612-1065 (15-010) Liquid Convection Apparatus

CAUTION: Always wear proper eye protection when working with this apparatus.

DO NOT apply heat to this apparatus unless it is filled with liquid.

DO NOT use flammable liquids.

DO NOT allow liquid to boil.

Warranty and Parts:

We replace all defective or missing parts free of charge. Additional replacement parts may be ordered toll-free. We accept MasterCard, Visa, checks and School P.O.s. All products warranted to be free from defect for 90 days. Does not apply to accident, misuse or normal wear and tear. Intended for children 13 years of age and up. This item is not a toy. It may contain or small parts that can be choking hazards. Adult supervision is required.

Additional Materials Needed:

- Ring stand with clamp
- Focussed heat source such as a Bunsen Burner.
- Food coloring

Description:

This apparatus is designed to demonstrate heat convection currents. As the liquid heats, its density will change and will start a current. This is applicable in daily life in the way ocean currents cycle water from warm climates to cold, and back again.

Procedure:

Note: *the following procedure uses a burner to heat the tube, it may be used quickly and safely by using the heat of a student's hand holding the lower corner of the tube.*

1) Mount the glass tube to a ring stand using an appropriately sized clamp.
2) Elevate the apparatus until it is above the height of your heat source.
3) Fill the tube with water and a few drops of food coloring.
4) Ignite the heat source, use a very small flame as it only requires a little heat. Arrange the flame so that it points at the bottom corner of the tube opposite of the opening.
5) As the water heats, the convection current will begin to move the fluid around the tube. Additional food coloring or other colors may be added to keep the demonstration visible. **Do not allow the liquid to boil.**

Other Science First® products:

612-1240 Air Convection Kit

- This metal box houses two candle chimneys. When the candle is lit and placed beneath one of the chimneys, a piece of smoke paper will clearly show convection currents. Air heated by a candle moves up one chimney while cooler air moves down the other chimney to replace the lost air. A transparent front panel allows the entire demonstration to be seen.

612-1055 Investigating Energy Transfer Kit -

- Observe how surface color affects the rate of energy absorption
- Observe how surface color affects the rate of energy radiation.
- Measure temperature change in two containers connected by a metal bar.
- Observe how conduction affects the temperature of objects in a system.

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