



## Curiosity Guide #805

### Speed of Sound

Accompanies Curious Crew, Season 8, Episode 5 (#805)

#### Blaring Bottle

Investigation #6

#### Description

Have friendly fun with water and several things that make noise.

#### Materials

- Large clear jar or bucket of water
- Funnel
- Bicycle bell
- Silverware
- Holiday bells
- A friend

#### Procedure

- 1) Fill the jar or bucket  $\frac{3}{4}$  full of water.
- 2) Have your friend submerge the funnel into the water and place his ear on the open end.
- 3) Place the bell into the water and trigger the chimes.
- 4) What does your friend notice?
- 5) What happens if you clank silverware together?
- 6) Can you think of other objects to try?

#### My Results

## Explanation

Your friend could clearly hear the clanging bell and clinking silverware. This is because sound propagates or travels in liquids like water. The sound quality is also affected by the material the sound wave is travelling through. The molecules in liquids are closer together than those in gases so these molecules can bump into each other much more quickly than the further spaced particles in gases. That means that sound waves can transfer energy through the liquid particles much more quickly. If sound were traveling at 343 meters per second in air, it would be traveling at 1,480 meters per second in water, and faster still through different solids.

**Think about this!** Have you ever been swimming in a lake or pool and heard sounds underwater? How fast do you think those sounds were traveling? We know that sound travels faster in liquids than in air because in liquids, the molecules are closer together. That means the sound you heard could have been traveling at 1,480 meters per second! That sure is some speedy sound!

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