Name: _____

Date: _____

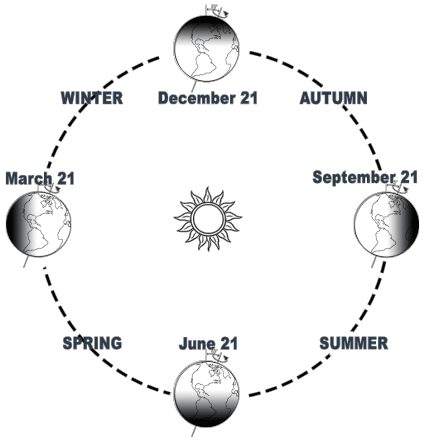
Seasons

The days are longer in summer and shorter in winter, but in some parts of the world the sun never sets during summer and never rises during winter. In the Southern Hemisphere, winter comes in July and summer in December. Almost all globes are displayed leaning slightly to one side. The Earth's tilt causes our seasons.

The Earth spins on an imaginary line called an axis that runs through the center of the planet from the North Pole to the South Pole. The Earth spins on its axis once every day, but it also travels around the sun once each year. This yearly journey, known as an orbit, takes a little more than 365 days.

A Tilted Planet

When a ball is thrown, it usually spins as it moves through the air. Think of the Earth as a spinning ball making a yearly revolution around the sun. The tilt of the Earth never changes, so during summer in the Northern Hemisphere the Earth is tilted toward the sun and the days are longer. After about June 21, the days begin growing shorter until about December 21, the first day of winter. On the first days of spring and autumn, usually March 21 and September 21, day and night are almost equal in length throughout the world.



Extreme Seasons

The difference between summer and winter becomes more extreme as you move away from the equator. Near the North Pole, the sun may remain above the horizon all summer without setting. During the winter months, the sun may not rise for weeks at a time. In some polar regions, the sky remains in a long period of twilight during spring and autumn as the Earth slowly tilts toward or away from the sun."

Scientists believe the Earth's tilt was caused by a cosmic collision more than four billion years ago. On a map, you will often see a dotted line 23½ degrees above and below the equator. In those regions, the sun is sometimes directly overhead at midday, which is why the area between those lines is known as the tropics.

Sunlight and Latitude

You may have noticed that the sun rises in the east and reaches its highest point around midday. But unless you live in the tropics, the sun never reaches the center of the sky directly overhead. As you move farther from the equator, the midday sun appears lower in the sky, even during summer.

The sun 'rises' in the east because the Earth spins from west to east. As the Earth turns, it appears to us that the sun is moving across the sky, when in reality it is the Earth that is moving. The farther you move from the tropics, the lower the sun appears in the sky and the less direct sunlight reaches the Earth. Above the Arctic Circle, an area near the North Pole, the sun may remain above the horizon all day during summer, but it stays low in the sky rather than directly overhead.

All of these seasonal changes also occur in the Southern Hemisphere, but the seasons are reversed. Summer occurs in December and January, while winter occurs in June and July.

Seasonal Adaptations

Outside the tropics, plants and animals must survive dramatic seasonal changes. Some trees become dormant during winter, while birds and other animals migrate thousands of miles in search of warmth and food. Every long summer evening, falling autumn leaf, and migrating flock of birds is part of the seasonal pattern created by the tilted Earth as it orbits the sun.

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Fill in the Blanks

The Earth s__i__s on an imaginary line called an a_____ while also traveling around the sun once each y_____ in an o_____. The Earth's axis is tilted about ____½ degrees, and this tilt causes the s__a__o__s. During summer in the N__r__h__rn H__m__s__he__e, the N__r__h Pole is tilted toward the sun, so days are l__n__er. During w__nt__r, the Northern Hemisphere is t__l__ed away from the sun, so days are s__o__t__r and temperatures are *c__l__er. Near the e__u__t__r, sunlight reaches the Earth more directly than near the poles. The f__r__h__r people live from the equator, the more e__t__e__e seasonal changes become. In some p__l__r regions, the sun may remain *a__o__e or *b__l__w the horizon for long periods during different times of the year.

Answer in Complete Sentences

1. What is an orbit?

2. Where on earth are the differences between summer and winter the greatest?

3. What is significant about the first day of spring about March 21 and the first day of Autumn about September 21?

4. What is the season on January 1 for Argentina and Australia, two nations in the Southern Hemisphere?

*5. Why are the plants and animals in the tropics different from those in nearer to the polar regions?

*A higher order learning question. Any reasonable answer will be accepted.

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