

32090 Buzzer in a Vacuum

Purpose:

This device is designed to demonstrate that the travel of sound waves depends upon a physical medium.

Required Accessories:

Vacuum Pump (Electric or Hand Pump)
(4) AA batteries or low voltage power supply
3/8" Outer Diameter with 1/4" Inner Diameter Rubber Tubing
Petroleum Jelly or Vacuum Grease
The plastic mesh should be kept around the jar at all times.



Procedure:

Grease rubber opening under the lid of the jar with petroleum jelly or vacuum grease. Hang the buzzer by its hook onto the small hole, which is mounted under the lid of the jar. Place lid on top of jar.

Attach tubing to the valve stem and vacuum pump (or hand pump), ensuring the tubing is sealed tightly on the stem. Use a clamp around the stem of pump, if necessary.

Turn on the electric vacuum pump or commence using the hand pump, as applicable.

As the air is pumped out of the jar, the sound of the buzzer should become faint. When this occurs, lock the plastic clamp by pressing on it, restricting the air flow through the tubing, and turn off pump (or stop using the hand pump). The sound of the running pump can make the sound of the buzzer difficult to interpret.

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 As the air is withdrawn, the sound of the bell becomes fainter.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 most of the air is removed, only a faint sound of the buzzer can be heard from inside the jar.

Unlock the plastic clamp by pressing up on it, releasing tension on the tubing and allowing air to re-enter the jar. This will allow the sound of the buzzer to become stronger.

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

Feedback:

If you have a question, a comment, or a suggestion that would improve this product, you may call our toll free number listed below.