

# THE TEACHER AS FACILITATOR: A FEW EXAMPLES

The following are a few situations that typically arise during Alien Rescue. For each, advice is offered on how you can effectively facilitate without taking control of students' work.

## SITUATION #1:

A student is reading about an alien species from the alien computer and encounters a picture of some colored lines. You recognize it as a spectrum, but she does not know what it is or what to do with it. She asks you to explain it to her.

**Advice:** Encourage the student to ask her classmates if they know what it means, or to try and figure it out on her own. Follow up the latter by telling her that if she does figure it out that she should share that information with the class at the next class discussion. This is an easy problem that students can handle without your help if you allow/insist that they do so. By not telling students how to interpret a spectrum, you give one or more students within the class the opportunity to be the expert, and you encourage students to look upon their peers as resources in solving a problem.

## SITUATION #2:

Five of your students seem to be obsessed with getting the authorization code to increase the funding level so that they can launch more probes. However, they have not given attention to data sent back by the probes they have already launched.

### **Advice:**

Ask your students to study the data sent back by the probes and figure out what else they need to find a home for the alien species they are working on. Ask them to learn about the species' needs and read the solar system database to learn about worlds in our solar system. Refuse to increase their funding level until they are able to justify

that they truly need more funding to launch another probe. Through class discussions students should come to understand that real world scientists only receive funding when they can justify it. Insist that they meet this same standard. As other students who have done this research receive funding, these students will fall into line and do what it takes to get funding themselves.

### **SITUATION #3:**

It is the third day of class and one student is floundering, wandering aimlessly through the program, not taking notes, and not seeming to be engaged in any meaningful activity. He doesn't seem unhappy or disinterested, but he doesn't seem to know what to do or even to recognize that he needs a plan.

#### **Advice:**

Being a facilitator doesn't mean that you should be a passive observer. If a student is floundering, you should provide support, just not to the point where you take over. Ask the student what he is doing or what steps he thinks he should go through to solve the problem. He probably won't have an answer, but asking the question may get him thinking about what he should do. Encourage him to find out what his classmates are doing, then tell him you will be back in fifteen minutes to discuss what he plans to do and why he thinks it will be useful. Again, class discussions will help with this problem. As you get some students to articulate what they are doing and why they are doing it, less-focused students will hear ideas that can guide their work.

### **SITUATION #4:**

When students are given an open-ended notebook (after they find a home for 3 species), a hardworking student is writing a lot of notes in his notebook. In fact, it looks like he is practically copying whole paragraphs.

#### **Advice:**

Question the student about why he is doing that. Prompt him how the notebook he used earlier is different. Bring up the issue of note taking in a class discussion, and discuss what are the different versions of notebook in Alien Rescue students have seen so far, how they are different in structure, and what the information are available and not available in the early version of the notebook. Ask students what types of information they think should be recorded in the open-ended notebook. Discuss the importance of recording key pieces of information as prompted in the early versions of the notebook. Suggest to use bullets to write only the most important and relevant one. It is hoped the early versions of the notebook will help guide the students to do note taking more effectively.

#### **SITUATION #5:**

A student keeps requesting more funding for designing probes. When you ask her what she learned from the probes she already launched, she tells you that she had a lot of malfunctions. She doesn't know why these malfunctions occurred, and doesn't seem to understand that they are the result of design flaws.

#### **Advice:**

The problem here is that the student lacks a basic concept: she doesn't know that there are constraints in how a probe can be built. Help her to recognize that not all instruments work on all probes. Encourage her to work with another student who has launched successful probes. In class discussions, get students to articulate the reasons for design decisions. For example, elicit comments like "You can put a seismograph on a flyby because it has to land on the surface of a world in order to measure earthquakes" and "You have to use a thermoelectric generator to go to Uranus because it's too far from the sun for a battery to work." Before giving this student further funding, insist that she articulate her reasons for certain design decisions.