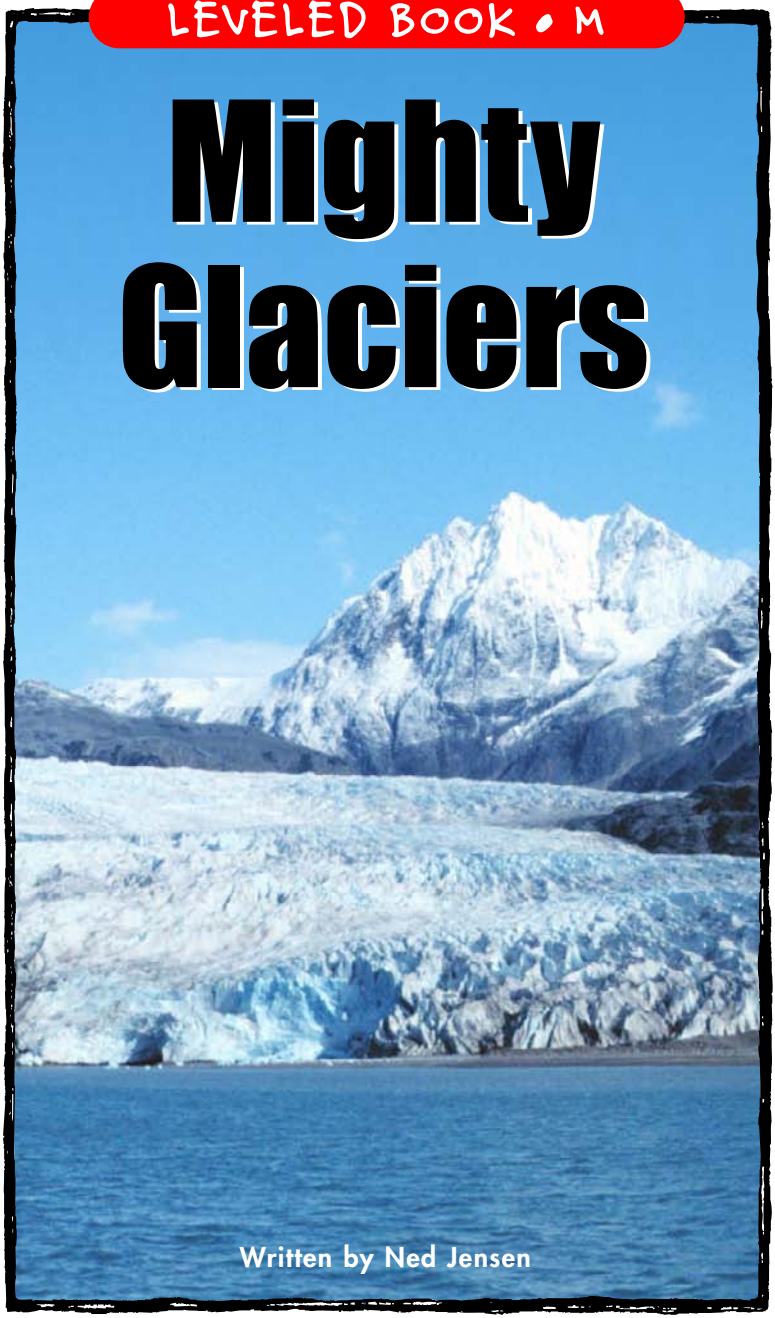
LEVELED BOOK • M

Mighty Glaciers



Written by Ned Jensen

www.readinga-z.com

Mighty Glaciers

Written by Ned Jensen

www.readinga-z.com

Table of Contents

Introduction 4

Types of Glaciers 5

How Do Glaciers Grow? 7

How Do Glaciers Move? 9

Changing the Earth 12

When Glaciers Melt 15

Conclusion 16

Glossary 18

Glaciers are like massive rivers of ice.

