



scitech

Impact Report 2023-24



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Acknowledgement of Country

Scitech respectfully acknowledges the Whadjuk people of the Noongar nation, who are the traditional owners of the land on which our Discovery Centre and offices are located. We are honoured to be welcomed as guests on lands in regional and remote across Western Australia.

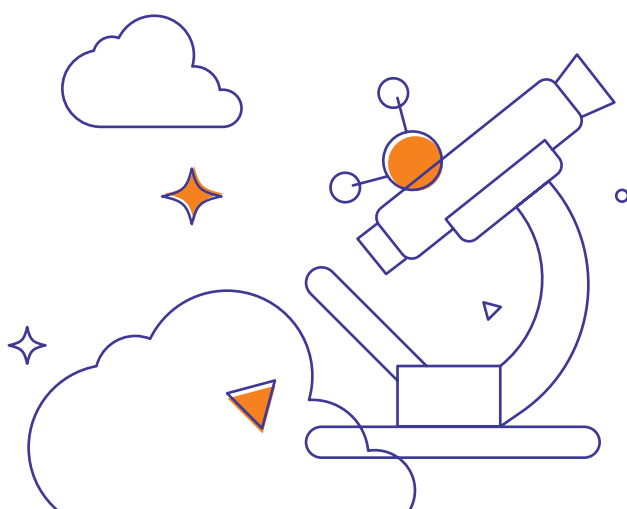
We recognise Aboriginal and Torres Strait Islander peoples as the first STEM practitioners, and value their knowledge as engineers, problem-solvers and innovators of this land.

We pay our respects to the Elders past, present and emerging.



Content

Purpose.....	5	Access and Inclusion	45
Values.....	5	Case Study	
Scitech 2030 Strategy.....	7	School Access Program.....	46
CEO Report.....	9	Partner Support	49
Highlights.....	10	Lighthouse Maths.....	50
Science Capital.....	13	Alcoa Digital Technologies Enrichment Program.....	52
How Scitech can strengthen our Science Capital.....	15	Future Computing Program.....	54
Estimating the Social Value of Scitech.....	16	STEM Club.....	55
Case Study		Inspiring Western Australia.....	56
Scitech's Digital Media.....	20	Case Study	
Future Focused	21	Scitech's DIY Kits.....	58
Here, There and Everywhere.....	22	Partnerships	60
Case Study			
Scitech Test Pilots.....	24		
Research at Scitech	27		
Scitech's Philanthropy Program	31		
Scitech in the Community	33		
Statewide.....	35		
Community Events.....	36		
Travelling Exhibitions.....	39		
Case Study			
Planet Pioneers in China.....	40		
Case Study			
Scitech at Croucher Science Week.....	42		





Purpose

To inspire engagement by all Western Australians in science, technology, engineering and mathematics.



Values

Passion

We are passionate about Scitech and our purpose. This passion is the energy that inspires our excellence.

Respect

We are honest, respectful and look out for each other's well-being. We foster a supportive community by being open-minded and welcoming of people of all ages, genders, abilities and cultural backgrounds.

Innovation

We encourage innovation and creativity. We learn and grow by working together.

Fun

We share the fun we have at work by including each other and the community, engaging our own curiosity and encouraging it in others.

Sustainability

We minimise our environmental footprint, responsibly using our resources and energy.



Scitech 2030 Strategy

Scitech’s 2030 strategy sets out a vision on how we will support Western Australians with STEM capabilities and encourage STEM awareness which can deliver long-term economic, environmental and social benefits, and forms the basis for this report.

With the rise of new technologies in biomedicine, microfabrication, robotics and artificial intelligence, the ability to understand and apply data, and develop solutions to complex problems, will be essential job and life skills. Many of the children who interact with Scitech programs today will enter a workforce that includes jobs that do not yet exist.

The 2030 Strategy aims to deliver four key outcomes of inspired and engaged Western Australians, more confident and capable teachers and students, parents engaging in STEM discussions at home and a more informed public.

We will achieve these outcomes through key drivers of Inspire & Engage, Develop & Nurture and Connect & Collaborate which form the foundations of our impact in the community.

By encouraging greater awareness of STEM, digital technologies in society and children taking up STEM careers, we can safeguard our future and deliver economic, environmental and social benefits to all Western Australians.

Strategic Priorities





CEO Report

At Scitech we are looking to the future, both ours and the future of Western Australia.

The 2023-2024 financial period has been a year of exciting new experiences and developments for Scitech, that have seen us constantly expanding and improving our ability to inspire Western Australians to find their love of science. Because we know that engaging our community in science is vital to giving them the tools to be active participants in understanding and solving the issues and challenges we face now that will affect all our futures.

I am hugely excited that the project to transform the permanent gallery in the Scitech Discovery Centre began this year and is now in full swing. A cross-organisation team of designers, project managers and content creators have come together to create a new gallery titled Here, There and Everywhere. I can't wait for our visitors to experience these new exhibits and discover how looking at the world through science presents so many opportunities and innovations.

The last year has seen fantastic work throughout the organisation to make our programs and activities more accessible and inclusive, as well as holding regular events for those with sensory needs and events for the blind and deaf, and investing in upgrading our facilities and upskilling staff in accessibility. It was hugely rewarding to then win the Best Diversity & Inclusion Initiative: Medium Business award at the Chamber of Commerce and Industry WA's inaugural Diversity and Inclusion Awards, a testament to the teams who have worked hard to develop these initiatives.

Scitech staff were often looked to as experts in a range of topics, from education to science communication to how we run our science centre. We saw this through our attendance at conferences and workshops around Australia and the globe where our staff lead workshops and presentations, through our research collaborations such as with the ARC Centre of Excellence for the Digital Child and having two opinion pieces published in The West Australian on the gender gap in STEM and how ability in maths is linked to confidence.

One event that showed the unique way Scitech presents our expertise was being part of TEDx Kings Park's Future Technology event. Among five incredible speakers from the WA science community, Scitech presented a specially curated show that used performance skills and humour to show how we make science communication engaging and accessible to all audiences.

With Scitech being a registered charity, it was exciting to launch our first Philanthropy program this year. Admission to the Discovery Centre and other events and programs only covers a portion of the vast services we provide, and we are hugely grateful the generous contributions of corporations, foundations, and the government to fund our work so that we can reach as many people as possible. Expanding into fundraising is an important and essential step for Scitech to be able to continue to deliver science learning, including to those who have financial and accessibility barriers.

One way we looked to the future was by launching the Scitech Test Pilots, our children's reference group who allow us to gain direct feedback on shows, programs, exhibits, concepts and digital content. This unique way of gaining feedback from children allows us to ensure what we do is accessible and relevant to the next generation.

None of this would have been possible this year without the extraordinary efforts of Scitech staff and volunteers, whose passion, creativity and dedication to delivering on Scitech's purpose for the benefit of all Western Australians is reflected in this report.



Dr John Chappell
Scitech Chief Executive Officer

Highlights

306,141

People visited Scitech Discovery Centre



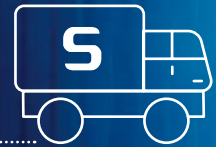
124,144

Statewide engagements with students, teachers and people in Perth and regional areas



46,000km

Statewide travelled across regional tours



27,441

Primary & Secondary students took part in school excursions



1,420

Students reached through the Aboriginal Education Program



1,920

Teacher engagements in Professional Learning Programs



2

million digital STEM engagements



263,993

Particle page views

9

Scitech exhibitions were touring internationally









Science Capital

Science capital is a conceptual tool that looks at the different ways an individual can engage with STEM over their lifetime to predict the likelihood of them pursuing study and careers in science.











How Scitech can strengthen our Science Capital

There are a range of influential experiences where people engage with STEM, including formal education such as at schools and universities, informal education experiences such as museums and science centres, role models from family and friends and engagement in science-related media.

The accumulation of these experiences contributes to an individual's science capital, with research suggesting that the more science capital a young person has, the

more likely they are to see science and technology as something that is "for them" and to pursue a career in STEM.

