The Tilt of the Earth

About 4.5 billion years ago, a Mars-sized asteroid smashed into the Earth. Some of the fragments from that collision combined under gravity to form the Moon. The impact also caused the Earth to tilt at an angle of around 23.5° to the axis perpendicular to its solar plane of orbit.

Because of that tilt, when there is more sunlight in the northern hemisphere, there is less in the south, and vice versa. The change during the year in the magnitude and concentration of the sun's rays in the two hemispheres creates the four seasons. But the seasons are only relative; because of geographical location, the seasons are so similar in some places that there are only two.

The lengths of the seasons are also different. During the northern summer, the Earth is furthest from the Sun and its attraction is weakest, so the Earth spins slower, and summer is consequently the longest season. The reverse is true in winter.

There is also a paradox: Earth as a whole is hottest when it is furthest from the sun and coldest when it is closest. The next lesson will explain why.

What caused the Moon to be created?

Are there four seasons everywhere in the world?

In the southern hemisphere, which is the longest season?