeah, I think that was really valuable for him.

Jack's mum also noted his increased interest in school.

He generally hasn't been overly keen on school or like standard school and we've had a lot of trouble in the past...whether it's just him growing up or whether it's a part of that process, he's become a lot more open to education.

Challenges

Jack's mum took part in a focus group with other parents whilst in Newcastle where a challenge was shared of sports achievements being celebrated in schools but not academic achievements. In response to this feedback, STEM Together sent school principals certificates to hand out at school, and Jack received his at Presentation Night.

Jack's mum provided feedback about the balance of activities on the experience, suggesting that some activities felt a little long and others a little short. Additionally, she explained that long periods standing and listening could be challenging for Jack. A suggestion was made to incorporate a mix of physical hands-on experiences into long tours which would help young people like Jack that have ADHD.

Another challenge faced by Jack and many children living in remote areas is either going to boarding school for high school or families having to relocate because there are no secondary schools nearby. Whilst this can provide many opportunities including better access to STEM for Jack, this is undoubtedly a significant issue to navigate.



Mathieson was in Year 10 in 2023 when he was nominated for Future Shapers by his mother who homeschools him and his siblings in a small rural town of approximately 140 people in Southwest Queensland.

Mathieson entered the Future Shapers program with a keen interest in IT and in particular, game development.

Mathieson explained:

I like game development and programming...so I wanted industry advice and really to learn more about it because I had this fantastical idea, but I didn't know what it was really like.

Opportunities

For the last two years Mathieson had won a national game development competition with his siblings, the prize being tickets to attend the PAX Gaming Convention in Melbourne. Whilst Mathieson hadn't been able to attend the previous year, this year, Future Shapers provided financial assistance for him and his family to attend PAX as part of his Future Shapers recognition experience.

We went down to the game convention in Melbourne, and I got to talk to heaps of indie game developers and university [people], so now I've got like heaps of info.

Being a Future Shaper has helped Mathieson to make connections with industry, university, and peers in his area of interest. He has also connected to the Australian Computer Society and ACER computing in addition to CSIRO, and with references from each and the support from his mother, Mathison has created a student portfolio to apply for a course at Central Queensland University to start a university course in Year 11.

Career pathways

Mathieson explained how having the opportunity to go to Melbourne has helped him to understand that there are many different routes into the gaming industry.

Everyone has a different pathway. There's no real one way to do it. Some people had other jobs and transferred over. Some people went to university, some people didn't go to university at all and still got in.

Mathieson has heard different advice about whether to go to university or not. So, trialling a university course in grade 11 will undoubtedly help him decide whether university is something he wants to pursue or not.

Challenges

Mathieson identified two challenges in relation to Future Shapers firstly deciding whether to go on camp or not; and secondly trying to decide on a suitable recognition pack or experience that would help him the most.

Future Shapers difference

When asked what difference has Future Shapers made to you, Mathieson replied:

Well, I feel like it's been great to just get recognised. I guess as a bit of a swell for my ego and that.

And went on to reflect

Probably one of my favourite things about this Future Shapers thing is how much networking it's allowed me to do, see before because we're so remote, I didn't really know anybody, but now I've got, like heaps of companies that are all willing to help me out. And it's great. Like I can just talk to people. I get lots of information and now I kind of have an idea of where I wanna go and what I'm doing.

Future Shapers also helped Mathieson maintain his broader interest in STEM as someone who enjoys maths, science, technology, and engineering, which Mathieson's mother was also pleased about. To make his experience even more impactful, Mathieson suggested an industry work experience component and has been connected up with the CSIRO Virtual Work Experience Program and is hopeful to be offered a placement involving computer science.

Parental insights

Mathieson's mother explained the value of Future Shapers for rural and remote students:

As rural and remote kids to be able to go to these capital cities and to experience what it's like there, I believe that's very important. I believe that for Mathieson, particularly when it comes time to go and work in these industries, I think having that prior experience will give him the confidence to be able to go and leave and enter those capital cities.



Maya was in Year 5 attending primary school in Canberra when she was nominated as a Future Shaper by her teacher in 2023. Maya entered the Future Shapers program with a keen interest in space, an interest she had shared with her father since she was very young.

I'm interested in discovering space basically because there's always going to be more space to discover.

Opportunities

As a Future Shaper, Maya attended the Brisbane STEM Adventure with her father, having the opportunity to explore cube satellites at Griffith University's Gilmore Space Technologies lab on the Gold Coast and meet an astrophysicist. Maya explained:

I think it was really cool how you could fit that many electronics in a tiny 10-centimetre cube. It's surprising how much you can fit in there.

Maya also got to operate robots at the Queensland Centre for Advanced Technologies, and visit CSIRO's BioFoundry, a facility in Brisbane that designs, builds, and tests new biotechnologies in collaboration with industry and universities. In addition, Maya attended some virtual seminars with other Future Shapers including a tour of CSIRO's RV Investigator and a Dungeons and Dragons inspired session solving real world issues in the Murray River. Maya explained how becoming a Future Shaper had provided opportunity to meet likeminded students that are passionate about space or other aspects of STEM:

I think being around likeminded people it was sort of easy to make friends there because we all had something in common.

She explained that at her primary school there isn't really anyone else interested in space, or at least not at the same level she is.

STEM goals

Maya explained that being exposed to other STEM areas has helped broaden her STEM career interests, which now extends beyond space to include genetics.

I want to keep looking at space and I want to also start looking at genetics like DNA.

Challenges

Maya's father explained that they did initially find it a little difficult to understand what the Future Shapers recognition pack could be as it was described as 'design your own'. In addition, Maya thought that having a bit longer in Brisbane and for the virtual sessions that she enjoyed would have been good. Maya's father also suggested that, whilst the students found it easy to get to know each other, perhaps an icebreaker for parents would be a good idea in the future. But all in all, Maya and her father were really happy with the Future Shapers experience.

Future Shapers difference

When asked what difference has Future Shapers made to you, Maya replied:

Before Future Shapers I said I wanted to be astrophysicist, something to do with space. But now I know there's a whole lot of other jobs in STEM other than space, and I just can't choose at the moment.