There are eight dimensions of science capital:

	<p>Scientific literacy: knowledge and understanding about science, and how science works, including students' confidence in how much they think they know about science.</p>		<p>Science-related attitudes, values and dispositions: to what degree a student sees science as relevant to their everyday life.</p>
	<p>Knowledge about the transferability of science: students' knowledge of the utility and broad applications of science skills, knowledge and qualifications.</p>		<p>Science media consumption: how often students engage with science-related media, including TV, books, magazines and online content.</p>
	<p>Participation in out-of-school science: how often students participate in informal science learning, such as visiting museums, zoos, science clubs and expos.</p>		<p>Family science skills, knowledge and qualifications: the extent of the science-related qualifications, skills, careers and interests of a students' family members.</p>
	<p>Knowing people in related roles: having meaningful relationships, including family, friends, peers and community members who work in science-related roles.</p>		<p>Talking about science: how often students talk about science with key people in their lives, such as friends, siblings, parents, neighbours and wider community members.</p>

Scitech provides experiences that have the potential to strengthen multiple dimensions of people's science capital. Our exhibitions, shows and activities in the Scitech Discovery Centre allow families to participate in informal science learning, as do our activations at community events. Throughout all our science engagement there is a focus on asking questions rather than simply telling the answer, allowing those who interact with us to discover how much they already know. Our experiences aim to make science relevant and to show the broader applications of science and science engagement across

curriculums, industries and in everyday life. We also aim to spark curiosity and inspire further discovery by allowing our visitors to make core memories through their experience. This means children will go home after an excursion and talk to their parents and carers about their experience, or tell their friends about a visit during the school holidays or an interaction with us at a community event. We also provide experiences that the whole family can engage with together, developing parents and carers and children's interest in science in a way that makes it a shared and collaborative experience.



Estimating the Social Value of Scitech

At Scitech, we've always been proud of our impact on the families, students, teachers and communities who engage in our experiences. But as a not-for-profit organisation and with the support we receive from the WA State government, partners, and individuals, it was important to us to show the vital role Scitech plays in Western Australia's STEM ecosystem and the community.

In 2024, Scitech engaged Deloitte Access Economics to find this out by independently assessing Scitech's contribution and value to Western Australia.

Scitech's impact on the WA STEM workforce

Deloitte approached the study by first establishing the size of the STEM workforce in Western Australia. A representative survey of adults in Western Australia was then used to calculate Scitech's impact on the career choices of this STEM workforce.

The study estimates that there are 247,000 STEM workers in Western Australia who contribute \$87 billion to the local economy, approximately 21.4% of WA's total gross value-added. Of those surveyed, 34% indicated

that Scitech played a positive role in their career decisions and 8% acknowledged a highly positive impact. This amounts to Scitech having positively influenced an estimated 84,000 STEM workers, including 20,000 indicating a high positive. With 75% of the fastest growing occupations requiring STEM skills, these figures show that Scitech is able to support and boost the local economy by playing a significant role in developing interest in STEM and building the skills needed to meet future workforce demands in Western Australia.

Scitech's social value to Western Australia

To estimate the social value of Scitech, Deloitte looked at a combination of four factors: transaction value, consumer surplus value, digital value, and existence value. Deloitte estimated the social value of Scitech to Western Australia to be \$455 million in net present value, discounted at a rate of seven per cent over the next 30 years.

Transaction value

Transaction value is the revenue generated by Scitech's services, including admissions to the Discovery Centre, events, exhibition rental and partnerships with industry. This was calculated based on historical financial data (2017 to 2023) to be \$159 million of value generated from services delivered in net present terms over 30 years.

Consumer surplus value

Consumer surplus refers to the additional value that consumers receive above and beyond the price they pay for a product or service. It is measured by the difference between their willingness to pay and the actual price paid. Results from a survey indicate that, on average, visitors to the Scitech Discovery Centre receive 26 per cent more value from their visit than they paid for entry.

Digital value

The study measured the benefits realised by children through engaging with educational content online using a value determined from similar prior studies. The value of Scitech's digital content was found to be \$13 million in net present terms over 30 years.

Existence value

Existence value is the value generated for individuals and households who do not interact with or have plans to engage with Scitech but derive value from its continued existence. Deloitte found that the average West Australian household was willing to pay \$15.04 per year to ensure Scitech can sustain its current operations, if all government funding is removed, a total of \$266 million in net present terms over 30 years.

Scitech's performance

At Scitech, we know that our experiences will be more impactful if they are memorable, and we do this by ensuring they are fun, engaging and entertaining. This was confirmed in the report which found that 89 per cent of people surveyed agreed that Scitech provides fun and engaging activities, and 60 per cent of people rated their level of enjoyment at Scitech from their most recent visit to be very high.

The study also found 89 per cent of respondents agreed that Scitech encourages and inspires the next generation to engage more with science and technology through fun and hands-on activities. It also found that 73 per cent of WA residents agree with the statement that "Scitech is a Western Australian icon."

Together, these findings show that not only do Western Australians value what Scitech provides now, it also confirms Scitech's role as an integral part of the WA STEM ecosystem, offering an essential investment in the economy, workforce and future of Western Australia.

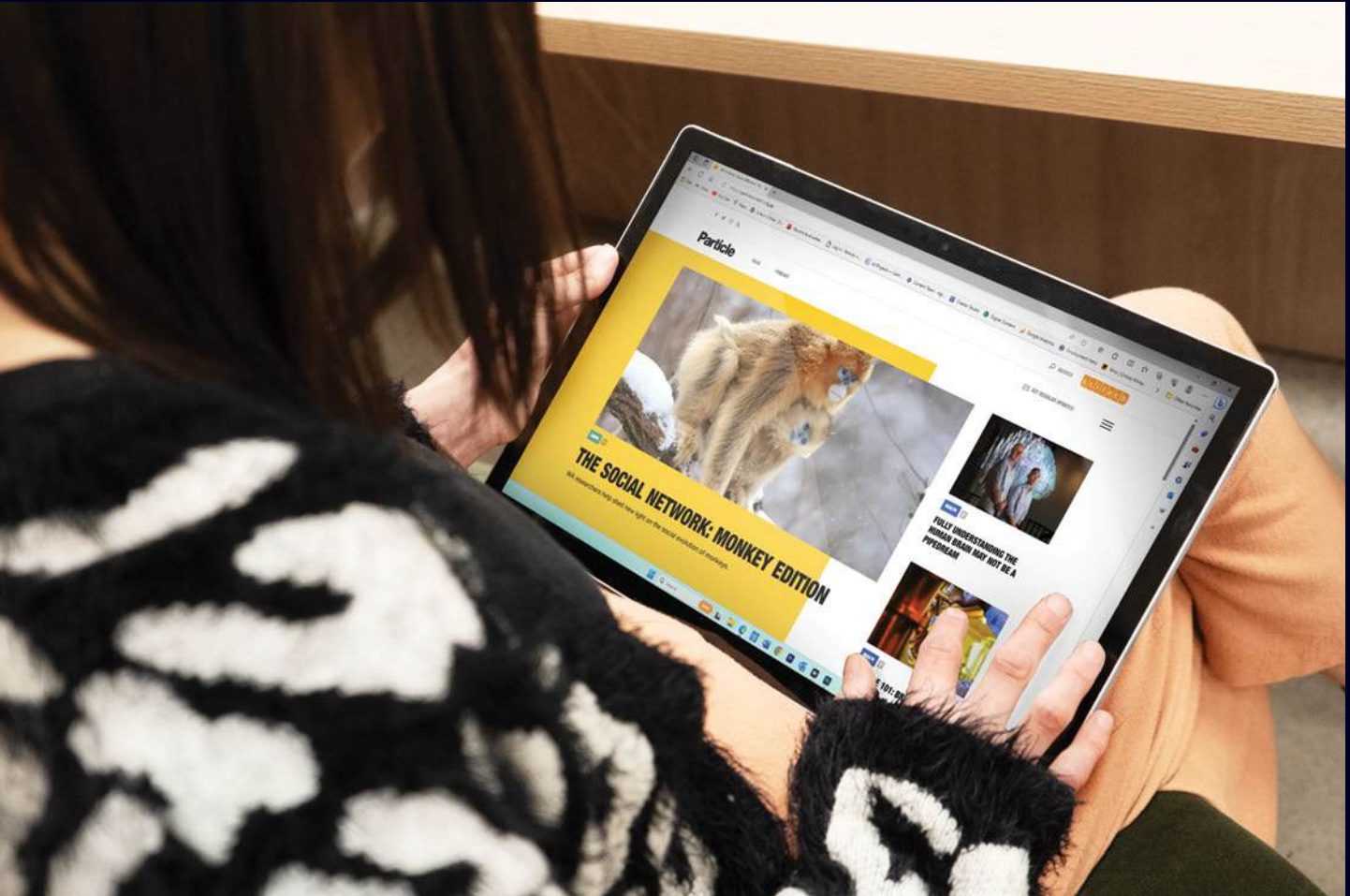
"I am very grateful for Scitech and have visited very many times with my children. It is a great asset for the state."

Professor Igor Bray, Head of Physics and Astronomy, Curtin University

"Exposure at a young age is critical for ongoing interest in STEM - STEM skills are the way of the future, and we need to spark interest as early as we can."

