

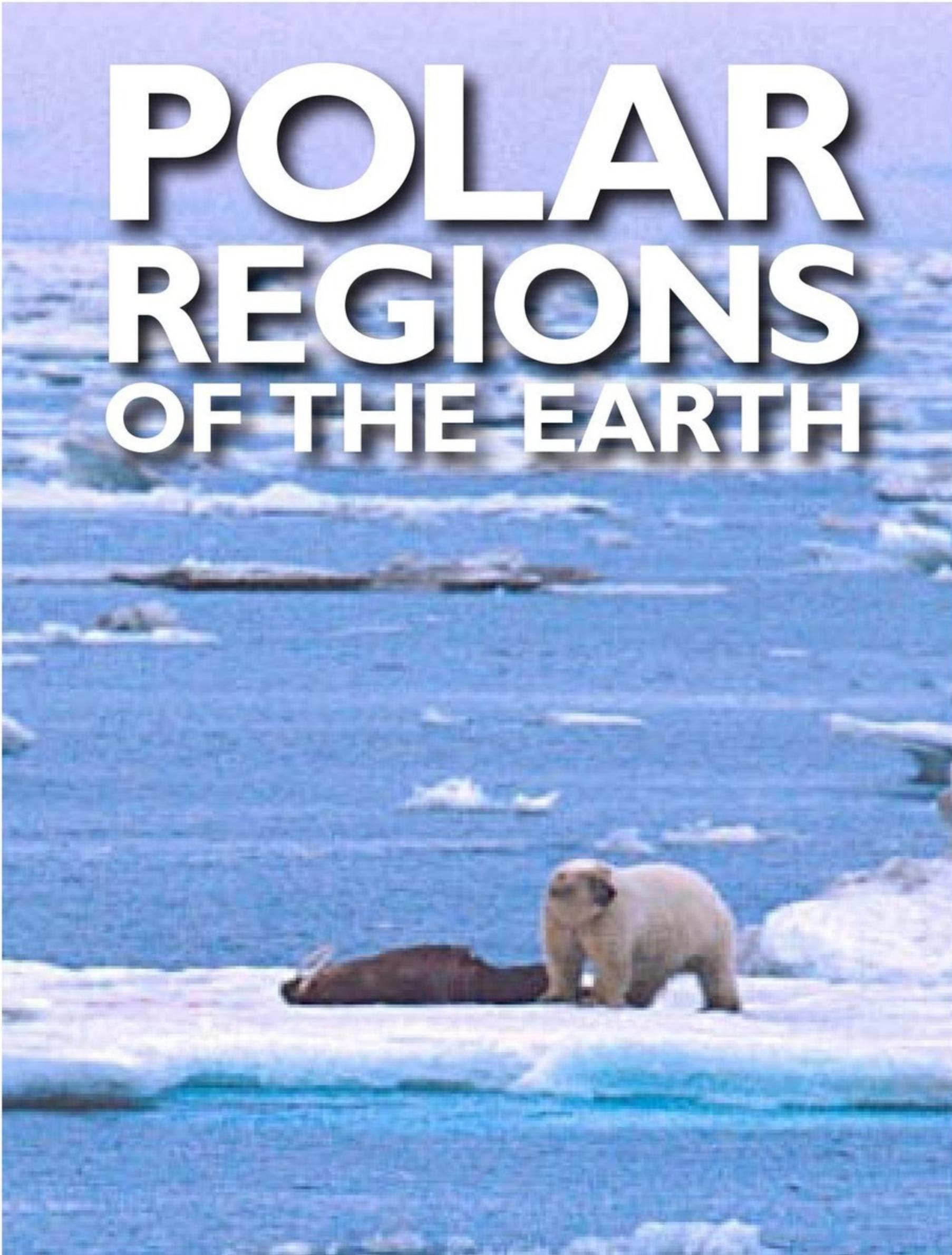
LEVELED Book • U

POLAR REGIONS OF THE EARTH



Written by Elizabeth Austin

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Focus Question

How would you describe the polar regions?