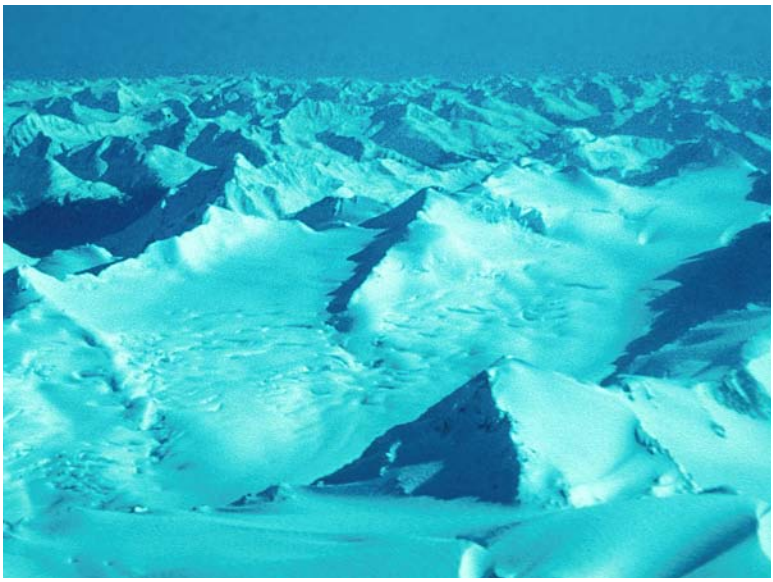
Introduction

The Earth's surface constantly changes. Wind, water, and heat wear down mountains and crack stone. But some of the most dramatic changes are caused by giant pieces of ice and rock called glaciers (GLAY-shers).

Glaciers move slowly over the land. They carve out cliffs, valleys, and **prairies** as they go. When glaciers melt, they leave behind lakes, rivers, and hills of soil and boulders.

Types of Glaciers

Two common types of glaciers are **continental glaciers** and **valley glaciers**. Continental glaciers form at the north and south poles of the Earth. These huge sheets of ice cover vast stretches of land. Continental glaciers can be so thick that only the tops of mountains stick out above them. Much of Greenland and Antarctica are buried beneath continental glaciers.



This huge continental glacier covers almost all of Antarctica.

Valley glaciers form on high mountains that rise above the **snow line**. Above the snow line, snow covers the ground all year. Even in the tropics, valley glaciers can form on the tallest peaks. Like rivers of ice, valley glaciers move through long, narrow valleys.

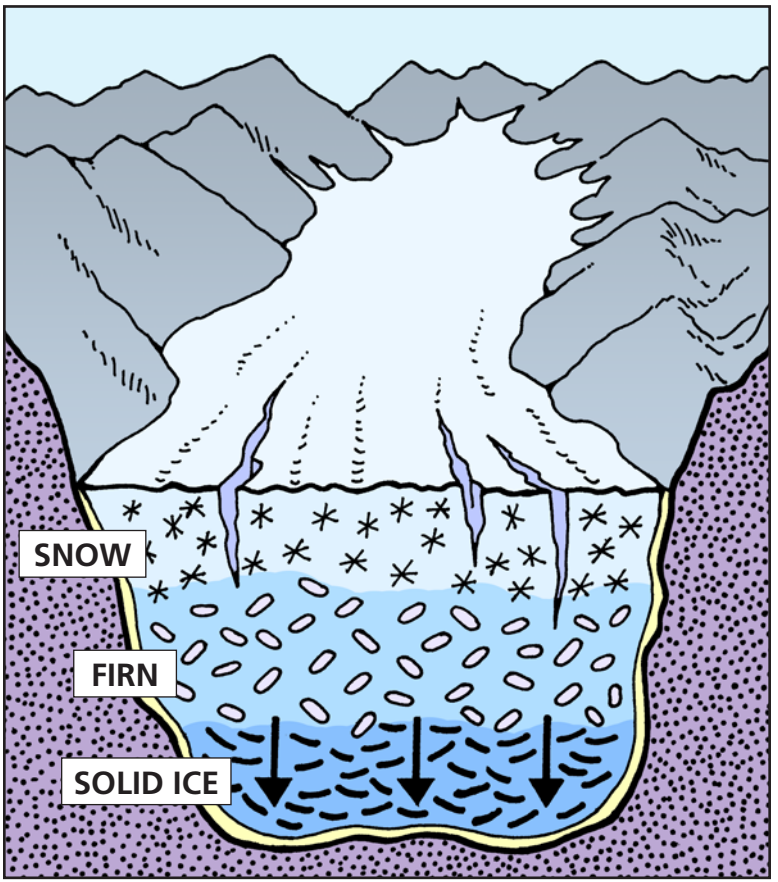
Pasterze Glacier in Austria is a valley glacier.

Glaciers form on high mountains where snow does not melt.

How Do Glaciers Grow?

In some places, the temperature stays below freezing for most of the year. Snow piles up much faster than it melts. Each new layer of snow presses down on the snow beneath it. The lower layers of snow become squashed, or **compressed**.

The compressed snowflakes become ice crystals called **firn**. The firn crystals squash together as more and more snow presses down on them. Eventually, the firn turns into a huge slab of ice known as a glacier.



Snow piles up and squashes the snow underneath it, eventually turning it into ice.

