

Creativity in Science

Lesson Procedures

Part 1: Discuss with the students how satellites are part of their every day life. Ask them if they have a GPS unit in their car or if they have seen the advertisement for one (OnStar, Tom Tom, etc.) on the television. Ask them if they know that the television reception in their house is satellite based. Make them aware that the cell phone technology also uses satellites to get people in touch with each other. Ask them if they know any other ways the satellites affect their lives (e.g. weather).

Part 2: Show the students Video 6: Teamwork in Science [Time – 4:37]. Discuss with the students the following concepts which are presented in the segment:

- Hundreds of people – scientists and engineers worked together to launch the Swift satellite. Managers and business people are also important to the project.
- International team of experts – talented people from around the world worked together on the Swift satellite
- Technology enables professional scientists and students in a middle school classroom track the progress and data from the Swift satellite.

Part 3: Divide the students into groups and ask each group to complete the table on Data and Contributors of Swift (Student Handout). Some of the gamma-ray bursts that the students will see are from the Swift satellite and some are from other satellites that also detect gamma-ray bursts. Ask the students to complete the brainstorming activity at the bottom of the handout.

Ask the students to share their ideas for Part 2 of Data and Contributors of Swift (Student Handout). How many different types of professions did they think of? Help them go beyond the obvious scientists and engineers who launched the satellite. Computer programmers, graphic designers, project managers, business people (to manage the money funding the satellite and the website), technicians and electricians—are a few of the professions.

Invite the students to think about scientists and professionals in other countries and how they might contribute to the data that appears on the web site. Note that the satellite is beaming data down to Earth in a variety of places. Scientists, technicians, and engineers around the world contribute to the data being received, read, and re-broadcast. Students can access Swift data or support Swift science through the Global Telescope Network at <http://gtn.sonoma.edu>.

Assessment strategies

Ask students to review their handouts and discuss what the Swift satellite data tells them. Why are these data important for scientists to collect? Why would scientists from other cultures be interested in these data? Why would so many different types of people need to be involved in launching the Swift satellite? Why would so many different types of people need to be involved in the communication of the data from the Swift satellite?