Words to Know

axis
blubber
brutally
equator
hibernate
ice cap

inhospitable
lichens
migrate
permafrost
tundra

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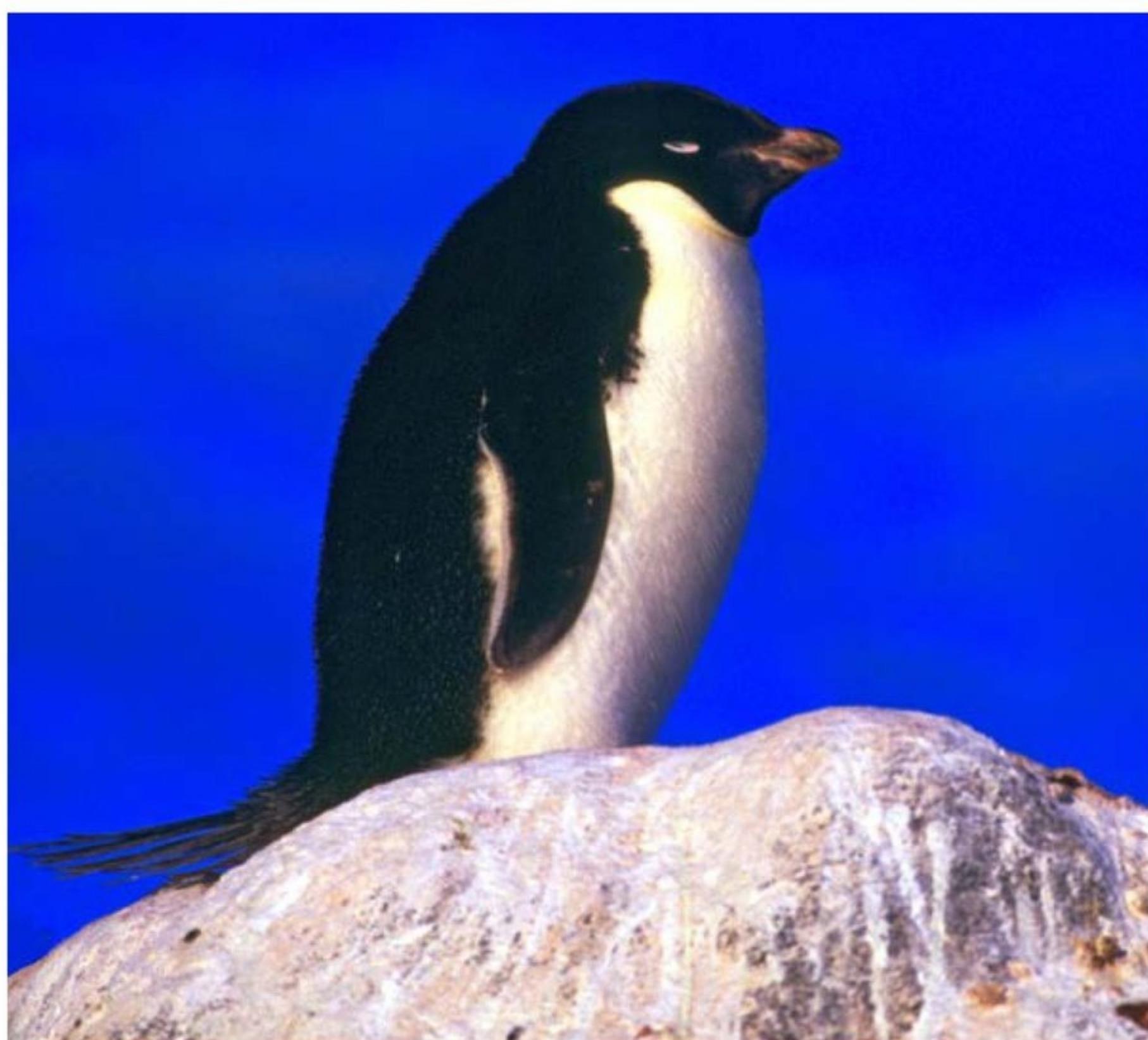
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Polar regions include the highest, driest, coldest, and windiest lands on Earth.