Parental insights

Maya's father explained he felt that for Maya, having the opportunity to have her STEM interests reinforced was important.

It's good to have that experience as a kid to reinforce your interest in STEM.

He also felt that he benefited from attending activities with his daughter as he got to see how confident she was asking questions and participating in the activities, and that the experience had further cemented their relationship as "space buddies".

I guess we don't hang out like that generally, so it was really good to have that trip together and the shared experience with the two of us, we will always remember it, that's for sure.

Maya's father explained that he is also happy for Maya to continue to help out with the program.

If you need an enthusiastic 10-year-old for any feedback or projects or media or anything like that down the track [Maya is keen].



Mika was in Year 6 and attending a primary school in northwest Tasmania that is considered a low opportunity area when she was nominated for Future Shapers by her schoolteacher in 2023. Mika entered the Future Shapers program with a keen interest in many aspects of STEM, but particularly biology and microbiology.

Opportunities

As a Future Shaper, Mika attended the Brisbane STEM Adventure with her stepfather. As a budding biologist, Mika was excited by the visit to CSIRO's BioFoundry, a facility in Brisbane that designs, builds, and tests new biotechnologies in collaboration with industry and universities.

I really like the microbiology. I enjoy biology and just listening to [the scientists] talking about all these things.

Mika explained how much she also enjoyed seeing the robots at the Queensland Centre for Advanced Technologies.

Going to the robot was amazing...me personally, I was like, blown away, because I've seen this on TV, but in reality, it's just so amazing the way it works.

In addition, Mika had the opportunity to explore cube satellites at Griffith University's Gilmore Space Technologies lab on the Gold Coast and meet an astrophysicist which she thought was 'cool'.

STEM goals

Mika is in her school's gifted student program and takes part in as many extracurricular activities as she can, including helping younger children in a beginners coding club (she herself takes part in the advanced code club). Although Mika has many interests and pastimes, she explained that she feels that she will probably become a biologist but may end up on another path.

I'm probably going to be a biologist. However, my future's not set in stone.

Future Shapers difference

In addition to having fun, Mika explained the most valuable thing about Future Shapers for her was seeing what different STEM career pathways looked like in real-life.

I feel like I had fun. I got a lot of opportunities to get an insight of jobs...I want to know what I'm going to do before I dedicate my life towards it.

Mika also explained:

I feel like nothing that I've learned has completely changed my life forever, but I feel like it's definitely pointing me in a better direction...

Challenges

Having high expectations of herself, Mika explained that her challenge was worrying about the prestige of being a Future Shaper and not living up to expectations.

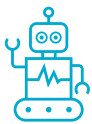
I was a little bit worried about the whole idea of... I was like, holy crap, what if I'm the worst one in the group?... it wasn't the information that [CSIRO] shared. It was just my brain going into hyperdrive. I do that a lot.

Mika's stepfather explained that he's helping Mika with her worries, which he feels come from being naturally competitive like her mother.

Parental insights

Mika's stepfather explained that he can see that Mika is interested in science and his goal is to guide her. He doesn't know all the answers to her questions, but he can steer her to where she wants to be and where she can make a positive difference in the world. He explained that he valued Future Shapers in supporting him in that role and providing Mika with hands on experience and positive STEM role models.

This program...what a brilliant idea, you guys should keep it up, because it actually really makes a big difference...you actually get to touch and see [STEM]...But it's not only that, but you guys also give this opportunity for us parents...it's important for us to understand...to know a little bit of what they want to be.



Yuki was in Year 5 attending primary school in a small country town in southeast Victoria that is considered a low opportunity area when her mother nominated her in 2023 for Future Shapers. Yuki has a keen interest in all things STEM, and a special interest in robots.

Yuki explained:

When we came here, I really wanted to see the robots, because we have a dog named Bandit, and I wanted to see the robot version of him.

Opportunities

As a Future Shaper, Yuki attended the Brisbane STEM Adventure with her mother and got the opportunity to see and operate robots at the Queensland Centre for Advanced Technologies. She said:

We got to see all of the robots. That was so cool. Also, when we got to drive the robot that was the Lunar Rover.

Yuki also had the opportunity to explore space technology at Griffith University's Gilmore Space Technologies lab on the Gold Coast and listen to a talk by an environmental scientist, both of which Yuki said she found interesting.

I liked how [the environmental scientist] was talking about climate change. I already knew something about that, but I didn't know much and now she's helped me learn more.

In addition, Yuki got to visit CSIRO's BioFoundry and was provided with a subscription to CSIRO's Double Helix magazine, which she explained she is finding interesting.

Oh, they're very interesting, because in the back of one gave us like this blood clotting [recipe] that you could make, and me and my grandma made it...she loves cooking, so I made her do it with me...and it became like jelly, and I remember that it stank.

STEM goals

Yuki explained that having the opportunity to see robots in action has increased her interest in robotics and that she is also interested in studying more STEM subjects.

Yeah, because before that I didn't really know much about the robots, but now I know more about the robots, I'm a lot more interested in them.

As a straight-talking 11 year old, Yuki honestly explained when asked what job she might like to do when she was older.

I have no clue what I want to be!

Challenges

In contrast to the hands-on robot experience that Yuki loved, she explained that she didn't find her trip to CSIRO's BioFoundry as interesting. She found standing for long periods listening to a topic that she wasn't interested in, and didn't really understand, quite challenging.

Future Shapers difference

For Yuki who is interested in STEM but comes from a small country town, Future Shapers has provided an opportunity to be exposed to cutting edge STEM innovation and to meet likeminded students. Yuki's mother explained:

I guess I just wanted to expose her to some possibilities because she's very interested in all kinds of STEM, very interested and very good at it, by all reports. So, when this came up, I just thought it would be an amazing opportunity for her to just get a bit of exposure to a few different things.

Parental insights

Yuki's mother explained that through Future Shapers she has been able to see how engaged Yuki can be in STEM:

I've never really seen her in an educational setting before. So, it was really interesting to watch just how she takes things in...she was listening because she was really interested in it, I could just tell she was absorbing it all.