Lauren Presutto, Coordinator, Girls+ in Engineering Program, University of Western Australia

Case Study



Scitech's Digital Media

One of the eight dimensions of Science Capital is science media consumption which includes online content. Scitech's digital media provides a variety of ways people can engage with science beyond our in-person interactions and broadens our accessibility to audiences across WA, Australia and even internationally.

Particle

Particle is Scitech's independent media hub that connects young adults to science stories from Western Australia and beyond. The Particle website features articles that look at the latest research being done in WA and Australia, explore into the science behind current events and deep dive a particular topic with the Particle 101 series. By providing science news and topical content through accessible and engaging articles, Particle ensures young people have access to the science happening around them that is relevant and interesting.

Particle page views

263,993

Podcasts

Podcasts are not only a great medium for making science engagement accessible, but they are also a flexible and adaptable form of communication allowing us to cater for different audiences and interests.

Audio Guide to the Galaxy is hosted by our planetarium science communicators and is a guided tour of the night sky as seen from Perth exploring the fascinating constellations, planets, and asteroids that people can see each month, as well as highlighting the latest in space news. An extended version of this podcast is published under Particle called Please Look Up, aimed at older audiences to gain a more indepth understanding and hear further discussion on the month's astronomy and space news.

Also published by Particle, Elements is a podcast series with each season focusing on one of the four classical elements, water, fire, earth and air, and exploring how they shape the world around us. Season two was released across six weeks in January and February focusing on fire. Each episode looked at the way fire affects the people and land of Western Australia through a scientific lens. The podcast featured stories from all corners of Western Australia, covering everything from festival bonfires to devastating wildfires, from echoes of ancient knowledge to the

technological possibilities of the future. Elements allows listeners to engage in science concepts through storytelling via a topic that is relevant and relatable.

Podcast listens

8,600

Toy Tear Down

Scitech's YouTube series Toy Tear Down makes science concepts fun and accessible by learning about the science behind popular toys. Each episode, presenter Alyshia Gatani takes apart a different toy and finds out how it works through the science and technology concepts it uses. For example, the science behind a Barbie with colour-changing hair, engineering a Furby to make it smarter and repairing a vintage ALF toy. Toy Tear Down encourages children to think about toys through a scientific lens, showing how science is used in our everyday lives.

Views

703,000

The Sky Tonight

A monthly blog written by Scitech Planetarium Coordinator Leon Smith, The Sky Tonight provides readers with an update on what they can see in the night sky in that month. From constellations to planets and other interesting phenomena, the blog also features space news, providing a fantastic resource for at home and in the classroom.

Page views

40,216





Future Focused

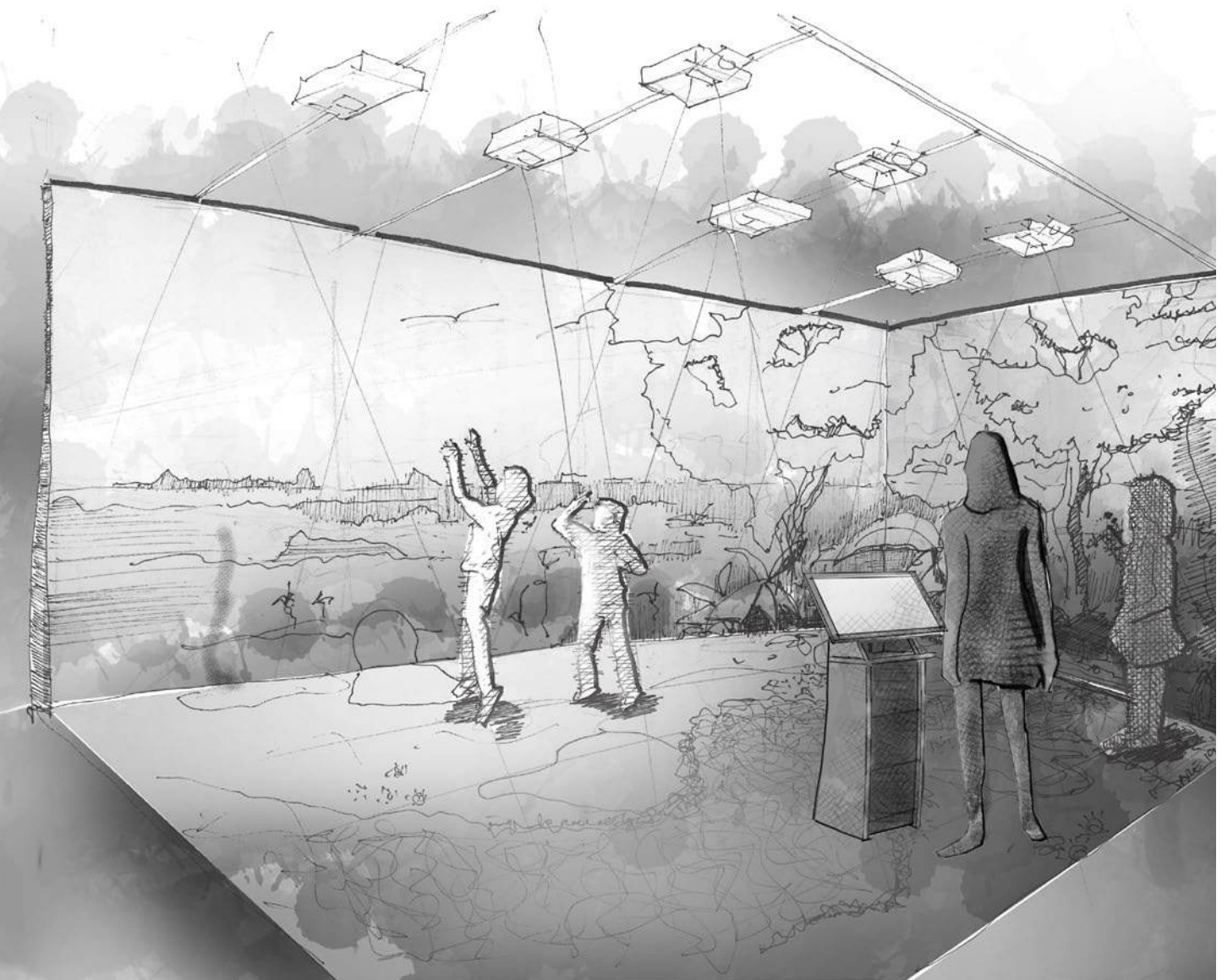
This year at Scitech we have been looking to the future with exciting developments in the Discovery Centre that will engage our current generations in how science affects them now and show how they can be part of the innovations that will create our future.

Here, There and Everywhere

In the 2023-2024 financial year, we began the process of transforming the permanent central gallery in the Scitech Discovery Centre with new exhibits and an updated look and feel.

The new gallery will be called Here, There and Everywhere and will feature three zones allowing visitors to explore how science and technology solves

challenges faced in the body, the home, the Western Australian community and the world at large.



Here

This first zone looks at how science relates to you, exploring the science that is encountered in our day to day lives, as an individual, as a family and in the home. For example, this zone will include an exhibit about cochlear implants, and one that allows visitors to build DNA.

