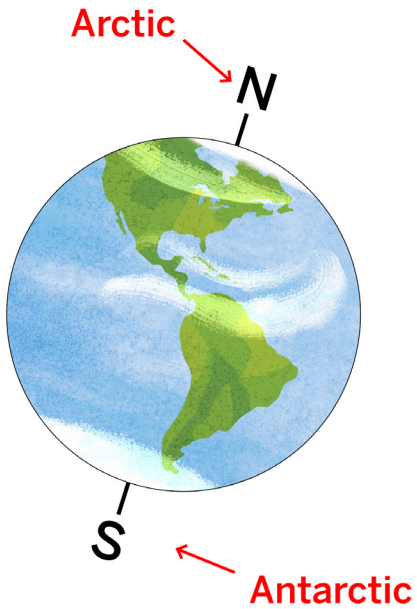
The Endless Summer of the Arctic Tern

Arctic terns fly about 2.4 million km (1.5 million mi) over the course of their lives.

The Arctic tern is a species of bird that lives in the Arctic—but only for part of the year. These terns fly very long distances to stay in parts of the planet that are experiencing summer. Every year, Arctic terns fly from the Arctic all the way to the Antarctic and back. Arctic terns live an average of 30 years and migrate about 2.4 million kilometers (1.5 million miles) during their lives! Why would these birds fly so far? It's all about sunlight.

All Arctic terns are born in the far north, near the Arctic Circle. During the northern summer, the Arctic gets 24 hours of sunlight each day. At the same time, the Antarctic experiences a dark, dark winter—for months, the sun never rises at all. When the seasons change, conditions at the two poles switch: when the darkness of winter comes to the Arctic, the South Pole gets 24-hour sunlight. All that sunlight means plants and other producers



The Arctic is the area around Earth's North Pole, while the Antarctic is the area around Earth's South Pole.

are able to perform lots of photosynthesis and provide food for animals and other organisms to eat. Warmer temperatures can also mean better conditions for reproducing and raising baby terns. Arctic terns fly back and forth between the Arctic and Antarctic as the seasons change so they have enough food to eat.

Earth has seasons because of the way the northern hemisphere (northern half) and the southern hemisphere (southern half) of Earth are oriented toward the sun. At certain times of year, as Earth moves in its orbit around the sun, one hemisphere of Earth is tilted toward the sun. While it's tilted toward the sun, that hemisphere receives more hours of sunlight each day than it does during other times of year, and the sunlight it receives is more intense than at other times of year. It is summer for that half of Earth. At the same time, the other hemisphere, or half, of Earth is tilted away from the sun and gets less intense sunlight for fewer hours each day—that's winter for that half of Earth. Earth's tilt doesn't change as it moves in its orbit around the sun, so as Earth orbits, the hemisphere that starts out tilted toward the sun is eventually tilted away from it. The hemisphere that was tilted away from the sun is now tilted toward it. Earth takes one year to orbit all the way around the sun, so each hemisphere of Earth experiences one summer and one winter each year.

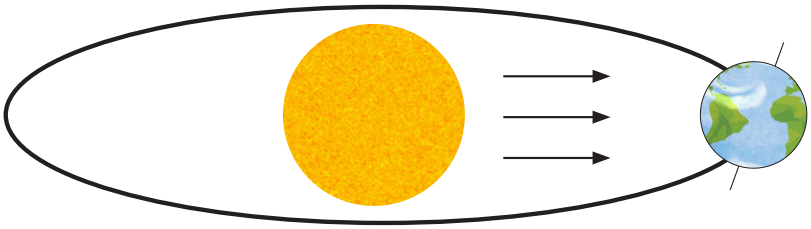
Just because it's summer in the Arctic when the Northern Hemisphere is tilted toward the sun, that doesn't mean it is very warm there. Summer temperatures in the Arctic average 0°C (32°F). These chilly summers happen because the Arctic never directly faces the sun, like locations closer to the equator do—the sun is never directly overhead at the Arctic. The same is true about the Antarctic. It is warmer at the South Pole when the Southern Hemisphere is tilted toward sun, but the average summer temperature is still below freezing!