Yuki's mother also explained the importance of having one on one time with Yuki:

On a personal note, we have three other kids...and it's just been really nice to spend some time with [Yuki] on her own...so, this has been just overall an amazing experience on a number of different levels for us.

Jayne Watts, Adult Future Shaper 2023

The Context

Jayne Watts has worked in student support roles at various schools for over 15 years. She currently works at 2 schools in northeast Tasmania, in a low socio-economic community. She is also a mentor with the GFG Foundation. Jayne was successful as an Adult Future Shaper in the first year of the program, and at first, she didn't know a lot about the program or what to expect.

The Challenge

Jayne works with young people, families, and her community day-to-day. She sees firsthand that young people face several challenges which impact their ability to engage with school. Better understanding these challenges ensures they can be addressed, and students can be appropriately supported, therefore encouraging engagement in their education, and in STEM.

Jayne particularly sees the impact of mental health challenges. She hopes to contribute to keeping people connected and safe to support their mental and physical wellbeing and encourages her community to access support services.

The Recognition Experience

As an Adult Future Shaper, Jayne was able to attend the Child and Adolescent Mental Health Conference and was able to participate in over 20 workshops during the event. These workshops encompassed a range of topics including technology, sex education, and youth wellbeing.

I was immersed in this world for 3 days and it was the best of the best around the country, top psychiatrists and psychologists, policy makers...it was absolutely mind-blowing.



Personal development opportunities have been difficult for Jayne to access previously.

There was a one-day course I've been waiting to do for 3 years...that's how hard it is to get any sort of Professional Learning and upskilling.

Jayne also attended the virtual ceremony at the conclusion of the Future Shapers program, and she says it was amazing to hear from the Young Future Shapers and hear their ideas.

We have so much to learn from young people.

The Impact

Jayne says the recognition experience has kept her motivated within her role. Working in student support can be tough, but the conference restored her enthusiasm for her work.

She has also had the opportunity to share information and learnings from the conference with her school community back home. During the conference, Jayne was able to learn about several topics that are impacting young people and is now working with her student support colleagues on how to educate parents about the issues young people are facing.

Her aim is to get the information and knowledge out into the community. To better support young people, her goal is to hold a community workshop as she sees information as power.

The Future Shapers experience has built Jayne's personal and professional skills to enable her to confidently access resources and then share them with young people, parents, and the community.

The Opportunities

As it was the first year of the Future Shapers Program, Jayne identified that there was a lack of parameters on what her recognition could involve. This constructive feedback has assisted in making the recognition design process clearer, with parameters now in place. She found that although there were some challenges, such as not having a key contact initially, the STEM Together team were supportive and helpful to communicate with.

After participating in Future Shapers, Jayne sees that the definition of STEM has become much broader and more accessible. She believes STEM has become relatable for young people, and students are encouraged to think differently about what STEM encompasses.

As a student support teacher, Jayne sometimes finds it difficult to engage with STEM teachers, feeling like they operate in different worlds. But Jayne believes there needs to be support from the whole school, and planning needs to start early if programs are to be successful.

Jayne has recommended Future Shapers to her colleagues and overall, she is extremely grateful for her Future Shapers recognition experience.

I love that you didn't have to be a science teacher to be successful, I hope I've stressed the value I've gotten from the [student support] side of things...nothing has got me this excited in years.

Jen Malone, Adult Future Shaper 2024

The context

When Jen Malone and her family moved to the Atherton Tablelands in Far North Queensland, they were surprised when their 8-year-old daughter announced she wanted to become an Aerospace Engineer and Astronaut. Jen began searching for STEM programs or clubs to nurture her daughter's dream — but sadly realised that nothing existed for kids her age in the region. So, a few days later, when her daughter and a few of her friends asked if they could start an Astronaut Club at school, Jen said yes and took action.

I wasn't a Space Educator at that stage...but I was a Mum, and a Radiographer — I had a STEM background and a lifelong interest in Space exploration. I'd also been an Early Childhood Educator and a Cub Scout leader, so I knew I could kid-wrangle.

With the unique challenges of military family life, Jen has navigated several career changes. Through these shifts, she developed a deep appreciation for transferable skills: adaptability, problem-solving, and the importance of teamwork. These are the very qualities she now fosters in young learners through the Young Astronauts Club.

Jen had always been fascinated by space and remembered what it felt like to look up at the stars and dream.

I wanted to help these kids engage with STEM — and learning about space seemed the perfect way to do that.

Jen launched the Young Astronauts Club — a STEM-based lunch time Space Program that she recounted saw an amazing response, with over 70 students wanting to join the club. Jen's success started to attract attention from educators, parents, and the space sector, leading to media coverage and a podcast appearance on Space Connect in 2023.



The challenge

Not being a professionally qualified teacher, Jen has experienced some barriers to furthering her credentials as an educator. However, in 2024, when she was named one of just 5 adult recipients of CSIRO's STEM Together Future Shapers award, Jen felt validated in her work.

When I was announced as a STEM Together Future Shaper for my work with the Young Astronauts Club, it felt like my skills were being acknowledged and validated, and it encouraged me to keep going.

The Recognition Package

Jen selected a student focused resource package — filled with Moon mats, LEGO models, programmable robots, space books, and even a life-size Astronaut cardboard cutout which meant children could see themselves as future Astronauts doing real missions in Space.

The Impact

Being recognised as a Future Shaper came just as Jen was preparing to deliver her first keynote at the Australian Space Summit, boosting her confidence and validating the grassroots mission she'd built from the ground up.

I think it really helped give me a burst of confidence.

The opportunities

Now based in the Canberra region, Jen is expanding the Young Astronauts Club and building an online version to reach even more children, especially those in rural and remote communities. Her goal is to keep space education inclusive, fun, and accessible for every curious kid regardless of age, postcode, or pocket size.

Understanding the demands on educators, Jen advocates for harnessing the talents of parents with STEM expertise, collaborating to support teaching, inspire students, and expand what's possible in the classroom.

