

**A Universe of Possibilities**

**... To Mars and Beyond**



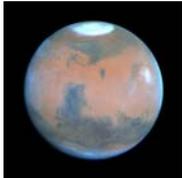
**Middle School Challenge I 2006**

**March 16-17, 2006**

**Oregon State University**

Team Name: \_\_\_\_\_

School: \_\_\_\_\_



# Mission Log

School: \_\_\_\_\_

Team Name: \_\_\_\_\_

## Day 1: Launch Preparation

Team Name: \_\_\_\_\_

Mission Statement: \_\_\_\_\_

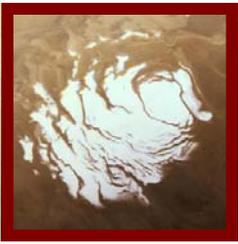
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

*Glue a copy of your mission patch here.*

Mission Patch



*Team Cheer -  
Don't forget to  
come up with your  
own team cheer!*



## Task 1: Photo of Polar Ice Caps

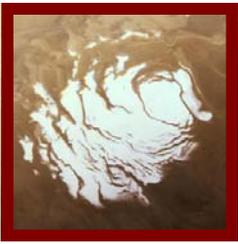
### Mission Planning – Robot Design

**Task:** Design, build, and program a robot capable of leaving base, following the black line to the end and then taking a picture of the polar ice cap. After taking the picture, the robot should turn and return to base on its own.

**Task:** Think about the individual steps that are needed to complete the task. What features will your robot need to be successful? What must you make sure the robot can do and how will you build this into your design? In the table below list all the steps needed to complete the task. For each step, write down what you must include in your robot design in order to master that step. Then, brainstorm at least 2 tests that you can do to ensure that your robot can perform the specified step.

Step	Design Features	Tests

Team Name: \_\_\_\_\_



## Task 1: Photo of Polar Ice Caps

### Mission Planning – Programming

**Task:** Design, build, and program a robot capable of leaving base, following the black line to the end and then taking a picture of the polar ice cap. After taking the picture, the robot should turn and return to base on its own.

How will you program your robot to do the task? In the space below, either in words, pictures or a combination, sketch out the logic needed to accomplish the mission.





## Task 2: Retrieving Rock Samples

### Mission Planning – Robot Design

**Task:** Design, build, and program a robot capable of leaving base, finding the rocks and bringing them back to base.

Task: Think about the individual steps that are needed to complete the task. What features will your robot need to be successful? What must you make sure the robot can do and how will you build this into your design? In the table below list all the steps needed to complete the task. For each step, write down what you must include in your robot design in order to master that step. Then, brainstorm at least 2 tests that you can do to ensure that your robot can perform the specified step.

Step	Design Features	Tests

Team Name: \_\_\_\_\_



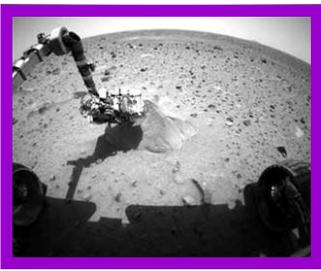
## Task 2: Retrieving Rock Samples

### Mission Planning – Programming

**Task:** Design, build, and program a robot capable of leaving base, finding the rocks and bringing them back to base.

How will you program your robot to do the task? In the space below, either in words, pictures or a combination, sketch out the logic needed to accomplish the mission.

Team Name: \_\_\_\_\_



## Task 3: Dropping a Probe

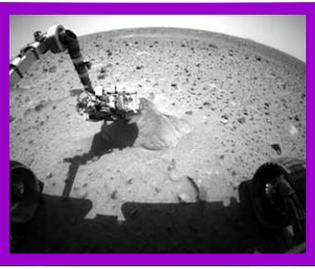
### Mission Planning – Robot Design

**Task:** Design, build, and program a robot capable of leaving base carrying a probe, traveling to the designated area, dropping off a probe and then returning to base.

Task: Think about the individual steps that are needed to complete the task. What features will your robot need to be successful? What must you make sure the robot can do and how will you build this into your design? In the table below list all the steps needed to complete the task. For each step, write down what you must include in your robot design in order to master that step. Then, brainstorm at least 2 tests that you can do to ensure that your robot can perform the specified step.