There

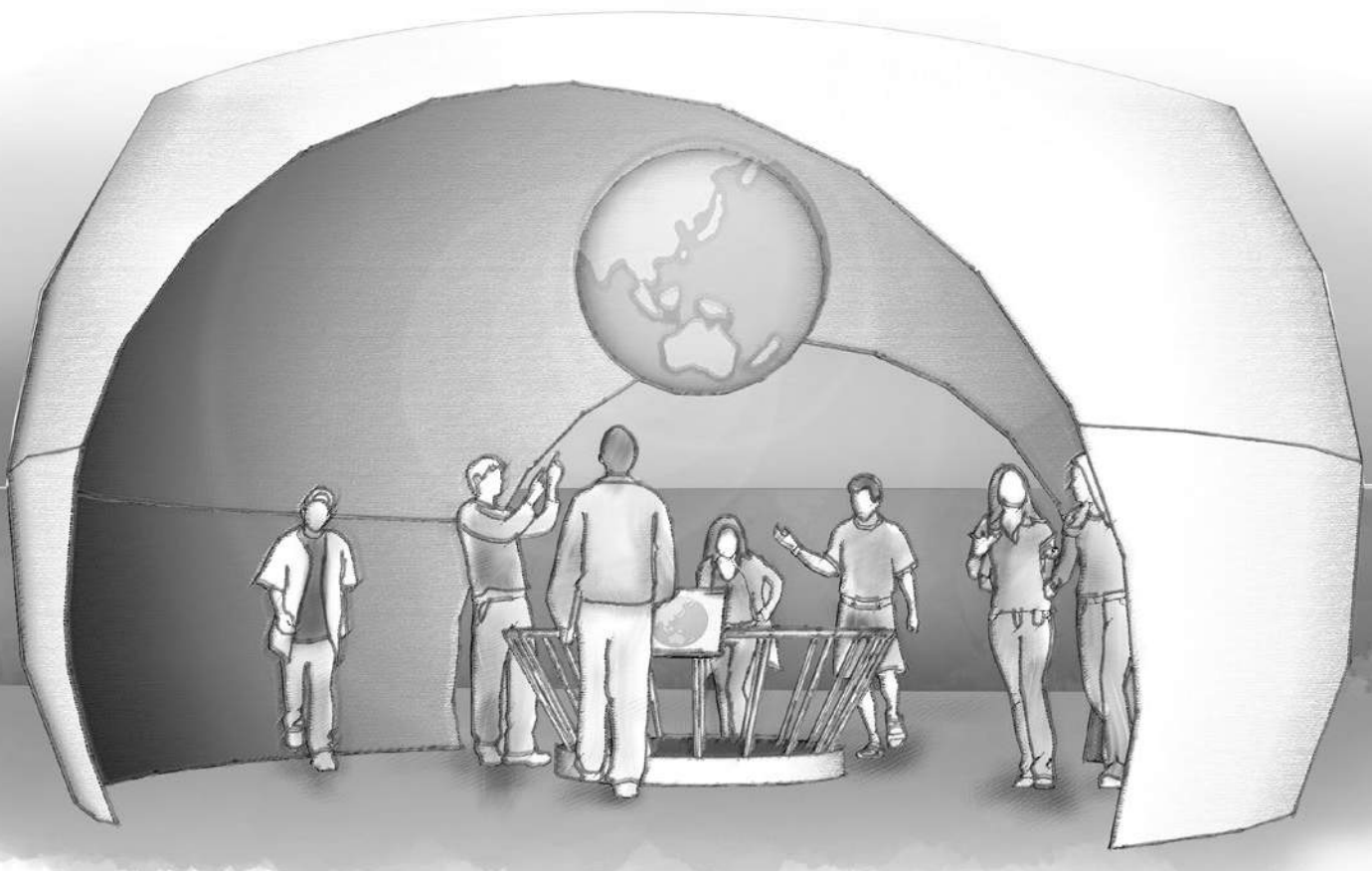
In this zone we find out about the science and technology research and innovation that is specific to Western Australia and the people who live here. This is about our state and the Western Australian community as a whole, presenting opportunities for Western Australian organisations to sponsor and be part of the exhibition. Examples include exhibits that explore fire management and how light pollution affects turtles.

Everywhere

This final zone expands our view of science to our world and the universe. It's about how we can harness science to solve many worldwide challenges. This zone contains everything from small solutions to big problems, to a hydrogen rocket.

A cross-functional team of designers, project managers and content creators have come together to create this new gallery that will offer our visitors exciting new experiences and inspire them to discover the many ways science helps us explore and understand ourselves and the world around us.

Here, There and Everywhere will begin installation in the Scitech Discovery Centre from mid 2025.



Case Study



Scitech Test Pilots

At Scitech, we want to ensure all our experiences are engaging and informative for visitors of all ages. A key way we do this is by testing them with children through the Scitech Test Pilots, a unique and innovative way for Scitech to gain insights into what children think about our experiences.



Previously the only consistent way for Scitech to gain feedback from children was to ask their parents, guardians and teachers on their behalf. While this kind of feedback received through surveys both in the Scitech Discovery Centre and student and teacher programs offers important insights, a more structured approach was needed to gain meaningful insights from children.

This led to the creation of the Scitech Test Pilots in 2023, a children's reference group between ages 7 – 17. Participants are recruited every six months, and each month meet up for sessions that alternate between online and in-person. They test a variety of Scitech's experiences and provide feedback and ideas, including exhibit prototypes, concepts for science shows, and podcast and video content.

"The feedback we have received so far from participants has been incredibly useful, as while we were always able to predict how children engage with Scitech experiences, it's great to have these assumptions confirmed through our Test Pilot sessions," Senior Customer Insights Analyst Shanii Phillips said.



In May, a feedback session at the Scitech Discovery Centre saw participants testing BenMaker woodworking tools, which not only looked at their interest and enjoyment and asked for suggestions of how the tools could be incorporated into the Discovery Centre experiences, but also how their parents and guardians engaged with them in the activity. Results from the session showed the tools would be an engaging and popular addition to Scitech's experiences.

Another session got the Scitech Test Pilots listen to our Wonderkids podcast, a science podcast aimed specifically at primary school aged children. From the feedback we were able to determine that children are more interested in video content compared to an audio-only medium.

"For our Test Pilots, the program offers them a great leadership opportunity, with their feedback and ideas helping to improve Scitech for other kids now and into the future," Shanii said. "At Scitech we are always focused on adjusting and improving our visitors' experience, and we know that to help us do this children's opinions are just as important and valuable as adults'."



Research at Scitech

Participating in research allows Scitech to better understand the impact our programs, content and resources have for our audiences, as well as supporting and contributing to the scientific studies and research happening in Western Australia. This year, Scitech collaborated on research with the University of Western Australia, the University of Notre Dame and Curtin University.

Social Impact Study - collaboration with the University of Western Australia

Scitech approached the Science Communication unit at the University of Western Australia to conduct a detailed study of the social impact of Scitech in the Western Australian community. While many of Scitech's programs and experiences are thoroughly evaluated to investigate short-term outcomes, we wanted to capture a holistic understanding of the impact of everything we do and how that influences the wider WA community.

Using the framework of science capital, as described by Archer *et al.* (2015)¹, a pilot study was developed to measure the science capital of adults in Western Australia who had previously engaged with Scitech and understand how their Scitech experiences contributed to their overall science capital. The science capital survey, originally developed for high-school students, was adapted and sent to subscribers in Scitech's database, including Members, Educators and recent visitors who were interested in participating in research projects.

The pilot survey received over 700 responses, and findings showed that even within Scitech's database of subscribers, there was a representative spread of people with lower and higher levels of science capital, meaning Scitech is connecting with people who are

highly engaged and less engaged with science in their everyday lives.

A random sample of survey participants was also invited to participate in follow-up interviews, to understand more about their relationship with science, their work and everyday lives and their engagement with Scitech's offerings. Data collection is still happening across July, and the research team expect to be able to share findings by the end of 2024.



¹Archer, L., Dawson, E., DeWitt, J., Seakins, A., & Wong, B. (2015). "Science capital": A conceptual, methodological, and empirical argument for extending bourdieusian notions of capital beyond the arts. *Journal of Research in Science Teaching*, 52(7), 922–948. <https://doi.org/10.1002/tea.21227>

Evaluation of the Chevron Lighthouse Maths program – collaboration with the University of Notre Dame

The Chevron Lighthouse Maths program was established in 2021 to develop the capability of primary teachers as leaders in structured inquiry maths approaches. The program aims to upskill and enable participants to mentor other teachers to teach mathematics using problem-solving and reasoning techniques to develop a deeper conceptual understanding through challenging tasks.

In 2023, Scitech approached researchers from the School of Education at the University of Notre Dame to evaluate the program, aiming to understand how it influences teachers' self-efficacy and approaches to teaching maths. The four coaches and 30 teachers

participating in the program in 2024 were approached to participate in the evaluation at the start of this year. The University of Notre Dame research team conducted interviews with the Lighthouse Maths Coaches. Participating teachers have completed pre- and mid-program questionnaires, and a random sample also participated in a short focus group following the mid-year meeting to gather further detail about their self-efficacy in mathematics, problem-solving and teaching mathematics. This research project is due to conclude at the end of this year, and the findings will be used to inform the direction of the program moving forward.



The Australian Research Council Centre of Excellence for the Digital Child, based at Curtin University

Scitech has been collaborating with the ARC Centre of Excellence for the Digital Child since 2020, with a range of different research collaborations and projects investigating how children growing up in the 21st century engage with digital technologies. Over the last 12 months, there have been exciting developments in three of these projects: Scitech Online Learning, The Creative Cove, and a Transmedia PhD project.

Scitech Online Learning

Following data collection in 2022, PhD student Kimberly Maslin and colleagues published the first article from the project *Fostering children's creativity with STEM activities in online learning environments*, based on findings from the virtual delivery of a series of science demonstrations, a puppet show and hands-on science activities.