Introduction

There are places on Earth where the ice never melts. Howling wind blasts needles of snow across the land. It seems as though no plant or animal life could survive there. These are the polar regions, the areas around the North and South Poles.

The conditions in the polar regions may be harsh, but life does exist there. The land around the North Pole, called the Arctic, supports grasses, mosses, insects, birds, and mammals. The sea around Antarctica (the land around the South Pole) is full of fish, shellfish, penguins, and sea mammals. In this book, you will read about the **inhospitable** conditions of the polar regions and how some of these animals withstand them.

Do You Know?

Have you ever seen a drawing of a polar bear and a penguin together? In real life, this could never happen. Penguins only live in the southern half of the world. Polar bears only live in the northern half.

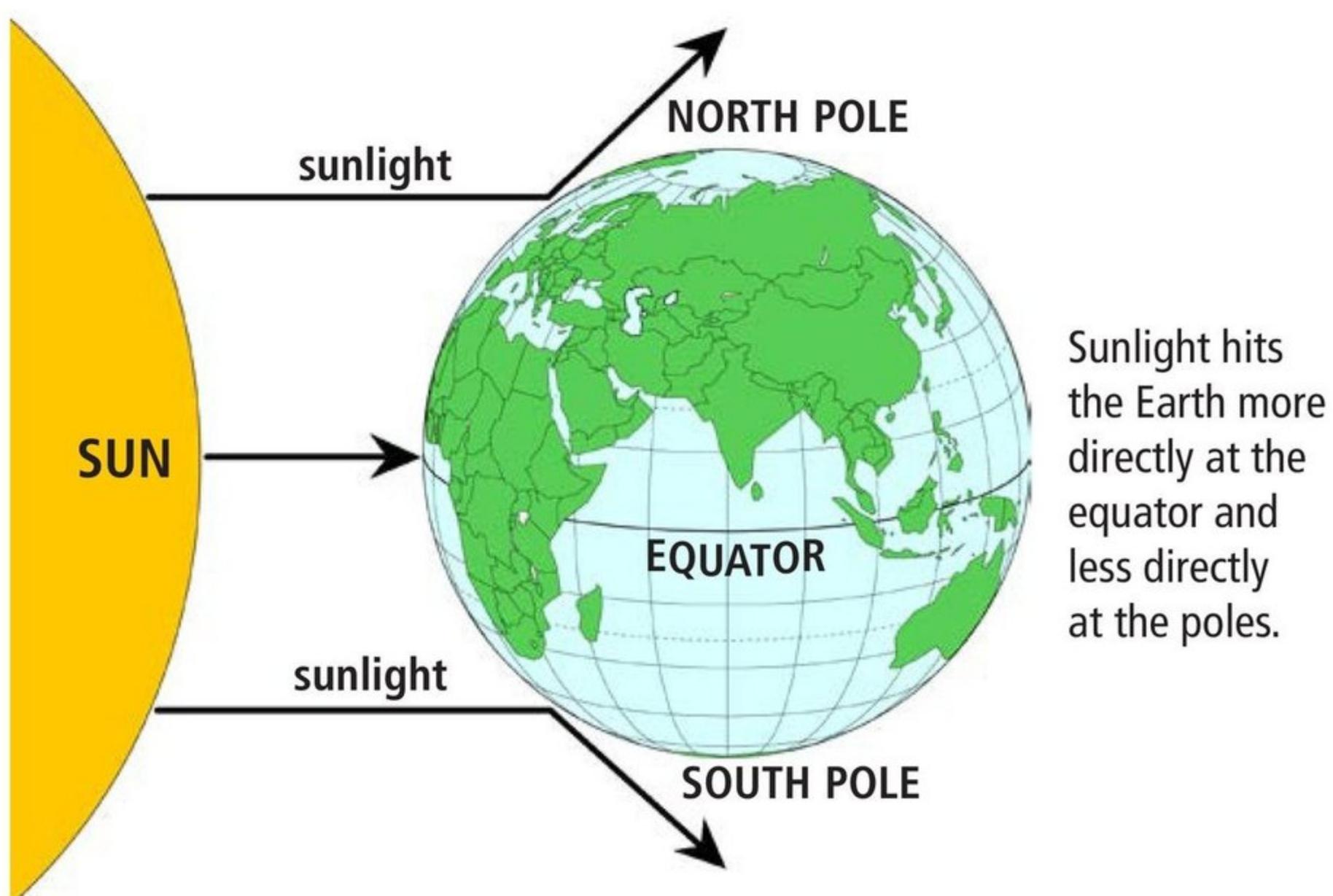


Although some penguins live in warm areas, many prefer cold.

Why Is It So Cold?

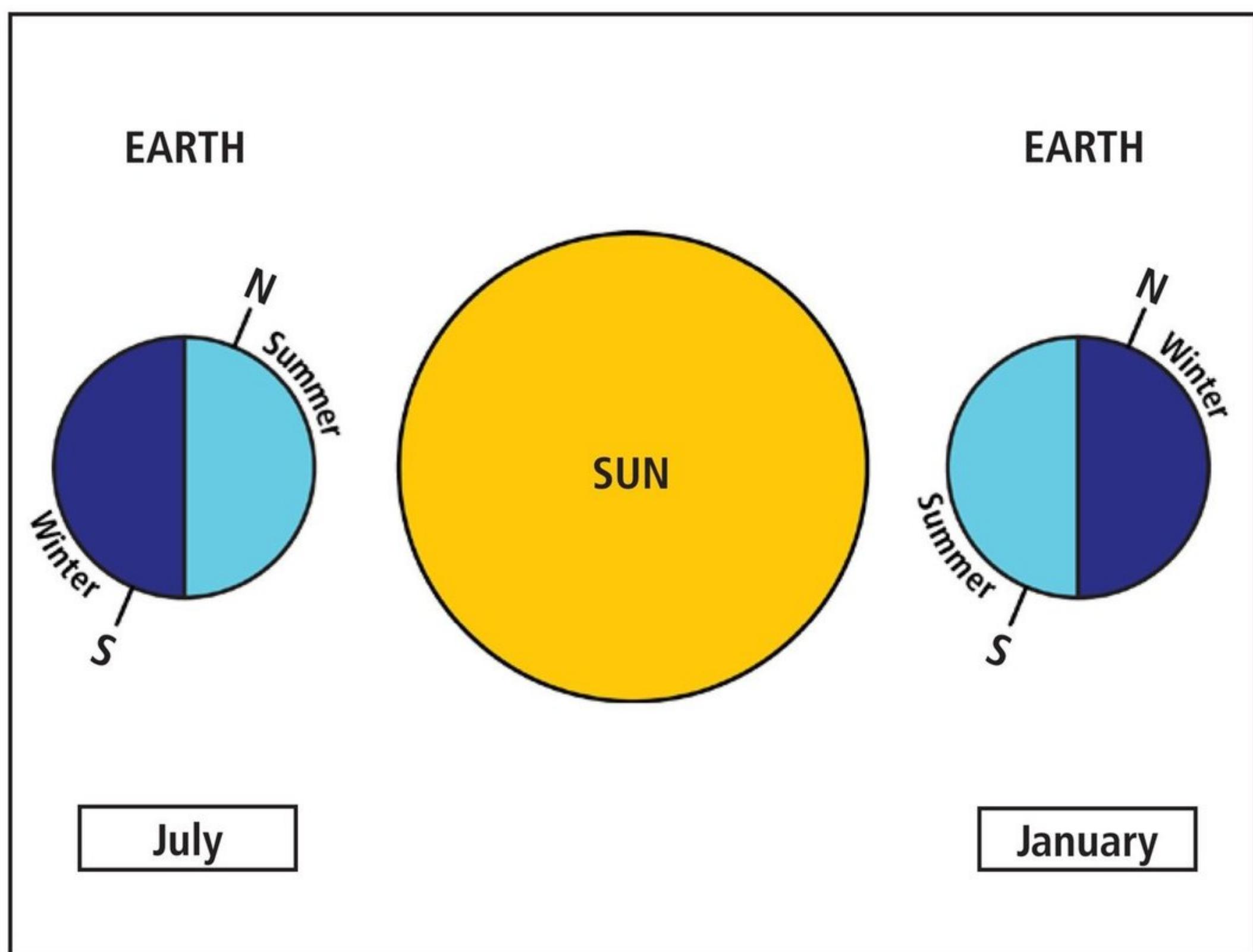
You probably know that as you travel away from the **equator**, the imaginary line around the middle of the Earth, it gets colder. It is coldest at the North and South Poles. But why is it so much colder at the poles than at the equator?

