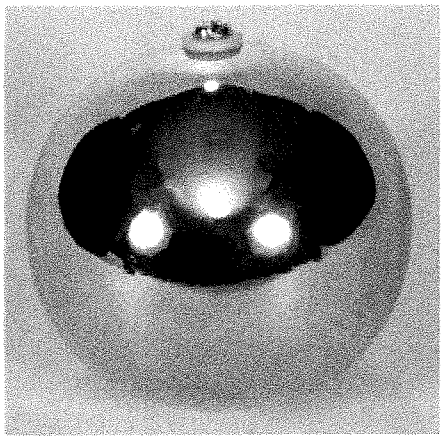

PARTS LIST:

1. ONE FLOATING DENSITY BALL
2. INSTRUCTIONS

ITEMS REQUIRED BUT NOT INCLUDED:

- 1000ml Glass Beaker
- Thermometer
- Cold Water
- Tap Water at room Temperature

THEORY:

Liquid water reaches its maximum density at about 4 C. As the temperature is raised the density decreases. A density ball is a hollow sphere partly filled with water so that the ball has the same density of water (water above 30°-42°C). In cooler (i.e., more dense) water, the ball floats; in warmer, less dense, water, the ball sinks. This is because of Archimedes' Principle: an object displaces a volume of fluid with a weight equal to its own. The mass of the density ball is fixed, so when the water is cold and denser the ball needs to displace less water in order to float. As the water temperature is raised and its density drops, the ball displaces a larger volume of water to remain floating. When the volume of water required exceeds the volume of the ball, the ball sinks.

WORKING:

The simplest way to do this demonstration is to start with the ball floating in a beaker of cool water. Take another beaker and fill with water of room temperature. Take the ball out of water and put it the second beaker or slowly add hot water from the kettle to coldwater, monitoring the temperature, until the ball sinks.