

## Candy Bar Geology Lab – Candy Bar Component

Materials needed at each station:

- 1 paper towel
- 1 chocolate candy bar
- plastic knife
- worksheets
- 1 metric ruler
- 2 plastic gloves (optional)
- colored pencils

1. Draw topographic profile (to scale) as for Hershey’s Kiss lab (already done on worksheet).
2. List the possibilities of what is inside (the likely ingredient layers in the candy bar)
3. Relate the following information obtained from coring a “nearby” candy bar:

<b>Core # 1</b>		<b>Core # 2</b>		<b>Core #3</b>	
1 cm from left edge		4.5 cm from left edge		9.0 cm from left edge	
<i>(cm)</i>	<i>layer</i>	<i>(cm)</i>	<i>layer</i>	<i>(cm)</i>	<i>layer</i>
1.8 – 2.0	chocolate	1.7 – 2.1	chocolate	1.9 – 2.3	chocolate
1.4 – 1.8	caramel	1.3 – 1.7	peanut	1.4 – 1.9	peanut
0.8 – 1.4	peanut	1.2 – 1.3	caramel	0.7 – 1.4	caramel
0.7 – 0.8	caramel	0.7 – 1.2	peanut	0.2 – 0.7	nougat
0.2 – 0.7	nougat	0.5 – 0.7	caramel	0 – 0.2	chocolate
0 – 0.2	chocolate	0.2 – 0.5	nougat		
		0 – 0.2	chocolate		

First, fill in the legend, color-coding the four ingredient layers. Then, add the information from cores 1, 2, and 3 to your topographic profile; begin plotting a cross section of the candy bar. Demonstrate this process on overhead while students plot core 1 and core 2.

4. Now connect the information at each of the core sites, to estimate the cross section of the candy bar (connect the dots!). Label the drawing and fill in the layers with a colored pencil.
5. Slice the candy bar lengthwise. How does your estimated cross section compare to the real cross section of the candy bar? What information were you missing that would have helped you get a more accurate picture of the interior? On the bottom of the worksheet, draw a more accurate cross-section, based on what you saw in the candy bar interior.
6. Relate this to how geologists predict the conditions in the subsurface from pieces of data collected: core samples, road cuts along highways, stream valleys, seismic information, etc.
7. If the peanuts were actually ore bodies, could you estimate approximately how many could be mined from your candy bar? Tell the method that you would use to get your estimate.
8. Assume that the nougat layer is actually a formation that could be mined for sand and gravel. Calculate the (approximate) volume of sand and gravel that you could mine from this candy bar.

dimensions of candy bar :

width = 2.5 cm                      height = 2 cm                      length = 11 cm  
length of nougat layer:       $(11 - 0.2 - 0.2)\text{cm} = 10.6\text{ cm}$   
width of nougat layer:       $(2.5 - 0.2 - 0.2) = 2.1\text{ cm}$   
height of nougat layer:      0.5 cm

volume =  $l \times w \times h = 10.6\text{ cm} \times 2.1\text{ cm} \times 0.5\text{ cm} = 11.13\text{ cm}^3$

Why is this just an “approximate” volume?

9. What if the caramel was really a formation that could yield significant quantities of mica for use in the ceramic industry? How would you estimate the volume of mica that could be mined?

What are some of the problems that would be encountered in separating the caramel (mica) from the peanut layer (ore bodies)?

10. Okay, now you can **eat the candy bar** ! 😊

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0.7 – 0.8	caramel	0.7 – 1.2	peanut	0.2 – 0.7	nougat
0.2 – 0.7	nougat	0.5 – 0.7	caramel	0 – 0.2	chocolate
0 – 0.2	chocolate	0.2 – 0.5	nougat		
		0 – 0.2	chocolate		

Add this information to your topographic profile to begin plotting a cross section of the candy bar. Demonstrate on overhead.

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0.7 – 0.8	caramel	0.7 – 1.2	peanut	0.2 – 0.7	nougat
0.2 – 0.7	nougat	0.5 – 0.7	caramel	0 – 0.2	chocolate
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Name \_\_\_\_\_

Date \_\_\_\_\_

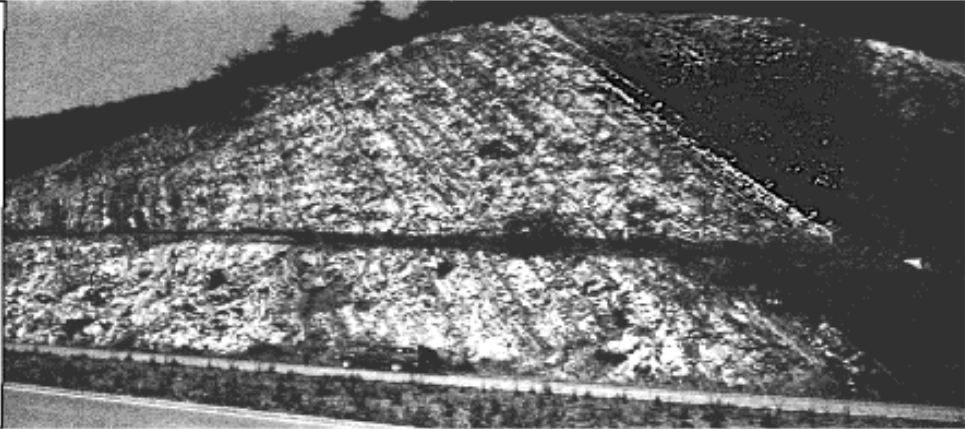
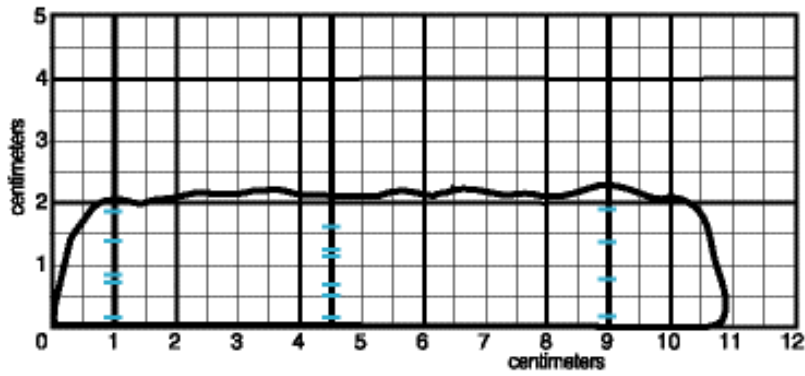


Photo courtesy of Singer, 1991. North Carolina: The Years Before Now. Photo 25a.

## Candy Bar Geology



**Legend**

