

Name: _____

Lab Partner: _____

Date: _____

Vital Ice STEM Kit Science Notebook

The NSEOC highly recommends students keep a science notebook for ALL science classes, but if this is not possible, all of the Science Notebook prompts from the Vital Ice STEM Kit booklet are included with space for students to write, draw or sketch as needed. The page numbers reference the page in the booklet the original prompt can be found.

Part 1: The Protracted Winter

Page 4 – Think of a small thing that you do everyday that might cause a big problem for your community later on. Write a few sentences.

Part 2: Permafrost

Page 6 – What did you notice when you added a single drop of water to the polymer ice? Draw two pictures: one before you added the water, and the second picture of what you saw happen.

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Page 6 – This is not real ice, but in what way is it like real ice?

Page 8 – Draw and label a diagram of your permafrost model. Be sure to indicate which side of the model has the sand/ice mixture. What do you predict will happen when the permafrost thaws?

Part 3: Glacial Ice

Page 12 – How many years are represented in your ice core?

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Part 4: Melt Layers

Page 14 – If there are melt events at nearly 4,000 meters above sea level during certain years, what is also happening to the depth of the permafrost at lower elevations during these years?

Part 5: Chemical Record

Page 18 – Use the following table to record the readings you get on the volt meter for each of the scanner's positions.

Position	Sulfate Concentration
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
4	
15	
16	
17	
18	

Position	Sulfate Concentration
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	
31	
32	
33	
34	
35	

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Page 19 – If your core has big peaks in sulfate that came from volcanic eruptions, what other pieces of information do you need to figure out which volcano the sulfate came from?

Part 6: Piecing it Together

Page 22 – What did you notice about the number of melt layers per year over the length of the entire core? How do the number of melt layers compare before and after 1950? Do the melt layer data make sense when compared to the global average temperature?

Tape your graph template here:

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Part 7: Thawing Effects

Page 23 – Draw and label an “after” diagram showing what happened to your model when the permafrost thawed. In the real world, how does the changing of ice to water cause the results you observed in your model?

Page 24 – What happens to the road in your permafrost model when you “refreeze” the polymer ice?

Page 24 – How do the melt events you counted between 1950 and 2012 in the glacial ice core relate to people? What small things can you do to help protect your community from this warming trend?