

INSTRUCTIONAL GUIDE

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- Doppler Ball with battery holder and buzzer
- 2x CR2032 Batteries
- Instructional Guide

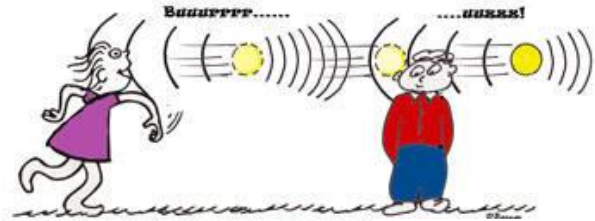
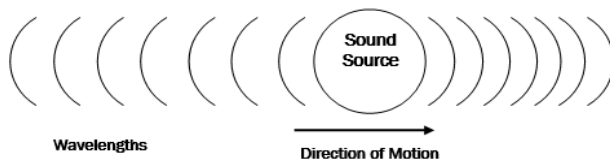
Recommended for activities

- [Cotton Physics String \(P1-6110\)](#)



Background

The Doppler effect occurs when an observer hears a sound from a moving source. If the sound source is moving toward the observer, the perceived frequency will be higher than the actual sound frequency. If the source is moving away from the observer, the perceived frequency will be lower.



To install the batteries, unscrew the two small screws toward the bottom on the back of the battery holder. Open the lid and insert the batteries so the polarity indicated in the battery compartment is facing down (as shown). Use the switch on the battery holder to activate the buzzer. Insert the battery holder into the slit in the foam ball first, followed by the buzzer.



Activities

1. Start the buzzer and play catch. If the ball is thrown fast, students should be able to hear that the pitch is higher as the ball approaches than as it moves away.
2. Tie a string tightly around the ball. Swing it in a circle above your head. Students can hear the shift in pitch as it alternately approaches and moves away.

Related Products

Sound Pipe (P7-7200) Twirling the pipe at different speeds produces up to five resonant tones.

Set of 8 Boomwhackers (P7-7400) Demonstrate open- and closed-piped resonance with these colorful tubes. When whacked against the floor or your knee, each tube produces a clear tone.