

Name _____ Date _____ Block _____

Glacier Flow and Features Lab

Purpose: To model the effects and features created by a glacier as it moves down slope and melts.

Materials: Frozen glacier in bottle, slope, ring stand, ring, bucket, sand, heat lamp, ice, paper clip and a plastic lid.

Diagram:

Cut the glacier out of the plastic bottle using a scissors. Place the glacier on the slope, along with sand in front of it, and slowly push the glacier down the slope about ½ of the way.

1. Describe the features that are created alongside the edges of the glacier:

2. The feature along a real glacier would be a _____

3. Describe the feature created in the front of glacier:

4. The feature in front of the glacier would be a _____

Set up a heat lamp to speed up the glacier melting process. You will have to probably hold the lamp. Don't melt my ramp. Add additional ice cubes upslope of the main glacier. Add as much as possible or until your glacier starts to slide.

5. As the glacier starts to melt, describe what happens to the following:
 - a. Sand : _____

 - b. Gravel: _____

 - c. Water: _____

6. What sort of feature is forming at the end of your glacier in the plastic lid.

7. This feature in real life would be a _____.

8. Does your glacier make any sounds? _____ If so when does it do it?

9. Free Write: (write a general description of what is happening in your whole set up- use your 5 senses). Be as descriptive as possible.

10. What do these features represent in a real glacier environment- draw a picture of your lab set and label (melt stream, erratics (rocks carried by glaciers), glacial flower (small sediments carried by glaciers), terminal moraine, glacial till, lateral moraine, melt lake.

11. Does the glacier still transport sediments as it melts? _____ If so, how does it? _____
12. What are two ways a glacier can transport sediments: _____

While you are waiting for your glacier to melt, us a paper clip and try to quickly stab the paper clip into the glacier.

13. How far were you able to get the paper clip into the glacier? _____
14. Now, take the paper quick and press the tip against the glacier, continue to add pressure for 30 sec to a minute. How far are you able to get the paper clip into the glacier compared to stabbing at it? _____
15. Continue to add pressure and see if you can get the paper clip all the way through the glacier. Can you? _____
16. Taking this information about stabbing vs. continuous pressure, relate this to how rocks that travel over a glacier could get incorporated into a glacier.

Set up an addition lab:

Use a bucket, fill it about 1 inch full of sand, take 5 ice cubes and place push them done into the sand until they are flush with the level of the sand. Let the ice cubes melt and make observations.

17. As the ice cubes start to melt, describe what you are see – look for changes:

18. As the ice cube completely melt or are nearly melted, what sort of real life feature would this create if it had been chunks of buried ice off a continental glacier? _____

Bonus/Extra Credit: (diagram or describe on back)

Can you come up with another lab set-up, or addition to this lab that could show additional glacier features that were taught in class.

OR

Was there something additional in your lab set-up that you noticed that was not discussed in the previous questions that you think should be included that relate to glaciers?