Step	Design Features	Tests

Team Name: \_\_\_\_\_



## Task 3: Dropping off a Probe

### Mission Planning – Programming

**Task:** Design, build, and program a robot capable of leaving base carrying a probe, traveling to the designated area, dropping off a probe and then returning to base.

How will you program your robot to do the task? In the space below, either in words, pictures or a combination, sketch out the logic needed to accomplish the mission.

A large, empty rectangular box with a thin black border, intended for students to sketch out the logic needed to accomplish the mission. The box is mostly empty, with a small, irregular shape at the bottom right corner that looks like a folded corner of paper.



## Day 2: Launch

Team Name:

**We are Off!**



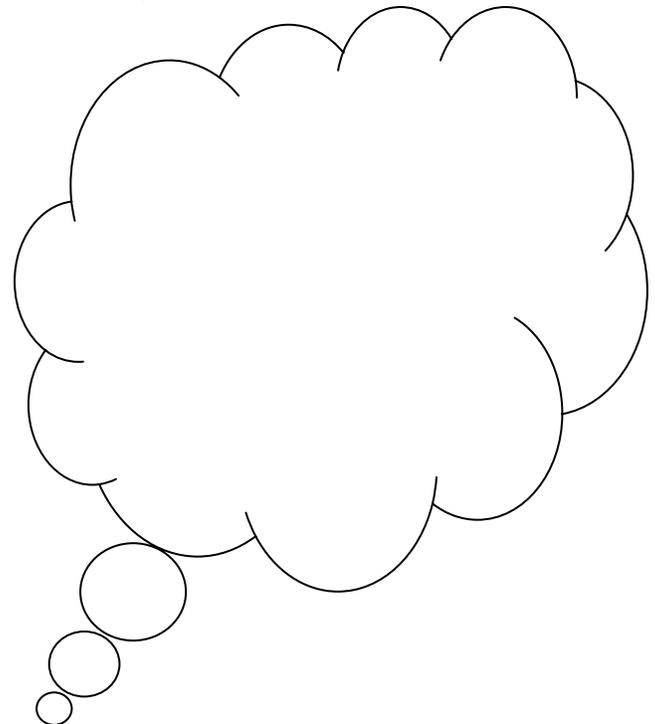
August 12, 2005: The launch of the Mars Reconnaissance Orbiter— due to arrive on March 10, 2006.



### Task Planning

What tasks do you plan on attempting after landing? In what order? Are you planning on attempting the surprise bonus task? List the tasks you plan on attempting below and put a star by the one you are most confident of.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_



### **Reflections**

In the cloud above, describe how your team is doing so far. What are your worries, and what are the things you are most proud of?

# Day 2:



## The Landing and the Mission



The rover has landed. It is now time to try to complete one, two, or all three of the tasks included in this mission. Put your planning into action and see what your team can accomplish. Record your success below. Also include your thoughts on how things went. What were your challenges? What are you especially proud of?

Task 1: Polar Ice Cap Photo			
Were you able to:	Yes	Sometimes	Not Yet Done
Follow the line to the end?			
Take the photo?			
Turn the robot around?			
Get the robot back to base?			

