



NSF GK-12 Graduate Fellows Program  
Award # DGE-0139171  
*University of North Carolina at Wilmington*

# Candy Bar Subsurface Geology

## Activity Instructions

This activity modified from lesson plans found online at:  
<http://www.science-house.org/learn/earthcycle/snickers.pdf>  
<http://www.science-house.org/learn/earthcycle/kiss.pdf>

by  
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- Objectives:
- 2.04 Analyze practices that affect the use, availability, and management of natural resources
  - 3.01 Interpret ways in which rocks, fossils, and ice cores record Earth's geologic history and the evolution of life

### MATERIALS PER TEAM

- Paper towel per student
- Plain Hershey's kiss and Almond Hershey's kiss per student
- Snickers bar or other candy bar per pair
- Plastic knife or other utensil for cutting candy
- Metric ruler
- Candy Bar Subsurface Geology worksheet

**Additional Note:** Students should wash hands before this activity, since they will want to eat the candy when they are finished!

### PROCEDURE

Divide students into pairs. Each pair should be given the materials listed above. Students may complete worksheet in pairs or individually. The worksheet is fairly self-explanatory. Part I requires students to draw a profile of both their plain and almond Hershey's kisses, noting any differences between the two, and predicting where the almond is and whether it's whole or in pieces, based on external observations. This is then confirmed by slicing into the kiss. Students may also draw a topographical map of the plain kiss, but we had difficulty slicing that precisely into the candy with plastic knives, so we just showed an example of a Hershey's kiss topographical map (see pre-activity idea below).

Part II requires students to draw a profile (1:1 scale) of their Snickers bar, then to take four core samples (by slicing width-wise across the candy bar) and recording location of each core (distance from end of candy bar) and depth of different layers. After each core is removed and all measurements taken, it should be replaced in the candy bar. After measurements are made for all four core samples, color-coded drawings should be made of each cross-section connected together to give a prediction of the subsurface topography of their candy bar. The candy bar should then be sliced length-wise to



determine whether their prediction was accurate. Questions follow about estimating and removing ore bodies (peanuts) from the candy bar landform.

Discussion should be included about topographical and profile maps and their uses, and reasons for and environmental impact of subsurface exploration and mining.

#### CLEAN UP

Candy may be eaten when all data has been collected, and paper towels and wrappers thrown away. Knives may be cleaned and re-used.

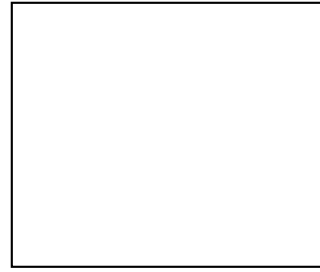
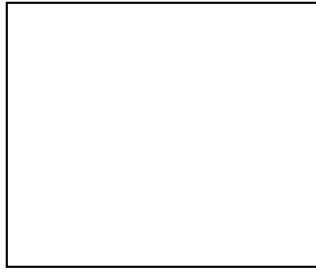
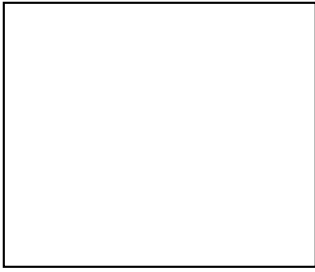
#### **PRE-ACTIVITY IDEA:**

Jell-o Jiggler Topography Map: This activity introduces students to drawing and interpreting topographical maps. The night before class, the teacher should make a Jell-o mountain, following Jell-o Jiggler recipe, or a student from each team could make one to bring in. Students can then cut through it at regular height intervals (3 cm or so), and trace around the shape of the Jell-o cut off at that height, overlaying the different cuts. This will result in a topographical map of their Jell-o mountain.



## Subsurface Geological Investigation

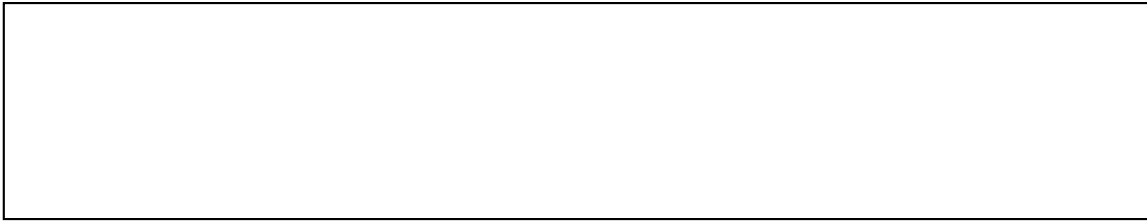
Draw a profile of the plain Kiss    Draw a profile of the Almond Kiss    Draw a topographical map of either



- How are the two candies different in size and shape?
- Predict if the almond kiss has chips of a nut or a whole nut and explain why you think so.
- Carefully cut away the chocolate. Were you right?

### Snicker Bar Subsurface

- Draw a topographic profile (1:1 scale) of your snicker bar



- Take a core sample (you can cut a    inch cross-section) of your snicker bar, and enter your findings in the table below (see overhead for sample). Now put the core back in its place in the candy bar, and do the same thing for 3 more cores. Estimate the percentage of each layer in each cross section.

Core # 1			Core # 2			Core # 3			Core # 4		
cm from left edge			cm from left edge			cm from left edge			cm from left edge		
(cm)	layer	%	(cm)	layer	%	(cm)	layer	%	(cm)	layer	%

- Draw the different layers in your first core, then draw the layers of the next 3 cores, connecting them to the first. This will show you the subsurface geological region of Mt. Snicker Bar!
- Now cut along your candy bar length-wise (long ways). From the four core samples you took, how accurate was your drawing of the subsurface?
- If the peanuts were actually ore bodies, could you estimate approximately how many could be mined from your candy bar? How would you get this estimate?
- What are some of the problems that would be encountered in separating the ore bodies (peanuts) from the remaining substrate?

