

SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)  
New Worlds - Innovative Space Education and Outreach (7)

Author: Ms. Kerrie Dougherty  
Powerhouse Museum, Australia, kerrie.dougherty@gmail.com

Dr. Carol Oliver  
University of New South Wales, Australia, carol.oliver@unsw.edu.au  
Ms. Jennifer Fergusson  
University of New South Wales, Australia, j.fergusson@unsw.edu.au

PATHWAYS TO SPACE: A MISSION TO FOSTER THE NEXT GENERATION OF SCIENTISTS AND  
ENGINEERS

**Abstract**

The first education project funded under the Australian Government's Australian Space Research Program (ASRP), Pathways to Space is a unique project that combines education, science communication research and research in astrobiology and robotics. It draws upon the challenges of space exploration to inspire students to consider study and careers in science and engineering. Pathways to Space is a multi-faceted program that provides hands-on opportunities for high school and university students to participate in realistic simulations of a robotic Mars exploration mission for astrobiology. Its development has been a collaboration between the Australian Centre for Astrobiology (University of NSW), the Australian Centre for Field Robotics (University of Sydney), the Powerhouse Museum and industry partner, Cisco Systems Australia.

Focused on students in Years 10-12, this program provides them with the opportunity to engage directly with space engineers and astrobiologists, while carrying out a simulated Mars mission using the digital learning facilities available at the Powerhouse Museum. As part of their program, the students operate robotic mini-rovers in the Powerhouse Museum's 'Mars Yard', a highly accurate simulation of the Martian surface, where university students also carry out the development and testing of experimental Mars roving vehicles. This aspect of the program brings real science and engineering research into the public space of the museum.

As they undertake this education program, the students simultaneously become participants in a longitudinal study for science communication research, aimed at improving our understanding of the most effective ways to engage student interest in science and engineering.

This paper outlines the development and operation of the Pathways to Space project over its three-year funding period, during which it met and exceeded all the requirements of its ASRP grant. It will look at the goals of the project, the rationale behind the education and science communications research, the challenges of developing such a multi-faceted education project in a collaboration with several partners and the significant results that have already been achieved within the longitudinal study.