All of the warmth on Earth comes from rays of energy from the Sun. As you can see in the drawing below, the rays hitting the equator are strong and direct. The Earth absorbs a lot of heat from these direct rays. But near the ends of the Earth, the rays hit at an angle. The rays are spread out over a wide area, so the Earth absorbs less heat.



The Earth is also tilted on its **axis**, or the imaginary line around which it spins. For half of the year, the polar regions are tilted away from the Sun. During the winter, the Sun does not shine on the polar regions at all, and without sunlight, there is no heat.

The white snow and ice that cover the polar regions make them even colder. This white surface reflects the Sun's rays without absorbing heat.



As the Earth moves around the Sun, the North and South Poles move into total darkness for six months.



Narwhals are sometimes known as "sea unicorns" because of their long, spiral horns, which can grow to 2 m (6.6 ft).

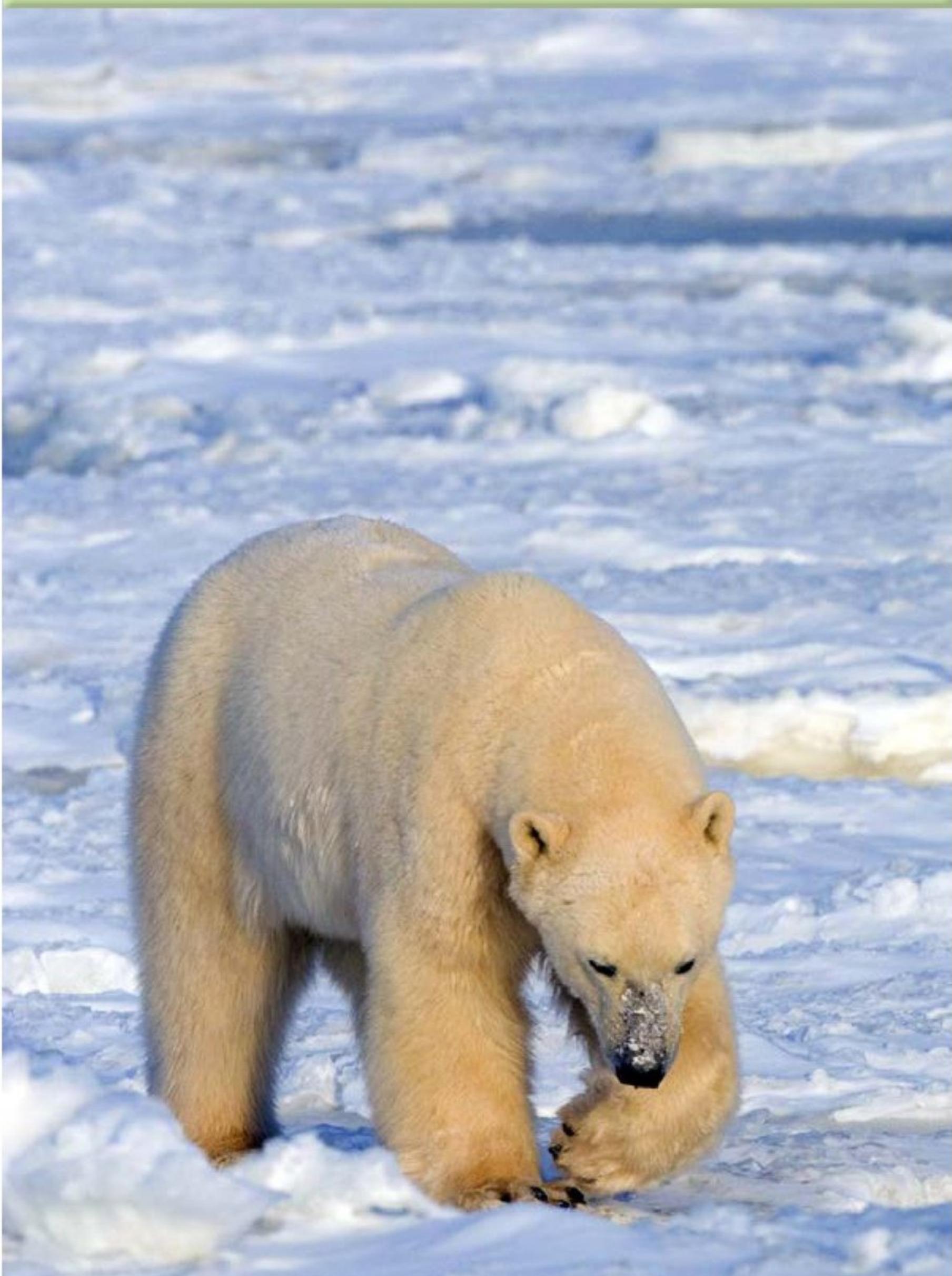
Life in the Arctic

The North Pole sits in the middle of the Arctic Ocean, which is covered by a layer of ice called an **ice cap**. During the summer, the edges of the ice cap melt away, and the Arctic Ocean fills with life. The beluga, or white whale, and the narwhal feed there. Seals, sea lions, and walruses fish for food, poking their heads up through breathing holes they have made in the sea ice. Polar bears wait by the holes to catch these animals.