The article², titled “‘Sky’s the limit’: a case study in fostering young children’s creativity during STEM online learning experiences” discussed the importance of providing the school with materials for students to participate in a hands-on experience (to accompany the virtual presentations), and using communication strategies such as questioning to encourage problem-solving and creative thinking amongst the students. The authors discussed how structuring the activities and scaffolding the information actually encouraged the children’s creativity as they took the time to slow down and consider the possibilities, further exploring the STEM concepts they were investigating (Maslin et al., 2024). This article is the first scholarly publication from Scitech’s collaboration with the ARC Centre of Excellence for the Digital Child, and highlights important guidelines for future program development and opportunities to expand our reach using virtual program delivery.

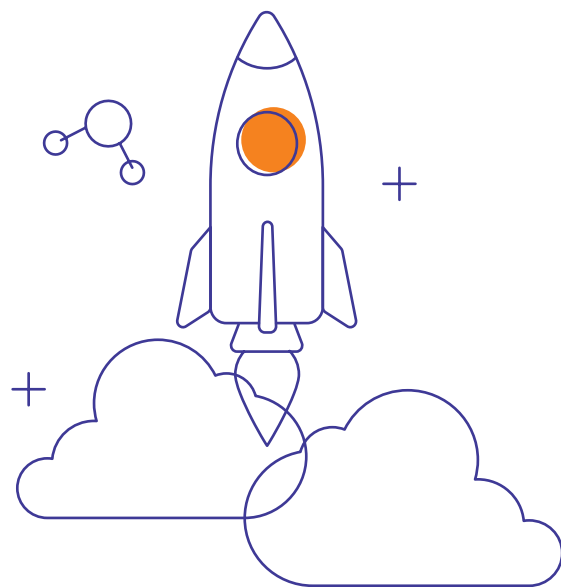
The Creative Cove

The Creative Cove also has its first article published³, discussing how digital coding devices can encourage creative thinking amongst young children. The Creative Cove study was hosted at Scitech in Term 1, 2023, with a small group of 4- and 5-year-old children visiting each week for a Digital Discovery Program. Over the eight weekly sessions, the children were introduced to three different tangible coding devices and encouraged to learn how they worked and share their learnings through photos, drawings, and other digital artefacts. Key findings included understanding more about the process of creative thinking in young children, and the multimodal nature of such learning experiences, including visual, auditory, reading and writing, and kinaesthetic learning. Implications for practice included the value of incorporating everyday items (such as building blocks and cardboard boxes) as well as digital technology devices to encourage curiosity, experimentation and risk-taking to foster children’s creativity. The authors also outlined the importance of resourcing these programs appropriately, including providing educators and facilitators (such as science communicators) with appropriate professional development to include digital coding devices in early

childhood settings appropriately and how to facilitate conversations during play. Importantly for Scitech, the study also highlighted the importance of educators role-modelling good techniques to parents, such as asking open questions, encouraging children’s agency in their play and allowing children time to solve their own problems and achieve outcomes independently.

Transmedia

PhD student Simon Daniele began recruiting participants for his project, *Child Problem-solving in STEM: Using a transmedia approach to foster engagement with science discovery centre experiences*. The project launched in August 2024 and aims to investigate how transmedia learning approaches can be incorporated into Scitech’s activities, programs and experiences. The transmedia learning experience will run during August and September, with children aged 6 to 8 years old and their families invited to complete activities at home and at the Discovery Centre. Participants will share photos, drawings and reflections with other children to showcase their experiences, and interviews will be conducted at the end of the transmedia learning experience to understand more parents’ and children’s perceptions of their learning.



²Maslin, K., Murcia, K., Blackley, S., Lowe, G. (2024). ‘Sky’s the limit’: a case study in fostering young children’s creativity during STEM online learning experiences. *The Australian Education Researcher*. 1-22. <https://doi.org/10.1007/s13384-024-00739-8>

³Tang, K. S., Murcia, K., Brown, J., Cross, E., Mennell, S., Seitz, J., Phillips, S. R. P., Sabatino, D. (2024). Exploring the multimodal affordances of digital coding devices in fostering creative thinking in early childhood education. *Thinking Skills and Creativity*, 53, <https://doi.org/10.1016/j.tsc.2024.101602>.



Scitech's Philanthropy Program

Scitech is a not-for-profit organisation and registered charity, and this year we launched our Philanthropy Program giving individuals, trusts and foundations a formal avenue to support our crucial work.

Admission to the Discovery Centre and other events and programs only covers a portion of the vast services we provide. We rely heavily on generous contributions of corporations, foundations, and the government to fund our work so that we can reach as many people as possible. Expanding into fundraising for the first time is an important and essential step for Scitech to be able to continue to deliver science learning, including to those who have financial and accessibility barriers.

A new Scitech donations platform was created where individuals and organisations can make one off or ongoing donations or leave a gift to Scitech in their will. Our first fundraising appeal was a Tax Appeal which ran during June and focused on raising money for the School Access Program. Funds raised will allow us to provide free admission to 400 children who otherwise could not afford it.

We also launched the Luminosity Circle, our donor circle program which aims to bring together a collective of like-minded philanthropists who want to ensure that all Western Australians have access to world-class science experiences. Donors gifting \$1,000 or more over 12 months can direct their gift to an area they are most passionate about: Exhibitions, First Nations, Regional Access, or Access and Inclusion.

Scitech is on a mission to engage as many Western Australians in science as we can. Our Philanthropy Program gives the WA community, who we know are as passionate about science as we are, the opportunity to join us on this mission. Together we can invest in the next generation and a better future for WA.







Scitech in the Community

For those who live in the Perth metropolitan area, Scitech is often synonymous with the Scitech Discovery Centre in West Perth. However, we know that for many in Western Australia, access to the Discovery Centre isn't possible due to location or financial barriers. This is why we take our experiences to the community across the state through our Statewide outreach programs, events and cross-organisation collaborations to ensure as many Western Australians as possible have the opportunity to be inspired by science.



CARNARVON SCHOOL OF THE AIR



Statewide

Scitech's Statewide team takes our science workshops, shows and experiences on the road to regional and remote Western Australia, from Kununurra to Albany. Our school engagement program visits every primary school every three years to ensure students across the state get to experience science in a way that is fun and interactive, allowing them to see how relevant science is to them and their everyday life. Regular collaboration with the School of the Air allows further isolated students to experience hands-on science lessons through virtual workshops.

The Aboriginal Education Program

The Aboriginal Education Program provides hands-on science experiences designed specifically for Aboriginal students. The incursion workshops focus on understanding through doing, encouraging the students to view the world around them through a science lens. Students, school staff and the Scitech Science Communicators all take part in the experiments, meaning they experience science in a collaborative way. The program also delivers professional learning workshops to develop educators' knowledge and providing physical resources and materials to run follow up hands-on science activities in their classroom. A Virtual STEM Challenge is delivered each year as part of the program, providing

further accessibility for remote schools. The 2023 challenge was a Foley Art challenge with students tasked to create sound effects for a short animation created by Scitech called Camp Dog's Day, which saw incredibly creative results.

Early Childhood Program

The Early Childhood Program is designed for 0-4 year-olds and their carers to engage with everyday science experiences through play. These workshops are delivered to the general public at playgroups and community centres, allowing parents and carers to see how introducing science concepts to their children can be done through everyday items and simple play activities at home.



Community Events

Scitech's presence at community events allows us to introduce new audiences to the fun and interactivity of a Scitech experience, providing families a chance to play, learn and connect and find their love of science. Our community activation includes transportable exhibits, lawn activities, science demonstrations and interactions with our passionate Science Communicators.

In September, we were part of the Perth Royal Show and over eight days engaged more than 19,500 people via stage shows and our activation, a 20% increase on 2022. We also saw deeper visitor engagement from people staying longer, with the average activation dwell time up by more than 60% from 2022.

In March, we attended Mandurah Crab Fest for the first time, engaging more than 8,500 people over two days. The event offered a great opportunity to be part of a hugely popular community event which sees Mandurah locals and families from across Perth attend.

May saw us at the Career's Expo, our first time at this annual event. We were one of more than 100 exhibitors who across four days engaged 13,500 visitors including 6,886 secondary students. The Career's Expo was the perfect context to nurture an interest in science and technology in teenagers and young adults who are actively considering what they want their future to involve. The Scitech booth was a collaboration with Particle, Scitech's independent media hub featuring online articles and podcasts that connect young adults to science from Western Australia and beyond.



