

# Ocean Investigation Lab

**Topic:** Temperature and Density

**Directions:** Read all procedures before beginning. On your lab sheet, fill in the topic line and answer the question “What do you know about the topic?”

**Materials:** Ocean circulation model, tap water, hot water (no more than 80 °C), thermometer, kettle, gloves, ice, red food coloring, blue food coloring, two stirring rods.

**Procedure:**

1. Fill the ocean circulation model's vertical and cross tubes with water. The level should be equal on both sides.
2. Fill one of the cube-shaped containers with ice and the other with hot water that is no more than 80 °C. (Wear gloves when working with hot water.)
3. Wait five minutes to allow the water in the vertical tubes to equilibrate.
4. While waiting, fill in the prediction section on your lab sheet.
5. Add 10 drops of blue food coloring to the vertical tube with ice and 10 drops of red food coloring to the vertical tube with hot water. Quickly stir the food coloring in both tubes.
6. Observe what happens to the surface ocean currents (the upper cross tube) and the deep ocean currents (lower cross tube). Record these observations.
7. Summarize your investigation on the lab sheet.
8. Answer “Are there new questions or investigations you would like to try?” on your lab sheet.
9. Prepare your station for the next group by dumping the water out of the tubes and rinsing with water.