

## Sound

# Crowing cup, mooing bucket

(Czech Republic)

### Background

Sound is a form of energy, which is caused by vibrations. Changing the way an object vibrates can change the pitch and volume of the sound produced.

### You will need:

- ✓ A yoghurt cup
- ✓ A larger cup
- ✓ A bucket
- ✓ A bigger bucket
- ✓ String
- ✓ A wet cloth
- ✓ Large paper clips

### Follow these steps:

1. Poke a small hole in the bottom of the cups and buckets. The hole should be large enough to just allow a string through.

2. Pull a long string of equal length through the hole in the bottom of each of the buckets and cups.
3. Tie one end of the string to the paper clip. The string should hang through the body of the cup, with the paper clip on the outside.
4. Dampen a cloth with water.
5. Hold the cup in one hand and the string in the other.
6. Using a wet cloth, pinch the string near the cup and drag the wet cloth downwards in a jerky motion.
7. Listen to the sound.
8. Repeat the procedure for each cup and bucket.
9. Compare the sounds created by each bucket using the terms pitch and volume.

### So what happened?

Friction between the wet cloth and the string caused vibrations through the string. The vibrations from the string were almost silent without the cup, but when you add the cup, the funnel-like shape of a cup spreads the vibrations and amplifies them (makes them louder.) The bigger the cup/bucket, the louder the sound.

### What next?

- Try using different length or different thickness of string. How does this change the sound?
- Discuss why a wet cloth works better than a dry cloth or a soapy cloth.

More sound experiments available here <http://kdf.mff.cuni.cz/~mandikova/kurz/materialy/sound.pdf>

