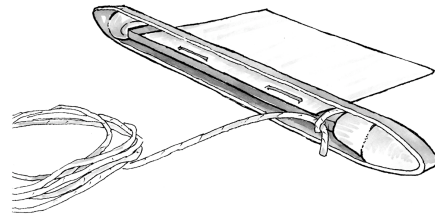


## Bee Hummer

In this activity, you'll make a "bee hummer"—a toy that sounds like a swarm of buzzing bees when you spin it around.

### What Do I Need?

- a Popsicle stick or craft stick
- cap erasers
- index card
- scissors
- stapler that's strong enough to staple the index card to the Popsicle stick
- string
- a wide rubber band (about 1/4 inch wide) that's long enough to stretch lengthwise around the Popsicle stick (e.g., #64 rubber band)



### What Do I Do?

- 1.** Put a cap eraser on each end of the Popsicle stick.
- 2.** Trim an index card (about a quarter of it) so it fits in the space between the two erasers on the Popsicle stick.
- 3.** Staple the card to the Popsicle stick.
- 4.** Cut enough string—about two feet—to safely swing the card.
- 5.** Tie the string next to one eraser; make several knots so it's secure.
- 6.** Stretch the rubber band around the Popsicle stick from one eraser to the other, and make sure it's snugly in place.
- 7.** Swing the bee hummer. You should hear a sound like bees buzzing.

**Note:** Make sure the rubber band isn't twisted, and that the string isn't touching the rubber band. Either of these things could stop the sound.

## Decorations

You could draw wings on the card, or cut the card into the shape of wings.

## Going Further

- What happens when the index card is curved or folded?
- Can you make a bee-hummer that is really loud?
- Try a different sized rubber band.
- Try to spin it faster (a longer string may help).
- You can modify your materials by using clay or play dough instead of erasers, using different string or rubber bands, or using different sizes and shapes of cards.

## What's Going On?

When you spin the hummer, moving air causes the rubber band to vibrate. Sound is produced by those vibrations, in the same way that vibrating strings on a guitar or violin produce sound. The sound is *amplified*—made louder—by the index card.