Enhancing Scientific and Technological Literacy for Michigan Students

2007 Mars Remote Sensing

Welcome to the Science Olympiad Mars Remote Sensing Course! The course will be seven weeks in length and will be organized in such a way that you can visit the site anytime and not fall behind. Each week's materials will be left on the website through the National Tournament in May.

Each week, I will be:

- Presenting text notes to provide you with content information about the planet Mars. This is information that I feel will be useful in helping you to prepare students and events. It is what I will be using to construct the National Remote Sensing Event for the 2007 Tournament in Witchita, Kansas.
- Providing suggested resources and URLs that will provide you with supplemental material from which to build a resource base whether you are a coach or an Event Supervisor.
- Providing sample tournament questions. Feel free to use them with your students-but more importantly use them as a model for designing questions and activities of your own.

The resources and questions will complement each week's topics. I also encourage you to find your own resources and to share them with the rest of the class. The schedule for the course will be as follows:

Date	Topic
12-4-06	Introduction to Course, Mars Origin, Geologic Eras
12-11-06	Mars Exploration, Satellite Imagery
12-17-06	Martian Coordinate System
1-08-07	Martian Terrain Analysis

1-15-07	Comparison of Earth and Mars Features
1-22-07	Determine Profiles, Slope and Area of Martian Features
1-29-07	Martian Weather and Climate

Science Process Skills

In designing questions and activities for your students, Best Practice in science education includes science process skills that can be assessed in Science Olympiad events. Below I have included a discussion of basic and integrated science process skills that may be included in the Mars Remote Sensing event. I wish to thank National Science Olympiad Supervisor and Biology Rules Committee Chair Karen Lancour for the original version of the Science Process Skills Training Guide, which I have adapted for the Mars Remote Sensing event.

Basic Science Process Skills

- **Observing**: using your senses to gather information about objects or events. In observing Mars and other objects in the solar system and the universe, this is achieved primarily through the use of remote sensing technologies such as satellite imagery. This information is a description of what was actually perceived and is considered **qualitative** data.
- **Measurement**: The use of standard measures or estimations to describe the dimensions of an object or event. This may include slope, gradient, distance and area among others. This information is considered **quantitative** data.
- **Inference**: Using qualitative and quantitative observations to formulate assumptions or possible explanations for phenomena. This is a very important skill for the Mars Remote Sensing event.
- **Classification**: The grouping or ordering of objects or events into categories based upon characteristics or defined criteria.
- **Predicting**: Using a pattern of evidence and prior knowledge to guess the most likely outcome of a future event.
- **Communication**: Using words, symbols or graphics to describe an object, event or action.

Integrated Science Process Skills

- **Acquiring Data**: Collecting qualitative and quantitative data as observations and measurements.
- **Organizing Data** in Tables and Graphs: Making tables and graphs for data collected.
- **Understanding Cause and Effect Relationships**: What causes things to happen and why.
- **Formulating Models**: Recognizing patterns in data and making comparisons to familiar objects or ideas.

Look for these Science Process Skills in the sample tournament questions and use them to design your own.

Class Interactions

An important part of any class is the interaction between teachers and students and between students. To facilitate this, I will have a web log set up for each week for all of us to post comments about what we have learned and what we can share with each other. Feel free to add to the discussion at any time, and feel free to e-mail me at any time with any private comments or concerns that you may have.

Go to the Yahoo Mars Remote Sensing Group at http://tech.groups.yahoo.com/group/mars_remote/

Enter Course

Week One

Send mail to mvanhecke@comcast.net with questions or comments about this web site.
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