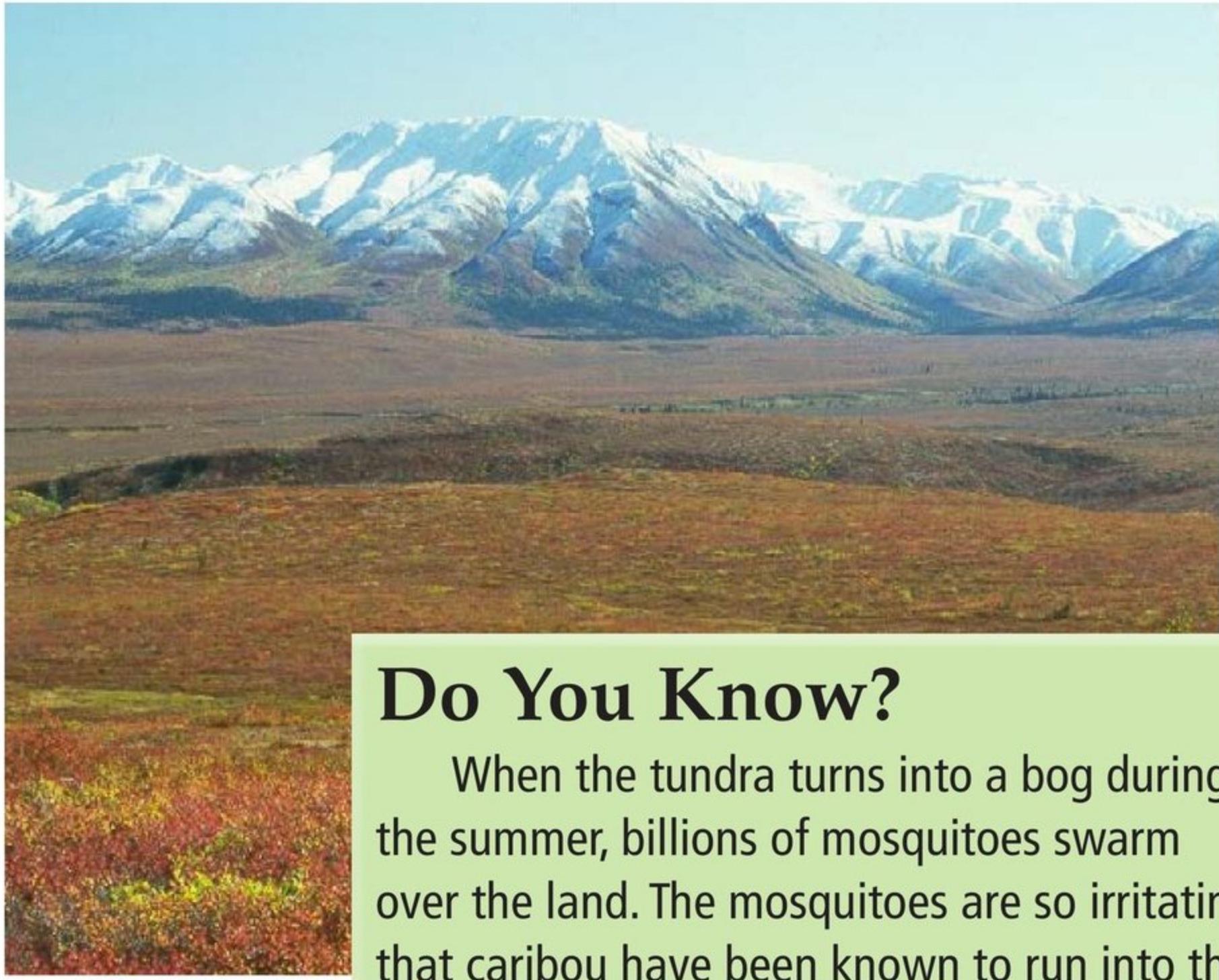


Do You Know?

A polar bear's white fur makes it hard to see against the snow of the Arctic. This makes it easy for the bear to sneak up on seals. But the bear's black nose can give it away. When a polar bear sneaks up on a seal, sometimes it covers its black nose with its white paw to keep itself hidden.



This polar bear waits for a seal to appear at its breathing hole.



The tundra becomes marshy in summer.

Do You Know?

When the tundra turns into a bog during the summer, billions of mosquitoes swarm over the land. The mosquitoes are so irritating that caribou have been known to run into the freezing-cold sea to escape them.

Parts of Canada, Alaska, Russia, and northern Europe lie in the Arctic region. Most of this land is **tundra**, or treeless plains. During the winter, life on the tundra lies dormant beneath snow and ice. But the tundra thaws during the summer. **Permafrost**, or permanently frozen soil that lies underground, traps the melted snow, transforming the land into a wet bog. Tiny flowers, mosses, and plant-like organisms called **lichens** (LIKE-ens) spring up. These plants grow close to the ground, which protects them from the wind.

Animal life is abundant during the Arctic summer. Enormous herds of caribou, or reindeer, move onto the tundra from the forests where they spent the winter. Wolves, wolverines, and bears hunt the caribou. Hamster-like rodents called lemmings feast on grasses and seeds. Beautiful snowy owls and arctic foxes hunt the lemmings. Many birds, including snow geese and ptarmigan (TAR-mi-gan), raise their chicks.



Clockwise from top: Caribou, gray wolf, wolverine, brown bear, snowy owl, arctic fox, snow goose, ptarmigan

As winter approaches, the plants blaze with color and then lose their leaves or die. Caribou, whales, seals, and birds **migrate** to warmer areas. Arctic foxes and ptarmigans change their brownish coats, turning white to match the winter snow. Lemmings and bears **hibernate** as the cold sets in.

