



# Engineering Challenge



Teams of elementary and middle school students build a Mars Rover and complete a series of tasks.

Contest Support provided by the Discovery Science Place of the University of Texas at Tyler

## Contest Rules

(Revised July 2021)

### Levels of Competition

Elementary – Students must be in 3<sup>rd</sup>-5<sup>th</sup> grades.

Middle School – Students must be in 6<sup>th</sup>-8<sup>th</sup> grades

Schools with 3<sup>rd</sup> – 6<sup>th</sup> grades may have teams competing at two levels – Elementary and Middle School.

### Team

A Team at either level is comprised of 4 students from the eligible grades. ONLY 4 students may participate at the contest. In the event of illness, etc., a Team may compete with 3 students.

Schools and groups are certainly welcome to have “alternates” in the early stages of Team development. HOWEVER, ONLY 4 Team Members may be registered and are allowed to build the Rover used for the contest, create items for the presentations, complete parts of the Journal or participate in testing challenges at the contest. Coaches do NOT register “Alternates” but may make substitutions after the initial registration has been submitted. Any “Alternates” do NOT receive certificates from Academic Rodeo and are not eligible for any cash awards or application for scholarships. Only the 4 Team Members and Coach are invited to the Awards Celebration IF the Team places.

### Mission of Engineering Teams

- ✓ Build a Mars Rover AND present the Rover for testing in seven different components of the Engineering Challenge Contest.
- ✓ The Rover MUST have a rock collection device and a rock storage area.
- ✓ The Rover MUST have a way of moving the Rover without any team member physically touching the Rover or collection device.
- ✓ Team must keep a Lab Notebook during entire process that MUST include:
  - a. Timeline of formation of Team, building the Rover, and preparing for the contest
  - b. 3 itemized budgets
  - c. Day-to-day notes to document the progress
  - d. Individual pie charts.
- ✓ Each team will do verbal and poster presentation at the contest as a part of the testing.

**See the Engineering Challenge Contest Manual for procedures.**

**Other information and resources are available on the Engineering Contest page**

### Preparation

1. Schedule for contest is set and posted in October after School/Group Contest Registration us complete.
2. Set is picked up from Academic Rodeo during the pickup week or by other arrangement.

3. Teams may use school LEGO sets if the sets meet the requirements for the contest and have received approval from Academic Rodeo.
4. A variety of Team-Building activities are available.
5. Tips and additional information about the contest and testing is available.

### **Contest Procedures**

1. Each team is given an arrival time, allowing 15 minutes for set-up and preparation time before the team begins the testing challenges. Teams may arrive earlier, but they must remain in the staging area and will not move ahead in the schedule unless another team does not arrive or has a catastrophic breakdown during their course run.
2. The team proceeds through these stations in the challenge:  
Weigh-in, Incline Test, Poster Presentation, Course #1, Course #2, and Course #3.  
Fifteen minutes are allotted for the first two stations combined and for each additional station. Factors related to breakdowns and other issues that may arise for the team could result in delays or disruptions to the schedule.
3. See the Engineering Challenge Contest Manual for specifics about the tests that occur in the Course.
4. Teams may not watch other teams compete before running the course.
5. Teams are released when they have finished all testing challenges, set up poster and rover for display and turned in the Lab Notebook for evaluation. All teams will have a photo taken with the rover before leaving.
6. The rover, notebook, and poster remain on display throughout Academic Rodeo.
7. Results are announced within two days following the contest.
8. The coach or a representative must collect the Rover and display items **AFTER** the Awards Celebration, dismantle the Rover and inventory the components **with the students**. The LEGO kit is then returned to Academic Rodeo by the set deadline **OR** school will be invoiced to replace the missing kit – **\$350 for the Elementary Set; \$425 for the Middle School Set**. Those who fail to return kits promptly will not be allowed to check out LEGO sets for future contests without making a deposit.

## **Awards**

1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> place teams will be recognized in each contest level. In addition, special recognitions may be announced as determined by the judges.

Teams receive a trophy. The members of the team receive Place Ribbons.

Elementary students who place receive cash awards.

Middle School students who place may apply for Academic Rodeo Scholarships.

Members of teams who do not place receive a Participation Certificate.