

Name: Sample

Date: _____

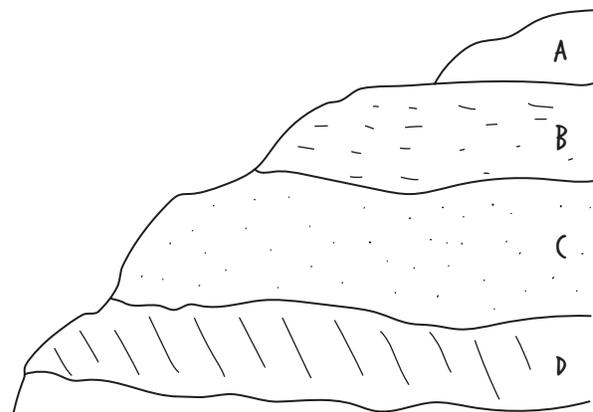
LEVEL 4 EARTH FEATURES

End-of-Module Assessment

For Problems 1 through 3, imagine that you are leading a team of geologists to study unexplored canyons.

- Your team has discovered fossil samples in the rock layers of the walls of a canyon. Using the diagram and the science journal entry below, two members of the team have developed different explanations to describe how the land has changed over time.

Journal Entry
<p>Layer A</p> <ul style="list-style-type: none"> Layer consists of thick ice. No fossil evidence is present.
<p>Layer B</p> <ul style="list-style-type: none"> Fossils include many large fern leaves, small reptiles, and other land animals, including dinosaurs.
<p>Layer C</p> <ul style="list-style-type: none"> Fossils include mostly large tree trunks and some that look like reptiles.
<p>Layer D</p> <ul style="list-style-type: none"> Fossils show evidence of fish, clam shells, and brachiopods.



Explanation One	Explanation Two
(Claim)	(Claim)
<p>The environment has changed many times, and now it is covered in ice.</p>	<p>The environment changed from a sea environment to a land environment. The number of plants and animals continued to increase until the land was all covered by ice.</p>
Evidence and Reasoning	Evidence and Reasoning
<p>The area was once covered by an ocean. The fossils in Layer D show animals and plants that may have lived underwater or near the water. Eventually, more plants grew and more land animals were there, as shown in Layers C and B. Then something happened and ice covered the land. There were no more plants or animals like dinosaurs.</p>	<p>Layer D, the oldest layer, shows evidence of sea life. This means the area was likely covered in water at that time. Layer C shows tree fossils. This shows that the area then had some dry land for trees to grow. Layer B has plant, reptile, and other animal fossils. This shows that the environment changed again to support more life. Layer A, the youngest layer, is all ice. This means the environment became extremely cold and the plants and animals could no longer survive.</p>

- a. Use the diagram and the journal entry to answer this question. Which explanation best describes how this area's landscape has changed over time? Circle your choice on the chart (Explanation One or Explanation Two).

- b. Describe why you chose that explanation. Use evidence from the diagram and journal entry to support your choice.

I chose Explanation Two because it best explains how the landscape has changed over time with the evidence from the diagram and journal entry. The diagram shows the order that the layers of Earth formed, with Layer D as the oldest, up to Layer A as the newest. I know the environment changed because the fossils in the layers came from different environments: first there was water, and then dry land, and finally ice. Explanation one doesn't explain what happened to the plants and animals once the environment was covered in ice. It also doesn't explain the order.

2. Your team gave you a photograph and a science journal entry describing features they noticed while exploring another canyon. They have asked you to help explain how these features might have formed.