Sharni Silvestri, Adult Future Shaper 2024

The context

Sharni Silvestri is a teacher at a small primary school in regional Western Australia with around 150 students. Sharni is passionate about ensuring regional children from low socioeconomic areas have access to engaging and inspirational STEM experiences. This passion led Sharni to establish STEMathon, a local National Science Week event, in 2023 which quadrupled in size in 2024, engaging 900 children from 9 schools (and homeschool students), 50 educators, 50 industry professionals, and 70 community volunteers. The community event created opportunities to showcase, learn, and connect with STEM, as well as develop opportunities for further collaborations.

The challenge

Sharni explained that children from her local area haven't traditionally had good access to STEM opportunities, STEM industry role models, or digital technology. As a result, her goals include highlighting women in STEM, Aboriginal scientific perspectives, and increasing access to technology for regional children.

*One of my goals is to try and inspire and get young girls in the STEMathon...
Another one of my goals was [to include] Aboriginal scientific perspectives.*

Sharni was able to partially realise her goals in providing female and First Nations role models and scientific perspectives through her tireless networking for the STEMathon event in 2024.

When she found out that she had been recognised as a CSIRO Future Shaper, a key focus was on increasing access to digital technology and to continue to connect children with STEM industry professionals.

The Recognition Package

After discussions with STEM Together staff, Sharni selected a resource pack of a classroom set of Lego Spike prime robotics kits. This is intended to enable her school community to support students in participating in the local LEGO League in the future.

*We're now able to connect with other schools that do the Lego League and
which we would never have been able to do before.*

The Impact

Sharni explained that the robotics kits had helped to reduce the digital access divide for her students. Being recognised as a Future Shaper has provided credibility for Sharni's work, given her the opportunity to strengthen her STEM skills, and has contributed to STEM teaching opportunities at her school as she was asked to increase her teaching days so that she could provide STEM opportunities for the whole school.



The opportunities

Sharni sees opportunities for STEM Together and CSIRO Education and Outreach to have greater impact by making some changes, for example, by selecting more Adult Future Shapers each year.

I think it's a great programme, what you're doing with the kids is amazing, there's lots of kids, which is rightly so, but a lot of the time what the adults do is have more of a ripple effect...

Sharni also felt that there was opportunity to build better connections between CSIRO Education and Outreach programs, so that busy teachers can be connected more effectively and efficiently with STEM professionals. Additionally, Sharni suggested establishing an easier to navigate resource hub. Sharni's feedback is being considered by CSIRO Education and Outreach and has already contributed to some improvement initiatives.

13.6 Local Connection Project Stories of Impact

Supporting Scouts and Industry Mentors to Inspire STEM Through Student-Led Inquiry

The Context

The Geelong Local Connection Pilot (LCP) was designed to connect local industry and community groups to create meaningful STEM learning opportunities for young people. The pilot brought together Scouts Victoria, Worley, and CSIRO STEM Together to deliver a five-week program blending Scouts' Special Interest Area (SIA) STEM badge requirements with CSIRO's CREST Awards. The aim was to empower young people to design and lead their own STEM inquiry projects, supported by industry mentors and Scout leaders.

The Challenge

Scout leaders and Worley mentors were enthusiastic but faced challenges in planning and delivering open-ended STEM inquiry in an informal, highly energetic environment. Mentors had to adapt to the non-classroom setting and find ways to engage young people effectively.

It's not a classroom...the Scout leaders have enough control of the situation, but for mentors, it was about accepting the chaos and finding ways to engage.

(Worley STEM Mentor)

Logistical hurdles included aligning expectations across 3 organisations, clarifying roles, and ensuring resources and skills were available to support hands-on STEM activities.

Our Response

CSIRO facilitated collaboration meetings, delivered 2 training workshops (on inquiry-based learning and engaging young people), and provided ongoing mentoring. The program was co-designed to allow Scouts to choose their own projects, supported by Worley mentors and Scout leaders. Projects ranged from solar-powered phone chargers to compressed-air bottle rockets, giving participants ownership and creativity.

I really enjoy giving that chance for science and STEM education in an informal environment and allowing that free learning and experimentation.

(Scouts Representative)

The Results

Twelve Scouts achieved their CSIRO Creativity in Research, Engineering, Science, and Technology (CREST) Blue Intermediate Award in addition to contributing significantly to their Scouts Special Interest Area (SIA) STEM badge. Projects demonstrated problem-solving, creativity, and persistence. Training feedback from Worley and Scouts showed 100 per cent

increased knowledge of STEM inquiry and teaching strategies, 80 per cent increased confidence to apply strategies, and 100 per cent overall satisfaction. Collaboration surveys indicated 100 per cent agreement that STEM Together was beneficial to participants and their organisations, with 80 per cent agreeing it benefited young people they know.

The changes I thought were a lot bigger than I expected...from the planning stage where it was just like such a mountain for a lot of them to overcome.

(Worley STEM Mentor)

Opportunities

The pilot generated strong local interest, with other Scout groups keen to participate. Scaling across the state of Victoria and potentially nationally, could provide informal STEM opportunities beyond schools, engage underrepresented cohorts including girls and regional youth, and strengthen industry-community partnerships to diversify Australia's STEM talent pipeline.

Collaborating for sustainable STEM impact with Girl Guides Victoria

The context

Linda Kors, State Commissioner of Girl Guides Victoria (GGV), leads over 800 passionate volunteers in delivering the Australian Guiding Program to more than 4,000 girls across Victoria each year. Guiding empowers girls and young women to grow into confident, responsible community members through fun, friendship, adventure, and skills for life. With a career in Chemical Engineering and global professional experience, Linda and her team of volunteers are committed to developing opportunities within Guiding for girls to engage with the world of STEM.

In early 2024, CSIRO STEM Together's team reached out to Girl Guides. Having already partnered with Scouts Victoria, they were keen to discuss whether a similar collaboration might be of interest within Guiding.

The collaboration was initiated by CSIRO, which we were excited to see...I think that's really positive and we welcomed that outreach.

With a strong connection to the proposed location of Geelong, Linda embraced the chance to jump in and lead a locally based collaboration that reflected the values and approach of Girl Guides Victoria, assembling a small but dedicated steering team to drive the project forward.

