

Middle School Engineering Pathways Curriculum



1 Engineering for Life**

Students learn about engineering, working as part of a team & other skills they will be using in the M2M unit.

2 My Moon (Mars) Colony

Students (1) brainstorm what people would need to live on Mars, (2) design a colony and (3) decide how to power it.

3 M2M Terrarium - BioDome

Students apply understanding of ecosystems, the carbon-oxygen cycle and community interactions to design a biosphere and build a prototype.

4 M2M - Water Purification

Students learn water purification, apply the engineering design process to build a water purifier, and design a water purification system for Mars.

5 M2M - Water Conservation

Students learn about water conservation in space, mix their own hand sanitizer and make a plan for the infrastructure of their colony.

****Required Core Lessons - specific lessons created to build engineering identity, learn about STEM, and raise awareness of engineering careers**

6 Engineering Pathways**

Students will explore different pathways for jobs in engineering or another STEM career interest.

7 Hydroponics

Students will brainstorm, design and build prototypes hydroponics systems for a Martian colony.

8 M2M - Space Suit Design

Students design and decorate a space suit that shows their style while preserving key elements of survivability.

9 Who Gets To Do STEM**

Students learn that all different types of people can do STEM and think about the strengths they bring to STEM.

10 Are We Alone?

Students conduct a scientific experiment in which they evaluate three simulated “Martian” soil samples and determine if they contain any signs of life.

