

Earthling Exploration of Mars

Teacher Version

Adapted from Thursday's Classroom Activity "Red Planet Time Line" – located on the web at www.thursdaysclassroom.com/20jul01/teachtimeline.html

Introduction & Purpose

This activity will not only introduce your students to the historical exploration of Mars, but it will also teach them how to make timelines and set goals! Creation of a timeline is a **required** activity for each team in Idaho TECH because it is important for teams to think about what designing and constructing a Rover for competition entails **early on** in the process. Often, teams wait until the last minute to start testing designs, or underestimate the amount of time it takes to complete one of the tasks of the program. If the team understands **early on** the level of involvement necessary for the Idaho TECH program, perhaps these and similar situations can be avoided, thus allowing the team the best opportunity to achieve success.

Objective

Students will read an article about the past exploration of Mars and construct a timeline with information from the article. Students will then develop goals and construct a timeline for the design, construction, and presentation of their Rover.

Materials Needed

- "The Earthlings Are Coming" story (*in the Student Version*)
- Idaho TECH Lab Notebook
- A ruler, pencils, and some scratch paper
- **Optional:** poster-sized paper or poster board and art supplies (like paints, markers, construction paper, etc.)

Procedure

There are detailed instructions for this activity in the **Student Version**. Your role during this activity is that of a facilitator.

First, the students will read an article about the exploration of Mars included in their Activity Book. A timeline that outlines the events described in the article will then be created. During this part of the activity, be sure your students understand the suggested structure of the timeline. Encourage them to think ahead about how they will organize the information on the page, and what information they will use from the story. For example, they should not include long descriptions for every event, but short, specific titles.

The next part of the activity will most likely be more difficult for your students. They will have to think ahead through the next few months, and brainstorm all the things they will have to do to prepare for the Rover Design Competition. Goals for each of these target areas then need to be created, and a timeline for accomplishing these goals constructed in the Lab Notebook. We suggest that the team include the following items **at the minimum** on their timeline:

- ★ Inventory Lego® kits
- ★ Practice gearing designs (for mobility, speed, climbing, etc.)

- ★ Practice steering designs (for mobility, speed, etc.)
- ★ Practice rock collection designs
- ★ Brainstorm ideas for final design, based on practice designs
- ★ Select final design
- ★ Build final design
- ★ Test & revise final design as necessary
- ★ Prepare poster & verbal presentation
- ★ Attend Engineering Design Competition
- ★ Kit Inventory and Return

In order for the team to establish a reasonable timeline for the items they identify, it will be necessary to have them refer back to the “3-2-1 Pop! – An Effervescent Race” activity for information about the engineering design process. Additionally, you will need to advise them about the following information. This information was gathered from a survey of former Idaho TECH teacher sponsors in order to help teams determine the level of involvement necessary for success in the Idaho TECH program.

- ★ Most Idaho TECH teams meet after school at a regularly scheduled meeting time at the school
- ★ On average, most teams meet for 2-4 hours at a minimum each week, and 1-2 times overall each week
- ★ The total preparation time for students in the Idaho TECH program on average is 50-60 hours. Many teams increase the hours they meet each week to 5-6 during the two weeks prior to competition
- ★ Teacher sponsors, on average, spend 10-20 hours preparing activities and participating in personal learning about concepts of the program in order to assist the team in the Idaho TECH program
- ★ Most teams approach the tasks of the program by assigning tasks to certain team members, or by having the team focus on one task at a time

Lastly, explain to the team that if they do not meet a goal by the original date on the timeline, this is not a sign that the team is going to fail. Sometimes things take longer than expected, and this is okay. *Goals can be flexible.* **The point of this exercise is not to overwhelm the team, but to help the team begin to create an overall picture of the Idaho TECH program.**

We also recommend that the team create a poster of their timeline so it can be hung where the team will meet as a frequent reminder of their goals and of what is still to come. Let them be creative, and most of all, **HAVE FUN!**

