Name: _____ Date: _____ Period: _____

Global Science

LAB: Gulf Stream in a Flask

Introduction

The air near the floor of a room is cooler than the air next to the ceiling. The water at the bottom of a swimming pool is cooler that the water at the surface. You can feel these different temperatures and the effects of the fluid motion, but you cannot see the fluid motion in these cases. In this activity you will be able to see the movements of two liquids with different temperatures.

Target

To observe liquid movement due to temperature differences

Materials

Equipment: 150-mL flask, food coloring, stirring rod, hot plate thermometer, two-hole rubber stopper

Procedure

1. Read steps 2 through 5 completely before conducting the activity, and predict what you expect to observe.
2. Mix some food coloring in a flask filled completely with water. Stir well. Heat the colored water to a temperature of 70^{0}C.
3. Make sure that the glass tubing in the stopper arrangement is as shown in figure A. With a damp paper towel, firmly grasp the neck of flask and insert the stopper into the flask.
4. As shown in figure B, immerse the hot flask carefully into a large flask filled plain water at room temperature. The water level should be above both pieces of tubing.
5. Record your observations over the next 10 minutes.

Observations

1. What is your prediction? What do you expect to observe.

_____

_____

_____

_____

2. Describe the path taken by the water after it was heated?

3. What cause the movements of liquid you observed?

4. Explain how the containers of water model the movement of material in the earth's mantle.

Illustrations

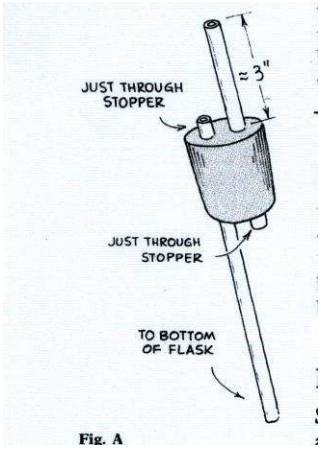

Fig. A

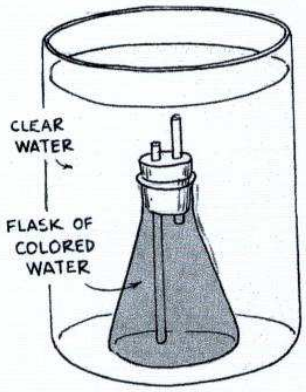

Fig. B