The challenge

Through collaborative discussions between the Girl Guides Victoria and STEM Together team, it quickly became clear that there was a real opportunity to create a tailored program to respond to the specific needs of the Guiding program and align with its girl-led philosophy.

Girl Guides already had established STEM badge pathways and a collection of STEM activities in place – they wanted to strengthen and expand these so all Guiding volunteers could confidently use a range of educational STEM activities within the Girl Guide program, enabling more girls to experience STEM in meaningful and inspiring ways.

We wanted to offer more than slime experiments – we really wanted to try and do something that could expand and enhance our program, and that would be sustainable.

While Girl Guides volunteers had plenty of skill, passion, and genuine interest, the challenge was finding time to develop and deliver a clear plan of action with a definite timeline, with many volunteers also juggling careers, families, and external commitments. The CSIRO STEM Together team offered expertise and consistency, key ingredients for making this possible.

The response

Over 8-10 months, CSIRO worked with GGV to understand what was needed to make sure that the collaboration plan was right and met the unique needs of the Guiding environment. This included co-creation of a statewide survey distributed to Girl Guide leaders, seeking to

understand what they wanted and needed to engage girls in STEM activities to grow their interest, confidence, and capability.

Creating the survey with CSIRO was a great step. It gave us valuable insights from our Guide Leaders and helped ensure the decisions we made were driven by the needs of our Guiding community.

Consideration of the 57 survey responses from Girl Guide Leaders affirmed the 3 clear timebound goals the project had set:

- Develop an easily accessible online resource hub of ready-to-use practical STEM activities.
- Build knowledge, skills, and competency in GGV leaders through training and development workshops.
- Support GGV led delivery of local/regional STEM events through a Leader inquiry day, followed by a GGV STEM EXPO for Girl Guides.

The results

Progress to date has seen the development of a prototype template for STEM activities to be loaded into, forming the foundation of the future resource hub. The success of the STEM resource hub will be borne out when it is fully operational.

Though there is still plenty of work ahead, Linda highlighted 3 key enablers that have contributed to success. Firstly, the willingness and openness of CSIRO to understand GGV as an organisation and work with the existing organisational model. Secondly, the consistency provided by the CSIRO team to support Guiding's volunteer model and network. Thirdly, the dual structure of the Steering Committee and Working Group, with their specific roles.

We couldn't do this without the STEM Together team...because the beauty of the collaboration, particularly when you're working with a volunteer organisation, is having the consistency of staff who can support the team...I don't think we'd have been as far along as we are if we didn't have that collaboration.

Communication between the teams around progress was identified as an area that could be strengthened moving forward, but, as Linda put it, this was only a "2 per cent issue."

Opportunities

This collaboration is already having a transformational impact with more to come. Linda reflected that the collaboration has the potential to build confidence and capability among Guide Leaders, which will lead to more STEM activities across Units and camps, and more Girl Guides earning STEM badges. Beyond the immediate collaboration, there is a vision to share the STEM resource hub to become a national Girl Guide resource in the future.

Supporting Junior Ranger Coordinators to gain confidence in engaging students through strengths-based student led inquiry.

The context

The Queensland Indigenous Land and Sea Ranger Program is a partnership between the Queensland Government and First Nations communities to care for land and sea country. Indigenous Land and Sea Rangers care for Country, combining traditional knowledge of Country with specialised training and experience in the practice and science of managing natural and cultural resources⁴⁵.

An important aspect of many Rangers' work is engaging with young people in their communities to educate them about the vital importance of caring for Country. This work is undertaken through the Junior Rangers Program in partnership with local schools teaching young people in the classroom and on Country.

The challenge

In February 2024, Senior Program Officer, Chris Chesher, reached out to the STEM Together Program through connections with CSIRO scientists, seeking professional development opportunities for Rangers delivering the Junior Rangers Program. Chris had been working closely with Ranger Groups across 46 communities in Queensland. In his facilitation role, he had come to understand that whilst Rangers held a wealth of traditional scientific and cultural knowledge, engaging diverse young people with confidence in a school setting could be challenging.

A lot of it is building confidence with Junior Ranger Coordinators — they're skilled in environmental and cultural work, and we're supporting them to grow as educators too.

Our response

CSIRO staff from the STEM Together – LCPs program element met regularly with Chris over an extended period to understand the needs and opportunities. From these initial meetings, staff were introduced to 3 Indigenous Land and Sea Ranger Groups by Chris to understand needs and opportunities at a local level. In-person meetings with representatives from the 3 organisations took place in Far North Queensland in October 2024.

Whilst progress has been made in building relations, understanding needs, and designing training, there is an acknowledgement that the pace and nature of progress is dependent on many factors.

Because of the context, it takes a little more time and takes a bit more money and takes a bit more support.

⁴⁵ Indigenous Land and Sea Ranger program | Environment, land and water | Queensland Government

To date, 8 CSIRO training workshops have been delivered, 7 in person and one virtually. Six workshops were delivered across multiple Ranger Groups at a three-day conference held in Cairns in June 2025, while the remaining 2 workshops were delivered to individual Ranger Groups. The training has focused on equipping the Junior Ranger Coordinators with capability and confidence in inclusively engaging young people through strengths-based, student-led inquiry.

Chris acknowledged that there have been a number of key enabling factors that have contributed to the willingness of Ranger Groups to work with CSIRO STEM Together; this includes CSIRO being seen as a strong organisation that Rangers are proud to be associated with, presenting to the Indigenous Land and Sea Rangers Junior Ranger Advisory Committee, the commitment be available to meet frequently and travel to build relationships on Country, being willing to co-design the training workshops, and to take the time to really understand what was needed.

A huge amount of willingness, experience, expertise and devoting the time to something when we didn't know if it was going to work...

The results

As a result of laying groundwork, STEM Together staff were invited to deliver workshops to 2 Indigenous Ranger Groups in Far North Queensland and present at the QILSR Inaugural Junior Ranger Coordinators Conference in Cairns in June 2025, expanding the reach of the training to over 20 Indigenous Land and Sea Ranger groups.

