

Big Red Planet Tour

Overview

The big idea of this lesson is to create a context for students to research and present information about Mars. They will work collaboratively in small groups to plan a tour for future Mars tourists. The tours can be designed in many different ways for which you set the standard. The student introduction, planning, and directions can be edited by the individual teacher to meet standards and objectives specifically chosen. They can be modified to meet individual learning styles, goals, and needs.

Student groups may design their tours, either from the following list of options, or using their own theme. The following list is merely a starting point.

1. Mars Greatest Hits: Students design a tour of the craters on Mars
2. Oldies & Goldies: Students design a tour of previous lander and rover sites.
3. Sci-fi Tour: Students design a tour of locations that have been the setting for science fiction movies.
4. Ring of Fire: Students design a tour that provides the opportunity to visit major volcanoes, and a few minor ones.
5. Elevation Vacation: Students design a tour that takes participants on a visit to the highest and lowest places on the planet.
6. On A Beach Somewhere: Students design a tour that follows the arbitrary sea level as identified on the map pointing out interesting features.
7. A Circumnavigational Tour: Students design a tour that allows participants to literally travel all the way around the planet. (Remember, the map is a flat representation of a spherical object.)
8. Martian Bucket List Tour: Students design a tour that samples highlight across the planet.

Each team will create a final product that can take a variety of formats. It can include a marketing report, poster or video advertisement, a brochure and a script to be read along the tour route.

Materials

1. String, yarn, cord, or tape of a different color for each group to define their pathway
2. Tape for each group to attach their pathway string to the map
3. Sticky notes for names of each place being highlighted. These could be color coordinated.
4. Poster paper and markers, paint, letters, etc. to create advertising and postcards for the tours.
5. Paper to create brochures related to the tours
6. Videotaping and editing technology and a format to share the edited product.
7. Robot(s) and technology to program them

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Engagement

When a person visits a large city, it is typically an option to take a bus or boat tour. The tour allows tourists to view the sites of the city, hear about the places from a tour guide, probably hear some bad jokes and to jump on and off of the bus for further exploration. What would it be like to take such a tour across the surface of Mars? Mars has about the same surface area as the land area of the Earth so distances would prevent tourists from travelling by bus, but we can only imagine that at some point, special transportation methods may be developed for traveling at high speeds across Mars's surface. When cities are especially large or diverse the tour companies may create multiple tours with each one specializing in one particular topic of interest .

Exploration

In your group choose a tour theme from the suggestions or design your own and develop an intriguing name for your tour.

As a group, look around the Giant Mars map to find locations of interest to visit according to your theme. As you plan a route, please consider:

- The changes of elevation: Even with new, faster transportation, it may be difficult to go up and down steep hills. It is easier to go around extreme changes in elevation.
- The view: What does it look like as you travel along the rim of Valles Marineris? How would Olympus Mons appear as it rises on the horizon?
- Significance: What is the historical or scientific significance about this area or location?

Explanation

Create a **tour guide script** for the tour. What will you say as you approach each site on your tour and drive past points of interest? When creating the tour guide's script for the tour, please consider the following for each tour stop:

1. What is the name of the place?
2. What is the significance of the place?
3. Is there special history or science related to the location?
4. What are some items of interest that can be told while traveling between the stop locations?
5. Think of jokes, music, and video/edited film sections that may make your tour more entertaining.

Create a **brochure** and advertising **poster or video** for the tour. Please include the following in one one or both of these products:

1. What is the total time for the complete tour?

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2. What is the distance and time (given an agreed upon km/hr speed for your travel vehicle) between each stop?
3. What will be the total distance and time (given an agreed upon speed for your vehicle and considering the amount of time allowed at each stop) covered from start to return to base location?
4. What will the change in elevation between stops be?
5. What locations will the tour cover and why are these significant or special?

Extension

Create a program for your robot to follow the pathway of the tour you have designed. As your robot follows the course, take turns in your group serving as the tour guide and reading your script for the rest of the class. Consider recording your script and playing it from the robot as it travels the course. This will require careful planning and timing.



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Evaluation

The teacher may interview each student or ask for journal entries to assess the following concepts.

Concepts	9-10	7-8	5-6	3-4	1-2
Big idea behind the project	Adequate description of how the project is intended to build an understanding of the features on Mars.		Describes skills practiced and specific features learned during the project.		Describes facts learned during the project.
Tour Path	Describes the course of the tour and explains how the team arrived at the solution.		Describes the path selected for the tour and its significance.		Offers few details of pathway or significance of the locations.
Historic Significance	Describes the tour in detail related to the work of the team.		Describes the historic significance.		Offers few details of historic significance.
Scientific Significance	Describes the scientific purpose of the tour in detail related to the work of the team.		Describes the tour's scientific significance.		Offers few details of scientific significance.
Teamwork	Offers evidence of effectively working as a team member to meet goals.		Describes inconsistent attempts at collaboration		Offers minimal evidence of teamwork.