Humans also live in the Arctic. The Inuit are the native people of the Arctic region. They hunt caribou, seals, and whales. Many years ago, the Inuit made everything, including their clothing, sleds, ropes, tools, and homes, from the skin and bones of the animals they hunted. Today, most Inuit live in modern houses. Many are still hunters, but they also get their food, clothing, and tools in stores.



Many Inuit still ice fish.



Most seals, gulls, and penguins only visit Antarctica.

Life in the Antarctic

The South Pole sits in the middle of the continent of Antarctica. Because land is colder than the sea, Antarctica is **brutally** cold all year round. Parts of Antarctica are mountainous, making them even colder. Almost all of Antarctica is permanently covered with an ice cap, so there are few plants. Most of the animals that visit Antarctica live in the sea, where there are plants and animals to eat.

In summer, seals and sea lions come onto Antarctic beaches to breed. Birds make their nests in seaside cliffs. But the most famous Antarctic resident is the penguin. Emperor penguins are the only creatures that can withstand the Antarctic winter on land. Penguins have thick, waterproof feathers and a layer of fat called **blubber** to keep them warm.

Emperor penguins are the largest penguins. Early in the winter, the female emperor penguin lays a single egg. She gives it to the male, who balances it on the tops of his feet. Then, the female penguin leaves for the ocean to eat fish.

The male carefully holds the precious egg for the entire winter. Emperor penguins have a flap of feathered skin that they use to cover the egg and keep it warm. Males huddle close together to keep warm during fierce Antarctic blizzards. They do not eat or drink anything for months. Finally, spring arrives. The eggs hatch, and the females return. Then the males and females bring food to the chicks until the chicks are ready to fish for themselves.



Emperor penguins keep their chicks warm on their feet.

Conclusion

The polar regions are some of the last areas of wilderness in the world, but they are being threatened.

Oil companies build wells and pipelines in the Arctic. Tourists visit Antarctica to see the wildlife.



An oil-drilling factory in the Arctic

Sometimes, humans leave behind garbage and pollution that harm the environment.

The Earth is also warming up. Permafrost all over the Arctic is melting, sometimes causing the ground to collapse, taking buildings and roads with it. Ice caps break up and melt much more often than they used to. No one knows what this warming will do to polar animals. Most nations of the world have agreed to try to protect polar regions. Hopefully, the only threat that polar life will have to face in the future is the cold.

Glossary

axis (<i>n.</i>)	an imaginary line around which an object, such as Earth, rotates (p. 7)
blubber (<i>n.</i>)	fat under the skin that keeps marine mammals warm (p. 13)
brutally (<i>adv.</i>)	in a harsh, cruel, or violent way (p. 13)
equator (<i>n.</i>)	an imaginary line that circles the Earth halfway between the North and South Poles (p. 6)
hibernate (<i>v.</i>)	to go into a state of deep sleep, often during winter (p. 12)
ice cap (<i>n.</i>)	a sheet of snow and ice that covers a wide area, such as the land at the Earth's poles (p. 8)
inhospitable (<i>adj.</i>)	harsh, unwelcoming, or challenging to live in (p. 5)
lichens (<i>n.</i>)	crusty organisms that grow on rocks and trees (p. 10)
migrate (<i>v.</i>)	to move from one habitat or region to another at a certain time each year (p. 12)
permafrost (<i>n.</i>)	a layer of soil in a cold region that stays frozen all year long (p. 10)
tundra (<i>n.</i>)	a cold, treeless Arctic region where the ground is always frozen (p. 10)

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Polar Regions of the Earth

A *Reading A-Z Level U Leveled Book*

Word Count: 1,028

Connections

Writing

Compare the Arctic and the Antarctic in a Venn diagram. Include details from the book and outside resources. Summarize your comparison in writing.

Science

Research to learn more about one animal from the book. Write about how the animal has adapted to survive in its environment.

The logo for Reading A-Z features the word "Reading" in a large, bold, red sans-serif font. The letter "R" is stylized with a small sun-like icon above it, consisting of a yellow circle with radiating lines. To the right of "Reading" is a large, bold, red capital letter "A-Z".

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