Name: _____ Date: _____

Why Water Glasses Play Different Notes

Circle group

Line up four glasses. Put a different amount of water in each. Tap each glass with a spoon. You hear four different notes. Why does the water change the sound?

All sounds start with vibrations. A vibration is a fast back-and-forth move. When you tap a glass, the glass wiggles fast. The wiggle pushes on the air. The moving air takes the sound to your ears.

Pitch is how high or low a sound is. It depends on how fast something vibrates. A fast vibration is a high note. A slow vibration is a low note.

Water is heavy. A glass with more water has more to move. So it vibrates slower. It makes a lower note. A glass with a little water vibrates faster. It makes a higher note.

A long guitar string vibrates slowly. It makes a low sound. A short string makes a high one. Try this with plastic glasses and ask a grown-up to help.

Questions

1. What do all sounds start with?

_____

_____

2. What does the wiggling glass push on?

_____

_____

3. What is pitch?

_____

_____

4. Which glass makes a lower note, the one with more water or less?

_____

_____

5. Why does a glass with more water vibrate slower?

_____

_____

6. What kind of guitar string makes a high sound?

_____

_____

Words to know

vibrations: very fast back-and-forth movements
pitch: how high or low a sound is

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 Water Glasses Play Different Notes

Triangle group

Line up four glasses and pour a different amount of water into each. Now tap each glass gently with a spoon. You will hear four different notes. Why does the amount of water change the sound?

All sounds begin with vibrations, which are quick back-and-forth movements. When you tap a glass, the glass wiggles very fast, and the wiggling pushes on the air around it. The moving air carries the sound to your ears.

Pitch is how high or low a sound seems. It depends on how fast something vibrates. A fast vibration makes a high note. A slow vibration makes a low note.

Water is heavy compared with air. When a glass holds more water, the glass has more to move, so it vibrates more slowly. A glass with a lot of water makes a lower note. A glass with only a little water vibrates faster and makes a higher note.

Musicians use a similar idea. A long guitar string vibrates slowly and makes a low sound, while a short string makes a high one. Be careful when you try this at home. Use plastic or sturdy glasses, and ask a grown-up to help.

Questions

1. What do all sounds begin with?

_____

_____

2. What does the wiggling glass push on to make sound reach your ears?

_____

_____

3. What is pitch?

_____

_____

4. Which glass makes a lower note, the one with more water or the one with less?

_____

_____

5. Why does a glass with more water vibrate more slowly?

_____

_____

6. What kind of guitar string makes a high sound?

_____

_____

Words to know

vibrations: very fast back-and-forth movements
pitch: how high or low a sound is
gently: in a soft, careful way
sturdy: strong and not easy to break

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 Water Glasses Play Different Notes

Square group

Arrange four glasses in a row and pour a different quantity of water into each one. Now tap every glass lightly with a spoon, and you will hear four distinct notes. Why should the amount of water alter the sound so noticeably?

All sounds originate from vibrations, which are rapid back-and-forth movements. When you tap a glass, the glass wiggles extremely quickly, and that wiggling pushes against the surrounding air. The moving air then carries the sound to your ears.

Pitch describes how high or low a sound seems, and it depends on how quickly something vibrates. A fast vibration produces a high note, whereas a slow vibration produces a low note.

Water is quite heavy compared with air. When a glass contains more water, there is more material for the glass to move, so it vibrates more slowly and makes a lower note. A glass holding only a little water vibrates faster and makes a higher note.

Musicians rely on a similar principle. A long guitar string vibrates slowly and gives a low sound, while a short string gives a high one. Use plastic or sturdy glasses if you try this at home, and ask a grown-up to help you.

Questions

1. What do all sounds originate from?

_____

_____

2. What does the wiggling glass push against to carry sound to your ears?

_____

_____

3. What does the word pitch describe?

_____

_____

4. Which makes a lower note, a glass with more water or a glass with less?

_____

_____

5. Why does a glass holding more water vibrate more slowly?

_____

_____

6. What kind of guitar string gives a high sound?

_____

_____

Words to know

vibrations: very fast back-and-forth movements
pitch: how high or low a sound is
sturdy: strong and not easy to break

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 Water Glasses Play Different Notes

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

Circle: Why Water Glasses Play Different Notes

Easier · 162 words · Flesch-Kincaid grade 1.8

1. Vibrations.
2. The air around it.
3. How high or low a sound is.
4. The one with more water.
5. Water is heavy, so the glass has more to move.
6. A short string.

Triangle: Why Water Glasses Play Different Notes

This passage · 198 words · Flesch-Kincaid grade 3.9

1. Vibrations.
2. The air around it.
3. How high or low a sound seems.
4. The one with more water.
5. Water is heavy, so the glass has more to move.
6. A short string.

Square: Why Water Glasses Play Different Notes

Harder · 204 words · Flesch-Kincaid grade 6.9

1. Vibrations.
2. The surrounding air.
3. How high or low a sound seems.
4. The glass with more water.
5. Water is heavy, so there is more material for the glass to move.
6. A short string.