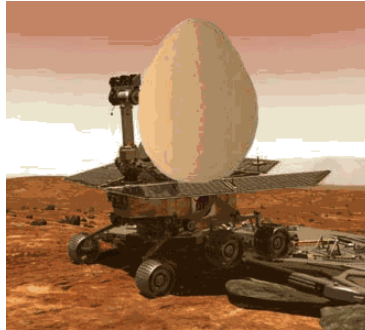


# California's Great America



## Mars Lander Contest



### **Mission:**

Your team is attempting to win the contract from NASA for landing a rover vehicle safely on Mars. To win you must demonstrate the effectiveness of your design. The winning group will have the most successful design that gets the vehicle safely on the ground. The best design will have the ability to successfully land from a great height.

For your design, you will use only materials from the list below to build a lander that will land a raw egg unbroken after falling from a height of 2 meters or more. "Unbroken" is defined as not leaking fluid from a crack in the shell. The egg must be positioned so it can be inspected easily by the judges upon completion of each landing.

### **Winners:**

We will begin by dropping the landers from a height of 2 meters. In order to continue in the contest, the egg must survive (not leak). If the lander fails, the score will be zero (0) and removed to the side.

### **Price List for Materials:**

To build a lander, the group will "purchase" materials from the following list. This Price List reflects the launch cost of sending your lander into space. Of course NASA's cost per pound is a great deal higher than this. We are modeling the high launch cost with this list. Each team has a maximum of \$5,000 with which to purchase their materials.

- \* Balloons: \$1,700 each (normal dime store round balloons)
- \* Straws: \$200 ea (drinking straws, not the flexible type)
- \* Clear Tape: \$200/meter. NOTE: Tape may only be purchased in increments of 0.5 m.

\* Sand: \$500 per cupful. Sand will be dispensed in small pre-measured cups designed to hold 3 oz of liquid, and the cup may be used in the final lander.

Scissors will be provided to the contestants by the park. No other materials or tools may be used in the construction of the lander under penalty of disqualification.

### **Procedure:**

1. Obtain the **Entry Form/ “Purchase Requisition” /Judging Form** from the contest officials at California's Great America. Fill out the group information and include your shopping list in the Purchase Requisition.
2. Take the completed form to the contest officials to obtain your materials. Your group may make one return trip to purchase additional materials if you have a balance remaining, but no returns or exchanges allowed.
3. Build your lander and include the supplied egg. Label the lander with your group number as assigned when you submit your Entry Form.
4. Take the completed lander to the contest official in charge of dropping the devices. Watch and cheer as your lander performs.

### **Notes:**

We recommend that you prototype this at home before coming to the park because you will have only a limited time to actually construct your lander. With a limited number of entries per school, teachers may wish to have their own local contests and choose the best teams to enter at Physics, Science & Math Days.

Prizes will be awarded in grade levels, 8 and below, and 9-12.

Each school is allowed a maximum of 2 teams during preregistration. If space remains at the beginning of the event, additional teams may sign up in an orderly manner.

### **Location:**

Celebration Plaza

### **Time:**

10:00am-11:00am Mars Lander Construction

11:00am Mars Lander Competition Begins

12:30pm-1:30pm Mars Lander Construction

1:30pm Mars Lander Competition Begins