

The earth is round: fifteenth- and sixteenth-century explorers like Columbus and Magellan proved it. But there were ancient Greeks who had known this two thousand years earlier. They saw ships descend over the horizon and observed the curved shadow of the earth on the moon during a lunar eclipse. Then, in 200 B.C., the Greek astronomer Eratosthenes noted that at noon on the first day of summer, when the sun was at its highest, its rays shone to the bottom of a vertical well in Syene, Egypt. Yet, on the same day in Alexandria, five hundred miles to the north, it was reported that a vertical post cast a shadow. If the earth were flat, the post would not cast a shadow at noon.

The earth spins, or rotates on its axis, once every twenty-four hours, causing us to have day and night. At any given time, the side of the earth facing the sun will have daylight, and the side turned away from the sun will have night. Although the earth is spinning at a speed of over one thousand miles an hour, we do not feel the movement or the wind because everything around us, including the atmosphere, is moving at the same speed. The effect is similar to riding in an airplane. The air moves with you. If you light a match on an airplane, no wind will blow it out.

The earth also revolves around the sun once every year. This yearly revolution, plus the tilting of the earth on its axis, causes the seasons. For example, from April through September, the North Pole tilts toward the sun and the northern hemisphere experiences summer while the southern hemisphere has winter. Then the North Pole tilts away from the sun and the seasons are reversed. On March 23 and September 21, the North Pole is not leaning toward or away from the sun. If you travelled around the earth on these two days, you would find the days and nights equal every place you went.