



a WOW Lab

**BLUEPRINT**

Cauldron Bubbles

## Inquiry Approaches

### Initial Inquiry

What is density?

Density is a measure of how compact a substance is. It is calculated by dividing the mass of the substance by its volume. The greater the mass contained in a given volume, the more dense the material.

Why do some objects float on water?

An object floats when it is less dense than water.

Formulate a hypothesis using the proper "if-then" format to predict what will happen when oil is added to water.

A possible hypothesis is as follows: if oil is added to water, then the oil will float on top of the water. Students should understand that the hypothesis does not necessarily need to be correct; an initial hypothesis often needs to be revised in order to account for experimental observations and results.

Formulate a hypothesis using the proper "if-then" format to predict what will happen when salt is added to the oil and water.

A possible hypothesis is as follows: if salt is added to the oil, then the oil will sink.

### Experimental Procedure Inquiry

Why do the oil droplets sink when salt is added?

The density of the oil droplets is increased by the addition of salt, making the droplets more dense than water and causing them to sink.

Why do the oil droplets eventually float back up?

The salt leaves the oil to dissolve in the water, reducing the density of the oil and causing them to float back up to the surface.

### In-Depth Inquiry

Can other substances cause the oil to sink?

Any substance that increases the oil's density can be added to cause oil to sink.