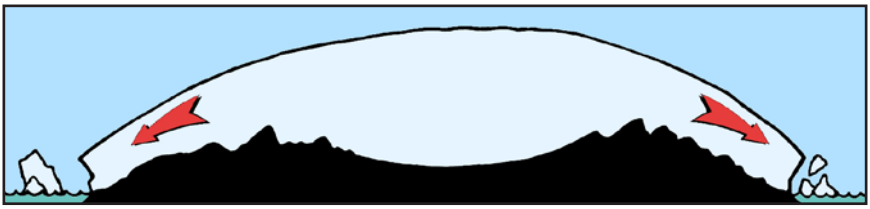
This Alaskan glacier flows downhill.

How Do Glaciers Move?

Glaciers begin to move when they reach about 30 meters (100 ft) thick. That's about as high as a 12-story building. The glaciers become so heavy that gravity pulls them downhill. Gravity is a force that pulls things toward the center of the Earth. It makes objects fall and roll down slopes. The movement of a glacier is called *flow.*

The heavy ice at the top of a glacier compresses the ice below it. Even above the snow line, ice melts when it is tightly compressed. The melted ice becomes slippery, allowing the glacier to slide. Sometimes, the top layers of ice move faster than the bottom layers. The ice cracks. A crack in a glacier, called a **crevasse** (kre-VAHS), can be hundreds of meters deep.

A hiker stands near a deep crevasse.



Continental glaciers flow toward the coasts.

Valley glaciers flow downhill.

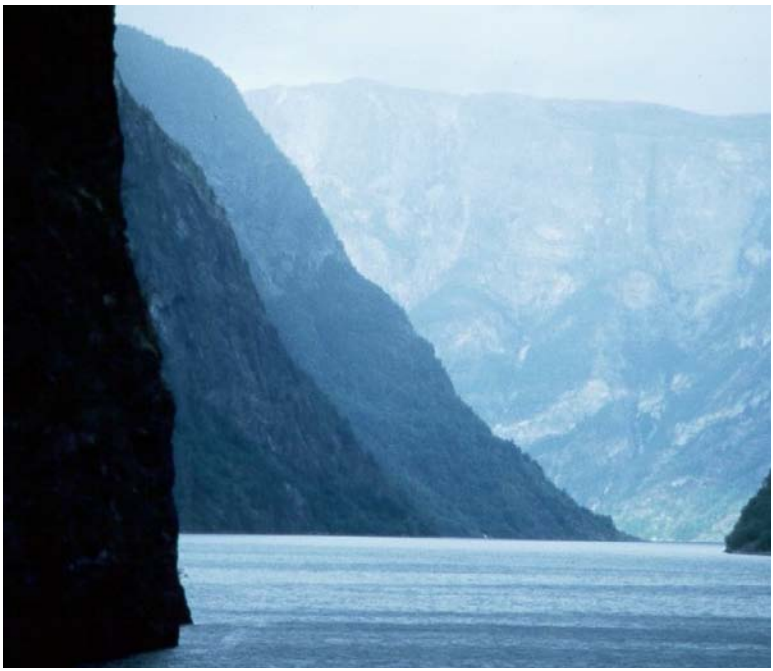
Continental glaciers form in the middle of continents. They flow toward the coasts. Valley glaciers flow down mountains. A fast glacier can flow 20 meters (70 ft) in one day. But that is very unusual. Most glaciers travel only a few centimeters (less than 1 in) to 30 centimeters (1 ft) a day.

Glaciers carved deep scars in these rocks in Ohio.

Changing the Earth

Like giant bulldozers, glaciers push piles of rocks and soil as they slide forward. These piles are called **moraines**. Some of the rocks and soil get stuck in the ice. The rocks scrape the land beneath the glacier, leaving huge scars.

Some glaciers scrape off entire mountainsides. Valley glaciers carve deep U-shaped valleys with steep cliffs. When a glacier flows below the snow line, the bottom melts, forming a river. Some glaciers carve valleys that reach all the way to the sea. Seawater fills these valleys, creating **fjords** (fee-YORDS). Continental glaciers flatten the land.



Fjords have very steep sides.

Icebergs break off a glacier and fall into the sea.

As glaciers reach the ocean, they crumble and slide into the water. Sometimes, big chunks of ice fall into the sea. The broken-off pieces are called **icebergs**. Some icebergs in the Antarctic Ocean are nearly 80 kilometers (50 mi) long.

When Glaciers Melt

Some glaciers melt, or **recede** (ree-SEED), and eventually disappear. Glaciers recede when the weather gets warmer or less snow falls. Receding glaciers leave their moraines behind as long ridges of rocks and soil. This soil is called **till**. It can be good for growing food. Glaciers may also drop huge boulders when they melt. Sometimes glaciers create lakes and ponds when the ice melts on the land.

These big boulders were left by glaciers.

This glacier has receded, leaving its moraine.

