

Best Practices of Technology Integration

Title: *Postcards from Mars*

Subjects: Social Studies, Science, and Language Arts

Intended Grade Level: 5

Description:

This project is multi-disciplinary, combining Earth Science, Geography, History, and Language Arts. It will challenge students to explore the experiences of those who colonized the North American continent through letters, newspaper articles, biographies, and historical fiction. Many of these sources are available using the Internet. Then students will use these ideas to predict how they might react to being colonists on Mars, having also studied the conditions that exist on the surface of that planet. They will complete the experience by writing their own letters back to families on Earth. Using e-mail, students will share these letters with other students in other classrooms.

The science facet of this project will require students to obtain an understanding of the conditions that colonists would encounter when they arrive on Mars and what will need to be done in order for them to survive there. The NASA web page is a very good source of information on this topic. This is part of the Earth Science Strand of the Michigan Science Framework and Geographic Perspective Strand of the Social Studies Framework.

Some prior knowledge is necessary for this project. In Social Studies, students should have already spent some time learning about the exploration and settlement of the thirteen original English colonies in North America. In Science they should have developed an understanding of our solar system and the distances between planets, especially Mars and Earth.

Curriculum Benchmarks:

[MI.SOC.I.2.LE.3](#)

Recount the lives and characters of a variety of individuals from the past representing their local community, the state of Michigan and other parts of the United States.

[MI.SOC.I.3.LE.1](#)

Use primary sources to reconstruct past events in their local community.

[MI.SOC.II.2.LE4](#)

Explain how various people and cultures have adapted to and modified the environment.

MI.ELA.1.LE.5

Respond to oral, visual, written, and electronic texts, and compare their responses to those of their peers.

MI.ELA.11.LE3

Organize and analyze information to draw conclusions and implications based on their investigation of an issue or problem.

MI.SCI.III.2.EL4

Compare and contrast food, energy, and environmental needs of selected organisms. (*Key concepts*: Life requirements—food, air, water, minerals, sunlight, space, habitat. *Real-world con-texts*: Germinating seeds, such as beans, corn; aquarium or terrarium life, such as guppy, goldfish, snail.)

Materials/Hardware/Software:

- ◆ Computer with Internet Access, a browser and email capabilities.
- ◆ Word Processing Software
- ◆ Historical Documents regarding early American colonies
- ◆ Primary Sources of letters & diaries from colonial period
- ◆ Newspapers from Colonial period
- ◆ NASA Reports about Mars from the Internet
- ◆ Reference materials about planets

Activities/Procedures:

1. The Challenge begins with students spending time reading and analyzing the letters and articles written by colonists from England who arrived in North America in the late 1600's and early 1700's which are available at the following sites on the Internet and in several books, one of which is sited in the list.

Colonial USA

<http://www.geocities.com/Athens/Forum/9061/USA/colonial/colonial.html>

CNN American history retold through letters, documents, articles & speeches

<http://www.cnn.com/books/readers.cafe/9909/nation.archives/>

Exploring the Amazing World of Early America

<http://www.earlyamerica.com/earlyamerica/index.html>

Letters from a Farmer in Pennsylvania

<http://www.earlyamerica.com/earlyamerica/bookmarks/farmer/farmtext.html>

Elizabeth Sprigs

http://longman.awl.com/history/primarysource_2_11.htm

William Penn

http://longman.awl.com/history/primarysource_2_7.htm

Purchase of Manhattan

<http://www.nnp.org/documents/translation.html>

John Smith

http://longman.awl.com/history/primarysource_2_1.htm

Our Nation's Archive - The History of the United States in Documents (Black Dog & Leventhal Publishers)

These publications give students a first hand account of the problems that colonists faced as well as some of the ways they were able to solve these problems. Students will discover the feelings, hopes and dreams of these people.

2. After reading these articles, students should create a chart which will list the problems and hardships of coming to and settling in North America. It will also have a listing of the ways that these people solved these problems and dealt with everyday life.
3. At the same time students will examine the possibilities of being colonists themselves as part of a scientific team that would colonize Mars. They will compile a list of conditions that must be considered in order for humans to visit and live on Mars. This list should include the conditions for traveling to Mars and what will have to be provided by humans for survival on a world that does not have the necessities for living. Some good resources for this examination are:

NASA JPL Mars Exploration Page

<http://mars.jpl.nasa.gov/>

Mars Project

<http://quest.arc.nasa.gov/mars/teachers/tg/acrobat/mars.pdf>

Mars

<http://www.seds.org/nineplanets/nineplanets/mars.html>

Mars 2030

<http://www.mars2030.net/>

4. A good way for students to organize information for their next task could be some form of graphic organizer. Since this task is to analyze the conditions and experiences of 17th century colonists, and use those experiences to predict what colonists to Mars may experience in the 21st century, a Venn diagram or other side-by-side chart should prove very useful.
5. With all the information that students have now gathered, they will compose three letters. One will be written during the journey to Mars and describe some of their experiences. These should parallel experiences of colonists on the long ocean voyage in cramped ships with limited resources. A second one will be written upon their arrival at Mars. This should express the feelings they have for arriving safely and some information regarding the planet and their living accommodations. Finally they will write a letter home which describes a problem that they have had during six months on the planet and express how they feel about being on Mars now.

These letters will be more powerful if they can be sent via e-mail to simulate the space experience and can be received by other fifth graders who may be participating in a similar activity, or who might be able to give feedback to students about how well they expressed themselves and used the experiences of the early colonists to determine what they might feel and experience.

Assessment/Evaluation:

There are four assessments built into this activity.

1. Students Recount the lives and characters of a variety of individuals from the past representing parts of the United States by using primary sources to create a chart that will list the problems and hardships of coming to and settling in North America. It will also have a listing of the ways that these people solved these problems and dealt with everyday life in 17th century North America.
2. Students will compile a list of conditions that must be considered in order for humans to visit and live on Mars. This list should include the conditions for traveling to Mars and what will have to be provided by humans for survival on a world that does not have the necessities for living.
3. Students will organize and analyze information to draw conclusions and implications based on their investigation of colonization and make a chart that compares the geography of 17th century North America with the geography of Mars in the 21st century and its affect on the colonists.
4. Students will demonstrate their ability to synthesize the experiences they read about from the 17th century and predict what it will be like to be a colonist on Mars by writing three letters that a colonist to Mars might write to family back on Earth.

Follow-up Activities:

Create a model of a colony in North America and a model of one on Mars.

Write a reflection paper on why people still came to America even with the hardships.

Read Sally Ride's story about being in space, *To Space and Back*, by Sally Ride with Susan Okie.

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