

Case Details

Case Title:

Mars

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Grade Level(s):

Middle School

Subject(s):

Physical Science

Summary:

Marc and Margarite must work with NASA to design living quarters on Mars. They must consider renewable sources of energy, and appropriate wiring for the necessary utilities and appliances.

Suggested Citation:

Embree, M., & McMahon, K. M., Price, C. J., & Webb, A. L. (2008). *Mars*. Retrieved June 03, 2012 from Emory University, CASES Online Web site: http://www.cse.emory.edu/cases/casedisplay.cfm?case_id=246

Notes:

This is the last in a series of four cases addressing physical /earth science concepts in sixth-grade. See the first case in the series: [Vortex](#).

Learning Objectives:

1. Describe different forms of energy (ex. Mechanical, electrical, nuclear, radiant, etc.)
2. Describe how energy and power are related
3. Describe electrical currents, fuses and circuits, how they are related & how they function
4. Contrast alternating and direct currents
5. Identify safety measures concerning electricity and lighting
6. Define and explain alternate sources of energy (ex. Solar, wind, hydroelectric) versus nonrenewable sources (ex. Fossil fuels)
7. List ways that energy can be pragmatically conserved.

National/State Standards:

Georgia Performance Standards

S8CS1. Students will explore the importance of curiosity, honesty, openness, and

skepticism in science. (NSES Content Standard A)

S8CS2. Students will use standard safety practices for all classroom laboratory and field investigations. (NSES Content Standard F)

S8CS3. Students will use computation and estimation skills necessary for analyzing data and following scientific explanations. (NSES Content Standard A)

S8CS4. Students will use tools and instruments for observing, measuring, and manipulating equipment and materials in scientific activities. (NSES Content Standard A)

S8CS5. Students will use the ideas of system, model, change, and scale in exploring scientific and technological matters. (NSES Content Standards A, F, & G)

S8CS6. Students will communicate scientific ideas and activities clearly. (NSES Content Standards A & E)

S8CS9. Students will understand the features of the process of scientific inquiry. (NSES Content Standard A)

SCS10. Students will enhance reading in all curriculum areas (NSES Content Standards A, D, F, & G): a. reading in all curriculum areas (e.g. technical texts in science) c. building vocabulary knowledge d. establishing context

S8P2. Students will be familiar with the forms and transformations of energy. (NSES Content Standard B)

S8P5. Students will recognize characteristics of gravity, electricity, and magnetism as major kinds of forces acting in nature. (NSES Content Standards B & D)