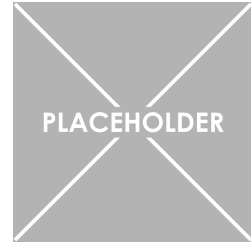


Melde's String Vibrator

Key words: string, vibration, wave, standing wave, oscillation



Equipment List:

1. PASCO mechanical oscillator
2. 1A variable frequency power supply
3. String (we could get a thin elastic to make it much more visible?)
4. Retort stand and clamp
5. Strobe light

How to assemble and operate:

- Tie string to oscillator and clamp on stand. Select the length carefully if you wish to show harmonics mathematically as well.
- Set amperage to 1A on power supply, the oscillator will begin to oscillate.
- By varying the string length, or the frequency of oscillation, various harmonics and standing waves can be shown. If not using calculations, start at low (~ 10 Hz) and increase until a harmonic is seen.
- These phenomena can be seen more easily when a strobe lamp is used, where the frequencies are matched the standing wave will appear completely still, and therefore easier to see.

Description/Theory:

This demonstration illustrates harmonics and standing waves on a string. This could be accompanied by calculations on the board, using measurements made on-the-spot.

Comments/Notes:

Turning the room lights off may help visibility when using a strobe light.