

**CODE/MOE/UOIT Makerspaces Project**

**Lesson Plan: Grade 6 Science: Creating a Mars Rover, Part 2**

This is the second part of a two-part lesson. Part 1 involves designing a Mars Rover

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| **Lesson Objectives:** The focus is on pre-programming your device to move over a landscape that mimics that of Mars from a starting point to an end point. | |
| **Science and Technology Specific Curriculum Expectations:**  **Understanding Earth and Space Systems: Space**  2.2: Use technological problem-solving skills to design, build, test devices;  2.3: Use scientific inquiry/ research skills to investigate scientific advances that allow humans to adapt to a life in space;  3.4: identify the technological tools and devices needed for space exploration. | |
| **Learning Goal:** We are learninghow tounderstand the challenges that astronauts experience while exploring in space and how to create devices that assist in this exploration. | |
| **Success Criteria:**  We can:   * Design and build a rover that can move in different directions * Design a Rover that has a particular function * Research the landscape and conditions on the surface of Mars * Work as a class to design a model of the Mars terrain * Learn to manipulate the device to move through a series of obstacles | |
| **Lesson Overview:** Using a previously designed Rover, be able to manipulate it through a series of obstacles that mimic the surface of the planet. Students have used Spheros and Little Bits to create a model of a Mars Rover that includes functional parts. | |
| **Materials and Technology:**   * Sphero and I-pad with app * Variety of ‘little bits’ materials for functional devices on rovers * Variety of materials-wood, paper, cardboard, | |
| **Student Accommodations/ Modifications:** | |
| **Minds-On:**   * Investigate / research/ video of Mars rovers. * Investigate / research/ video of Mars landscape. * Exploration using Spheros and ‘Little Bits”, as a lead in to specific functions. |
| **Action:**   * Design and build a rover that can move in different directions * Design a Rover that has a particular function- students choose what they want their rover to accomplish (i.e., pick up rock samples). * Research the landscape and conditions on the surface of Mars * Work as a class to design a model of the Mars terrain * Learn to manipulate the device to move through a series of obstacles * Assessment may take the form of a checklist, anecdotal notes, peer/self-assessment or a rubric |
| **Consolidation:**   * Discuss scientific advances that allow humans to adapt to a life in space. * Discuss the technological tools and devices needed for space exploration * Discuss the challenges they encountered with their designs * Discuss the challenges they encountered manipulating the terrain * Brainstorm or suggest alternatives to overcome the challenges. |