

Scope and Sequence

Title: Living and Working on Mars Subject/Course: Science Topic: Living Systems Grade: 6 Designers: Naveen Cunha	
Stage 1 - Desired Results	
Established Goals: 6.10 The student knows the relationship between structure and function in living systems 6.12 The student knows that the responses of organisms are caused by internal and external stimuli.	
Understandings: <i>Students will understand that...</i> <ul style="list-style-type: none"> • Life has a set of necessary components • These needs must be met no matter where we dwell • Understanding the relationship between structure and function in living things and how the organisms respond to stimuli will determine how to meet the organism's needs 	Essential Questions: <ul style="list-style-type: none"> • What is life? • What does life need to live? • What makes a world habitable? • What can life tolerate? • What is Mars like? • What would we need to do to live on Mars?
<i>Students will know...</i> <ul style="list-style-type: none"> • What constitutes life • How the environment influences life's needs • How to adapt to the environment on Mars 	<i>Students will be able to...</i> <ul style="list-style-type: none"> • Construct models based on information gathered • Make informed decisions • Use a variety of tools and methods to conduct science inquiry
Stage 2 – Assessment Evidence	
Performance Tasks: Students will design and construct a model of a colony on Mars that will meet the long term life needs of its inhabitants.	
Stage 3 – Learning Plan	
Learning Activities: <ul style="list-style-type: none"> • Students will study objects and develop a definition of life and living things. • They will learn about the structure and function of living things and their components and compare and contrast the difference between plants and animals • Students will observe how living things respond to changes in their environment • Students will study how stimuli and responses are connected in an ecosystem • Students will study food chains and food webs on Earth and how these lead to energy pyramids • Students will study Mars and document what resources are available to sustain life • Students will realize what necessary resources are needed • Students will brainstorm how to provide these resources and create models to solve the problems • Students will work in groups and work on the guidelines of the Design Challenge 	

- Student groups will present models of their colony and the components of the Design Challenge

Resources

- Life on Earth and elsewhere - <http://nai.arc.nasa.gov/library/downloads/ERG.pdf>
- Is there water on Mars? - <http://teacherlink.ed.usu.edu/tlnasa/units/IsWaterOnMars/index.html>
- Gateways to Science
- Design Challenge Template and Project Guidelines
- NSBRI activity guides (Learning about The Human Body)