QuickLab

Barometric Pressure

Teacher Notes

Tell students that this apparatus is a "Cape Cod Barometer," which measures air density. A balloon can also be used in place of the plastic wrap. Make sure that the temperature remains constant. Students also may find weather data on the Internet.

SKILLS ACQUIRED

- Observing
- Analyzing

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Barometric Pressure

MATERIALS

- rubber band
- plastic wrap
- coffee can
- tape
- 10 cm drinking straw
- scissors
- metric ruler
- piece of cardboard 10 cm wide



PROCEDURE

- 1. Use a **rubber band** to secure **plastic wrap** tightly over the open end of a **coffee can**.
- 2. Use tape to secure one end of a 10 cm drinking straw onto the plastic wrap near the center of the can.
- **3.** Use scissors and a metric ruler to cut a piece of cardboard 10 cm wide. The cardboard should also be at least 13 cm taller than the can.
- **4.** Fold the cardboard so that it stands upright and extends at least 3 cm above the top of the straw.
- 5. Place the cardboard near the can so that the free end of the straw just touches the front of the cardboard. Mark an *X* where the straw touches.
- 6. Draw three horizontal lines on the cardboard: one that is level with the *X*, one that is 2 cm above the *X*, and one that is 2 cm below the *X*.
- 7. Position the cardboard so that the straw touches the *X*. Tape the base of the cardboard in place.
- **8.** Observe the level of the straw at least once per day over a 5-day period. Record any changes that you see.

ANALYSIS

1. What factors affect how your model works? Explain.

The can must be well sealed and remain at about the same temperature.

Barometric Pressure continued

2. What does an upward movement of the straw indicate? What does a downward movement indicate?

upward: increasing pressure is pushing down on the plastic; downward: decreasing pressure causes the plastic to bulge up.

3. Compare your results with the barometric pressure listed in your local newspaper. What may have caused your results to differ from the newspaper's?

Answers may vary. Possible reasons for differences: different instruments are used; the model uses a relative scale; and instruments are in different locations

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