

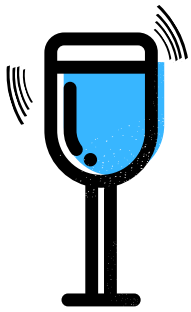


SINGING GLASSES

Take advantage of an object's natural resonance to create sound.

Materials

Several wine glasses
(with stems)
Water



Note: Adult supervision is needed in case of broken glass.

Procedure

- Fill one of the glasses about halfway full with water.
- Hold the base of the glass with one hand so that it won't fall over.
- Wet the tip of your pointer finger on your free hand.
- Using a slow, steady motion, run your wet finger around the rim of the glass. It may take some practice to get a sound.
- Try experimenting with different amounts of water in the glass. How do different amounts of water affect the sound?
- Using what you've learned from experimenting with different amounts of water, fill multiple glasses with different amounts of water and use them to play a tune.

Results

The glasses create different sounds.

Why?

The friction from your finger rubbing along the rim of the glass causes the glass to vibrate. The wine glass, like all objects, has a frequency at which it naturally vibrates, called its resonant frequency. When you run your finger around the rim of the glass at just the right speed, you have matched the natural frequency of the wine glass. The vibrations from the glass vibrate the molecules in the air and create sound waves. The size, shape, and amount of water in the glass affects a glass's resonant frequency, which changes the pitch of the sounds the glass produces when rubbed and allows you to create a tune.