Name

Date

Coriolis Mini-Lab
ANSWER KEY

Purpose: to observe how the Earth's rotation causes rotating water and wind currents in the Northern and Southern Hemispheres, affecting the motion of plastic debris in the ocean.

1. With your assembled Coriolis Earth top, begin with the Northern Hemisphere facing up. Place a small drop of water in the Atlantic Ocean near Greenland.

    a. Before spinning your top, predict which direction you think the water will move.

Responses will vary.

    b. Paying careful attention to the direction of the arrow, spin your top in the direction to the Earth's rotation. Describe what happened to the water drop.

The water drops moved in a curving or spiraling motion, away from Greenland, in the opposite direction to the Earth's rotation (clockwise).

    c. Did the results of your experiment match your prediction? Why or why not?

Responses will vary.

    d. Repeat the experiment from a different location in the Northern Hemisphere. Were your results the same or different? Explain.

The results were the same; the water droplet still traveled outward away from the pole and in the opposite direction to the Earth's spin (counterclockwise).

2. Flip your Coriolis Earth top over so that the Southern Hemisphere is facing up. Place a small drop of water near Antarctica.

    a. Before spinning your top, predict which direction you think the water will move.

Responses will vary.

    b. Paying careful attention to the direction of the arrow, spin your top in the direction to the Earth's rotation. Describe what happened to the water drop.

The water drops moved in a curving or spiraling motion, away from Antarctica, in the opposite direction of the Earth's rotation (counterclockwise).

    c. Did the results of your experiment match your prediction? Why or why not?

Responses will vary.

    d. Repeat the experiment from a different location in the Southern Hemisphere. Were your results the same or different? Explain.

The results were the same; the water droplet still traveled outward away from the pole and in the opposite direction to the Earth's spin (counterclockwise).

3. The phenomenon you have just observed is called the Coriolis effect, named after a French mathematician who lived in the 1800s.

    a. How might the Coriolis effect influence the movement of ocean plastic?

Plastics in the ocean will probably tend to travel in similar curved paths, moving clockwise in the Northern Hemisphere and counterclockwise in the Southern Hemisphere.

    b. What questions do you have about the Coriolis effect?

Responses will vary.