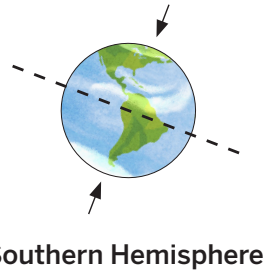
Arctic terns fly back and forth between the North Pole and the South Pole.

The Arctic tern's migration ensures the terns are always living where there's plenty of sunlight. When the Arctic is tilted toward the sun and experiences summer, the terns live there. When the seasons begin to change, the terns leave the Arctic and fly south. By the time the Antarctic is tilted all the way toward the sun, the terns have arrived at the Antarctic. They live there until the seasons change again, and fly north again. That way, they always live where it's summer.

Since Earth's seasons are all about how our planet is tilted, that means our seasons don't depend on how far Earth is from the sun. In fact, Earth's distance from the sun doesn't change very much as it orbits. One way we know this is true is because the whole planet doesn't experience the same season at the same time. For example, if summer were caused by Earth moving closer to the sun, you would expect the whole planet to have summer at the same time. But we know that only half of Earth experiences summer at the same time—it's when that hemisphere is tilted toward the sun.

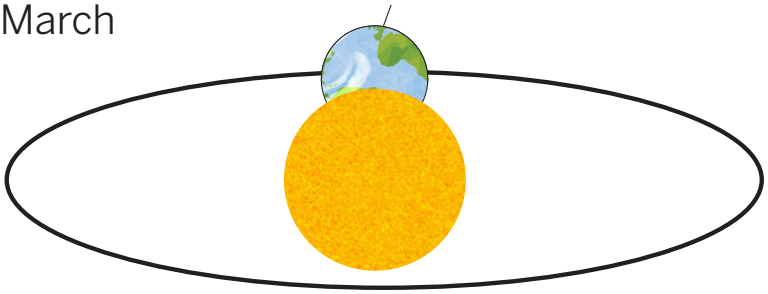
December





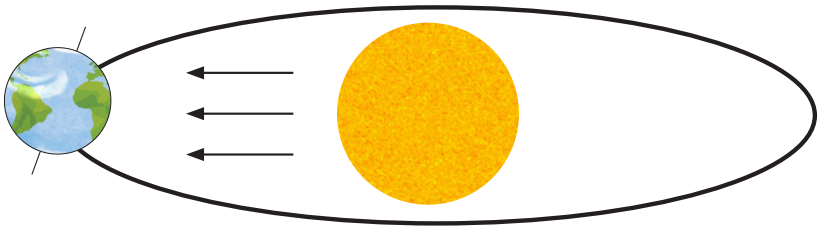
- Winter in the Northern Hemisphere, summer in the Southern Hemisphere
- Less intense sunlight and fewer hours of sunlight in the Northern Hemisphere

March



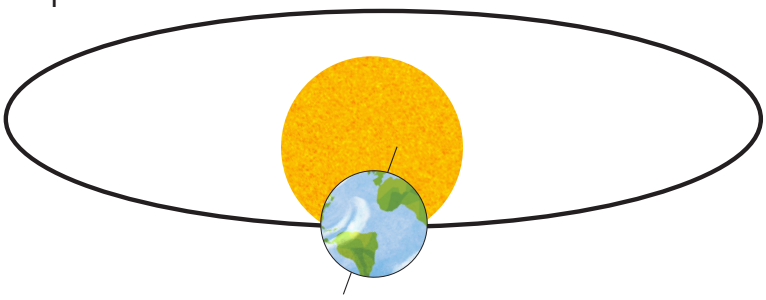
- Spring in the Northern Hemisphere, fall in the Southern Hemisphere
- The sun shines equally on both hemispheres

June



- Summer in the Northern Hemisphere, winter in the Southern Hemisphere
- More intense sunlight and more hours of sunlight in the Northern Hemisphere

September



- Fall in the Northern Hemisphere, spring in the Southern Hemisphere
- The sun shines equally on both hemispheres