

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

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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 is 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. Within the program, students in Years 9-12 have the opportunity to engage directly (via telepresence or in person) with space engineers and astrobiologists while carrying out a simulated Mars mission using the digital learning facilities available at the Powerhouse Museum. This mission is specifically keyed into topics in the school science curricula. 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. As part of their program, the high school students operate mini-rovers in the Powerhouse Museum's 'Mars Yard', a highly accurate simulation of the Martian surface, where university students are also carrying out the development and testing of experimental Mars roving vehicles. This aspect of the program brings real science and engineering research into a public space. This paper will provide an overview of the Pathways to Space project from its inception through its first year of operation. It will look at the goals of the project, the rationale behind the education and science communications research and the reasons why Pathways was selected for funding under the competitive ASRP grant program. It will then present analysis of the program's first year of operation, including initial results from the research and the development of the student extension program which is enabling highly motivated students to participate in the NASA Mars Student Imaging Project