A total of 8 Engaging Young People Workshops have been delivered to date:

- October 2024, delivered to 7 Girringun Rangers.
- March 2025, delivered virtually to MingaMinga Rangers.
- June 2025, delivered in-person workshops over 2 days to Rangers attending the QILSR Inaugural Junior Ranger Coordinators Conference representing 20 organisations (n=68 attendances in total).

Feedback from 12 survey respondents:

- 83 per cent increased knowledge of the topic
- 92 per cent increased confidence to apply knowledge
- 91 per cent relevant to my learning needs
- 91 per cent satisfied or very satisfied
- 91 per cent would recommend

Chris explained that supporting confidence building of the Junior Ranger Coordinators can have direct impact on how they work with students, and can positively impact the school, the local community, and Country as it supports Rangers to demonstrate a pathway for environmental and cultural stewardship, and the careers that this can lead to.

Chris highlighted that the number of Junior Ranger Coordinators and students is continuing to grow, and the work being done is making a powerful difference — helping young people stay connected to school, culture, and Country

This work is hugely transformational — and we're seeing real growth in participation and momentum.

Opportunities

QILSR is seeking to continue to work with CSIRO to help contribute to the educational component of a flexible statewide framework for the Junior Rangers Program. The potential benefits of the framework could include supporting local delivery of the Junior Ranger program across the 46 Indigenous Ranger Groups (**Error! Reference source not found.**⁴⁶) which could ultimately have much greater impact to inspire future generations of Indigenous and non-Indigenous young people to care for Country.

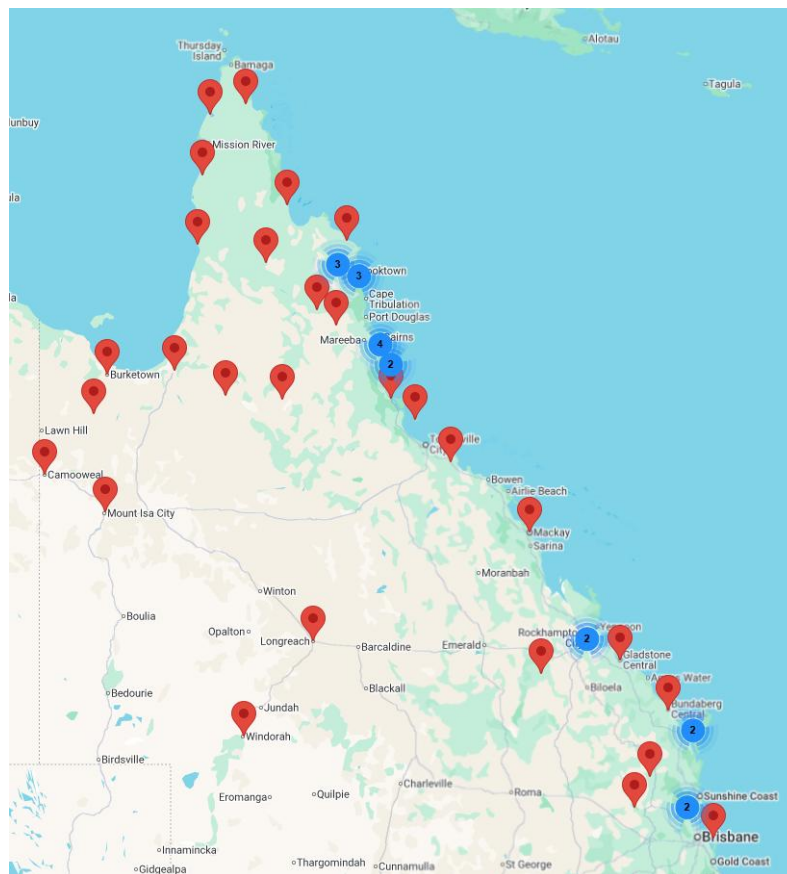


Figure 27. Queensland Indigenous Land and Sea Rangers

⁴⁶ Figure source: <https://www.qld.gov.au/environment/plants-animals/conservation/community/land-sea-rangers/locations>

13.7 The CSIRO Youth Reference Council (CYRC) Roles

Youth Reference Council roles

Council roles are held by members of the CSIRO Youth Reference Council and include Chair, Secretary, Moderator, and Mediator. By Council agreement the roles rotate, with members electing to take on the following roles with the support of STEM Together staff.

The Chair is responsible for leading the meeting. For each meeting this will involve opening the meeting, and welcoming everyone, reminding members of Council rules and expectations, introducing each item on the meeting agenda, and making sure everyone has a chance to have their voice heard.

The Secretary is responsible for recording discussions during the meeting. This will include making note of who has spoken, what people have said, what was agreed – and if anyone disagreed – and making note of any ‘actions’.

The Moderator keeps time for the meeting and gives a time warning and indicates when it is time to move to the next agenda item.

The Mediator is responsible for facilitating communication and compromise where there is disagreement or conflict. Where required, the mediator may call for a vote from Council. The Mediator will also support the Secretary in keeping a record of ‘actions’ which come up during the meeting.

CSIRO Education and Outreach staff roles in the Council

Staff hold facilitative roles including:

The Council Facilitator supervises meetings and ensures the Council is conducted in a manner which is safe and aligned with the agreed Terms of Reference. They support Council members to take on Council roles, including preparation and distribution of meeting materials (agenda, minutes), and provide support if required during meetings. The Council Facilitator also assists in mediating any disagreements between Council members and is the first point of contact for any conflicts or grievances within the Council.

The Council Cultural Facilitator supports the Council Facilitator and, where required, supports the Moderator to keep the meeting to time. They also work with Council members to create a positive and productive team culture and are the first point of contact for Indigenous cultural support.

Council administrative support is provided to the Council through a centralised inbox (STEMTogether@csiro.au). This includes support around logistics (including travel, procurement), providing the meeting agenda prior to each meeting, and supporting the Secretary to provide minutes after each meeting.

The Council Monitoring, Evaluation, and Learning (MEL) Advisor will attend meetings in an observation role to collect data on the success of the CSIRO Youth Reference Council for reporting on outcomes, and will support the Council to develop and participate in MEL activities as required including advice on data collection activities.

