

# StarDate in the Classroom

StarDate and Universo are daily radio programs that transport listeners beyond our Earth into the universe. Many of the programs point out interesting events or objects in the night sky, with details on the underlying science. Other programs cover the history of astronomy and space exploration, upcoming missions, recent discoveries, and related topics.

Radio stations receive the programs on monthly compact disks, and since 1995, these same monthly CDs have been made available to teachers around the country. Hundreds of teachers regularly incorporate the programs into their classroom instruction.

The *StarDate/Universo Teacher Guide* can help you effectively integrate StarDate and Universo programs into your daily classes. We have provided some simple activities for several grade levels, most of which require no elaborate equipment. These activities are examples upon which to build similar lessons based on current StarDate and Universo episodes. You can integrate and apply new skills

from other subject areas as you broaden students' awareness of astronomy.

A transcript of a related StarDate radio program accompanies each activity. The scripts are boxed and denoted by a small radio transmitter logo. The scripts show the breadth of the radio program content while providing some idea of how these and similar programs may be incorporated into lesson plans.

StarDate and Universo provide additional resources for teachers and the general public through World Wide Web sites in both English and Spanish. These sites provide extensive information on the solar system, stars, galaxies, and other science topics, as well as daily, weekly, and monthly skywatching tips. Web addresses for these and other sites are provided in the Resources section at the back of this publication.

We occasionally produce printed guides, posters, or other resources as well. These resources are distributed to the teachers who receive the audio CDs.

## StarDate/Universo and Your Classroom

Each CD contains a full month of either StarDate or Universo programming. You can integrate the information from the programs into daily learning experiences in your classroom in a variety of ways. Some suggestions follow for using them to enhance your students' understanding of astronomy and its relation to other subject areas.

You are free to copy the StarDate and Universo CDs for educational uses. Copies may be distributed to other teachers, placed in your school's library, or used for other educational purposes. However, the copies may not be sold or otherwise distributed for non-educational uses.

### Listening Skills

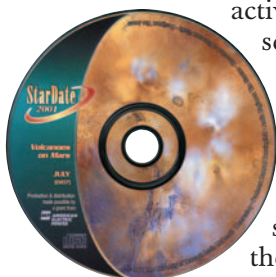
StarDate and Universo can provide an opportunity for students to improve their listening skills. Teachers who preview the daily program may ask questions about the program to help students focus on the daily topic. Written scripts are available online each day through the StarDate Online and Universo Online web sites. Some teachers broadcast the program over the school intercom each day.

### Note-Taking and Discussion

To go beyond passive listening, have your students take notes. Some teachers have found that students are more prepared to discuss the topic if they listen, take notes, then listen a second time to check their notes.

### Extending Class Lessons

With their emphasis on objects in the sky, StarDate and Universo are great sources for homework assignments. For this reason, some teachers play StarDate or Universo at the end of class as they make an assignment.



## NATIONAL SCIENCE EDUCATION STANDARDS

Each activity in the *StarDate/Universo Teacher Guide* meets the National Science Education Standards (NSES), which were developed with these guiding principles:

- Science is for ALL students.
- Learning science is an active process.
- School science reflects traditions of contemporary science.
- Improving science is part of systemic education reform.

The NSES promote not just hands-on science, but also minds-on science. The astronomy context of these activities aligns their content with the NSES "Physical Science" and "Earth and Space Science" standards. The "Science as Inquiry" standards manifest in the structure and format of the activities. Some activities overlap grade levels; many teachers will find ways to modify the activities to fit the level of their students.

- Students can keep personal observing logs to record their own observations throughout the year. Their StarDate or Universo notes prepare them to go outside and sketch what they see.



- Create a resource station where students file information they have gathered from the programs. Students may file their own drawings, data, and papers as well. Keeping your copies of the CDs and a CD player with earphones will allow students to listen individually to selected programs. Students may create a computer database of the information filed at the resource station. Some teachers use this station as a reference source for assignments.

### Bilingual Instruction

Universo can help you meet the needs of Spanish-speaking students or students who are learning Spanish.

- Have Universo CDs available at a listening station. Use the programs to introduce the lessons and vocabulary to bilingual students before the lesson in English.
- Have students who need support in Spanish listen to the programs as a way to review concepts taught in English.
- Encourage students of Spanish to listen to Universo programs. The written text (in Spanish) may be printed for them to follow. For some programs, students can check their comprehension by listening to or reading the English versions of the program after they hear the Universo program.

### Cross-Curriculum Connections

You can incorporate StarDate and Universo into many subject areas, including:

### Language Arts and Social Studies

- Use the programs on skylore to create interest in mythology and ancient civilizations. Look for similarities among cultures.
- Have students keep a StarDate or Universo journal with their summaries of the programs and answers to the pre-listening questions. Journal entries may consist of phrases, sentences, paragraphs, or drawings to illustrate the core concept.
- Encourage students to think on a large scale. For example, in teaching a unit on Thoreau, ask them to consider the vastness of the universe, using the radio shows to spark abstract thought and prepare them for existential literature.



- Use the scripts from the StarDate or Universo web sites and material from StarDate magazine as supplemental reading materials.
- Encourage students to explore the historical context and relevance of the events and lives of the astronomers described in StarDate and Universo programs. Students can make a time-line of these events.
- Universo has special features on Latino scientists and engineers and on the astronomy of Spanish-speaking countries which will help you expand your multicultural links to the science curriculum.
- Use the programs to explore the cultural perspectives relating to astronomy and to teach about the impact of celestial events on cultural development.

### Mathematics

- Students can use graphs and charts during the skywatching activities in this guide. They can apply concepts of proportion and percentage as they compare the sizes of planets or the

distances between planets within our solar system. They can estimate times and relative distances.

- Older students can apply principles of geometry and trigonometry as they explore the angles and orientations of planets and satellites or the position of the Sun or Moon in the sky throughout the day or year.

### Fine Arts

- Encourage students to make drawings of their concepts related to the StarDate and Universo programs. For example, if the program is about sunsets, they can draw their ideal sunset, which might lead into a discussion of the Sun's color and why it appears redder at sunrise and sunset. Or, for a program about space flight, students might draw their view of a rocket in space visiting another planet or a comet.
- Astronomy-related music has been popular for centuries. Your students may be more familiar with John Williams' score for *Star Wars* than Holst's *The Planets*, but both pieces can be used as a trigger for combining their ideas about astronomy with music.



### Individualized Learning

Because StarDate and Universo topics range from basic to more complex concepts, you can use them with students of all ages and ability levels.

- With a copy of the program's script, students can highlight key concepts and challenging words as they listen to the program on the CD.
- Have students visit StarDate Online or Universo Online as an enrichment activity. They can search the web site for answers to their astronomy questions or read the daily Frequently-Asked Question.

