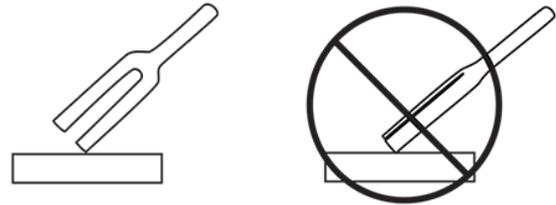


Tuning Forks

Introduce the Tuning Forks

- ***This is a tuning fork. How can I get it to make a sound?*** [Drop it, hit it with something, hit it on something.]
- ***What will the tuning fork be doing while it is making a sound?*** [Vibrating.]
- ***How could I get it to stop making sound?*** [Stop the vibration.]

Hold up a wood block. Caution students that wood is the only object to use with the tuning fork. Holding the tuning fork by the handle, give it a smart rap on the wood block. Be sure to hit only one tine on the wood. To enhance the sound, put the butt of the handle firmly on a tabletop or other surface that will resonate with the vibrations of the tuning fork.



Demonstrate that the sound can be stopped by touching the tuning fork to stop the vibrations. Ask,

- ***Can you see the tuning fork vibrating when it is making sound?*** [No.]
- ***How could we confirm that the tuning fork is vibrating?*** [Try to make something else move with the sounding tuning fork.]

Demonstrate bringing the vibrating tuning fork gently up to an index card, a plastic cup, and other things suggested by students, to hear the buzz of the vibration.

Provide time for tuning–fork exploration

Have students work in pairs. Give students a moment to discuss a plan for confirming that the tuning fork is vibrating. Provide each pair with a tuning fork, wood block, cup, and index card. Let them investigate how to get the tuning fork to vibrate and to stop vibrating. Allow 5–8 minutes to explore.

Demonstrate tuning fork and water

Bring a full cup of water forward. Tell students this is a subtle demonstration so they should get right near the cup to make close observations. Give a tuning fork a good tap and thrust the tips of the tines quickly into the cup of water. Students up close will get sprayed with a spray of tiny water droplets. Ask students to describe what they observed. Encourage them to use cause–and–effect statements. If needed, ask,



- ***What caused the water droplets to fly out of the cup?*** [The motion of the vibrating tines.]

- ***What caused the table-tennis ball to bounce away?*** [The motion of the vibrating tines pushed the ball, making it move.]

Have a sense-making discussion

Gather students in a circle on the rug. Review each of these points and ask students to provide evidence for the statements (e.g., how do you know? or what did you observe?).

- Vibration is a kind of motion. It is a fast back-and-forth motion.
- Objects that vibrate make sound. Sound always comes from a sound source (object) that is vibrating.
- Sound stops when vibration stops.
- Objects can be made to vibrate many different ways, including hitting, plucking, and dropping.