



SPYTIME MISSION: The Chicken-ator

The only way for Ruff to get through the sound-activated doors that protect the nesting area inside the Chicken Fort is to make sounds like a chicken.

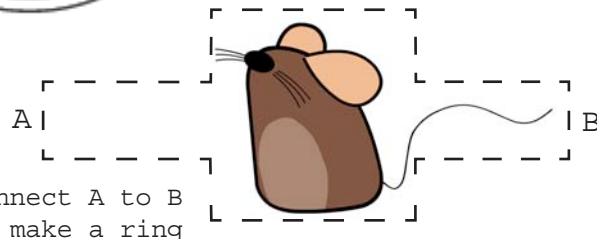
Your mission is to find the best way to make chicken sounds. **You have 2 days to report back to Ruff.**

1 Get What You Need

- paper or plastic cup
- larger paper clips
- cotton string
- scissors
- sharpened pencil
- tape
- water
- dishwashing liquid

2 Construct Your Cup

- Poke a small hole in the bottom of the cup with a pencil.
- Pull a string (about 2' long) through the cup.
- Tie a paper clip to the end that's inside the cup.
- Pull the string tight, so that the paper clip rests against the bottom of the cup.
- Tape the paper clip flat.
- Cut out and tape the paper cut-out of Chet into a ring that will fit around your index finger.



connect A to B
to make a ring

3 Make Some Noise!

- Hold the cup in one hand and the string in the other, near the bottom of the cup. Squeeze the string tightly between your fingers and thumb and slide them down the string as fast as you can. What happens?
- Now wet the string with water, and slide your fingers along it again. What do you hear?

4 Predict, Test, and Observe

Predict what would happen if you put dishwashing liquid on the string. Then test it. Which makes the loudest sound—the dry, wet, or soapy string? Why might one work better than the others?

5 Report back to Ruff

Use the Spy Sketcher to send a photo or a picture of Chet making chicken sounds with the Chicken-ator. To use the Spy Sketcher, go to: pbskids.org/fetch/spyhounds/poodlediamond/

Chew on This!

Sound vibrations travel through liquids, gases (like air), and solids (like the string in this activity). Sliding your fingers along the string creates *friction* (rubbing and sticking). This causes the string to vibrate. The vibrations travel up the string to the cup, which acts like a speaker and *amplifies* them (makes them sound louder).

But why does the wet string work better than the dry string? The wet string made your fingers stick and rub more, causing more vibrations and more sound. Why didn't the soapy string work? The soap is a *lubricant*. It reduces friction and makes your fingers glide smoothly, causing fewer vibrations and less sound.