Journal Entry

Location: Canyon ridge

Conditions

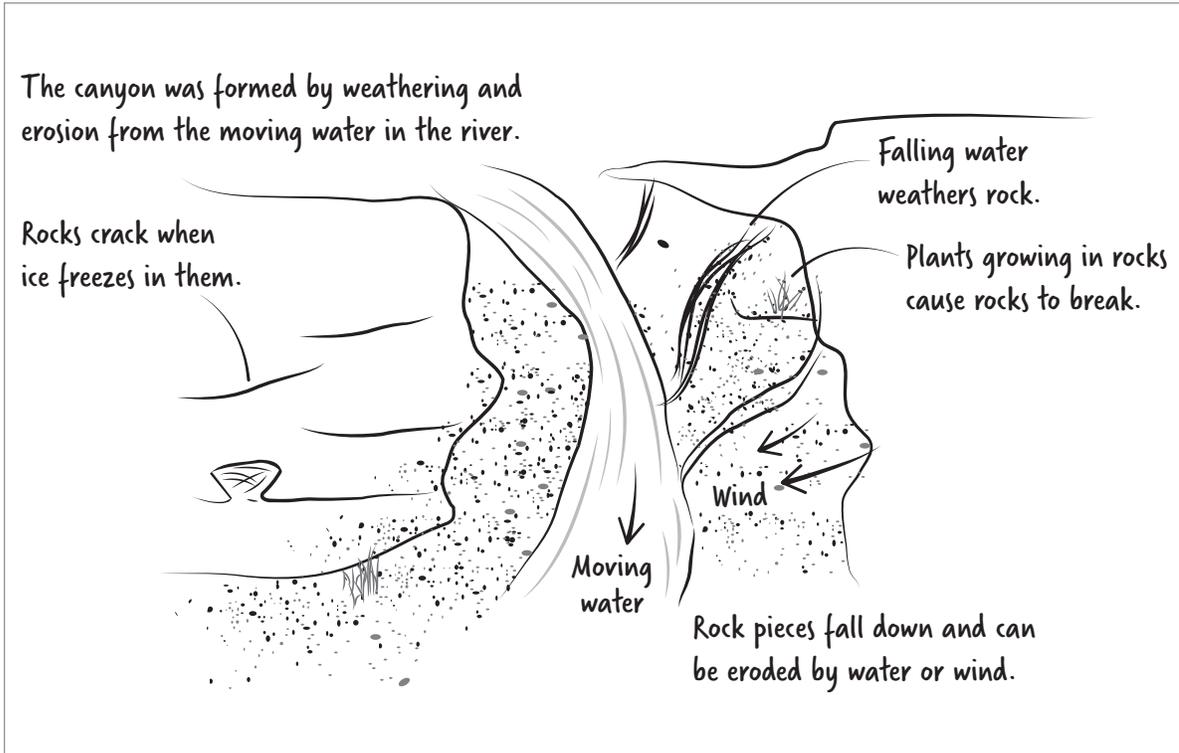
- Similar rocky landscape for about 5 to 6 miles
- High elevation around the canyon
- Constant, strong winds
- Temperature at canyon ranges from 14°F to 50°F at different times of the year

Notes

- Many holes and cracks in the rock walls
- Loose sand, pebbles, and rocks on the ground
- Moss growing on rocks.
- River at the bottom of the canyon
- Small waterfalls around the canyon's edge

Develop a model to explain the processes that may have shaped the features in the canyon.

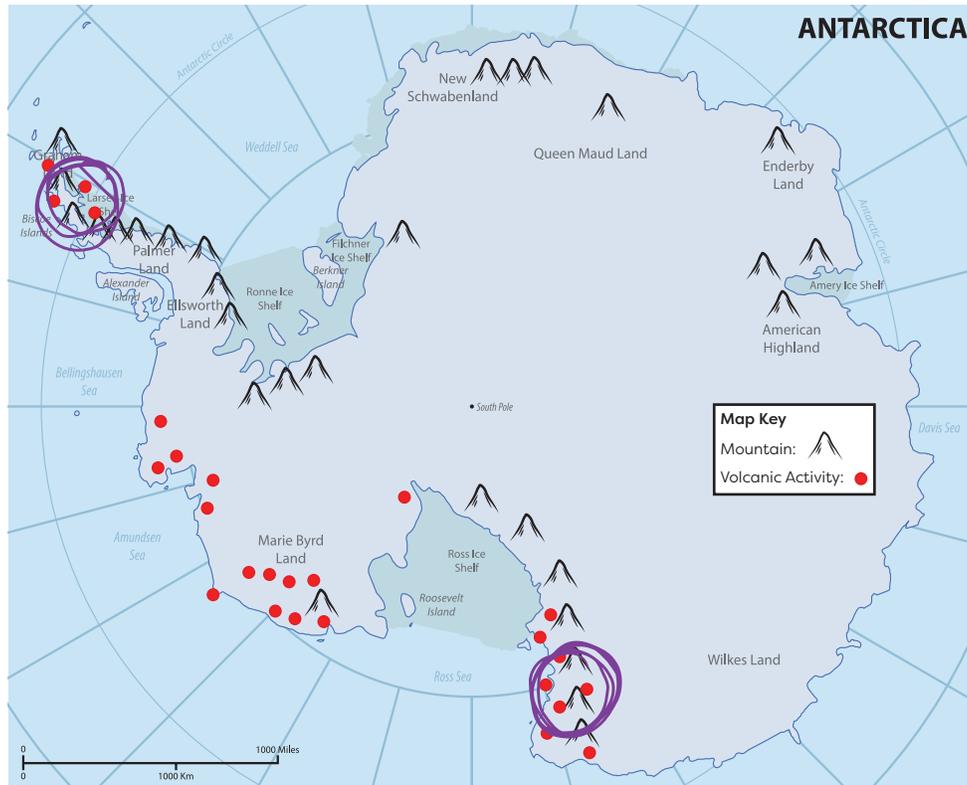
Sample model:



