



## Mission 1 SETI Wants You!

### Could *You* Find the Needle in the Celestial Haystack?

## Overview

It may be difficult to know exactly where to begin a unit that deals with such a grandiose topic as the search for some sign of extraterrestrial life, the search for a “needle” in the cosmic “haystack”! In this mission, students are introduced to the SETI Institute. They learn about SETI scientists: what they do, and what drives their research. Student groups brainstorm ideas about how we (on Earth) would be affected if we actually did receive a signal from intelligent extraterrestrials. Student groups consider how we would go about communicating with the extraterrestrials, if we chose to do so. Students also learn that they will be “receiving” a simulated extraterrestrial message in a later mission—they will decipher and interpret this message after they decide which star system it has come from.

## Mission 1.1 Materials

### For Each Team

- Butcher paper, or chart paper, or poster paper
- Markers

## Getting Ready

1. Cut a three-foot length of butcher paper for each team (four to five students each).

## Classroom Action

1. **Discussion.** Divide the class into teams of four to five students each. Introduce *Project Haystack*, beginning with your overall impressions of the SETI curriculum as a whole.

Students express their opinions and philosophies regarding the possibility of life in the universe. Undoubtedly, many misconceptions that students have about the scale and structure of the Milky Way galaxy, and the universe itself, will come out in the ensuing discussion. They may or may not realize that the size of our galaxy and the distances to even the nearby stars present formidable barriers to interstellar communication. Tell students that they will be “receiving” a simulated extraterrestrial message in a later mission. They will decipher and interpret this message after they determine which star system it has come from. Ask for feedback from students regarding what they think about these tasks.

2. **Activity.** Pass out a piece of butcher paper (or chart paper or poster paper) and markers to each team of students. Teams divide their butcher paper into two columns. In the left column, they should list the ways that we, here on Earth, would be affected if a communication really were received from an extraterrestrial intelligence. Possible answers might include people being afraid of extraterrestrials, the extraterrestrials helping us solve our environmental problems, the extraterrestrials offering us new technology that we haven't yet thought of, and so on. Encourage free thinking. There are no “right” or “wrong” answers. In the other column of the butcher paper, have students list the ways that they would try to communicate with the extraterrestrials that sent the signal. Their thinking might produce such ideas as communicating by radio from a space shuttle, sending a message on a space probe, using television or radio waves to broadcast a message, and a host of other things. These initial lists will become an invaluable learning-assessment tool upon completion of this unit.
3. **Oral Report.** One student from each group reports to the class the ideas that their group came up with. Remind the class that all ideas and feedback have value, and that no answer can be considered wrong. So as not to cause confusion, have all the left-hand columns presented first, then all the right-hand columns. Encourage students from all groups to offer comments during these reports.
4. **Display.** Display or save all the butcher-paper lists so that students can look at them when all their missions have been completed. This is important because students will very likely find that they have progressed considerably in their thinking and reasoning.

## Going Further

### Activity: UFOs—Who Can You Believe?

You may wish to avoid discussing UFOs and “little green men,” but students are very likely to bring them up. Be prepared. Some surveys have shown that 50 percent of the U.S. population believes that UFOs are real, and that space aliens have already landed. One of the most common questions that SETI researchers are asked is: “Why are you spending so much money looking for extraterrestrials when they are already here?” And this question is often asked seriously. The obvious answer is: “Because no extraterrestrials have landed, nor have any extraterrestrials communicated in any way.” Despite many claims of UFO sightings, no credible evidence for an extraterrestrial origin of UFOs has ever been brought forth.

Ask students what would constitute credible evidence. (*A piece of a UFO, for example, that could be analyzed in the lab.*)

Students can bring in various tabloid articles about space aliens. Spend some time analyzing each claim, discussing the reliability of photographic evidence. Students should learn to be skeptical.

## **Activity: A Letter to Yourself**

Students write a summary of their thoughts about this mission, perhaps noting what they think are the most and least promising methods of communicating with extraterrestrials, and what they themselves would want to say. They seal up their summaries in envelopes, addressed to themselves five weeks into the future. When this entire unit is completed, have students open their initial summaries and write a conclusion, taking into account those things that they correctly and incorrectly surmised regarding communication across interstellar space.

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