

# Lunar Ecology

**Target Grade Level: 3<sup>rd</sup>-5<sup>th</sup>**

Created and Adapted by:  
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**UNIVERSITY OF MONTANA GK-12 PROGRAM**

1. CONTRIBUTOR'S NAME: FLORENCE-CARLTON K-12 SCHOOL
2. NAME OF INQUIRY: LUNAR ECOLOGY
3. GOALS AND OBJECTIVES:
  - a. Inquiry Questions: Design an animal adapted to the moon's environment
  - b. Ecological Theme(s): Adaptation, energy cycling
  - c. General Goal: To broaden student's appreciation of animal ecological adaptation
  - d. Specific Objectives: Research lunar environment, limitations, animal needs
  - e. Grade Level: 3 - 5
  - f. Duration/Time Required:
    - Prep time 2 hours
    - Implementing Exercise During Class 3 - 6 hours
    - Assessment 1 hour
4. ECOLOGICAL AND SCIENCE CONTEXT:
  - a. Background (for Teachers): The role of adaptations for animals or plants to succeed in an environment, based on ecological limitations and possibilities available. These can include predation, competition, weather, substrate, elemental availability, etc.
  - b. Background (to present to Students): Same – suited for 'space' unit where students learn about constellations, the moon, and the sun.
5. MOTIVATION AND INCENTIVE FOR LEARNING: As part of the No Child Left Behind module on space, students learn about the moon and its environment – this takes it one notch higher.
6. VOCABULARY: Oxygen, gravity, adaptation, competition, energy
7. SAFETY INFORMATION: N/A
8. MATERIALS LIST (including any handouts or transparency masters): MATERIALS CAN BE FOUND OBJECTS, ACCUMULATED OVER THE WEEKS OF THE UNIT FOR BUILDING ANIMALS, BUT SUGGESTED MATERIALS INCLUDE PIPE CLEANERS OR OTHER CONNECTIVE WIRE, CARDBOARD, PAPER, PAINT, CLAY, ETC.
9. METHODS/PROCEDURE FOR STUDENTS:
  - a. Pre-investigation work: Learn about space, lunar environment, substrate of the moon, craters, gravity, etc.
  - b. Investigation work:
    - 1) What evidence (data, samples) do students collect? Library, book and web research. Also information on earth's crazy environments like deserts, oceans, etc. where animals have adapted for extreme limitations.
    - 2) How do students present the evidence (data)? Written, class presentations, art.

3) What conclusions are drawn from the evidence students collect?  
Discussed among students for what might work and why. Creativity stressed.

4) Include examples of data sheets.

10. ASSESSMENT: Open discussion with students or more formal, comparative approach for determining strengths and weaknesses in this inquiry.

11. EXTENSION IDEAS: THIS COULD BE SHIFTED TO OTHER PLANETS, OTHER KINDS OF EXTREME ENVIRONMENTS OR 'NORMAL' ECOLOGICAL CONSTRAINTS.

12. SCALABILITY: UP AND DOWN AS NEEDED.

13. REFERENCES: ENCYCLOPEDIA, SCHOOL SCIENCE BOOKS, URL'S:

[WWW.NINEPLANETS.ORG/LUNA-HTML](http://WWW.NINEPLANETS.ORG/LUNA-HTML)

[WWW.TSGC.NTEXAS.EDU/TADP/1995/SPECTS/ENVIRONMENT.HTML](http://WWW.TSGC.NTEXAS.EDU/TADP/1995/SPECTS/ENVIRONMENT.HTML)

[WWW.NASA.GOV/AUDIENCE/FOREducATORS](http://WWW.NASA.GOV/AUDIENCE/FOREducATORS)

[WWW.WASPACEGRANT.ORG/E-NEWS\\_9A04.HTML](http://WWW.WASPACEGRANT.ORG/E-NEWS_9A04.HTML)

[\[SCHOLASTIC.COM/RESEARCHTOOLSRESEARCHSTARTERS/SPACE\]\(http://SCHOLASTIC.COM/RESEARCHTOOLSRESEARCHSTARTERS/SPACE\)](http://WWW.TEACHER-</a></p></div><div data-bbox=)

14. LIST OF EXPERTS AND CONSULTANTS

15. EVALUATION/REFLECTION BY FELLOWS AND TEACHERS OF HOW IT WENT: VERY WELL RECEIVED BY STUDENTS AND TEACHER, ALTHOUGH STILL IN PROGRESS AS FINAL ANIMAL FORMS CURRENTLY BEING BUILT.