The Coriolis Effect

Winds blow across the Earth from high-pressure systems to low-pressure systems. However, winds don't travel in a straight line. The actual paths of winds are partly a result of the Coriolis effect.

The key to the Coriolis effect lies in the Earth's rotation. The Earth rotates faster at the Equator than it does at the poles.

Let's pretend you're standing at the Equator and you want to throw a ball to your friend in the middle of North America. If you throw the ball in a straight line, it will appear to land to the right of your friend because he's moving slower and has not caught up.

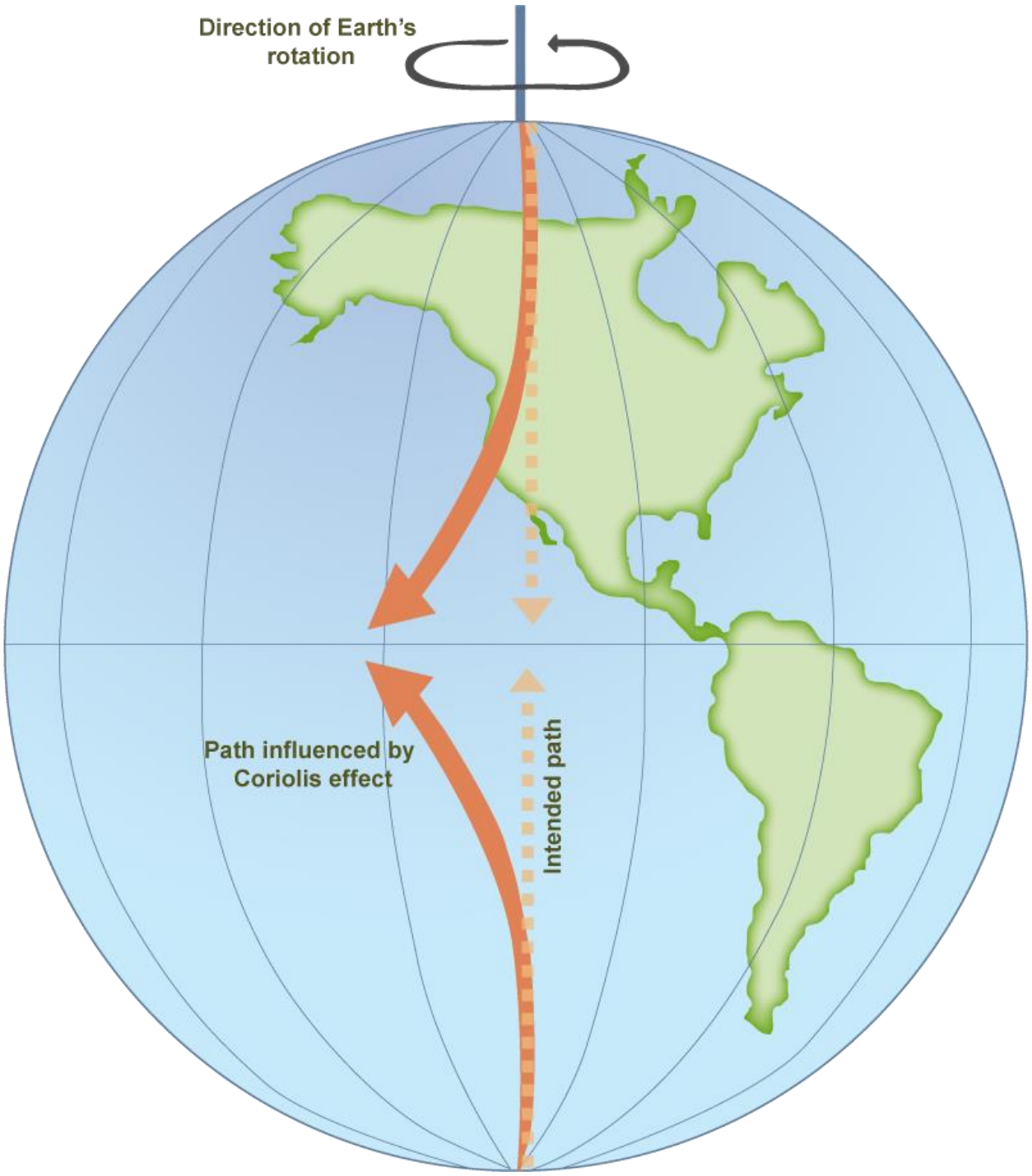
Now let's pretend you're standing at the North Pole. When you throw the ball to your friend, it will again appear to land to the right of him. But this time, it's because he's moving faster than you are and has moved ahead of the ball.

This apparent deflection is the Coriolis effect. The wind is like the ball. It appears to bend to the right in the Northern Hemisphere. In the Southern Hemisphere, winds appear to bend to the left.

Fast-moving objects such as airplanes and rockets are influenced by the Coriolis effect. Pilots must take the Earth's rotation into account when charting flights over long distances. This means most planes are not flown in straight lines, even if the airports are directly across the continent from each other.

The Earth rotates fairly slowly, compared with other planets. The slow rotation of the Earth means the Coriolis effect is not strong enough to be seen in small movements, such as the draining of water in a bathtub.

You could observe the Coriolis effect if you and a friend stood on a rotating merry-go-round and threw a ball back and forth. To you and your friend, the ball's path would appear to curve. Actually, the ball would be traveling in a straight line. You and your friend would be moving out of its path while it is in the air. A third person, standing on the ground near the merry-go-round, would be able to confirm that the ball travels in a straight line.


Direction of Earth's rotation
Path influenced by Coriolis effect
Intended path