



## Lesson Plan 5

### Probing the Unknown World

#### Overview

Students exchange the worlds that they have created and characterize the unknown world using the probe that they made in lesson 4, the height probe and the magnet probe.

#### Objectives:

Students will

- Use various probes and record the data
- Scan the worlds
- Characterize the worlds to define the structure
- Communicate the characterization
- Compare the characterization to the actual structure

#### Materials

*For the teacher*

- Master copies of the Student Guide 5
- Materials that will be made available to the students
- Scoring Guide for each student (optional)
- Scoring Guide for the overhead

*For each group of two students*

- Student answer keys made in lessons 3 and 4
- Student Guide 5
- Rubric Assessment pages
- Magnet probes
- Height probe
- Scan paper (4 per group)
- Student designed probe
- Student designed unknown world

#### Getting Ready

Gather the materials. You will need to decide if you or the students will complete the final assessment.

#### Motivation

(Best done in an unusual accent or a very authoritative voice)

*Say: Welcome all scientists that have decided to join us from afar. We are pleased that so many could come to begin characterizing these unknown worlds. Perhaps you will find information from your specialized probes that we have been unable to find. Good luck.*

Pair up student groups. Each group should have their probe, height probe, magnet probe, unknown world, guide sheet and pencil. The two groups need to exchange unknown worlds. The students will use the probes they used in lesson 1 and lesson 2 in addition to the one that they have created to determine the properties of the materials used in the box.



### **Collecting Data**

*Student Guide 5, Procedures 3-4*

On scan paper, the students will record their data. The students will continue to draw scans until they have used all probes that they believe will give them useful information on the structure of the world.

### **Analyzing Data**

*Student Guide 5, Procedure 5*

On the paper, the students will draw the “final” picture or scan on the materials inside the box. They also need to describe the structure, basing it on the evidence recorded. The students will work with the original makers of the world, explain to them what they observed and show them their final picture of what is inside the box. The students do not open their planets during this time.

### **Critique the Results**

*Student Guide 5, Procedure 6*

The makers of the planet open the box for the observers to see. This may be left out to keep the planet a “mystery” to the students and to keep them questioning about the unknown planet. You may want to have the pairs evaluate one another using the student rubric sheets and the answers that they have prepared Lessons 2 & 3.

### **Extension: Questions for Journalizing or Discussion**

Why is it important for scientists to continue to develop new tools for observation?

What kind of tools do you think will be needed in the future? What do you think they will want to find?

If you were a scientist what would you be curious about observing?

What kind of tool would you need for it?

What have you learned from the Probe activities?