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Convection Box #303-1

Warning:

- **Not a toy; use only in a laboratory or educational setting.**
- **California Proposition 65 Warning: This product can expose you to chemicals including lead, arsenic, and styrene, which are known to the State of California to cause cancer, birth defects, or other reproductive harm. For more information go to www.P65Warnings.ca.gov.**



Introduction

Convection is one of the three modes of heat transfer - the others being conduction and radiation. It is a process that primarily occurs in fluids such as liquids or gases.

Convection describes the flow of particles with different energies in a fluid. Warm, or higher-energy, portions of a fluid will rise above colder, or lower energy, portions of the same fluid. You may have heard someone in the past say “hot air rises” when trying to explain heat transfer in a house or an oven, for example. This is because fluids expand when they gain thermal energy causing the warm fluid to be

less dense than surrounding, colder fluids and “rise” above the cold air. This convection box will allow you to create your own convection current and observe it in action.

How to Use

1. Assemble the convection box as shown to the right - each chimney should be in their respective slots on the top of the box and a candle should be inside the box directly beneath one of the chimneys.
2. Slide open the glass door, light the candle, and close the door.
3. Carefully light a piece of paper or a wood splint on fire and hold it over the chimney without the candle under it. The smoke will allow you to observe the convection current.

Precautions

- Exercise caution when using any fire.
- The candle may cause the box to heat up. Be careful moving the box after use.

