Name: _____ Date: _____

The Instrument You Play Without Touching

Circle group

Picture a musician in front of a wooden box. It has a metal rod on one side and a loop on the other. The player never touches either one. The hands move in the air near them. Strange, gliding notes float out of nowhere. This is the theremin. It is one of the first electronic instruments. A Russian scientist named Leon Theremin invented it in the 1920s.

The trick is electricity. Inside the box, circuits make electrical signals. They move too fast to hear. Each antenna is part of a circuit. The human body can change the signal a little. When a hand moves close to the rod, the pitch changes. When the other hand moves near the loop, the volume changes. The circuit turns these changes into sound. The sound comes out of a speaker.

It is much harder than it looks. The theremin has no keys or marks. So the player needs a trained ear and steady muscles. A small wobble in the arm can bend a note. Students often stand in the same spot each time. The position of the body can change the sound.

The theremin was used in film music. Its wavering tones fit science fiction and mystery scenes. It can slide smoothly between notes. So it can sound a bit like a voice or a violin. But it has no strings or pipes.

Questions

1. Who invented the theremin?

_____

_____

2. What do the metal rod and the loop control?

_____

_____

3. Why is the theremin hard to play?

_____

_____

4. What kind of scenes did the theremin fit in films?

_____

_____

5. Why do students stand in the same spot each time they practice?

_____

_____

6. Why might the theremin sound a bit like a violin or a voice?

_____

_____

Words to know

theremin: an electronic instrument played without touching it
antenna: a metal part that sends or receives electrical signals
circuit: a path that electricity flows along
wavering: shaking or changing in a gentle, unsteady way

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: _____

The Instrument You Play Without Touching

Triangle group

Imagine a musician standing in front of a wooden box with a metal rod on one side and a loop on the other. The performer never touches either one. Instead, the hands move through the air near them, and eerie, gliding notes seem to float out of nowhere. This is the theremin, one of the earliest electronic instruments, which was invented in the 1920s by a Russian scientist named Leon Theremin.

The trick lies in electricity. Inside the box, circuits make electrical signals that rise and fall too quickly to hear. Each antenna is part of a circuit, and the human body can slightly change the signal around it. When a hand moves closer to the rod, the pitch changes, and when the other hand approaches the loop, the volume changes. Another part of the circuit turns the changes into a sound that comes out of a speaker.

Playing it is much harder than it looks. The instrument has no keys, frets or marks to show where each note lives, so the player must rely on a trained ear and steady muscles. Even a small wobble in the arm can bend a note out of tune. Many students practice by standing in the same spot each time, since the position of the whole body can affect the sound.

The theremin made its way into film music, where its wavering tones suited science fiction and mystery scenes. Today, musicians still enjoy its unusual voice. Because it can slide smoothly between notes, it can sound a little like a singing voice or a violin, even though no strings or pipes are involved.

Questions

1. Who invented the theremin?

_____

_____

2. What do the metal rod and the loop control?

_____

_____

3. Why is the theremin hard to play?

_____

_____

4. What kind of scenes did the theremin suit in films?

_____

_____

5. Why do students stand in the same spot each time they practice?

_____

_____

6. Why might the theremin sound a little like a violin or a voice?

_____

_____

Words to know

theremin: an electronic instrument played without touching it
antenna: a metal part that sends or receives electrical signals
circuit: a path that electricity flows along
eerie: strange and a little spooky
wavering: shaking or changing in a gentle, unsteady way

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: _____

The Instrument You Play Without Touching

Square group

Imagine a musician standing before a wooden cabinet that has a metal rod rising from one side and a looped wire curving from the other. The performer never touches either one. Instead, the hands sweep through the empty air nearby, and eerie, gliding notes seem to float out of nowhere. This is the theremin, one of the earliest electronic instruments, which was invented in the 1920s by a Russian scientist named Leon Theremin.

The secret lies in electricity. Inside the cabinet, circuits generate electrical signals that rise and fall far too quickly to be heard. Each antenna forms part of a circuit, and the human body is able to alter the surrounding signal very slightly. When a hand approaches the rod, the pitch changes, and when the other hand nears the loop, the volume changes. Another section of the circuit converts these changes into a sound that is delivered through a speaker.

Playing it is considerably harder than it appears. The instrument has no keys, frets or markings to show where each note lives, so the player must depend on a well-trained ear and steady muscles. Even a slight tremble in the arm can pull a note out of tune. Many students practice by standing in precisely the same spot every time, since the position of the whole body can influence the sound.

The theremin found its way into film music, where its wavering tones were well suited to science fiction and mystery scenes. Musicians still treasure its unusual voice today. Because it can glide smoothly between notes, it can resemble a singing voice or a violin, even though no strings or pipes are involved.

Questions

1. Who invented the theremin?

_____

_____

2. What do the metal rod and the loop control?

_____

_____

3. Why is the theremin so hard to play?

_____

_____

4. What kinds of scenes did the theremin suit in films?

_____

_____

5. Why do students practice standing in the same spot each time?

_____

_____

6. Why might the theremin resemble a violin or a singing voice?

_____

_____

Words to know

theremin: an electronic instrument played without touching it
antenna: a metal part that sends or receives electrical signals
circuit: a path that electricity flows along
eerie: strange and a little spooky
wavering: shaking or changing in a gentle, unsteady way

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: The Instrument You Play Without Touching

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

Circle: The Instrument You Play Without Touching

Easier · 229 words · Flesch-Kincaid grade 3.3

1. A Russian scientist named Leon Theremin.
2. The rod controls pitch and the loop controls volume.
3. It has no keys or marks, so players need a trained ear and steady muscles.
4. Science fiction and mystery scenes.
5. The position of the body can change the sound.
6. It can slide smoothly between notes instead of jumping.

Triangle: The Instrument You Play Without Touching

This passage · 270 words · Flesch-Kincaid grade 7.6

1. A Russian scientist named Leon Theremin.
2. The rod controls pitch and the loop controls volume.
3. It has no keys, frets or marks, so players rely on a trained ear and steady muscles.
4. Science fiction and mystery scenes.
5. The position of the whole body can change the sound.
6. It can slide smoothly between notes instead of jumping from one to another.

Square: The Instrument You Play Without Touching

Harder · 276 words · Flesch-Kincaid grade 9

1. A Russian scientist named Leon Theremin.
2. The rod controls the pitch and the loop controls the volume.
3. It has no keys, frets or markings, so players depend on a trained ear and steady muscles.
4. Science fiction and mystery scenes.
5. The position of the whole body can influence the sound.
6. It can glide smoothly between notes instead of jumping from one to the next.