



## Connecting Minds Project- Osaka 2025

### Proposal summary for prospective participants

One Giant Leap Australia is a leading STEM and STEAM contributor in Australia providing robust, creative, and cutting-edge programs for students to explore, develop, and discover their curiosity and passion for the sciences. We work with the Japan Aerospace Exploration Agency (JAXA) on behalf of the Australian Space Agency (ASA) to provide experiences for students such as the Kibo Robotics Programming Challenge and Asian Try Zero-G competition. A core tenet of our business and educational ethos is that every student deserves amazing and unique experiences to help them grow to their fullest potential, and we have continued to provide inspiring programming throughout our years of service.

Building on our successful Connecting Minds Dubai Expo 2021/22 project, we are excited to announce the planning phase of the **Connecting Minds Osaka Expo 2025** project!

Connecting Minds is a flexible, purpose driven and inquiry based educational program that focuses on communication, time and resource management, critical thinking, problem solving, imagination, and cutting-edge space Science/Technology/Engineering/Arts and Mathematics (STEAM) research. Participating students are also provided the opportunity to interact with and receive feedback from cutting edge and experienced research and industry professionals from Japan and Australia!

Student teams from Japan will partner with teams from Australian partner school teams to work cooperatively on their Osaka Expo 2025 inspired project as they research, test, refine, and analyse the space related problem to investigate and propose solutions to issues, problems, and questions involving off-earth human sustainability and habitation, that they themselves get to select!

In addition to valuable practical and STEAM related experience their innovative collaborations and proposals will target critical interpersonal skill development such as building global networks, teamwork, and cross-cultural understanding.

The main goals of our **Connecting Minds Project** are to build STEM/STEAM skill capability and capacity of students worldwide to improve the global uptake of space and high-tech STEM careers whilst also engaging, educating, and energizing students to the space and science adjacent fields that are just as crucial to the continued growth and development of the space sector.

This process encourages diversity of thought and ideas, mental flexibility and adaptability, communication skills, problem solving, critical and creative thinking, innovation, team building and cooperation in the workforce of tomorrow.

For 2025, we are connecting Japanese school students with Australian school students, with an aim for all students to meet face to face at Osaka Expo 2025 to present their project at the Australian Pavilion. [https://youtu.be/8x\\_tnEjw7sQ?si=13vmy\\_mT70t5N3qP](https://youtu.be/8x_tnEjw7sQ?si=13vmy_mT70t5N3qP)

The concept we are asking the students to examine is:




***“Explore a problem or aspect of human habitability and/or sustainability that effects current and future plans for long-term off world habitation (e.g. Moon, Mars, orbiting habitat in space, etc.), AND provide unique ideas and solutions for the issue.”***

Students will need to talk with their partner group (from Japan and Australia) to choose an area to research, come up with solutions and talk to industry experts.

### **Mission Operations**

Individualised support and guidance for each project will be provided by The Connecting Minds Project team from One Giant Leap Australia. The program will include 5 teleconferences from global space industry professionals such as astronauts, scientists, engineers and flight directors.

The project will be broken up into three stages:

		
<b>Stage 1- Blast Off!</b> <b>Introduction, ideation and planning</b>	<b>Stage 2- In Orbit</b> <b>Implementation and documentation</b>	<b>Stage 3- Re-entry</b> <b>Project completion, showcase and evaluation</b>
Date: January - February 2025	Date: March - August 2025	Date: September - October 2025
<ul style="list-style-type: none"> <li>- Teacher introduction for Japanese and Australian school to discuss materials / facilities they can use to help students</li> <li>- Australian and Japanese student / school introductions</li> <li>- Discussing ideas / brainstorming</li> <li>- Choosing a topic / area to research</li> </ul>	<ul style="list-style-type: none"> <li>- Japanese and Australian teams research topic</li> <li>- Australian and Japanese teacher facilitates time management for students</li> <li>- Japanese and Australian students talk to relevant space industry professionals</li> <li>- Japanese and Australian students discuss how to present their topic</li> <li>- Japanese and Australian students write speech / presentation / additional materials to assist in their presentation</li> </ul>	<ul style="list-style-type: none"> <li>- Australian students travel to Osaka</li> <li>- Japanese students travel to Osaka</li> <li>- Japanese and Australian students present their ideas together for Osaka Expo (either in person or online)</li> <li>- Australian students visit their Japanese partner school</li> <li>*Travel costs to be arranged</li> </ul>

# **FAQ**

## **How long do we have to decide on our interest/number of students participating?**

Deadline for school expressions of interest (with an estimate of student numbers) will be January 15<sup>th</sup> 2025.

