

Coriolis Effect Activity

How does Earth's rotation affect wind?

If the earth was not spinning, the wind would always blow straight from the south in the Southern Hemisphere, and from the north in the Northern Hemisphere pushing the surface ocean currents straight as well. However, the earth DOES spin (rotate). This turning of the earth has a very important effect on the wind, called the Coriolis Effect, deflecting the winds and ocean currents around the earth to the right in the Northern Hemisphere and to the left in the Southern Hemisphere. The Coriolis Effect is zero at the equator. **The Coriolis Effect** states that because the Earth is spinning, surface air and waters move in a clockwise direction in the Northern Hemisphere and in a counterclockwise direction in the Southern Hemisphere.

MATERIALS:

1 balloon per group (2 people), 1 marker

PREDICT:

What will happen when you or your partner attempts to draw a straight line from the North Pole to the equator and from the South Pole to the Equator, as the other person rotates a balloon slowly?

PROCEDURE:

- Blow up a balloon and tie it off. Try to get the balloon as round as possible. (This is the Earth.) You only get ONE balloon. Do not blow it up and pop it!
- Estimating the middle of the balloon draw a line around the middle of the balloon. **This represents the equator.**
- Have your partner slowly rotate the balloon to the right.
- Slowly, while the balloon is rotating, draw a line straight down from the top of the balloon to the center (equator).
- Now have your partner slowly rotate the balloon to the right.
- Now draw a line from the bottom of the balloon straight up to the center (equator) as the balloon rotates.
- Repeat the experiment with a different color but with the balloon rotating to the left.

WHAT DO YOU THINK?

1. What happened to the line as you rotated the balloon?

2. What happens to the line as you got closer to the center of the balloon?

Name _____ Date _____ Period _____

3. What is the relationship between the direction of motion of the balloon and the wind currents on Earth?

4. How does this activity demonstrate the Coriolis effect?

CHALLENGE:

5. How might changing the speed at which the balloon is rotated affect your results?

6. Repeat the activity with a different color to test your prediction, explain **in detail** (this means **NOT** in one or two words, but in **MANY** sentences) what happened.