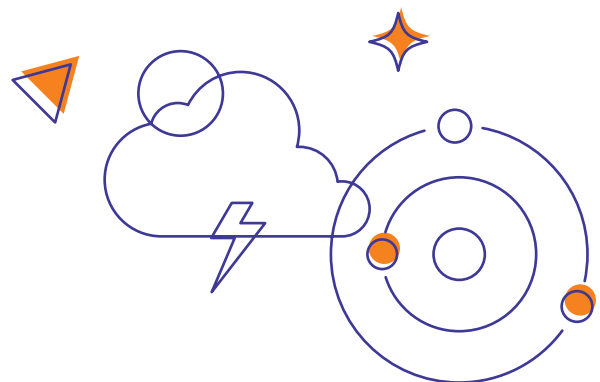


We were also invited to join TEDxKingsPark for the first time, at their event at the State Theatre Centre around the theme of Future Technology. Among five speakers from the WA science community, Scitech presented a specially curated show about how we use performance and humour to deliver science communication that engages multiple senses and sparks curiosity, to showcase how informal science experiences are an important part of inspiring young people to be the next generation of innovators.

Scitech attended events in regional areas including the Telethon Kids Institute Broome Festival of STEM in August, Coolgardie Day in September, the Albany WA Festival in June, and the 2023 Desert Dust Up, an annual camp which brought together the seven campuses of the Ngaanyatjarra Lands School in the Western Desert, more than 700kms west of Alice Spring, for three days of activities.

Another way Scitech engages with the community is through partnering with like-minded organisations, who share our purpose of inspiring Western Australians in science. In November, we co-hosted Astrofest as part of the Astrofest Committee. Held at Curtin University Stadium, this free annual family event brings together astronomy enthusiasts and experts to enjoy all things space with Scitech bringing a pop-up version of our Discovery Shop and performing our science show Under Pressure.

Our ongoing collaboration with Women in Technology WA began in Term 4, 2023, with their Techtrails STEM Incursion program. This program connects high school students with STEM professionals, with a focus on women working in STEM fields, to empower young people and particularly girls to see themselves in these careers. By participating in the program, our Science Communicators are able to directly talk to secondary students and engage them in activities to show them the different ways science has real world applications.





Travelling Exhibitions

After inspiring and engaging Western Australians in the Discovery Centre, Scitech’s feature exhibitions travel around the world to international science centres to showcase Western Australian exhibit design and innovation to international audiences.

Scitech has 9 exhibitions touring internationally, all designed and built in our onsite workshop, hired by sciences centres across North America, Asia and the Middle East. International touring is valuable in expanding Scitech’s outreach beyond Western Australia to global audiences. It presents a great opportunity to form partnerships with other science museums to promote WA as a leader in science and

innovation and develop international relationships that can support those being built in other areas. International touring also provides an important revenue stream for Scitech and as a not-for-profit organisation this helps us to continue to support Western Australians with science engagement through the ability to create new exhibitions, programs and show experiences for local audiences.

Travelling Exhibitions

9

Locations Exhibitions visited

13



Case Study



Planet Pioneers in China

In July 2023, our exhibition Planet Pioneers was hired by Guangdong Science Centre in Guangzhou, one of the largest science centres in the world. This is the first time a Scitech exhibition has been to China, offering a valuable opportunity to build connections with science centres in the region as well as support further relationships with tourism, education and business links for Western Australia.



Scitech Exhibitions & Operations General Manager William Peng and TREX Program Manager Jason Poletti travelled to Guangdong Science Centre to help with the exhibition assembly and meet with the Exhibitions team there. Our ability to personalise the hiring experience by providing construction support and William being able to speak Mandarin enhanced the connections made between Scitech and Guangdong Science Centre and laid the groundwork for further relationships and collaborations with other science centres in China.

Planet Pioneers was at Guangdong Science Centre from 15 July to 15 November 2023 and on the day exhibition opened, the centre received a total of 20,000 visitors, showing the incredible scope of audience available through hiring out Scitech exhibitions in this region.

Originally launched at Scitech in 2017, Planet Pioneers comprises of 17 full body, hands-on exhibits which give visitors an insight into what it might be like to live on another planet. Like all our exhibitions, it is designed to enhance visitor experiences through its innovation and durability and communicate science concepts regardless of cultural differences.



Case Study



Scitech at Croucher Science Week

Scitech's staff were invited to attend a variety of conferences and showcases across the year to deliver workshops and discussions on science communication, educator professional learning and the ins and outs of running a science centre.

In April, Scitech was invited to be part of Croucher Science Week, a science festival organised by the Croucher Foundation and hosted at the Hong Kong Science Museum with the aim of bringing science closer to the everyday lives of young people.

Theatres Coordinator Adam Bennett and Professional Learning Consultant Lucas Black represented Scitech at the festival. Adam hosted the science show Mystery Hunters, while Lucas led the Mystery of the Mathematical Menace workshop, where parents and children collaborate on problem-solving puzzles, as well as the Powerful Problem Solving in Science workshops designed for educators.

The festival was a great opportunity to connect with the Hong Kong Science Museum and their visitors and audiences as well as with other science organisations from around the world attending the festival.

“People were really impressed with the breadth of what we do at Scitech, as well as how we ask our audience questions and engage them in discussion throughout,

rather than present and wait for questions as the end,” Adam said. “I had an incredible translator for my Mystery Hunters shows who is actually a drama teacher and she became such a part of the performance that by the end of the run we had come up with a whole routine.”

Lucas said it was great to see how Scitech shows and workshops appeal to children across different cultures.

“It really showed that kids are kids, and they all wanted to get hands-on, ask questions and were really engaged,” Lucas said. “The teacher workshops were about incorporating problem solving activities into the classroom to help students become more independent learners, and the participants really responded to the concepts and wanted to get in contact with us afterwards to learn more.”

Being part of the Croucher Science Festival allowed us to showcase what Scitech does on a global stage and engage international audiences in our interactive and fun science experiences for children and adults alike.



Photo credit: Croucher Science Week



Access and Inclusion

Ensuring our experiences are accessible to everyone is hugely important to us at Scitech. Across the organisation, this focus on accessibility and inclusion has led to the development of shows, events and initiatives that mean we can ensure all our visitors can take part in science experiences and see themselves in science.

The Scitech Discovery Centre hosted several events including our regular Sensory Mornings for those with sensory needs. These see the Discovery Centre open earlier with limited numbers for a quieter, less busy experience. A Sensory Station includes ear protectors, fidget gadgets, sunglasses, and cotton gloves for visitors to use. A tailored planetarium show is also offered as part of the session.

In October on White Cane Day, Scitech tailored an event for sight-impaired visitors. The Scitech Discovery Centre was adapted to allow for easier physical movement, staff were available to help visitors find exhibits that had been identified as accessible for sight-impaired visitors, and a special science presentation with audible and tactile science was put on. A science theatre show was included which featured a touch tour as well as being audio described.

We worked with the deaf community in WA to host students and educators from Mosman Park School for Deaf Children and Shenton College Deaf Education Centre at the Scitech Discovery Centre. This event tailored coding challenge activities and Auslan-interpreted shows including a captioned planetarium show.

Feedback from the event

“It was a wonderful surprise to learn that our Scitech assistant was an Auslan interpreter, well known and highly respected throughout the Deaf community. A big shout out to Charlie who adapted and modified the programme to specifically suit our needs! Our school motto is, Deaf Kids Can, and this excursion reinforced that motto at every turn.”

Two new live shows were created focussing on inclusivity and accessibility. Mix and Make was a science show performed silently to ensure that



hearing and language were not barriers to enjoying the show and understand the science behind the experiments. A brand new puppet show Quokkavision aimed at under 5's explored the sense of sight, demonstrating how we all perceive the world differently and how we can use optics and lenses to adjust and enhance what we see. The show was created in collaboration with Optometry WA.

Scitech implemented organisational-wide training on access and disability. Presenting staff participated in training with Sensorium Theatre to learn about designing theatre shows, puppet shows and experiences that are better suited to neurodivergent people. Staff involved in the design of exhibits and programs participated in training with the Australian Disability Network to ensure that universal design principles are adopted in all areas of the organisation.

These were some of the initiatives submitted as part of Scitech's self-nomination for the Chamber of Commerce and Industry WA's Diversity & Inclusion Awards and we were honoured and proud to win the Best Diversity & Inclusion Initiative: Medium Business award as one of three finalists.

Case Study



School Access Program

A Scitech excursion gives students from Kindergarten to Year 10 the opportunity to have an immersive and tangible experience of science not possible in the classroom. Our excursion program not only supports and consolidates the curriculum material, it also gets students to be active participants in their science learning, showing them the connection between what they learn at school and its application in the real world.

However, Scitech recognises that some students face barriers to participating in a Scitech excursions such as the financial means or a lack of access to transport. Scitech's School Access Program addresses this by providing support towards bus transportation and free entry to a Scitech excursion to selected Perth metropolitan primary schools which fall below the national average of the Index of Community Socio-Educational Advantage (ICSEA).

