



‘NEXT STOP MARS?’

G.A.T.E.WAYS is an independent organisation offering challenging and enriching activities and experiences to develop and extend highly able children. This *JOURNEY* will run over four sessions. Mars has fascinated mankind for millennia, mainly because of its reddish colour and erratic motion through the night skies. Many cultures worshipped Mars as their god of war. Enter the telescope in 1609 and within seventy years Mars, like other planets reluctantly revealed some of its secrets to astronomers. By the 21st century technology had laid bare much of the Red Planet but also created many more questions. Mars continues to draw our attention by displaying features that forced many to believe in a planet that never was. How all this happened will be uncovered in this exciting journey.

Session 1 A History of Mars

Mars has always been of great interest, even fascination, to observers longer than any other planet. Students will learn about the amazing history of the red Planet from its formation to its present place in the solar system. Mars has been a source of strange stories and weird beliefs for centuries. The more astronomers learned about Mars the more the notion of an Earth like planet formed, and with it, intelligent alien life forms. In this session you will construct a model of Mars from a given period in astronomical history. How accurate will yours be?

Throughout 2016 Mars will be prominent in the night sky from March to October. Students will be encouraged to observe it and details will be provided during this session.

Session 2 The Essential Mars

It is only half the size of Earth but boasts some of the largest geological features in the solar system. It has an atmosphere, polar “ice” caps, mountains, canyons, sand storms and more. Two tiny moons orbit dangerously close. It features seasons, days and nights and evidence of a spectacular past stranger than the strangest fiction. Learn why Mars is red and its skies are pink. Find out why Mars does not appear to move like other planets in the night sky.

The distances between Mars and Earth vary greatly depending on where Mars and Earth are in their orbits. The link between time and distance will be explored this session. After learning how far it is to Mars students you will try to ‘make’ and ‘receive’ a phone call to a hypothetical astronaut on Mars. Can you calculate what the time delay will be?

Session 3 The Invasion of Mars

Mars beckons like no other planet in the solar system. More robot space craft have been sent to explore the Red Planet than any other planet since 1965. Curiosity in 2012 and MAVEN in 2014 are the latest addition to an impressive array of spacecraft studying Mars either on the ground or from above in orbit. Find out what some of these amazing machines are doing. You will learn why no astronauts have been sent to Mars. If you were to go to Mars, what would you need to take to survive?

Session 4 Where did all the Water Go?

Is Earth the only planet in the solar system with liquid water? In the 1870’s some astronomers claimed that they saw dark lines across the planet. The idea of water channels built by intelligent beings took hold and persisted well into the 20th century. But Mars shows irrefutable evidence of huge rivers flowing in the distant past, as well as lakes and oceans. Yet today’s Mars is drier than the driest desert. In 2015 NASA announced the discovery of subsurface liquid water. It is known that there is some water on Mars in the form of ice. The big question remains: where have all the oceans, all the lakes and rivers gone to? Given the knowledge that Mars is a dry planet, and that we humans need water to survive, would you volunteer for what would be a one way trip (ie with current technology)?

Reporting

At the end of the program a short written report will be completed on each student and forwarded to parents.

Requirements:

- * writing materials (pencil case) and an exercise book/notepad; and a snack (no nuts please)
- * bring a small named photograph of yourself to the first session
- * bring a stamped, self-addressed DL envelope for your report

ABOUT THE PRESENTER

Herwig Waldhuber has taught technology, science and woodwork over the years. He says there is a geologist inside him desperately wanting to get out. He has always been very interested in rocks and has an amazing collection of rocks, minerals and fossils. He has run many successful G.A.T.E.WAYS programs on a range of science, history and astronomy topics.

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