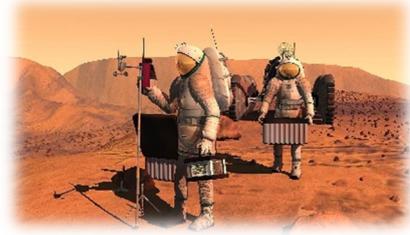


Mars Travel Advisory

NASA is working to send the first woman and next man to the Moon by 2024 as part of the Artemis Program hoping to establish a permanent human presence there within the next decade to uncover new scientific discoveries and lay the foundation for private companies to build a lunar economy.

<https://www.nasa.gov/topics/moon-to-mars/overview>



Working with U.S. companies and international partners, humans will push on to Mars using what we learned on the Moon to prepare for the next giant leap. It is only a matter of time before space tourists travel to the red planet. You have been hired to provide a travel advisory to the potential travelers about the realities of a journey to Mars. Remember, these travelers are not professional astronauts.

You will keep a journal of useful information as you learn about living and working in space and the unique challenges that come with long space voyages. A fast trip to Mars plus 1 month on the planet surface then a slow trip home to Earth will take about 1.5 years.

Trip to Mars Journal

Journals are essential tools for engineers, field researchers and scientists. They record observations, sketch scenes, keep track of data, calculations and write new ideas. They use journals to track the development of their ideas and to record their questions.

Your journal is a documentation of your efforts to complete this challenge. It may be a record for a team or an individual. Your documentation should include ideas, activity reflections, sketches, graphs, brainstorm ideas and summary information related to the challenge.

The journal will formally document, in chronological order, all of your work that is associated with a specific project.

- Clear and detailed description of each day's tasks
- Show evidence about turning your ideas into a solution
- Provide a record of learning to your teacher

Your journal should include:

- Key Ideas learned that day
- Information about Mars that you want to remember in order to meet the challenge
- Brainstorm ideas that you might want to consider in the future
- Questions that you have about either the day's tasks or the challenge
- Sketches or drawings with labels and descriptions
- Graphs of important concepts that help you make decisions about solutions.
- Calculations and figures are clearly labeled

In typical journals that engineers use (also called an engineering notebook) when they make a mistake, they draw a line through it, enter the correct information, and initial the change. They never erase or remove anything. Your teacher will let you know whether you should do this or just erase and move on.

Here are some ideas that should be included in your advisory:

1. Include some interesting information about the history of Mars exploration.
2. Inform them about the physical aspects of space travel at the start of the flight and during the trip.
3. Warn them about the dangers of the space environment (radiation) and the effects of long flights on the body. Provide ideas about what they can do to minimize the effects.
4. Explain the useful aspects of a typical spacesuit.
5. Provide information about the environment of Mars (day length, daily temperature ranges, yearly temperature ranges.)
6. Provide information about the rocket that they will be traveling on including its speed and what they can expect on the flight as they rocket off Earth for orbit and Mars.
7. Describe the habitat that they will use while on Mars. (This might be a useful design that others have created or you can use your own ideas.)
8. Be sure to describe some of the attractive features that travelers might find on Mars. (Remember, they are tourists!)

Earth vs. Mars

Planet Facts	Earth	Mars	Notes
Average distance from the sun			
Diameter			
Atmospheric composition			
Average High and Low Temperatures			
Length of Day			
Length of year			
Available Water			
Gravity			
Number of moons			

Useful Websites:

- <https://mars.nasa.gov/all-about-mars/facts/>
- <http://phoenix.lpl.arizona.edu/mars111.php>
- https://www.lpi.usra.edu/publications/slidesets/redplanet2/slide_1.html
- <http://www.universetoday.com/14859/gravity-on-mar>
- <http://solarsystem.nasa.gov/planets/profile.cfm?Object=Mars&Display=Facts&System=Metric>