

Find That Sound

Find a friend and try this sound localization experiment.

What you need:

- A set of keys or a small bell

What to do:

- With a friend, choose a listener and a sound maker.
- Listener: close your eyes. Sound maker: jingle the keys (or ring the bell) in different spots around the listener—above their head, to their right and left, down low by their knees, etc.
- With eyes closed, the listener points to where the sound seems to come from.

What's going on?

Working together, your two ears can detect a sound's origin.

From hearing a cry for help to finding someone at a noisy party, sound localization is a skill we rely on constantly. Depending on their frequency or direction, some sounds are easier to locate than others.

Having two ears—binaural hearing—allows us to locate the horizontal origin of a sound. Sound coming from the right or the left reaches one ear before the other. Our brain uses this timing difference to find the direction of the sound source.

Because of the positions of our ears, we're better at locating the horizontal source of a sound than the vertical source. To compensate, we tilt our heads and move our ears relative to the sound source.

Where's that Sound Data Sheet

Find a partner and together go to the exhibit called *Where's that Sound*. One of you will be the experimenter and one of you will collect data on this sheet. The experimenter needs to stand right in front of the box. Notice there is an array of speakers in front of you- six horizontal and six vertical speakers. Press the new sound button. Try to identify the location of that sound. If you need to hear the sound again, press the Play button. Make your best guess about the sound's location and then press the answer button. Your partner should record whether the sound was in the vertical or horizontal plane and your error. If you guessed correctly, your error would be 0. If you are one off from the correct speaker, your error would be 1. Your error CANNOT be greater than 5. Complete 10 trials and then switch roles.

Vertical or Horizontal	Error