Lesson Title: Earthling Exploration of Mars	
Estimated Lesson Time: One class period / extra-curricular session (~ 50-60 minutes).	
Overview & Purpose: Students will be introduced to the historical exploration of Mars, and understand the necessity of setting a timeline for the rover project.	
Standards: *Idaho Core Standards and Next Generation Science Standards (NGSS) relevant to the lesson.* Idaho Core, RST.6-8.5: Analyze the structure of an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic. Idaho Core, WHST.6-8.4: Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.	
Goals and Objectives:	Students will be able to construct a timeline chronologically organizing information from an article. Students will be able to set a timeline for the design, construction, and presentation of their rover.
Assessment:	*Formative* – Monitor student discussion and participation to ensure comprehension. *Summative* – Review timelines in lab notebooks, to evaluate student comprehension.

Needed Materials:	• "The Earthlings Are Coming", story from the Student Activity Book • Idaho TECH Lab Notebook • Ruler, pencils, scratch paper. • (Optional: poster-sized paper / poster board and art supplies.

Teacher preparation requirements: In addition to this lesson plan, review the materials in the Teacher and Student activity books.

Student configuration: As team size dictates, the timeline summarizing the article can either be done in small groups or whole-team activity. The rover design timeline should be done as a whole-team project.

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Lesson Procedures	**Procedure Description**	**Estimated Time**
1. Introduction to lesson.	Inform students that they will be reading an article about the history of exploring Mars. Before reading begins, explain in advance that they will be creating a timeline of the important events and dates in the article. Encourage students to identify such information while they read.	5 minutes.
2. Read "The Earthlings Are Coming".	Direct students to go to the story in their Student Activity books. As reading level dictates, students may read independently, in small groups, or as a whole-team group.	5-10 minutes.
3. Create article timeline.	Have students chronologically organize important events / dates from the article. Before starting, encourage students to narrow down their timeline to the 5-6 events they think are most important. Demonstrate to students how to make a timeline using a ruler and their lab notebook.	10-15 minutes.

4. Introduce Design Timeline.	Explain to students that in addition to organizing past events, timelines can also be used to schedule and plan for the future. Have students brainstorm what parts of the rover design process they should plan in advance for, tracking their responses on a whiteboard. Ensure that students eventually account for all of the following: - Inventory of Lego kits - Practicing gearing designs - Practicing steering designs - Practicing rock collection designs - Selection of final design - Building of final design - Testing and revision of design - Preparation of poster and verbal presentation - Date of competition - Return of Lego kits	10-15 minutes.
5. Create Design Timeline	Collaborate with students in scheduling the completion of these aspects of the design and competition process. Although some dates are required (kit inventory, date of competition, kit return), the rest can be negotiated by the team. Encourage students to look at a calendar, and to consider how often they will meet and how long work sessions will be. Write down the completion date for each target area on the white board. Once all targets have a goal for completion, create a final timeline on the whiteboard detailing all design areas and their scheduled completion goal.	15-20 minutes
Summary & Evaluation Lab Notebook.	Have students individually write a copy of the design timeline on the first page of their lab notebooks, so each student has a record of the design schedule.	5 minutes.

(Optional – Timeline Poster)	(Although not necessary, students may create a poster of their timeline to be hung in the area where the team meets. The timeline, hung next to a team calendar with the completion dates written on it, will help students keep their schedule in mind.)	

References and Resources:

Idaho Core Standards - **http://www.sde.idaho.gov/site/common/**

Next Generation Science Standards (NGSS) – **http://www.nextgenscience.org/next-generation-science-standards**

Idaho TECH website – **http://ed.isu.edu/Idaho_TECH/index.shtml**

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