Mission To Mars - Coming Soon?

Olathe West Physics - Mrs. Baker

Infographic Due Monday, September 17th by 11:59 pm on Moodle
Packet Due Tuesday, September 18th by 3:00 pm

Project Tasks
Students will...

● Develop a driving, open-ended question to guide meaningful research of the topic “Mission to Mars”
● Utilize scholarly resources including one book, one video, one article and one additional resource
● Demonstrate their comprehension of their research by completing a Research Planning and Progress guide
● Synthesize their research of the topic into an infographic that will be presented to the Astronomical Society of Kansas City
● Present their educated opinions in a discussion with classmates about the likelihood of an upcoming human colonization on Mars.

Project Timeline

  **Checkpoint** Web Quest #1 & Driving Question for YOUR research
● September 11: Meet in Main Library - Review of scholarly resources and initiation of research. Work time for Research Planning & Progress Guide and use of scholarly resources.
  **Checkpoint** Identify sources and Research Outline
  **Checkpoint** Web Quest #2 & Socratic Seminar Questions
● September 14: Socratic Seminar Day - present educated opinions for discussion with classmates about the colonization of Mars. (Absent Students: 550 Word Research Paper)
● September 17: Infographic (PDF or JPEG format) due to Moodle by 11:59 pm
● September 18: Research Planning & Progress Guide Due at beginning of Class

Project Notes:
# Discussion Topics & Mini Lesson Notes

## Possible Discussion Topics

- History of the development of the Mission to Mars
- Risks of travel and colonization on Mars
- Current limitations affecting the Mission to Mars
- Roadmap of upcoming missions and projected dates of colonization
- Technology Research & Development for inhabiting Mars
- Rover exploration on Mars
- Mission to Mars in the news
- Leading companies working on the Mission to Mars
- Best timing to Launch to Mars

## Mini Lesson #1 - Student Notes

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## Mini Lesson #2 - Student Notes

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# Research Planning & Progress Guide

**#1 Driving Question:** Develop a question that will narrow the focus of your research. Your question should be open-ended and supported through your research.

**#2 Supporting Topics:** Refer to the possible discussion points to identify topics that can be researched to answer your driving question. You may identify additional topics that are not listed in the discussion points. Four discussion topics are required to support your driving question for this project.

- Supporting Topic 1:
- Supporting Topic 2:
- Supporting Topic 3:
- Supporting Topic 4:
- Supporting Topic 5:

**#3 Scholarly Resources:** Identify four scholarly resources as specified below that will be used as you gather your research to answer your driving question through supporting topics. Your sources will be cited according to the MLA style on your infographic.

- **Book Resource:**
- **Video Resource:**
- **Article Resource:**
- **Additional Resource:**

**#4 Infographic Resources:** How will you create your infographic?
# Research Planning & Progress Guide

## Infographic Summary

<table>
<thead>
<tr>
<th>#5 Supporting Topic 1:</th>
<th>Evidence 1:</th>
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<tbody>
<tr>
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<td>Evidence 2:</td>
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<td></td>
<td>Evidence 3:</td>
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<tr>
<th>#6 Supporting Topic 2:</th>
<th>Evidence 1:</th>
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<tbody>
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<td>Evidence 2:</td>
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<tr>
<td></td>
<td>Evidence 3:</td>
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<tr>
<th>#7 Supporting Topic 3:</th>
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<td>Evidence 2:</td>
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<tr>
<td></td>
<td>Evidence 3:</td>
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<tr>
<th>#8 Supporting Topic 4:</th>
<th>Evidence 1:</th>
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<tr>
<td></td>
<td>Evidence 2:</td>
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<tr>
<td></td>
<td>Evidence 3:</td>
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<tr>
<th>#9 Supporting Topic 5:</th>
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<td></td>
<td>Evidence 2:</td>
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<td>Evidence 3:</td>
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</table>
# Socratic Seminar - Discussion Guide

## Resource 1: Book

<table>
<thead>
<tr>
<th>Title:</th>
<th>Author:</th>
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<tbody>
<tr>
<td>Publishing Company:</td>
<td>Location Published:</td>
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<tr>
<td>Year Published:</td>
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## Key points from Resource:


## Discussion Questions (2 minimum):


<table>
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<tr>
<th>Resource 2: Video</th>
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<tr>
<td>Title:</td>
</tr>
<tr>
<td>Author/Producer:</td>
</tr>
<tr>
<td>Website:</td>
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<tr>
<td>Date Accessed:</td>
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**Key points from Resource:**

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<th>Discussion Questions (2 minimum):</th>
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</table>
## Socratic Seminar - Discussion Guide

### Resource 3: Article Resource

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<tr>
<th>Title:</th>
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<tbody>
<tr>
<td>Author:</td>
<td>Edition:</td>
</tr>
<tr>
<td>Journal:</td>
<td>Pages:</td>
</tr>
<tr>
<td>Year Published:</td>
<td>Date Accessed:</td>
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### Key points from Resource:

### Discussion Questions (2 minimum):

...
# Socratic Seminar - Discussion Guide

## Resource 4: Additional Resource

<table>
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<tbody>
<tr>
<td>Author:</td>
<td></td>
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<tr>
<td>Additional Citation Information:</td>
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## Key points from Resource:

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## Discussion Questions (2 minimum):

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WebQuest #1 - Understanding Mars

Go to: https://mars.nasa.gov/allaboutmarsfacts/ and study the various parts of the page (Quick Facts, Detailed Facts, Picture Facts) to complete the WebQuest below.

<table>
<thead>
<tr>
<th>Comparing Earth and Mars</th>
<th>Earth</th>
<th>Mars</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Distance From Sun</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diameter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tilt of Axis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Length of Year (Earth Days)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Length of Day (Hours)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mass</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Composition of Surface</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Composition of Atmosphere</td>
<td></td>
<td></td>
</tr>
<tr>
<td># of Moons</td>
<td></td>
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<tr>
<td>Surface Gravity</td>
<td></td>
<td></td>
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<tr>
<td>Escape Velocity</td>
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<tr>
<td>Surface Temperature</td>
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<tr>
<td>Orbital Speed (around the Sun)</td>
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<td></td>
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<tr>
<td>Size of Moons (2 for Mars)</td>
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</table>
WebQuest #2 - Mars Exploration

Go to: [https://mars.nasa.gov/programmissions/science/](https://mars.nasa.gov/programmissions/science/) and scroll to the bottom of the page where the **Four Science Goals for Mars Exploration** are detailed. Use these links to complete the WebQuest below.

<table>
<thead>
<tr>
<th>Name of Science Goal #1:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Which two resources are necessary for any form of life to exist on Mars?</td>
</tr>
<tr>
<td>Describe the impact of the presence of “Superoxides” on Mars:</td>
</tr>
<tr>
<td>Describe the “biosignatures” that scientists have found or are still looking for:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name of Science Goal #2:</th>
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<tbody>
<tr>
<td>Summarize what the Martian climate is like today. Use complete sentences:</td>
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<tr>
<td>Summarize what the Martian climate reveals about the past. Use complete sentences:</td>
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</table>

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<tr>
<th>Name of Science Goal #3:</th>
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<tbody>
<tr>
<td>Why do such massive volcanoes exist on Mars (in comparison to Earth)?</td>
</tr>
<tr>
<td>Describe the importance of a Magnetic Field that once existed on Mars. Use complete sentences:</td>
</tr>
<tr>
<td>How do geologists use rocks from Mars to gather important information?</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Name of Science Goal #4:</th>
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<tbody>
<tr>
<td>Describe how scientists are preparing for the safety of Mars Astronauts. Use complete sentences:</td>
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</table>