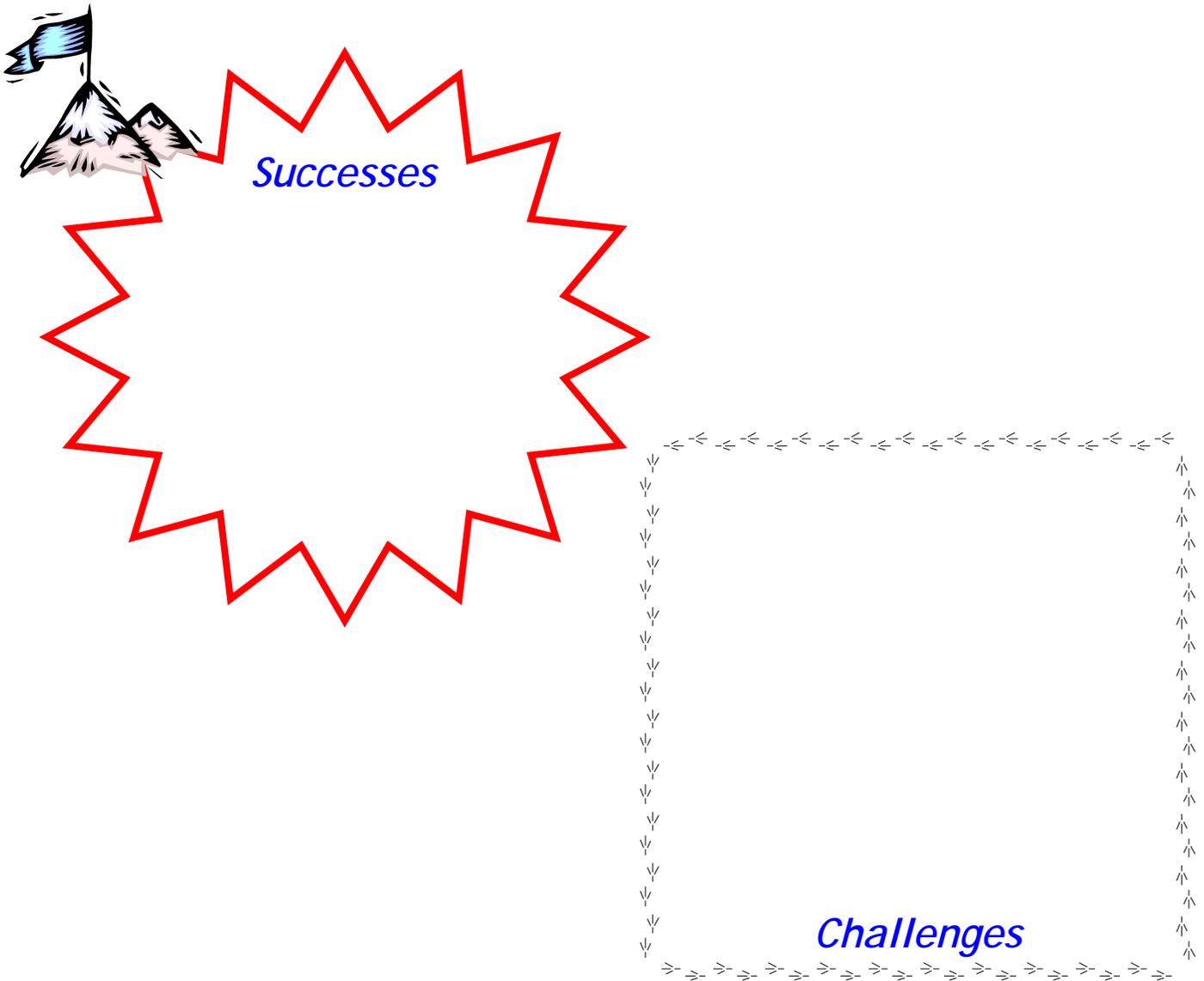


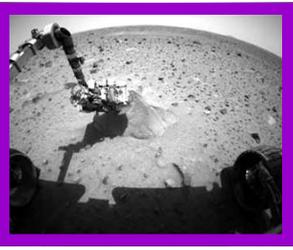


Team Name: \_\_\_\_\_

# Task 2 Summary

Task 2: Retrieving Rock Samples			
Were you able to:	Yes	Sometimes	Not Yet Done
Design an attachment that would carry the rocks?			
Pick up the all the rocks? (on 1 or more trips)			
Turn the robot around?			
Get the robot back to base?			





Team Name: \_\_\_\_\_

# Task 3 Summary

Task 3: Dropping off a Probe			
Were you able to:	Yes	Sometimes	Not Yet Done
Design an attachment to hold the probe?			
Carry the probe to the spot?			
Drop the probe?			
Get the robot back to base?			





# The Challenge

School: \_\_\_\_\_

Team Name: \_\_\_\_\_

Team Members:

- 1) \_\_\_\_\_
- 2) \_\_\_\_\_
- 3) \_\_\_\_\_
- 4) \_\_\_\_\_

Which task (s) do you want to attempt at the challenge?  
(circle your choice(s))

Photo of Polar Ice Cap

Retrieve rock samples

Drop surface probe

Do you have something interesting or funny you would like to share about your team at the challenge?

Which is your favorite task?

Why?