13.8 Monitoring, Evaluation, and Learning - Additional Information

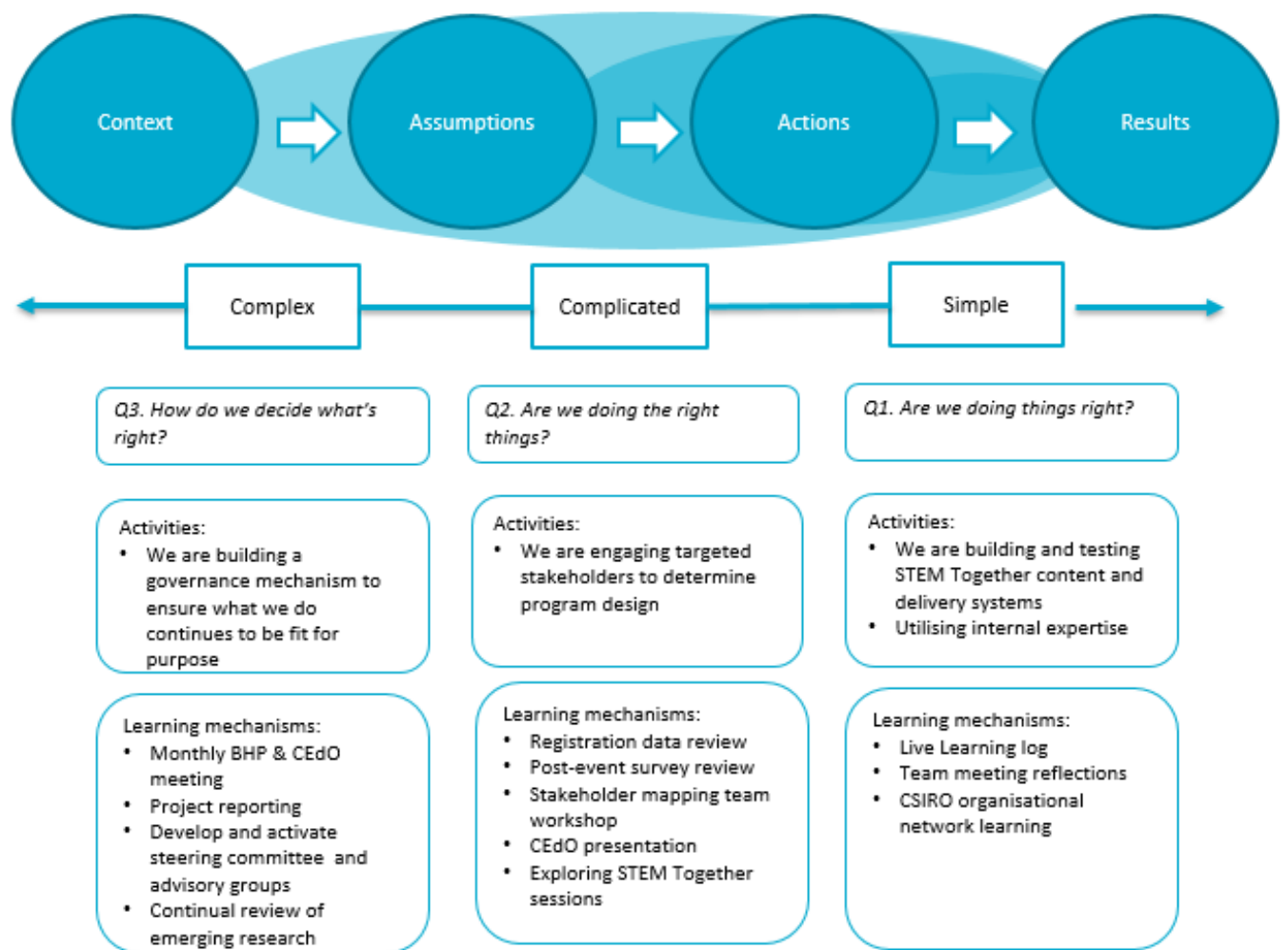
This section contains:

- STEM Together Evaluation Monitoring, Evaluation, and Learning Framework Overview
- STEM Together’s Triple-Loop Learning model
- STEM Together Impact Framework, key performance indicators and targets – January 2024-December 2026
- STEM Together Impact Framework, key performance indicators and targets – April 2022-December 2026

STEM Together Evaluation Monitoring, Evaluation and Learning Framework Overview

	Quality criteria	How successful has STEM Together been in...?	Evidence source	Method	Program element
YOUNG PEOPLE	ENGAGEMENT	1. ...engaging students from historically underrepresented groups and the educators who support them?	Program data	Document and dataset review	YFS, AFS, CYRC
			Program participants	Interviews, focus groups	
	CONFIDENCE, CAPABILITY, AND CONNECTION	2. ...increasing young people's capability, confidence, and connection with STEM?	Program participants (and parents of YFS)	Surveys, Interviews, Observations, Reflective practice including Photovoice	YFS, CYRC
	STEM ASPIRATIONS AND MOTIVATIONS	3. ...increasing students' aspirations and motivation towards STEM education and STEM-related careers?	Program participants	Surveys, Interviews, Observations, Reflective practice including Photovoice	YFS, CYRC
SUPPORTERS	CAPABILITY AND CONFIDENCE	4. ...increasing the capability and confidence of educators in creating inclusive and engaging STEM learning for their students?	Program data	Document and dataset review	EPL and AFS
			Program participants	Surveys (EPL) and Interviews (AFS)	
			Program staff	Reflective practice	
		5. ...increasing the capability and confidence of community leaders and industry professionals, to build capability and confidence in engaging young people in STEM?	Program data	Document and dataset review	LCPs
			Program participants	Surveys, interviews, focus groups	
			Program staff	Reflective practice including surveys, focus groups, learning logs, workshops	
SYSTEM	LEARNING	6. ...developing and embedding mechanisms for learning and sharing insights about works to increase engagement and diversity of underrepresented groups in STEM?	Program data	Document review	CYRC, SERG, SIN, DAP, MEL
			Program participants	Surveys, interviews, focus groups	
			Program staff	Reflective practice including surveys, focus groups, learning logs, workshops	
	DURABLE IMPACT	7. ...developing and embedding mechanisms for durable impact?	Program data	Document and dataset review	DIP
			Program staff	Reflective practice	

