OPERATING INSTRUCTIONS

Purpose:

This device is designed to demonstrate that sound waves require a medium in which to travel.

Contents:

One (1) Bell in a Vacuum Assembly

Required Accessories (not included):

- Alligator Clips
- Motorized Vacuum Pump
- DC Power Source
- Hose Clamp
- 1/4" Rubber Tubing
- Petroleum Jelly

Note: Power source can be either a power supply or lantern batteries.

Procedure:

Slip hose clamp onto the quarter inch tubing approximately four inches from one end. Grease rubber opening on jar lid with petroleum jelly. Slide the end of tubing with the clamp on it, over the metal opening. Attach the free end of tubing to a vacuum pump. Connect the DC power source to terminals on jar lid. Turn the power source on and you will hear the bell ring.

Note: Due to transport, the bell trigger may need to be adjusted. The arm of the trigger can be bent either toward or away from the bell to facilitate proper ringing. Be sure to check this before continuing.

Turn on the vacuum pump. As the air is pumped out of the jar, the sound of the bell should become faint. When this occurs, turn the vacuum pump off. Close off the hose clamp and remove the tubing from the pump.

Sound waves travel by means of collisions with atoms in the medium in which they travel, which is air in this case. As the air is withdrawn, the sound of the bell becomes fainter. When all of the air is removed, only a faint ringing of the bell can be heard from inside the jar. Slowly open the hose clamp and allow air to re-enter the jar. This will allow the sound of the bell to become stronger.

Note: Hand operated vacuum pumps may be used, however, results will not be as distinct.