



Name _____ Date _____ Class _____

Student Guide 1
Scoring Guide: Topography of the Unknown

Purpose:

Scientists use probes to identify the properties of objects, even if they cannot see the objects! In this activity you will use a height probe identify and analyze the height changes in an object that you cannot see.

Procedure:

1-8 Making the Observation Box

3	2	1
<input type="checkbox"/> Followed directions completely <input type="checkbox"/> Placed and secured scan paper <input type="checkbox"/> Cut off the excess paper. <input type="checkbox"/> Obtained teacher’s initials <input type="checkbox"/> Pierced holes on the cover safely	<input type="checkbox"/> Mostly followed directions	<input type="checkbox"/> Rarely followed directions

Measuring with the Height Probe

9. How will you measure the height of the object inside the box?

3	2	1
<input type="checkbox"/> Developed a method that makes sense <input type="checkbox"/> Developed an idea that can be used for all probe holes <input type="checkbox"/> Explained ideas clearly <input type="checkbox"/> Obtained teacher’s initials <input type="checkbox"/> If teacher directed: Followed the directions	<input type="checkbox"/> Developed a method that makes sense <input type="checkbox"/> Explanation is vague <input type="checkbox"/> Obtained teacher’s initials and clarified ideas <input type="checkbox"/> If teacher directed: Partially followed directions	<input type="checkbox"/> Developed a method that did not make sense <input type="checkbox"/> If teacher directed: Barely followed directions

10. Measure each probe point and record your data on the scan area below or on a larger scan paper.

3	2	1
<input type="checkbox"/> Very accurately shows the height changes <input type="checkbox"/> Correctly recorded the height for each probe hole <input type="checkbox"/> Recorded the height on the designated scan paper. (Either the student guide or a separate scan paper.)	<input type="checkbox"/> Accurately shows the height changes <input type="checkbox"/> Correctly recorded the height for MOST probe holes <input type="checkbox"/> Recorded the height on the designated scan paper. (Either the student guide or a separate scan paper.)	<input type="checkbox"/> Did not accurately record the height changes <input type="checkbox"/> May have used only some probe holes.

11-12. Making a Topographical Map

3	2	1
<ul style="list-style-type: none"> <input type="checkbox"/> Very accurately shows the height changes <input type="checkbox"/> Lightly colored areas that have the same height with the same color. <input type="checkbox"/> Easy to notice the differences between different heights <input type="checkbox"/> Key shows the range of heights <input type="checkbox"/> Order to color choices <input type="checkbox"/> Organized and neat appearance 	<ul style="list-style-type: none"> <input type="checkbox"/> Accurately shows the height changes <input type="checkbox"/> Lightly colored areas that have the same height with the same color. <input type="checkbox"/> Difficult to notice the differences between different heights <input type="checkbox"/> Key shows the range of heights <input type="checkbox"/> Some order to color choices <input type="checkbox"/> Not organized or neat 	<ul style="list-style-type: none"> <input type="checkbox"/> Vaguely shows the height changes <input type="checkbox"/> Colored areas blend together <input type="checkbox"/> Difficult to see the difference between heights <input type="checkbox"/> Color choice seem random <input type="checkbox"/> Key and map are disorganized

13. Analyzing your Data

3	2	1
<ul style="list-style-type: none"> <input type="checkbox"/> Well defined observations of the structure <input type="checkbox"/> Bases description of the structure by correctly citing data from the height probe and identified inferred observations i.e. feeling if the box is heavy etc. <input type="checkbox"/> Writes in a scientific manner <input type="checkbox"/> May include some questions about the structure that show logical reasoning 	<ul style="list-style-type: none"> <input type="checkbox"/> Bases description of the structure citing some data from the height probe <input type="checkbox"/> Bases most of the description on observations other than height <input type="checkbox"/> May include questions about the structure <input type="checkbox"/> Writes in common language 	<ul style="list-style-type: none"> <input type="checkbox"/> Uses very little data from the height probe to describe structure <input type="checkbox"/> Bases the description on how the box felt <input type="checkbox"/> Description is difficult to understand.

14. Analyze your Measuring Probe

3	2	1
<ul style="list-style-type: none"> <input type="checkbox"/> Describes an excellent level of understanding of the probe's effectiveness. Includes the benefits and disadvantages of the probe. 	<ul style="list-style-type: none"> <input type="checkbox"/> Shows an appropriate level of understanding of probe's effectiveness. 	<ul style="list-style-type: none"> <input type="checkbox"/> Shows a minimal understanding of the probes effectiveness.