## **How many students in a team?**

Minimum of 3 and a maximum of 5.

## **Can this be run during school or after school?**

Depending on global time zones, school requirements and student availability – schools may choose how this program operates for them.

## **What does it cost?**

A one time fee of \$500AUD to cover speaker fees, project administration, per school. A school with multiple teams participating will only have to pay 1 fee to cover all teams. More teams=better value. If you are interested in applying for grants to assist with funding, One Giant Leap Australia can assist in this process. We are also looking into how Japanese and Australian space industries can assist. We will help support Japanese schools in fundraising as much as possible.

We will be planning a trip to Osaka Expo- pricing and details for travel and accommodation are to be arranged. We will assist schools with the planning of this trip however we can. One Giant Leap Australia has taken hundreds of Australian students to America- we are very experienced with overseas excursions.

## **Who can participate?**

All schools from Elementary/Primary through to High School. Home schooling groups can join if they have enough for a group and have an adult leader.

## **Can we still participate if we can't come to Osaka?**

Yes! While our greater aim is for all teams to meet at Osaka Expo 2025 to deliver their presentations and celebrate their achievements in person, any teams not able to make the trip to Osaka will still be able to participate fully in the project and can participate virtually for the presentation at national pavilions. All awards will be mailed to teams unable to attend in person.

## **What outcomes are being achieved through participating?**

The open-ended project selection process of Connecting Minds allows for a multitude of relevant outcomes supporting and supplementing science syllabi and outcomes for participating countries. Each project will invariably link to a different set based on the problem and approach students take on their education journey. Below are some example projects that can be seen with relevant syllabus outcome examples.

<b>Example project proposals:</b>	<b>Examples of STEAM focuses:</b>	<b>Examples of student</b>
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		outcomes:
“Mobilisation of physically disabled astronauts in low G environments”	<ul style="list-style-type: none"> <li>-Human physiology</li> <li>-Prosthetic manufacture and design</li> <li>-Earth based accessibility engineering/design</li> <li>-Spacecraft and habitat engineering</li> <li>-Material science</li> <li>-Dynamics of engineering needs in differing gravity environments</li> <li>-Psychological impacts of accessibility for disabled citizens</li> <li>-Ethics of accessibility in space exploration</li> </ul>	<ul style="list-style-type: none"> <li>-Refined communication skills with Japanese/English teammates</li> <li>-Refined methods of inquiry</li> <li>-Team work</li> <li>-Time and resource management</li> <li>-Research into physical and social barriers to citizens with physical disabilities</li> <li>-Promotion of independent/collaborative study</li> <li>-Deep learning and inquiry-based learning</li> </ul>
“Utilisation of VR for mental health reinforcement in long term space habitation”	<ul style="list-style-type: none"> <li>-VR systems (hardware and software)- electrical and computer engineering</li> <li>-Mental health experiences and features of modern human spacecraft/habitat designs</li> <li>-Colour/sound therapy</li> <li>-Software/program development</li> <li>-Creative writing and design in VR programming</li> <li>-Qualitative understanding of health benefits for human space travellers</li> </ul>	<ul style="list-style-type: none"> <li>-Refined communication skills with Japanese/English</li> <li>-Refined methods of inquiry</li> <li>-Team work</li> <li>-Time and resource management</li> <li>-Research into human psychology under duress in space travel/habitation</li> <li>-Promotion of independent/collaborative study</li> <li>-Deep learning and inquiry-based learning</li> </ul>
“Multi-level approach to bio-recycling for closed low gravity systems”	<ul style="list-style-type: none"> <li>-Earth/ecosystem sciences</li> <li>-Biodiversity impact on ecosystem health</li> <li>-Genomic repurposing of micro-organisms</li> <li>-Aquaculture</li> <li>-Symbiotic system design and management</li> <li>-Quantitative vs qualitative analysis of modern systems aboard spacecraft/habitats</li> <li>-Comparison of varying designs; macro vs micro dynamics of synthetic and biological systems</li> </ul>	<ul style="list-style-type: none"> <li>-Refined communication skills with Japanese/English</li> <li>-Refined methods of inquiry</li> <li>-Team work</li> <li>-Time and resource management</li> <li>-Research into multilayered dynamic closed systems</li> <li>-Promotion of independent/collaborative study</li> <li>-Deep learning and inquiry-based learning</li> </ul>