Name: _____ Date: _____

How Glaciers Shape the Land

Circle group

A glacier is a huge, slow river of ice. It starts in cold places. More snow falls in winter than melts in summer. New snow piles on top year after year. The weight squeezes the old snow into hard ice. When the ice is thick enough, gravity makes it creep downhill. Most glaciers move only a few inches or feet a day. Over many years they go a long way.

Glaciers change the land. As the ice moves, it picks up rocks and gravel. It drags them along the ground like sandpaper. The rocks scrape the bedrock and leave long scratches. A glacier can also scoop out a valley. A river cuts a narrow valley like the letter V. A glacier grinds the sides and floor wider. Its valley is shaped like the letter U.

When the ice melts, it drops the rocks. The piles are called moraines. They can form long ridges where the glacier once ended. Meltwater can fill the deep basins that the ice carved. That makes lakes. Huge ice sheets shaped some of the Great Lakes thousands of years ago.

Glaciers cover about a tenth of Earth's land. Most are in Antarctica, Greenland, and high mountains. Scientists measure them, because they hold a lot of the world's fresh water.

Questions

1. How does a glacier start?

_____

_____

2. What shape is a valley made by a glacier?

_____

_____

3. What are moraines?

_____

_____

4. A hiker sees long scratches on bare rock where there is no ice now. What might have made them?

_____

_____

5. Why do scientists measure glaciers?

_____

_____

Words to know

glacier: a huge, slow-moving mass of ice on land
bedrock: the solid rock under the soil
valley: low land between hills or mountains
moraines: ridges of rock and gravel left by a glacier
meltwater: water that comes from melting ice or snow

Talk together (every group has these)

1. Find one fact that every group read. How did your sheet say it?
2. What did your sheet tell you that you think another group's did not? Ask them.
3. What is one question about this topic that none of the sheets answered?

Name: _____ Date: _____

How Glaciers Shape the Land

Triangle group

A glacier is a huge, slow river of ice. It begins in cold places where more snow falls in winter than melts in summer. Year after year, new snow piles on top, and the weight squeezes the older snow into dense ice. When the ice becomes thick enough, gravity makes it creep downhill. Most glaciers move only a few inches or feet in a day, but over many years they travel a long way.

Glaciers are powerful tools of change. As the ice moves, it picks up rocks and gravel and drags them along the ground like sandpaper. The rocks scrape the bedrock underneath and leave long scratches. A glacier can also scoop out a valley. A river tends to cut a narrow valley shaped like the letter V, but a glacier grinds the sides and floor wider, so the valley ends up shaped like the letter U.

When the ice melts, it drops the rocks it was carrying. These piles, called moraines, can form long ridges that mark where the glacier once ended. Meltwater can fill the deep basins that ice carved, making lakes. Some of the Great Lakes were shaped this way by enormous ice sheets thousands of years ago.

Today glaciers cover about a tenth of Earth's land, mostly in Antarctica, Greenland, and high mountains. Scientists measure them carefully, because they hold a great deal of the world's fresh water.

Questions

1. How does a glacier begin?

_____

_____

2. What shape is a valley carved by a glacier?

_____

_____

3. What are moraines?

_____

_____

4. A hiker finds long scratches on bare rock where there is no ice now. What might have made them?

_____

_____

5. Why do scientists measure glaciers carefully?

_____

_____

Words to know

glacier: a huge, slow-moving mass of ice on land
bedrock: the solid rock under the soil
valley: low land between hills or mountains
moraines: ridges of rock and gravel left by a glacier
meltwater: water that comes from melting ice or snow

Talk together (every group has these)

1. Find one fact that every group read. How did your sheet say it?
2. What did your sheet tell you that you think another group's did not? Ask them.
3. What is one question about this topic that none of the sheets answered?

Name: _____ Date: _____

How Glaciers Shape the Land

Square group

A glacier is an immense, slow-moving river of ice. It forms in frigid regions where more snow falls during winter than melts during summer. Year after year, fresh snow accumulates on top, and the tremendous weight compresses the older snow into dense, solid ice. Once the ice becomes thick enough, gravity causes it to creep downhill. Most glaciers advance only a few inches or feet in a day, but over many decades they can travel an astonishing distance.

Glaciers are powerful agents of change. As the ice flows, it picks up rocks and gravel and drags them across the ground like enormous sheets of sandpaper. The embedded rocks scrape the bedrock below and leave long scratches behind. A glacier can also excavate an entire valley. A river tends to carve a narrow valley shaped like the letter V, but a glacier grinds the sides and floor wider, so the valley it leaves behind is shaped like the letter U.

When the ice finally melts, it deposits the rocks it was carrying. These piles, called moraines, can form long ridges that mark the place where the glacier once ended. Meltwater can fill the deep basins that the ice carved out, creating lakes. Some of the Great Lakes were shaped in this way by enormous ice sheets many thousands of years ago.

Today glaciers cover about a tenth of Earth's land, mostly in Antarctica, Greenland, and high mountain ranges. Scientists monitor them carefully, because they contain a great deal of the world's fresh water.

Questions

1. How does a glacier form?

_____

_____

2. What shape is a valley that a glacier has carved?

_____

_____

3. What are moraines, and how do they form?

_____

_____

4. A hiker discovers long scratches on bare rock in a place with no ice today. What might have caused them?

_____

_____

5. Why do scientists monitor glaciers carefully?

_____

_____

Words to know

glacier: a huge, slow-moving mass of ice on land
bedrock: the solid rock under the soil
valley: low land between hills or mountains
moraines: ridges of rock and gravel left by a glacier
meltwater: water that comes from melting ice or snow

Talk together (every group has these)

1. Find one fact that every group read. How did your sheet say it?
2. What did your sheet tell you that you think another group's did not? Ask them.
3. What is one question about this topic that none of the sheets answered?

For the teacher: How Glaciers Shape the Land

Each student sheet carries a shape, not a level. The same topic and facts, written three ways.

Circle: How Glaciers Shape the Land

Easier · 213 words · Flesch-Kincaid grade 2.7

1. More snow falls in winter than melts in summer, and the piled snow is squeezed into ice.
2. The shape of the letter U.
3. Piles or ridges of rocks that a melting glacier drops.
4. A glacier dragging rocks across the ground long ago.
5. They hold a lot of the world's fresh water.

Triangle: How Glaciers Shape the Land

This passage · 233 words · Flesch-Kincaid grade 5.6

1. More snow falls in winter than melts in summer, and the piled snow is squeezed into dense ice.
2. The shape of the letter U.
3. Piles or ridges of rocks that a melting glacier drops.
4. A glacier dragging rocks across the ground long ago.
5. They hold a great deal of the world's fresh water.

Square: How Glaciers Shape the Land

Harder · 253 words · Flesch-Kincaid grade 7.4

1. More snow falls in winter than melts in summer, and the piled snow is compressed into dense ice.
2. The shape of the letter U.
3. Piles or ridges of rocks that a melting glacier deposits.
4. A glacier dragging rocks across the ground long ago.
5. They contain a great deal of the world's fresh water.