Conclusion

Glaciers are one of many things that give the Earth its beautiful and interesting shapes. In the past 100 years, many glaciers have receded. The Earth's temperature may be getting warmer. Scientists are watching glaciers to see how they are affected by temperature changes. They can learn a lot about our planet from these enormous rivers of ice.

This map shows the location of glaciers around the world in white.

Glossary

compressed *(adj.)* squeezed tightly together and squashed (p. 7)

continental glaciers *(n.)* wide, flat sheets of moving ice covering large areas of land (p. 5)

crevasse *(n.)* a giant crack in a glacier's ice (p. 10)

firn *(n.)* pebble-sized ice crystals of compressed snow (p. 8)

fjords *(n.)* deep glacial valleys filled with seawater (p. 13)

icebergs *(n.)* broken-off pieces of a glacier floating in the sea (p. 14)

moraines *(n.)* piles of soil and rocks scraped up by a glacier (p. 12)

prairies *(n.)* wide, flat lands (p. 4)

recede *(v.)* melt away, pull back (p. 15)

snow line *(n.)* altitude above which it is cold enough that snow does not melt (p. 6)

till *(n.)* the soil left behind when a glacier recedes (p. 15)

valley glaciers *(n.)* long, narrow rivers of moving ice that form on mountains above the snow line (p. 5)

Photo Credits:
Front cover, page 9: courtesy of Cdr. John Bortniak/NOAA; back cover: courtesy of NASA/GSFC/MITI/ERSDAC/JAROS, and U.S./Japan ASTER Science Team; title page, page 6: © Radius Images/Corbis; pages 4, 7, 10, 13, 14, 16: © ArtToday; page 5: © Jeanette Thomas/Visuals Unlimited, Inc.; page 12: © Dr. George Wilder/Visuals Unlimited, Inc.; page 15: © Hugh Rose/Visuals Unlimited, Inc.

Mighty Glaciers
Level M Leveled Book
© Learning A–Z
ISBN 1-59827-171-7
Written by Ned Jensen
Illustrated by Cende Hill and Lisa Ing
Map by Lisa Ing

All rights reserved.

www.readinga-z.com

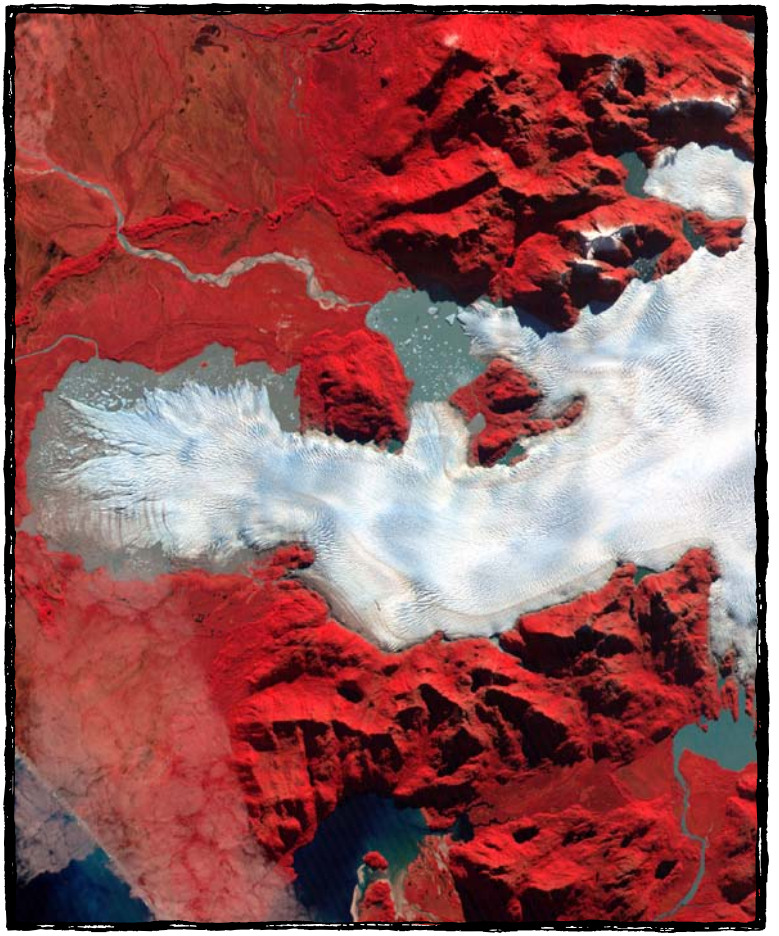
Correlation

LEVEL M	
Fountas & Pinnell	L
Reading Recovery	19
DRA	24

Mighty Glaciers

A Reading A–Z Level M Leveled Book

Word Count: 684



Reading a-z

Visit www.readinga-z.com
for thousands of books and materials.