



How do we know there is life on Mars?

Mars lab

Australian curriculum springboard

Science

STEM | SCIENCE
 TECHNOLOGY
 ENGINEERING
 MATHEMATICS
 NSW Department of Education
 Stage 5
 Years 9–10



THE **MARS LAB**
 www.themarslab.org
 The Mars lab at MAAS, Sydney Australia
 by Mars lab TV

Science K–10 (SciTech K–6)

Outcome: *Earth and Space*

A student:

- describes the dynamic nature of models, theories and laws in developing scientific understanding of the Earth and solar system
- describes changing ideas about the structure of the Earth and the universe to illustrate how models, theories and laws are refined over time by the scientific community [SC5-12ES](#)

Content:

Students:

- relate the formation of a range of landforms to physical and chemical weathering, erosion and deposition [ES1](#)
- outline the origins of and relationships between sedimentary, igneous and metamorphic rocks [ES1](#)
- describe some examples of how technological advances have led to discoveries and increased scientific understanding of the solar system [ES2](#)
- describe, using examples, some technological developments that have advanced scientific understanding about the universe [ES1](#).

Review:

Mars lab



Based on the Powerhouse Museum’s re-creation of the Martian surface, this website offers teachers and students a range of hands-on experiences in robotics and space exploration, with the [Mars yard simulation game](#) being the most accessible.

Based on NASA’s Opportunity rover, the *Mars yard simulation game* enables users to control a solar-powered rover on a simulated 3D Martian surface in a games based learning environment. While the main focus of this simulation is on scientific and engineering concepts within space exploration, a multitude of cross-curricular STEM learning opportunities are possible, as users seek signs of past life on Mars in a series of game-based missions. The flexibility of choosing between guided missions or roaming freely around the Mars yard enables teachers to design a range of STEM learning opportunities, from structured learning to inquiry-based learning and project-based learning supporting the *Science K-10 (incorporating Science and Technology K-6) syllabus* and *Design and Technology Years 7-10 syllabus*. A. Leung

USER LEVEL: Stage 5
KLA: Science
SYLLABUS: Science K-10 (SciTech K-6)
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Teaching and learning opportunities:

- Design a rover to explore the Martian surface using physical materials, graphics software and 3D printing
- Create a poster to compare the types of rocks found on Mars and Earth
- Create a video to explain the evidence used to classify Martian rocks and relate this to Earth’s rock cycle
- Write a comparison of the conditions of Earth and Mars
- Write a persuasive text to argue why society should support space research
- Create a timeline to show the technological advances through the history of NASA’s Mars rovers.

For more on the *Mars lab* program, refer to [The Mars lab: connecting authentic science with the classroom](#) in *Scan 34.1*.

Professional resources:

- [The Mars lab: 60 minutes on Mars](#) – lesson outlines regarding the use of rovers to search for signs of life on Mars
- [The Mars lab: research](#) – an overview of current research projects on robotics, engineering, and education offered by *The Mars lab*.

Composing:

- [ReadWriteThink](#) – search for *persuasive text* for the writing task
- [SketchUp](#) – for design and planning. Free for K-12 students and teachers, with registration.
- [Tiki-toki](#) – timeline creation tool. Free and premium accounts available.

Advice, implementation support and resources for NSW DoE teachers: [AC – NSW syllabuses for the Australian Curriculum](#) [intranet].