LESSON PLAN

Spreadsheet Moon Comparison

Grade Level: 4- 6

Curriculum Area: Science

LA Frameworks:

ELA-4-M2 giving and following directions/procedures; (1,4)

ESS-E-B1 observing and describing the characteristics of objects in the sky; (I)

Lesson Objectives:

Students will use the Internet to research characteristics of moons for other planets

Students will use a spreadsheet to organize information for all of the moons researched.

Students will use the spreadsheet data to make statements showing comparisons and contrasts.

Technology Connection: Internet and Excel or ClarisWorks (or any spreadsheet program and/or presentation program like PowerPoint)

Assessment: The rubric to assess the Spreadsheet and teacher review of the Other Moons Data Collection Sheet

Procedures:

1. Assign each student a moon (or several moons) to research.

2. After discussing what characteristics to include, such as diameter, presence or absence of water and/or ice, presence or absence of an atmosphere, density, surface characteristics, date discovered, orbital period, etc., the student will prepare a moon data collection sheet to use.
   ***Sample data collection sheet provided**

3. The student will use the following websites or one of his/her own choice to gather data:
   http://seds.lpl.arizona.edu/nineplanets/nineplanets/nineplanets.html
   http://www.solarviews.com/eng/homepage.htm

4. The students will share information learned about the moons with their classmates and record data on a spreadsheet template or prepare their own spreadsheet and use it to record data.
   Directions for customizing a spreadsheet can be found at: **Basic Spreadsheet Tutorial**
   http://home.earthlink.net/~ohora/spreadsheet/index.html (ClarisWorks)
   http://lwww.quasar.ualberta.ca/edpy202/tutorlal/spreadsheet/spreadsheet.htm (Excel)

5. In small groups, students will use the spreadsheet to make some statements about the moons. These will be recorded and shared with the other groups for verification. It might be helpful to record the statements on an overhead transparency or PowerPoint when presenting to classmates.

or

6. Have students use the created spreadsheet to answer the following questions (or create new ones):
   A. Which moon has the largest diameter?
   B. Which moons do not have an atmosphere?
   C. Which moons have ice/water present?
   D. Do the moons that have ice/water present also have an atmosphere?
   E. What generalization, if any, can you make about a moon's atmosphere and presence or absence of water/ice?
   F. Which planet has the most moons?
   G. Does Uranus have more or fewer moons than Saturn?
   H. Which two planets have only one moon?
   I. List the moons in order from largest to smallest or smallest to largest.
   J. Which planets have more than one moon but less than ten moons?
   K. Which planet has only two moons?
   L. Which moon travels most quickly around the planet of Neptune?
   M. Which moon takes the longest to travel around its planet? What planet does it travel around?
   N. Which moon was discovered most recently? What planet does it orbit?
   O. How does organizing your information in a spreadsheet make it easier to make comparisons?

Extensions:

I. Have the students use the spreadsheet to create Venn Diagrams comparing two or three planets.

2. Have the students create their own comparison questions for others to answer.

3. Have students use the spreadsheet to create graphs to represent certain aspects of the information.

4. Have students write a report about one planet and its moons using a word processing program.