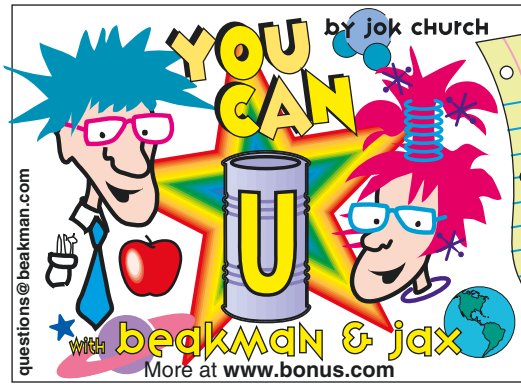




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Dear Beakman,
How do sound waves work?
Zachary Lawson
Tyler, Texas

Beakman or Jax
P.O. Box 30177
Kansas City, MO 64112
Questions, name & address

Dear Zachary,
Sounds are mechanical waves. The *mechanical* part means that they are waves that travel through stuff – through matter. Sound waves *disturb* the matter, and those disturbances are pushed through the matter. Cosmic, huh? And they travel differently through different kinds of stuff.

Beakman
Beakman Place

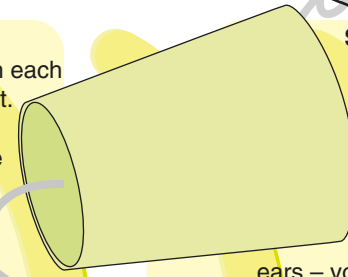


SO WHAT:
You disturbed the string, and those disturbances moved through the string, through the air and into your ears – you know, sound waves. They move through solids (string), gases (air) and liquids.

Experiment #1

WHAT YOU NEED: String - paper clips - 2 yogurt cups - a friend (we all need those)
WHAT TO DO: Punch a hole in the bottom of the cups, thread the string through the holes and tie on the paper clips. If the string won't go through the hole, slick it with spit or rub it on a bar of soap.

With you and your friend each holding a cup, back away from each other until the string is tight. Hold the cups to your ears. Pluck the string. Does the sound change if the string is tighter? Looser? Try talking into one of the cups and listening in the other.



Experiment #2

WHAT YOU NEED: String - fork - friend
WHAT TO DO: Tie the string around the fork as in the drawing and hold the ends of the string

up against your ears. Ask your friend to twang the tines (prongy things) of the fork while you listen. Listen to the twang without holding the strings up to your ears.



SO WHAT:
When you twang the tines with the string up to your ears, they sound like chimes. The mechanical waves pushed through the string. When you listened to the fork without the string, it sounded like, well, a fork. It's harder to push through air than to push through solid stuff like string. So you get to hear more of the waves through the string and less through the air.

P.S. from Jax: We usually think of a wave as a swoopy up-and-down thing. Sound waves are not like that. They behave more like the drawing behind the comic – a bunch of little pushes.

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4-6-03 You Can CMYK
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