Name: _____ Date: _____

Playing the Theremin Without Touching It

Circle group

Most instruments need a player to pluck, blow, or hit them. The theremin is not like that. A player moves both hands in the air. The player never touches the instrument at all.

A theremin has two metal antennas. One is a straight rod. The other is a loop shaped like a handle. The rod controls pitch. Pitch is how high or low a note is. When a hand moves close to the rod, the note goes up. When the hand moves away, the note goes down. The loop controls volume. When the other hand moves close to the loop, the sound gets softer. When it moves away, the sound gets louder.

The antennas do not feel your hand. They send out invisible electric fields. A hand nearby changes the signals in the box a little. The box turns those small changes into a sound. The sound wobbles and glides, like a singer or a violin.

A Russian scientist invented the theremin about one hundred years ago. It is hard to play well. Nothing marks where each note is. A player must learn the spots in empty air. A small shake of a finger can change the tune.

Questions

1. What does a player never do with a theremin?

_____

_____

2. What does the rod antenna control?

_____

_____

3. What happens to the sound when a hand moves close to the loop?

_____

_____

4. How do the antennas know where the hands are?

_____

_____

5. Why is the theremin hard to play well?

_____

_____

6. Who invented the theremin?

_____

_____

Words to know

antennas: metal parts that send out or pick up signals
pitch: how high or low a sound is
volume: how loud or soft a sound is
electric: having to do with electricity
invented: made or thought of for the first time

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: _____

Playing the Theremin Without Touching It

Triangle group

Most instruments need a player to pluck, blow, or strike. The theremin is different. A player makes music by moving both hands in the air, and never touches the instrument at all.

A theremin has two metal antennas. One is a straight rod that stands up from the side of the box. The other is a loop shaped like a handle. The rod controls pitch, which means how high or low a note is. When a player moves a hand closer to the rod, the note rises. When the hand moves away, the note falls. The loop controls volume. Moving the other hand closer to the loop makes the sound softer, and pulling it away makes the sound louder.

The antennas do not feel your hand. Instead, they send out invisible electric fields, and the closeness of a hand slightly changes the signals inside the box. The electronics turn those tiny changes into a sound that wobbles and glides, a little like a singer or a violin.

The theremin was invented by a Russian scientist about one hundred years ago. It is very hard to play well, because nothing marks where each note is. A player has to learn the exact spots in empty air, and a small shake of the finger can change the tune.

Questions

1. What does a player never do with a theremin?

_____

_____

2. What does the rod antenna control?

_____

_____

3. What happens to the sound when a hand moves closer to the loop?

_____

_____

4. How do the antennas know where the hands are?

_____

_____

5. Why is the theremin hard to play well?

_____

_____

6. Who invented the theremin?

_____

_____

Words to know

antennas: metal parts that send out or pick up signals
pitch: how high or low a sound is
volume: how loud or soft a sound is
electric: having to do with electricity
invented: made or thought of for the first time

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: _____

Playing the Theremin Without Touching It

Square group

Most instruments require a player to pluck, blow, or strike them, but the theremin is entirely different. A musician creates sound simply by moving both hands through the air, without ever touching the instrument.

A theremin has two metal antennas. One is a straight rod that rises from the side of the cabinet, and the other is a loop shaped somewhat like a handle. The rod controls pitch, meaning how high or low a note sounds. As a player brings a hand closer to the rod, the note rises, and as the hand moves away, the note falls. The loop governs volume: moving the other hand toward the loop makes the sound softer, while pulling it back makes the sound louder.

The antennas cannot actually feel a hand. Instead, they send out invisible electric fields, and the nearness of a hand slightly alters the signals inside the cabinet. The electronics convert those tiny changes into a sound that wobbles and glides, somewhat like a singer or a violin.

A Russian scientist invented the theremin roughly one hundred years ago. It is notoriously difficult to master, because nothing marks the location of each note. A player must memorize exact positions in empty air, and even a slight tremble of a finger can alter the tune.

Questions

1. What does a musician never do with a theremin?

_____

_____

2. What does the rod antenna control?

_____

_____

3. What happens to the sound as a hand moves closer to the loop?

_____

_____

4. How do the antennas detect where the hands are?

_____

_____

5. Why is the theremin notoriously difficult to master?

_____

_____

6. Who invented the theremin, and when?

_____

_____

Words to know

antennas: metal parts that send out or pick up signals
pitch: how high or low a sound is
volume: how loud or soft a sound is
electric: having to do with electricity
invented: made or thought of for the first time

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: Playing the Theremin Without Touching It

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

Circle: Playing the Theremin Without Touching It

Easier · 198 words · Flesch-Kincaid grade 2.5

1. Touch it.
2. The pitch, which is how high or low the note is.
3. The sound gets softer.
4. A hand changes the invisible electric fields around the antennas a little.
5. Nothing marks where each note is, so a player must learn the spots in the air.
6. A Russian scientist, about one hundred years ago.

Triangle: Playing the Theremin Without Touching It

This passage · 216 words · Flesch-Kincaid grade 5

1. A player never touches it.
2. The pitch, or how high or low the note is.
3. The sound gets softer.
4. The hands slightly change the invisible electric fields around the antennas.
5. Nothing marks where each note is, so the player must learn the spots in empty air.
6. A Russian scientist, about one hundred years ago.

Square: Playing the Theremin Without Touching It

Harder · 214 words · Flesch-Kincaid grade 8.5

1. Touch it.
2. The pitch, meaning how high or low a note sounds.
3. The sound becomes softer.
4. A nearby hand slightly alters the invisible electric fields around the antennas.
5. Nothing marks where each note is, so players must memorize exact positions in empty air.
6. A Russian scientist, roughly one hundred years ago.