

OPERATING INSTRUCTIONS

Singing Tubes Set No. 85180

1. Introduction

With the Singing Tubes Set you can demonstrate the conversion of heat energy into sound; the production of sound by means of a vibrating air column; the relationship between the pitch of a sound and the length of the vibrating air column; and the phenomenon of beats.

2. Description

The Singing Tubes Set consists of two tubes, one shorter than the other. The pitch of one tube is fixed; the pitch of the other can be varied as you like during your demonstration.

3. Operation

The conversion of heat energy into sound: It is important to use the proper heat source, such as a No. 11353 Liquefied Petroleum Gas Bunsen Burner, when you perform this experiment.

CAUTION! The tip of the Singing Tube that is heated will be extremely hot for several moments following the demonstration. Wear protective gloves when you are handling the tube and protect yourself and others from burns. There is a tendency to heat the tip to redness in order to "force the tone." This is not necessary and only increases the danger of fusing the glass. To minimize this danger, never heat the tube to redness.

Hold the tube you have chosen to heat first in a position so that the tube is at an angle, with the closed end up and the open end down. Gently heat the closed (top) end of the tube over the burner flame. A tone should be produced in about 15 to 30 seconds. The tone emitted by these tubes is dependent upon the temperature difference between the heated closed end and the rest of the length of the tube. When you heat the second tube you will notice the difference in the tone produced.

To cease tone production, tilt the tube's open end up and heat the rest of the tube's length to equalize the temperature.

For more experiments, and additional information on Tube Resonance, see our Selective Experiments in Physics, No. 71998-22, "Resonance in Open and Closed Pipes."

4. Maintenance

The Singing Tubes Set needs no special maintenance. If you should experience any difficulty with a Singing Tubes Set, please contact Central Scientific Company, giving details of the problem. To ensure better service, please do not return any apparatus to Central Scientific Company until we have sent you authorization.

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