

Demonstration Download: Hard-Boiled Egg

ChemTeacher Demonstrations

Hard-Boiled Egg

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Purpose: Demonstrate Guy-Lussac's Law by sucking a hard-boiled egg into a flask.

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Materials

1 hard boiled egg To make a hard-boiled egg: Fill a saucepan with cold water, about 2-3 inches. Bring to a vigorous boil. Quickly reduce to medium boil. Cook for 10 more minutes. Remove from heat and place immediately into ice-water. To peel, crack gently and roll firmly between hands to crack whole shell. Run under water and peel the shell. The shell should come off in large pieces. 1 500-mL Erl flask 1 bowl ice water heat source thermometer long knife or scoopula

Procedure

Heat Erl. flask gently to $\sim 95^{\circ}\text{C}$. Monitor heating with thermometer. Place egg resting on neck of flask. Narrow end must be down. Immediately remove from heat. Place into ice water. Result should yield within 5 seconds. To remove the egg, slice inside flask using long knife or scoopula.

Notes

Explanation: The sudden drop in temperature inside the flask from $\sim 100^{\circ}\text{C}$ to $\sim 0^{\circ}\text{C}$ creates a drop in pressure. The decreased pressure is enough to suck the egg into the flask.

Demonstration Time	minutes	Difficulty	No specific experience required
Portions	Local grocery store 	Availability of Materials	1
Preparation Time	15	Cost of materials	1