Performance-Based Assessment

ANALYZE THE RESULTS

5. The covered terrarium heated up at a much faster rate than the uncovered terrarium.
6. With the cover, the terrarium loses heat much more slowly.
7. Answers may vary. Sample answer: Yes, wet sand holds heat much longer than dry sand does. Water retains heat.
8. Answers may vary. Sample answer: The covered terrarium is a better model. Earth's atmosphere acts like a "cover" over the Earth. Like the cover on the terrarium, Earth's atmosphere helps trap heat.

Under Pressure!

ANALYZE THE RESULTS

1. A change in air pressure will affect how the barometer works. Temperature changes may also affect the barometer.
2. An upward movement of the straw indicates that the atmospheric pressure is increasing. Air pressure is pushing on the balloon, which causes the pointer to rise.
3. A downward movement of the straw indicates that the atmospheric pressure is decreasing. Less air pressure causes the pointer to dip downward.

DRAW CONCLUSIONS

4. Clear, dry days are associated with high pressure. Cloudy, rainy, or humid days are associated with low pressure. A sudden drop in air pressure usually indicates that a storm is on the way.
5. Answers may vary depending on the hypothesis. Students should explain how their barometer was affected by atmospheric pressure and why the experiment supported or disproved their hypothesis.

APPLYING YOUR DATA

Make sure students are aware that barometric pressure changes throughout the day. Students should try to get recorded pressures for the same time of day that they were testing their barometer. Some Internet sites provide weather reports that are updated hourly. Be sure to tell students that their barometric measurements will be approximate.

Go Fly a Bike!

ANALYZE THE RESULTS

1. Answers may vary, depending on the wind speed.
2. Answers may vary according to each student's response to question 1.
3. Answers may vary according to the length of the straws and the size of the cups used.
4. Answers may vary.
5. Each group's anemometer should provide similar results. Differences may be caused by inconsistent wind speed. If students did not answer question 1 accurately, their results will be slightly different from other groups.

DRAW CONCLUSIONS

6. If the wind speed is between 3 m/s and 10 m/s, Daniel could fly his bicycle. Otherwise, the weather would be too windy or too still for the bicycle to work.

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