The School Access Program gave 982 students from 19 schools the opportunity to take part in a Scitech excursion in the 23-24 financial year. This included 177 students from four schools in the Midland and Armadale areas through support from METRONET, and 216 students from four schools in the Cockburn area through support from Total Marine Technology.

Midvale Primary School Science Teacher Sancia White used the School Access Program to bring her Year 2 students to Scitech.

"I was excited to take this opportunity for a school excursion to Scitech because as a teacher it was important to me that the children had fun but also realise that science is amazing," she said. "We are a low socio-economic area and many of the children had never been to Scitech before. Especially for Year 2

students, it's so important to engage them in science at a young age and they all said how much they had loved the day and how fun science can be. It can be difficult to provide these kinds of engagements in the classroom so for our school to be able to access this was truly outstanding."

The School Access Program is an integral part of Scitech's commitment to providing opportunities for those with barriers to access science and technology engagement and learning experiences. It is important for all Western Australian students to have access to science experiences, as those are key to students developing their 21st century skills and science and technology literacy which are becoming essential in any occupation as well as in daily life. Through engaging with our hands-on exhibits, one of our full-dome planetariums shows, a live science show and interacting with our expert science communicators, a Scitech excursion prompts students to be curious and ask questions, so they leave the day with a sense of excitement and enthusiasm to continue their discovery back at home and school. Memories from a Scitech excursion give students positive associations with STEM topics that can lead to them retaining what they learnt and a developing an ongoing interest in science long after their visit.







Partner Support

Support from our partners allows us to deliver a range of key programs that develop teachers' skills, engage with schools in regional areas and provide experiences to students and families who face financial barriers. Through collaboration with organisations who share our purpose, we are able to expand our reach and impact in the community.

Lighthouse Maths

It's a common misconception about maths that you are either good at it or not. Lighthouse Maths is a year-long professional learning program that aims to dispel that myth, showing that for students and teachers who struggle with learning and teaching maths, it comes down to confidence.

Delivered in partnership with Chevron Australia, Lighthouse Maths builds teachers' skills and confidence by using a problem-solving approach to teaching maths. This approach sees students working together, using their shared knowledge and understanding to find a solution, with teachers using targeted questioning to prompt further learning. This way students discover how many different approaches and solutions there are to the same problem, and build their problem-solving, collaboration, and reasoning skills.

The program includes an after-school community event called Mystery of the Mathematical Menace where families must work together to solve problems at interactive stations, finding clues to uncover the suspect's identity. This allows parents and carers to see the problem-solving skills their children have been learning in action and shows them that working on maths problems with their children can be fun and as easy as asking questions.





By asking participants to complete a pre and post survey, the 2023 program found a 30% average increase in teachers' agreeing they have a high level of confidence in assessing reasoning, and a 33% average increase in confidence in teaching problem-solving in maths. This is the most substantial increase seen on these measures in the program's history.

The 2024 program is Lighthouse Maths' fourth year of running and over that time has seen some incredible results. We use the ACER PAT-Mathematics assessment to measure student performance and growth. Students who participated in Lighthouse Maths classes in 2023 achieved on average eight months of additional learning beyond the expected growth of one year.

In March, Scitech released a poll on the company LinkedIn page ahead of International Day of Mathematics, asking: Have you ever said, "I'm not good at maths?" 67% of respondents selected yes, indicating that even among an audience predisposed to be interested in STEM subjects, the majority of people reach adulthood having had negative experiences with maths and feeling it's not for them, further demonstrating the importance of programs like Lighthouse Maths. The result from the poll was used in an opinion piece by Lighthouse Maths Coordinator Emily Grainger, published in The West Australian on International Day of Mathematics on March 14, which resulted in feedback from readers of the piece who reached out to share how much it resonated with them and their experiences of maths.

Teacher engagements

1,111

Student engagements

3,987

Alcoa Digital Technologies Enrichment Program

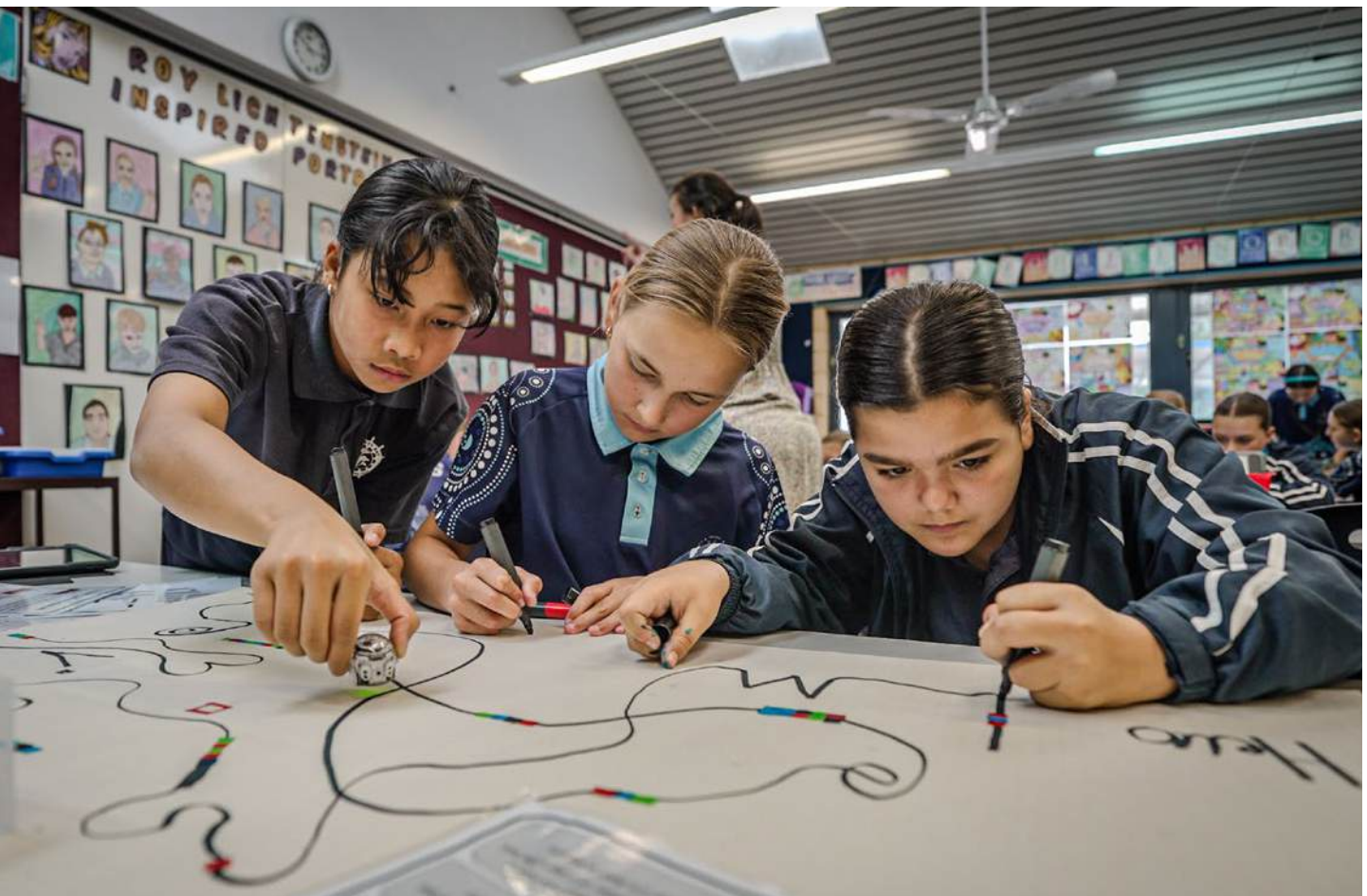
In an increasingly digital world, it's important we equip students with the skills to participate in the future workforce and in everyday life.

The Alcoa Digital Technologies Enrichment Program supports teachers to develop their skills and confidence to introduce digital technologies learning across all subject areas, leading to enhanced student understanding and engagement.

Teachers are provided with support and resources, including a class set of micro:bits, pocket sized computers, allowing students to learn how to use block-coding by applying problem-solving skills, creativity and collaboration across the curriculum.

For example, students could use the micro:bit to measure distances without a ruler or tell a story through animation and sound.

The program gives teachers the opportunity to become leaders in their school by helping other teachers to implement learning through digital technologies in their classrooms. Participants from each school also come together for several workshops and reflection sessions, further developing teacher networks, skill sharing and community.