3. Your team plans to explore a canyon in Antarctica next. As the team leader, you must now choose possible sites for the expedition.

On the map below, mark two areas where you think your team should go to look for canyons to study.

Sample map:



What evidence from the map did you use to choose these places? Why?

I chose these two areas because of the other features that are on the map.

Canyons are often found in the same place as mountains and volcanoes. Both places that I circled are near both mountains and volcanic activity, so there is a good chance that we will also find a canyon there.

LEVEL 4 EARTH FEATURES

End-of-Module Assessment Rubric

Item and Standards Addressed		1 Incorrect or unreasonable response with no detail or evidence provided	2 Correct or reasonable response with no detail or evidence provided OR Incorrect or unreasonable response with some detail or evidence provided	3 Correct or reasonable response with some detail or evidence provided OR Incorrect or unreasonable response with sufficient detail or evidence provided	4 Correct or reasonable response with sufficient detail or evidence provided
1a 1b	4.2D 4.3A	The student identifies Explanation One and does not provide any evidence.	The student identifies Explanation Two but does not provide any evidence. OR The student identifies Explanation One but uses fossil evidence or layer order as support.	The student identifies Explanation Two but uses only fossil evidence or layer order as support. OR The student identifies Explanation One but uses both fossil evidence and layer order as support.	The student identifies Explanation Two and uses both fossil evidence and layer order as support.
2	4.3B 4.7B	The student model does not explain any features in the rock or identify any of the processes involved.	The student model explains features in the rock by using at least one of the six possible processes (weathering by wind, weathering by ice, weathering by water, weathering by plants, erosion by wind, erosion by water) as evidence. The model requires significantly more detail to explain these features.	The student model explains features in the rock by identifying all six possible processes (weathering by wind, weathering by ice, weathering by water, weathering by plants, erosion by wind, erosion by water) as evidence but requires additional detail to fully explain the features. OR The student model explains features in the rock by using only two or three of the six possible processes as evidence but clearly explains the involvement of these processes.	The student model clearly explains features in the rock by using all six possible processes (weathering by wind, weathering by ice, weathering by water, weathering by plants, erosion by wind, erosion by water) as evidence.

Item and Standards Addressed		1 Incorrect or unreasonable response with no detail or evidence provided	2 Correct or reasonable response with no detail or evidence provided OR Incorrect or unreasonable response with some detail or evidence provided	3 Correct or reasonable response with some detail or evidence provided OR Incorrect or unreasonable response with sufficient detail or evidence provided	4 Correct or reasonable response with sufficient detail or evidence provided
3	4.2D	The student does not correctly select any reasonable canyon sites and does not provide any evidence for the choice.	The student correctly selects one possible canyon site but does not provide enough evidence to explain the choice. OR The student selects canyon sites that are unreasonable but provides some evidence for the choice.	The student correctly selects two possible canyon sites but does not provide enough evidence to explain the choice. OR The student correctly selects one possible canyon site and explains how overlapping patterns in mountains and volcanoes may indicate the presence of canyons.	The student correctly selects two possible canyon sites and explains how overlapping patterns in mountains and volcanoes may indicate the presence of canyons.
4	4.7C	The student incorrectly classifies the resources and does not explain how the groups of resources differ.	The student correctly classifies one group of resources but does explain how the resources are different. OR The students does not classify the groups of resources but correctly explains how the resources are different.	The student correctly classifies both groups of resources but does not explain how the resources are different. OR The student correctly classifies one group of resources and correctly explains how the resources are different.	The student correctly classifies both groups of resources and correctly explains how the resources are different.