STEM Together Triple-Loop Learning



STEM Together – Key Performance Indicators and Targets January 2024 - December 2026

Dimension	Impact frame	Indicators	Measurables & Targets	FY22/23	FY23/24	FY24/25	FY25/26	FY26/27	TOTAL
Who?	Beneficiaries: Students from under-represented groups	Proportion of future shapers finalists from under-represented groups	Representation of under-represented groups in student programs (prioritising girls, Aboriginal and/or Torres Strait Islander students, < 1000 ICSEA, from very remote, remote, or outer regional areas).	60%	≥ 60%	≥ 60%	≥ 60%	≥ 60%	≥ 60%
	Activators and allies: educators, schools, industry, STEM providers, communities	Educator/school profile	Educators from under-represented schools (prioritising girls, Aboriginal and/or Torres Strait Islander enrolment >Australian average, < 1000 ICSEA, from very remote, remote, or outer regional areas)	60%	≥ 60%	≥ 60%	≥ 60%	≥ 60%	≥ 60%
What?	STEM education and career pathways become more inclusive, strengths-based, and young person-centered, which strengthens the STEM talent pipeline and increases the engagement of students from under-represented groups using insights informed by the latest science.	Increased student confidence and self-efficacy in STEM	% of students strongly agree or agree that their aspirations for STEM education / career have increased	75%	75%	75%	75%	75%	75%
			% of students strongly agree or agree that they are motivated to apply STEM skills to whichever career they choose	90%	90%	90%	90%	90%	90%
		Increased educator confidence and capability in inclusive STEM education	Proportion of educators participating in Educator PL who have increased confidence and capability in inclusive STEM education	n/a	60%	65%	70%	75%	
How much, at what rate?	Annual cohorts of Future Shapers, Educators, and local connection pilots	Reach of the program through communications/promotional activities	Social media impressions, website views, blog views, EDM messages sent, event audience numbers, internal communications impressions/views	250,000	400,000	450,000	500,000	150,000	1,750,000
		Number of Educators in Professional Learning	Number of participants in Educator Professional Learning	150	200	250	300	350	1250
			Multiplier – students of educator participants**this is per year and not considering the cumulative influence of a teacher across their career.	10,500	14,000	17,500	21,000	24,000	87,500
		Number of local connections made	Number of local connection pilots	-	2	3	4	2	11
BHPF's investment contribution and sustainability	Sustained impact outputs, such as inclusion plans/tools/technology	Willingness to recommend STEM Together to others	Number of participants in local connection pilots	-	200	300	400	200	1,100
			Willingness to recommend: proportion of allies that would recommend STEM Together (agree/strongly agree)	90%	90%	90%	90%	90%	90%
What risk?	Risk: Educators do not have the capacity to participate in STEM Together	Counterfactual indicator: Educator participation	Number of participants in Educator Professional Learning	150	200	250	300	350	1250
	Risk: Inability to create sustainable impact	Counterfactual indicator: Outputs adopted and implemented	Formation and number of STEM Together Allies meetings	-	-	-	1	1	2

STEM Together – Key Performance Indicators and Targets April 2022 – December 2023

Dimension	Impact frame	Indicators	2022	2023	2024	2025	2026	TOTAL
Who?	Students from under-represented groups.	Proportion of under-represented groups in the program (including breakdown by female, Aboriginal and Torres Strait Islander, low SES areas, regional and remote) *	60%	≥ 60%	≥ 60%	≥ 60%	≥ 60%	≥ 60%
	Teachers connected with students from under-represented groups	Qualitative – Case studies/MSC (Y2 onwards)	n/a	Case study	Case study	Case study	Case study	
What?	Diverse students pursue STEM education and career pathways assisted by confident and capable STEM teachers and connections with industry	Number of students that apply to STEM Together	250	350	450	550	650	2250
		Proportion of students who have increased aspirations for STEM education, a STEM career, and/or applying STEM skills in a non-STEM education/career.						
		A. % of students strongly agree or agree that their aspirations for STEM education / career have increased	75%	75%	75%	75%	75%	75%
		B. % of students strongly agree or agree that they are motivated to apply STEM skills to whichever career they choose	75%	75%	75%	75%	75%	75%
		Number of teachers achieving core training to help identify and support high potential students from underrepresented groups	10	20	30	40	50	150
		Proportion of educators who have applied their knowledge and skills related to identifying high potential students and supporting them to engage with STEM (i.e., (1) identify high potential STEM students, and assist/guide/mentor these students to pursue STEM pathways	n/a	60%	65%	70%	75%	n/a
How much, at what rate?	Increase the quantum of teachers and students completing the STEM Together program	Increase in number of students that participate in experiences	n/a	+20	+10	+10	+10	n/a
		Annual increase in educators who do core training	n/a	+10	+10	+10	+10	
	Increase the number of students impacted by the STEM Together program	Multiplier – students of educator participants	n/a	n/a	+2000	+3000	+4000	n/a
Sustainability	Increase of funding from funders other than BHPF	Contributions (financial and non-financial) from sources other than BHPF	Total	Total	Total	Total	Total	Total
		Willingness to recommend to other sponsors: proportion of sponsors that would recommend sponsoring the STEM Together program (agree strongly agree)	100%	100%	100%	100%	100%	100%
What risk?	Experiences of students, teachers and community through Project do not encourage participation in STEM.	Proportion of students with increased aspirations	75%	75%	75%	75%	75%	75%
		- Proportion of students strongly agree or agree that their aspirations for STEM education / career have increased						
		- Proportion of educators who get involved in outside school STEM activities/training after taking part in the STEM Together program	n/a	75%	75%	75%	75%	75%
	Dependency on BHPF funding as CSIRO a long-term partner	Contributions (financial and non-financial) from sources other than BHPF	Total	Total	Total	Total	Total	Total

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Contact us

1300 363 400

+61 3 9545 2176

csiro.au/contact

csiro.au

For further information

CSIRO Education and Outreach

Impact and Evaluation

cedoimpact@csiro.au