REFINING YOUR EXPERIMENT and DATA COLLECTION METHODS

Minimum materials required:

- 1 Internet-connected computer per team
- Question Mars Student Guide: 1 per student (students should already have this handout)

Have students get back into their same teams from the previous day.

Finalizing Research Question

Students use (E) Student Sheet #4 to write and evaluation their Final Research Question and (F) Student Sheet #5 to write a testable hypothesis.

Refining Your Experiment

Students should discuss and come to a decision on what data (information) they will collect and log from every THEMIS image they observe and the JMARS layers they intend to use. This will become an important aspect of their experiment design.

- Small Research Teams: Students should discuss and debate the plan and JMARS layers within their research team. After the team discussion, all students should have consistent information.

Data Collection Methods

Students should not only consider what data that is to be collected, but also how to control the experiment. Teams should discuss the criteria they intend to use to identify certain geologic features on Mars and/or data collection techniques. Communicating these "controls" and "criteria" are essential to explaining to the scientific community about data collection.

There is no minimum or maximum set of data students should collect; that will depend on their research question.

HOMEWORK RECOMMENDATION:

Students should look at their previous observations and ONLY include images that apply to their projects. They may have some observations logged that focus on other aspects of their topic that they decided not to focus on. These observations should NOT be included in their data table. Additionally, students probably did not record all the information they now realize they want to collect from each and every image, based on decisions they made with their data collection methods. They can relocate any of the previously observed images by going to the **Themis** website. If they type in the image ID # (the V# or I#), they will be able to look at that image again and log the other observations and data they may need to obtain for their project.

Each individual that makes up a research team should create and maintain their own data table. The data they record on their table will be compiled with other team member data at a later time in an Excel spreadsheet. It is again important to stress that their data tables need to be filled out consistently.

Students can be given a couple of days to complete this homework assignment.