Name: _____ Date: _____

Why a Humming Fork Gets Louder on a Table

Circle group

Strike a tuning fork on your knee. Hold it in the air. You hear a faint, pure note. Now touch the end of the handle to a tabletop. The sound gets much louder. It is as if someone turned up a volume knob. Nothing was added to the fork. So what changed?

Every sound starts with something vibrating. The two thin prongs of the fork swing back and forth many times each second. But the prongs are narrow. They push very little air with each swing. Your ear gets only a weak signal.

A tabletop is big and flat. When the handle touches it, the shaking goes into the wood. The whole surface shakes a little. A big surface pushes on much more air than a thin prong. So it sends out a stronger sound wave. The table works like a loudspeaker for the fork.

Instruments use the same idea. A guitar string alone is quiet. It passes its shaking to the hollow wooden body. The body shakes too and fills the room. But there is a catch. The fork has only so much energy. When it feeds the table, the energy is used up sooner. So the loud sound fades faster than the quiet one would have.

Questions

1. What do you hear when you hold a struck tuning fork in the air?

_____

_____

2. Why do the prongs of the fork push very little air?

_____

_____

3. What happens to the tabletop when the handle touches it?

_____

_____

4. Which part of a guitar does the same job as the table?

_____

_____

5. Why does the loud sound from the fork on a table fade faster?

_____

_____

6. Why do you think a guitar string alone sounds so quiet?

_____

_____

Words to know

tuning fork: a metal tool with two prongs that makes one pure note
vibrating: moving back and forth very quickly
prongs: the long, thin parts of a fork
loudspeaker: a device that makes sound louder
hollow: empty on the inside

Talk together (every group has these)

1. Find one fact that every group read. How did your sheet say it?
2. What did your sheet tell you that you think another group's did not? Ask them.
3. What is one question about this topic that none of the sheets answered?

Name: _____ Date: _____

Why a Humming Fork Gets Louder on a Table

Triangle group

Strike a tuning fork on your knee and hold it in the air. You will hear a faint, pure note. Now touch the end of its handle to a tabletop. Suddenly the sound gets much louder, as if someone had turned up a volume knob. Nothing was added to the fork, so what changed?

Every sound begins with something vibrating. The two thin prongs of the fork swing back and forth many times each second. But prongs are narrow, so they push very little air with each swing, and your ear receives only a weak signal.

A tabletop is large and flat. When the fork's handle touches it, the vibrations travel into the wood and make the whole surface shake a little. Because a big surface pushes on much more air than a thin prong does, it sends out a stronger sound wave. The table is working like a loudspeaker for the fork.

Musical instruments use the same idea. The strings of a guitar make only a quiet sound alone. They pass their vibrations to the hollow wooden body, which shakes along with them and fills the room. There is a catch, however. The fork has only so much energy to give. When it feeds the table, the energy is used up sooner, so the loud sound fades away faster than the quiet one would have.

Questions

1. What do you hear when you hold a struck tuning fork in the air?

_____

_____

2. Why do the prongs of the fork push very little air?

_____

_____

3. What happens to the tabletop when the fork's handle touches it?

_____

_____

4. Which part of a guitar does the same job as the table?

_____

_____

5. Why does the loud sound from the fork on a table fade away faster?

_____

_____

6. Why do you think a guitar string held by itself sounds so quiet?

_____

_____

Words to know

tuning fork: a metal tool with two prongs that makes one pure note
vibrating: moving back and forth very quickly
prongs: the long, thin parts of a fork
loudspeaker: a device that makes sound louder
hollow: empty on the inside

Talk together (every group has these)

1. Find one fact that every group read. How did your sheet say it?
2. What did your sheet tell you that you think another group's did not? Ask them.
3. What is one question about this topic that none of the sheets answered?

Name: _____ Date: _____

Why a Humming Fork Gets Louder on a Table

Square group

Strike a tuning fork against your knee and hold it up in the open air, and you will hear a faint, pure note. Now touch the end of its handle to a tabletop. Suddenly the sound swells to a much louder level, as if someone had turned up a volume knob. Nothing was added to the fork itself, so what could have changed?

Every sound begins with something vibrating. The two thin prongs of the fork swing back and forth many times each second. However, the prongs are very narrow, so they push only a tiny amount of air with each swing, and your ear receives just a weak signal.

A tabletop, by contrast, is large and flat. When the fork's handle touches it, the vibrations travel into the wood and cause the entire surface to shake a little. Because a big surface pushes on far more air than a thin prong does, it sends out a much stronger sound wave. In effect, the table works like a loudspeaker for the fork.

Musical instruments rely on the same principle. The strings of a guitar produce only a quiet sound on their own. They pass their vibrations along to the hollow wooden body, which shakes in sympathy with them and fills the whole room with sound. There is a catch, however. The fork has only so much energy to give. When it feeds the table, that energy is used up sooner, so the loud sound fades away faster than the quiet one would have.

Questions

1. What do you hear when you hold a struck tuning fork up in the open air?

_____

_____

2. Why do the prongs of the fork push only a tiny amount of air?

_____

_____

3. What happens to the tabletop when the fork's handle touches it?

_____

_____

4. Which part of a guitar does the same job as the tabletop?

_____

_____

5. Why does the loud sound of the fork on a table fade away faster?

_____

_____

6. Why do you think a guitar string held by itself sounds so quiet?

_____

_____

Words to know

tuning fork: a metal tool with two prongs that makes one pure note
vibrating: moving back and forth very quickly
prongs: the long, thin parts of a fork
loudspeaker: a device that makes sound louder
hollow: empty on the inside

Talk together (every group has these)

1. Find one fact that every group read. How did your sheet say it?
2. What did your sheet tell you that you think another group's did not? Ask them.
3. What is one question about this topic that none of the sheets answered?

For the teacher: Why a Humming Fork Gets Louder on a Table

Each student sheet carries a shape, not a level. The same topic and facts, written three ways.

Circle: Why a Humming Fork Gets Louder on a Table

Easier · 208 words · Flesch-Kincaid grade 2.6

1. A faint, pure note.
2. They are narrow.
3. The shaking goes into the wood and the whole surface shakes a little.
4. The hollow wooden body.
5. The fork's energy is used up sooner because it is feeding the table.
6. A thin string pushes very little air, like the thin prongs of the fork.

Triangle: Why a Humming Fork Gets Louder on a Table

This passage · 226 words · Flesch-Kincaid grade 4.9

1. A faint, pure note.
2. They are narrow.
3. The vibrations travel into the wood and the whole surface shakes a little.
4. The hollow wooden body.
5. The fork's energy is used up sooner because it is feeding the table.
6. A thin string pushes very little air, just like the thin prongs of the fork.

Square: Why a Humming Fork Gets Louder on a Table

Harder · 253 words · Flesch-Kincaid grade 6

1. A faint, pure note.
2. They are very narrow.
3. The vibrations travel into the wood and the entire surface shakes a little.
4. The hollow wooden body.
5. The fork's energy is used up sooner because it is feeding the table.
6. A thin string pushes only a little air, just like the thin prongs of the fork.