Alcoa Real World Digital Technologies

Alcoa Real World Digital Technologies is a one-term professional learning program that aims to increase teacher confidence and capability in incorporating digital technology into daily teaching.

The program ran in Term 3 of 2023 in four primary schools in the Mandurah and Pinjarra region, engaging a total of 18 teachers. A post program survey saw highly positive feedback with 100% of respondents agreeing they felt more confident integrating digital technologies into the classroom and their teaching. Teachers also reported student benefits, with 89% agreeing that their students demonstrated a stronger capacity to use digital technology, and 100% agreeing that students were more confident in applying digital technology skills.

Alcoa Champions of Digital Technologies

This year-long program provides workshops, peer-to-peer coaching and resources to support 16 teachers across four schools to deliver curriculum aligned learning, specific to their school and classroom contexts.

The program launched in 2023 with schools who had participated in Alcoa Real World Digital Technologies the previous year, showing the impact of the Real World Digital Technologies program on teachers who wanted to continue to develop their skills. The program measured teachers' self-reported confidence and understanding of integrating digital technologies through a pre-survey, mid-year survey and post-survey, and results showed a clear increase by the completion of the program. Teachers also reported an increase in student outcomes, with 100% of respondents agreeing their students were more engaged with digital technology, had a stronger capacity to use digital technology, and were more confident applying digital technology skills.

Both programs also feature a community event such as Catch a Hacker, which brings parents, carers and students together to participate in a fun problem-solving activity, allowing them to see their children's digital technologies knowledge and skills in action. These events ensure parents and carers can be active participants in their children's learning and give schools the opportunity to bring the community together in a fun and engaging way.



Teacher engagements

227

Student engagements

804



Future Computing

Future Computing is a professional learning and student workshop program delivered to a focus primary school in the Pilbara each year and aims to build teachers' confidence in teaching physical computing.

Facilitated by Scitech with support from Mitsui Iron Ore Development, the program provides coaching and hands-on workshops, allowing teachers to gain experience in planning and delivering physical computing lessons in their classroom. Students engage in problem-solving and collaborative learning through coding activities with the Raspberry Pi technology provided by the program.

In 2023, the focus school was St Paul's Primary School, who finished last year's program with Pi-Jam Day. This saw students, along with students from last years' focus school Tambrey Primary School, challenged to build and code an interactive colour changing mood lantern using the Raspberry Pi technology, demonstrating the coding skills they have learnt through the program.



Feedback

“The program has been amazing for the teachers and the children. This type of approach and content was new for the school, but Scitech stepped us through it with resources and teacher support,”

St Paul's Primary School Assistant Principal Eleanor Riddell

STEM Club

STEM Club is an after-school program delivered by Scitech at select Perth metro primary schools running weekly for eight weeks.

The program is designed for Year 4 - 6 students and immerses them in hands-on science projects that extend their design skills and allows them to discover how STEM concepts have real world applications. Schools are able to pick one of four unique modules for their STEM Club: Electrifying Circuits, Motion & Energy, Animatronics and mBots Coding. Students engage in projects such as building a gravity defying glider or coding and constructing an animatronic figure which sees them developing skills such as collaboration, creativity and problem solving. STEM Club aims to provide a safe and supportive environment where students can feel comfortable making mistakes as they test and refine their designs.

The program is delivered free, thanks to support from Woodside Energy. The program targets students at schools with a low Index of Community Socio-educational Advantage (ICSEA) score, ensuring that students facing financial barriers are able to access the hands-on science and technology experiences provided by the program. In 2023, 247 students who participated in the program were surveyed with 92% agreeing they had learned new things since starting STEM Club, 82% agreeing they had gained new skills and 71% agreeing they felt more confident problem-solving.



“There was a student who began the program really struggling to work in a group, but through STEM Club was able to develop those skills and partnered up with another participant to achieve some great work.”

Alinjarra Primary School Deputy Principal Andrew Rowe

Number of schools this program was delivered to in 2023-2024

16

Students and teachers engaged

2,406

Inspiring Western Australia



Launched by the Australian Government in 2009, the Inspiring Australia initiative was created to meet the growing demand for skills in science, technology, engineering, and mathematics (STEM). Inspiring Australia aims to raise awareness of the crucial role science plays in everyday life and spark curiosity and excitement about science across Australia.



In Western Australia, the Inspiring Australia program is delivered through Scitech and the Department of Jobs, Tourism, Science and Innovation. The program aims to build a vibrant, statewide STEM network that connects communities with the wonders of science and provides grant funding to support science-focused events across the state.

Inspiring Western Australia partners with STEM organisations throughout the state to bring National Science Week to life, Australia's annual, weeklong celebration of all things STEM. With the program's

support, communities from Perth to the farthest reaches of the state are able to host exciting events that inspire and engage people of all ages.

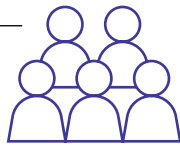
Beyond National Science Week, Inspiring Western Australia is dedicated to promoting science learning and innovation, especially in underrepresented communities. By funding events and building partnerships, the program ensures that everyone, especially those often excluded, can explore, discover, and engage with science.

145

events supported

8,147

participants



More than

\$105,000

provided in funding



Case Study



Scitech's DIY Kits

At Scitech we know the importance of hands-on and interactive experiences for science learning, and our DIY Kits bring that interactivity directly into the classroom.

Scitech's DIY Kits allow teachers to hire equipment and lesson instructions to conduct engaging science experiments in the classroom. By making a range of specialised science resources accessible for teachers across Western Australia, the kits support teachers to provide practical science lessons and engage their students in scientific concepts in a hands-on way. The kits also help reduce the time pressure of sourcing content and materials for the term, meaning teachers have time to build on and extend the experiments provided by the kits with further investigations.

Each kit contains everything needed to teach up to eight weeks' worth of lessons and investigations, and comes with online resource books, worksheets and planners that are free for teachers to download and keep even after their kit hire has finished. The kit content is aligned to the Western Australian Curriculum for Pre-Primary to Year 6, with a DIY Science Kit for each of the science strands – Biological Sciences, Chemical Sciences, Physical Sciences and Earth & Space Sciences. There is also a DIY Telescope Kit for all year levels and a Robotics and Coding Kit for Years 7-8.

The kits are constantly being revised and updated with invaluable feedback from teachers, allowing us to ensure the kits are fully functional for the classroom setting.

In 2024, the name of a famous scientist was added to each kit, who worked in the field of science the kit is themed around. For example, Nancy T. Burbidge was an Australian botanist and is on the Biological Sciences Kit. This gives teachers the opportunity to engage their students in a research activity centered on the named scientist, to show students how what they are learning in the classroom has real world applications.

21,342 children and teachers were engaged with DIY Kits in 23-24

including **600** Aboriginal students

As a Science Specialist Teacher at Aspiri Primary School, Bek Armishaw found she needed more variety of resources to cater for students across Years 1 – 6, and as a result has hired out all four of Scitech's DIY Science Kits.

"Having all the equipment, prepared materials and sequenced lessons each term helps me to manage my workload and allows me to facilitate hands-on lessons every week with all classes. Student participation is high when using the resources from the kits which helps them to understand the science concepts being taught. They ask questions about upcoming lessons and understand how to take care of the equipment knowing we have to return it," she said.

"The Scitech team are always there to provide additional information when needed and they have even answered questions from my students. It's amazing to have a wonderful team behind the DIY Kits that I feel supported and encouraged by!"

Scitech's DIY Kits are supported by Rio Tinto, part of a two year partnership which also supports the Rio Tinto Innovation Central space in the Scitech Discovery Centre.



Partnerships

Government Partners



Government of **Western Australia**
Department of **Jobs, Tourism, Science and Innovation**



An Australian Government Initiative



Corporate Partners



RioTinto



Community Partners

Astronomy WA
Astrotourism WA
Aurecon
Australia in Space
Australian Research Council Centre of Excellence
for the Digital Child
Autism Association of WA
Celebrate WA
Committee for Economic Development of Australia
Curtin University
Department of Communities
Department of Fire and Emergency Services
e2 Young Engineers
Edith Cowan University
Fringe World Festival
Guide Dogs WA
International Centre for Radio Astronomy Research

Mathematical Association of WA
National Science Week Co-ordinating Committee
Questacon
Radlink Communications
RoboCup Junior WA
Royal Agricultural Society of Western Australia
Samphire Catering
Science Teachers Association of WA
Seven West Media
Stan Perron Charitable Foundation
The Australian Science Communicators
The Kids Research Institute Australia
The University of Western Australia
UWA Oceans Institute
Variety WA
WA Apiarists' Society
WA Police







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