Lesson Objective:
Students will learn about how sound is caused by vibration and how that relates to musical qualities.

21st Century Skills:
• Creativity
• Collaboration

Content Standards:
NGSS.1.PS4.1.
Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate. Students will explore a variety of instruments to discover how vibrating materials create sound.

Arts Standards:
MU:Pr4.3.1.
Demonstrate and describe music’s expressive qualities (such as dynamics and tempo). Students will work with instruments to demonstrate ways of creating different levels of pitch and volume through the vibration of instruments.

Essential Questions:
How can students learn about sound vibrations through exploration of musical instruments?

Warm-Up Options - 10 Min
Pick from any of the warm-ups below. Directions for the warm-ups are in the back of this lesson packet.
• 24- 1,2,3 Echo Me
• 25- Animal Sounds
• 26- Chewing Words
• 27- Dynamics
• 28- Finger Stretching
• 29- Listening to Rhythm
• 30- Solfege
• 31- Voice Shapes
• 32- Watch the Ball
Lesson Sequence:
The musical renaissance occurred years after the artistic one had begun and brought about a change in the types of musical instruments being used. The style of music shifted during this time to have a greater focus on the royal courts and personal expression (whereas prior music mainly focused on God and religion). Opera was developed during this time as an attempt to revive the music of ancient Greece. Many new instruments were developed during this time, including the violin, guitar, lute, and keyboard.

Set-Up: Before this lesson begins move the students’ desks into small groups and place various instruments on each of the desks.

STEP 1
Begin by gathering students in a common area (like the story carpet). Ask students to discuss how sound is created. Allow students to offer their ideas and record all ideas on the board or on a large sheet of paper.

The teacher should call on a student volunteer to come nearby. As the teacher plays an instrument, the student should look closely to see if they can see the vibration of the instrument.

Next, have a student place a hand on the instrument as the teacher plays it to see if they are able to feel the vibration.

Artful Thinking Routine
I Hear, I Think, I Wonder Routine. The students will use this routine to analyze the Italian Ottavino Spinet being played in this clip. Have students listen to about 30 seconds of this instrument being played.

- What do you hear?
- What do you think about what you hear?
- What do you wonder about this instrument?
STEP 2

Next have students watch the video clip demonstrating the renaissance instrument called the spinet, and complete the accompanying artful thinking activity.

Discuss with students the musical principles of volume and pitch and how those are created and changed. (Pitch can be modified through the thickness of a string, tension of the string, and length of the string). Show the link to this video to demonstrate these principles.

STEP 3: Main Activity/Project

**Instrument Petting Zoo:** Next, gather students into groups and have students rotate from station to station together.

At each station, students should try out the instrument and try to answer the question “How does this instrument make sound?”

Allow students to spend 3-5 minutes at each station before cueing rotation.

**Ask:** Can you change the pitch or volume of any of the instruments? How?
STEP 4

Have all students return to their seats and collect the instruments.

Distribute index cards (1 per student). Instruct students to write one word on their index card that describes how sound is created.

Then have a student collect all the cards.

Work as a class to tape the cards to the board in a creative order to form a poem about sound vibration.

Teacher To Teacher

We don’t recommend playing background music during this lesson because of the focus on auditory learning. However, this video provides great background renaissance music played on the lute which can be utilized for future lessons.
# TEACHER SCORING GUIDE

Use the scoring guide below to assess students participation and performance in this Renaissance Art activity.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Distinguished (Level 4)</th>
<th>Excelled (Level 3)</th>
<th>Adequate (Level 2)</th>
<th>Basic (Level 1)</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>The student is an active participant in the Instrument Petting Zoo station rotations.</em></td>
<td>The student tries playing different instruments and offers various ideas regarding how to answer the questions posed by the teacher.</td>
<td>The student tries playing different instruments and shares observations with their group.</td>
<td>The student tries playing some of the instruments and listens carefully to group members thoughts and ideas.</td>
<td>The student does not take an active role in the station rotation activity.</td>
</tr>
<tr>
<td><em>The student makes connections between vibrations causing sound and sound making materials vibrate.</em></td>
<td>The student draws creative connections between sound and vibration and participates in active self-directed discovery.</td>
<td>The student explores the instruments and listens carefully to the observations made by group members. The student draws some connections between vibration and sound.</td>
<td>The student explores the instruments and draws a few connections between vibration and sound.</td>
<td>The student does not yet draw any connections between vibration and sound.</td>
</tr>
<tr>
<td><em>The student is able to demonstrate and describe the ways instruments can change pitch and volume.</em></td>
<td>The student understands the ways in which instruments can change pitch and volume.</td>
<td>The student mainly understands the ways in which instruments can change pitch and volume.</td>
<td>The student struggles to understand the ways an instrument can create sounds at different levels of pitch and volume.</td>
<td>The student is not yet able to understand the ways instruments create sounds at different levels of pitch and volume.</td>
</tr>
</tbody>
</table>
Student Name: ________________________________  Date: ____________

DIRECTIONS

Teacher: Read aloud the following questions before beginning the lesson. Give this same assessment at the end of the lesson.

Students: Listen to the questions and check box A, B, or C for your answer.

1. How is sound created?
   a. Through gravity
   b. Through vibration
   c. Through stillness

2. Which statement is true?
   a. Vibration creates sound
   b. Sound can create vibration
   c. Both of the above

3. How can you change the pitch of sound on an instrument?
   a. Play the strings with more force
   b. Tighten or loosen the string
   c. Use a microphone

4. How can you change the volume of sound on an instrument?
   a. The size of the strings on the instrument can change the volume
   b. Use a funnel
   c. Play the strings with more force, or hit the percussion instrument with more force
<table>
<thead>
<tr>
<th>Station Number</th>
<th>Type of Instrument (Circle One)</th>
<th>How does this instrument make sound?</th>
<th>How can I change the sound this instrument makes? (pitch, volume)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Station 1</td>
<td>String</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Percussion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Station 2</td>
<td>String</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Percussion</td>
<td></td>
<td></td>
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<tr>
<td>Station 3</td>
<td>String</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Percussion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Station 4</td>
<td>String</td>
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<td></td>
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<tr>
<td></td>
<td>Percussion</td>
<td></td>
<td></td>
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<tr>
<td>Station 5</td>
<td>String</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Percussion</td>
<td></td>
<td></td>
</tr>
</tbody>
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