Earth Movements and Time Zones
By Trista L. Pollard

meridian	prime	geographical	possible
knowing	know	circular	enter
helps	movement	revolution	since
addition	help	certain	europe
helping	believe		

Directions: Fill in each blank with the word that best completes the reading comprehension.

Every day you wake up to the sun in the morning sky. When you go to sleep, you are covered by the Earth's darkness. Day and night are made *(1)* _____ by the Earth's **rotation**. Thanks to observation and astronauts, geographers have learned valuable information about how Earth moves.

Earth rotates on its axis. This means that it turns constantly on a central point. This central point or axis runs through the center of the Earth. If you look at a globe, you will see this axis. It runs through the South Pole and the North Pole. As our planet turns, only half of its surface is in light. So, while it is daylight in your half of the world, it is night in the other half. Night is caused when the Earth rotates out of sunlight. Our planet rotates from west to east. That means the sun appears to rise in the east and appears to set in the west. Since the Earth rotates **continuously**, places that were dark rotate back into the light. This is when a new day **dawns**.

It is hard to *(2)* _____ our planet moves each day. However, you actually see this *(3)* _____ . Think about a clear sunny day. In the morning, the sun should be to your east. You may not know what direction the east is from you. However, you should just look where the sun is located in the morning. That is to the east. Remember, as the Earth rotates to the east, the sun appears to rise. By the middle of the day, the sun should be directly over your head. Once you *(4)* _____ late afternoon, the sun should be to your west. That is your way of *(5)* _____ that the Earth rotates each day. What about cloudy days? Well, the sun is still shining. However, you won't see the sun because it is

covered by clouds. In spite of the clouds, it is still light outside. Just

(6) _____ that the sun is over your head at 12 o'clock noon.

The Earth rotates to give us our days and nights. It also **revolves** around the sun to give us our seasons. Our planet **orbits** around the sun. This means it moves around the sun in a

(7) _____ pattern continuously. The

(8) _____ of the Earth, combined with Earth's tilt, gives us our seasons. We talked earlier about the Earth's axis. A globe shows that axis as a bar that goes through the Earth. Due to this bar, the Earth is tilted. As the Earth revolves or orbits around the sun, either the northern or southern hemisphere is tilted towards it. When the northern hemisphere is tilted towards the sun, that is the summer season. Winter is the season in the southern hemisphere. When the northern hemisphere tilts away from the sun, it is winter. The southern hemisphere has summer.

Due to the Earth's rotation on its axis, there are changes in time on Earth. **Time zones** are areas located on Earth. Scientists figured out that it takes 24 hours for the Earth to rotate completely. That means it takes 24 hours to rotate 360º. There are also 24 hours in an Earth day. They have also figured out that the Earth travels 15º of longitude each hour.

(9) _____ the prime meridian is 0º, time begins there. It is called **Greenwich Mean Time (GMT)**. Along with accepting the

(10) _____ meridian in 1884, the **international time zone system** was also **adopted**. Twenty-four countries decided to follow the international time zone system. Scientists made twenty-four time zones that would be marked every 15º degrees of longitude. If you were to divide 360º by 15º, you would get 24. Each of the 15º stands for one hour. As you travel east from the prime meridian you gain hours. At the 180th

(11) _____ , one day ends and a new day begins. To the east of the date line, for example, it would be Sunday. To the west it would then be Monday. When scientists developed the time zone system, they had to make adjustments. They decided that islands and countries should not be cut by time zones. Instead, time zones in

(12) _____ areas follow the borders of countries and islands. If you look on a map at the International Date Line, you will see that it is not a straight line. There are other areas of the Earth where time zone boundaries do not follow a straight line.

In the United States, names have been given for its four time zones. Moving west of

the prime meridian, there is the **Eastern** time zone. It is five hours behind Greenwich Mean Time. For example, if it is 2:00 pm in London, England, then it will be 9:00 am in Manhattan, New York. The next time zone to the west is the **Central** time zone. Cities like Chicago, Illinois, and Green Bay, Wisconsin, are in this time zone. It is one hour behind the Eastern time zone. The **Mountain** time zone includes states like Montana, Wyoming, and Colorado. This time zone is two hours behind the Eastern time zone. The last U.S. time zone is the **Pacific** time zone. The west coast of the U.S. is in this time zone. If you travel to California, Nevada, or Washington, you will be three hours behind New York City's Eastern time.

One last item about time. Different parts of the world follow **daylight savings time (DST)**. Daylight savings time is when people turn their clocks forward one hour in the spring. Once this is done, you actually gain an hour of daylight. It was started to (13) _____ save energy. (14) _____ , northern Asia, and the United States observe daylight savings time. Some countries in South America also follow daylight savings time. In the U.S. people turn their clocks forward on the second Sunday in March. Clocks are turned backward one hour on the first Sunday in November. Confusing? Just remember to "spring forward and fall back." During the spring, you turn the clock forward, and in the fall, you turn it backward one hour.

In (15) _____ to (16) _____ us locate places on Earth, our (17) _____ grid system (18) _____ us to keep time. Just think how hard it would be to travel if we did not have time zones.