

Australia and a Martian Curricula: Mars in education

Mark Gargano

Science Consultant Catholic Education Office of Western Australia

Director (Education) Mars Society Australia

PhD Candidate, Imaging and Applied Physics, Curtin University, Western Australia

Gargano.mark@cathednet.wa.edu.au

In a recent report, it was identified that the numbers of students in senior science courses are in decline, with reasons suggested including; the failure of school science to engage a wider range of students, the difficulty that students have as picturing themselves as scientists or working in scientific careers and the decrease of the value of science within the range of school subjects offered (Lyons, T. and Quinn, F., *Choosing Science: Understanding the declines in senior high school science*, National Centre of Science, ICT and Mathematics Education, UNE, 2010, pp.1-10).

With the release and implementation of the Australian Curriculum (AC) teachers are asked to provide opportunities in science for students to develop an understanding of important science concepts and processes, the practices used to develop scientific knowledge, of science's contribution to our culture and society, and its applications in our lives. The proposed curriculum supports students to develop the scientific knowledge, understandings and skills to make informed decisions about local, national and global issues and to participate, in science-related careers. If we consider these points in conjunction with the AC, specifically the Earth and Space Science content area, highlighting areas that are of interest and growth.

Space science as a key component of Australia's scientific landscape through solar physics, space weather, Earth observation, astrobiology and space technology, the benefits to students (and society in general) having an understanding of the worth and implications of space science are intertwined with Australia's educational, strategic, economic and personal growth. (Decadal Plan for Australian Space Science 2010-2019, Australian Academy of Science, p.100).

In addition, astronomy is directed at the discovery of new knowledge about the Universe, and the dissemination of this knowledge with the public. As the scope of astronomy is so large—addressing questions that are fundamental to our existence—it is one of the most popular and accessible sciences. The teaching of astronomy in all its forms, the dissemination of astronomical knowledge, and important contributions that astronomers make to society at large, we identify that there is a remarkable breadth of opportunities that await Australian students (New Horizons: A Decadal Plan for Australian Astronomy, Australian Academy of Science, p.13).

It is possible through all three strands of AC science (<http://www.australiancurriculum.edu.au/Science/Curriculum/F-10>); Science Understanding, Science as a Human Endeavour and Science Inquiry Skills, to provide opportunities that will foster investigation, problem solving and real (off) world applications. Through the K to 10 curriculum students can delve into areas that generate an awareness and appreciation of Earth, planetary and space science. Included will be examples of the new AC with activities, along with how endeavours to foster a love of the extra-terrestrial environment will enhance a students' classroom experience. An outline of research data, that suggests particular approaches promote inquiry, foster critical and creative thinking and information and communication technologies. A Mars curricula, a one stop shop in developing well informed 21st century citizens of Australia, the world and beyond.