



MARS STUDENT IMAGING PROJECT

ASU MARS EDUCATION PROGRAM



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4. Show what the geologic features you are studying look like on Mars.
 - Draw sketches.
 - Show THEMIS images that show good examples of your geologic feature(s).
 - Describe the defining characteristics or criteria for identifying the geologic feature(s) you are studying.

(For example: Let's say you are studying the relationship between sand dunes in different types of craters. If this is the case, you should describe what criteria or defining characteristics let you know you are looking at the different types of craters (preserved, modified or destroyed) as well as what criteria or defining characteristics you look for to identify sand dunes.)

 5. List any hypotheses or information about the formation of the geologic feature(s) you are studying from other scientists.



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III. Methods

The purpose of the methods section is to allow other scientists to repeat your experiment and to show the reliability of your data. The methods section includes the step-by-step process detailing exactly what you did to collect your data.

This section can include the following:

(Note: Some of this information may not apply to all projects):

1. What specific spacecraft and camera did you use to collect data for your research?
2. What specific geologic features did you focus on for your study and why?
 - Discuss how you used the defining characteristics to identify the feature(s) you were studying for your project.
 - (Optional) If you used a “control” (an exemplary example you used to based your classifications throughout your project), discuss how you used that control to identify the feature(s) you were studying.
3. What geographic region(s) and/or geologic features did you focus on during the process of collecting your data?
4. How many THEMIS images did you use to gather your data in order to answer your science question?



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5. List the specific data you recorded from each image you observed, and why? For example:
- **Image identification # (V#):** This will allow us and other scientists to reexamine the images we observed to check our data.
 - **Latitude and longitude:** This will allow us to map where each image we examine is located
 - **Specific feature(s)** (*You would name the specific features here*): We will look for _____ and _____ as those directly relate to our science question
 - **Other?**

List what you recorded from each image AND why it was important:

6. If you made measurements, include what measurements you made and how you made them.
7. List and describe what website(s) you used to gather your data and how you used it (them). Be specific as to how you used the website(s) to gather your data.
- List each website.
 - Describe where you looked, once on that website, to find each piece of data you recorded from each image. (This can be a step-by-step list. For example:
 - 1. Go to the <http://themis.asu.edu/topic> website;
 - 2. Click on the “craters” topic;
 - 3. To find the image ID #, click on the THEMIS Data Releases link
 - 4. To find the Latitude and Longitude look...



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IV. Data

The purpose of the data section is to list and display the data you collected. It should explain what the data is showing and any patterns or trends you are noticing with the data. It only includes your observations. It does not include any interpretations of those data.

This section should include the following:

1. Display your data (attach any and all information you put together for this section):
 - Show your data table and explain what it is showing.
 - Show each of your graphs and explain what each graph is comparing and what observations, including patterns or trends you can observe with the data displayed on each graph.
 - Show your data on a map of Mars and explain what it is showing and what observations, including patterns or trends you can observe with the data displayed on the map.
 - Show any qualitative information (sketches and overall general observations) that are important for better understanding the feature(s) you are studying or how the surrounding areas (the context) that may play a role in the process or formation of the feature(s) you are studying.



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V. Discussion

The purpose of the discussion section is to show the data you collected and discuss and explain the meaning or interpretations of your data as it relates to your science question. It should include the following information:

1. **Reshow each graph** individually (including your data on the map of Mars) and include the following:
 - A brief overview of what the graph is comparing and the trends, patterns, and observations of that graph.
 - Explain the interpretation of what those trends, patterns and observations tell you about how the specific process(es) you are studying may work on Mars. Include significant details that can be specifically linked to and back up your interpretations.
 - Apply those interpretations to your specific question and/or your hypothesis(es).

(Attach any and all information you put together for this section)

2. Discuss the potential errors with the data you collected.
 - Could there be inaccuracies? If so, please explain.

- Could there be misinterpretations? If so, please explain.



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VII. References

The purpose of the references section is to list all sources of information used to create your science report. It includes a list of sources such as:

- Books
- Websites
- People
- Equipment

Note: Each reference you list in this section should be cited within the body of your final report. There is a specific way to do this. For example:

- Within the body of your proposal after a written statement(s): (*MSIP Resource Manual*, p. 16)
- Listed in your reference section at the end of your proposal:

Watt, K. (2002). *Mars Student Imaging Project: Resource Manual*. Retrieved June 29, 2006, (the date you downloaded) from Arizona State University, Mars Student Imaging Project Web site: <http://msip.asu.edu/curriculum.html>.

You can go to www.apastyle.org for additional information.