**Investigating Sound Waves**

Sound is produced when a vibrating source causes a medium to vibrate. In this lab, you will investigate how the vibrating source affects characteristics of the sound produced.

**Problem** What determines the frequency and amplitude of the sound produced by a vibrating object?

**Materials**

• meter stick

**Skills** Observing, Inferring, Drawing Conclusions, Controlling Variables

**Procedure**

**Part A**: Investigating How Length Affects Pitch

1. Hold one end of a meter stick down firmly on a table so that 20 centimeters of the meter stick extends past the edge of the table. Pluck the end of the meter stick that extends past the table to produce a vibration and a sound. Observe the vibration and sound of the meter stick.

2. Repeat Step 1, but this time allow 40 centimeters of the meter stick to extend past the edge of the table. Observe and record how the length of the vibrating part of the meter stick affects the pitch.

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3. Repeat Step 1, but this time allow 60 centimeters of the meter stick to extend past the edge of the table. Record your observations.

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**Analyze and Conclude**

1. **Observing** What happened to the frequency of the meter stick’s vibration when you made the overhanging part longer?

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2. **Inferring** How did the frequency of the meter stick’s vibration affect the pitch of its sound?

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