METEOROLOGY   **NAME**_____
INSTRUCTOR_____   **DATE   /   /**
<div align="center">

LAB: ADIABATIC TEMPERATURE CHANGE
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Materials: Fizz-Keeper, 1-L plastic soft-drink bottle, thermometer that fits in the bottle (liquid crystal thermometers are easy to read), water, match, (optional: flexible wire and tape).

1. Place the thermometer in the dry bottle. (If desired, the thermometer can be hung on flexible wire by taping the wire to the inside of the neck of the bottle. The tape and wire must not overlap the outside of the bottle or otherwise interfere with the Fizz-Keeper.)

    When performing an activity that uses temperature as a variable, why should the bottle be handled as little as possible?

2. Screw the Fizz-Keeper tightly onto the mouth of the bottle. Record the temperature inside the bottle.

3. Pump the Fizz-Keeper 50–60 times. Observe the temperature during and after pumping. Did the temperature increase or decrease? Why do you believe this happened?

    If desired, the Fizz-Keeper can be pumped additional times to note further changes in temperature.

4. Unscrew the Fizz-Keeper. For several minutes repeatedly observe and record the temperature of the air inside the bottle. Did the temperature increase or decrease? Why do you believe this happened?

5. Remove the thermometer and pour a small amount of water into the bottle. Swirl the water around inside the bottle for 20 seconds, then pour out the water. Is the bottle empty?

6. Screw the Fizz-Keeper tightly onto the mouth of the bottle and pump the Fizz-Keeper 10–15 times. Is anything visible in the "space" of the bottle?

7. Unscrew the Fizz-Keeper. Is anything visible in the "space" of the bottle?

8. Light a match. After it burns briefly, blow out the flame, quickly drop the smoking match into the bottle, and screw the Fizz-Keeper tightly onto the bottle. Can any particles be seen in the "space" of the bottle?

9. Pump the Fizz-Keeper 10–15 times. What is visible in the "space" of the bottle?

10. Release the pressure. What is visible in the "space" of the bottle?

    Steps 9 and 10 can be repeated several times. What is happening?