

Singing Rods

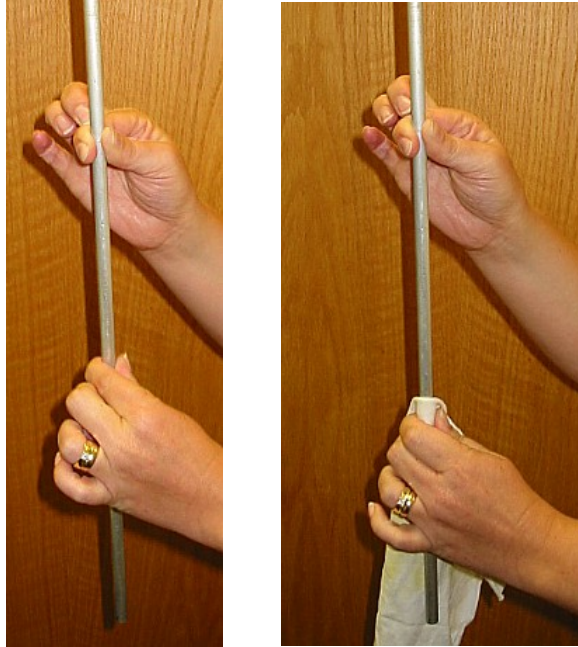


Purpose: Demonstrates resonance and standing longitudinal waves.

This demo is very impressive! Hold a rod between your thumb and finger at the center. By lightly sliding your other thumb and forefinger down the length of the rod (with a little rosin to help) you set up standing waves in the bar at the resonant frequency. Each successive stroke increases the volume dramatically. You can make them sing quite loudly.

Note: The rods are 'designed' so that only the lowest resonances are audible. You always have antinodes at the ends. The larger rod has machined markings at the quarter-length points. Holding the rod at one of these points sets up a resonance at twice the frequency (up one octave), with a node at the other quarter-length point. You can then show this is a node by squeezing it once you have the wave going: the sound does not die out.

If you do not want to get your hands dirty, there is a rosin impregnated cloth you can use, which works almost as well. (The rods may already be coated enough that you do not need more rosin.)



Making One Sing

Extra Equipment Needed: None

Location: Shelf D5