Lesson Objective:
Students will explore the conversion of mechanical energy to sound through surrealist music.

21st Century Skills:
- Creativity
- Flexibility
- Critical Thinking

Content Standards:

NGSS 4-PS3-2:
Develop a model of waves to describe patterns in terms of amplitude and wavelength and that waves cause objects to move. Students will create and chart wave amplitude while writing music to develop a relationship between the sound and wavelength.

MU:Cr.1.1.4.:
Demonstrate selected and organized musical ideas for an improvisation, arrangement, or composition to express intent, and explain connection to purpose and context. By juxtaposing music of different pitch and dynamics, students organize an original composition in the context of Surrealist music.

Essential Questions:
How can we graph the dynamics of an original musical composition?

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:

Surrealist music combines existing works, styles, and types of music, interlacing them together to form unexpected juxtapositions. In this lesson students will learn about how amplitude can be recorded through graphing.

1 **STEP 1**

Define the term *juxtapose* and inform students that surrealist music involved placing two dissimilar sounds (in rhythm, pitch, or dynamics) next to each other in a song.

Use the Artful Thinking Routine listed below to introduce the work of Erik Satie, a composer who inspired the Surrealist movement.

Discuss ways in which we can record sound waves (electronically, through musical notation, and written form).

Ask: What type of dynamics would you expect to hear at a rock concert? What about at a classical concert?

**Artful Thinking Routine**

I Hear, I Think, I Wonder Routine. Listen to the first minute of Erik Satie's *Gymnopedie* and answer the following questions.

- What do you hear?
- What does it make you think?
- What does it make you wonder?
STEP 2

Use the Amplitude Resource page to provide direct instruction regarding the relationship pitch, dynamics, and wave amplitude.

Play some examples of sounds and have students create approximate graphs of the sounds they hear. Explain that the louder the music the farther from the x axis the wave will rise. The higher the pitch, the closer together the wave lengths will be.

Review the results of the students graphs as a class.

STEP 3: Main Activity/Project

Divide students into small groups and instruct each group to create a 3-part song that juxtaposes sounds of different pitch and dynamics.

Each song will be 24 beats total, or 6 measures long.

Have students use graph paper and pencils to chart their song by recording the approximate wavelength and height of the different parts of their song on the Satie and Sound worksheet page.

Estimated Time: 25 minutes
STEP 4

Have students create an artist’s reflection by responding to the following idea: Satie referred to himself as a phonometrician, or “someone who measures sounds.”

How is that an appropriate title for a composer?

Teacher To Teacher

Students need to be able to create pitch so be sure to include instruments in their percussion boxes that will allow this to occur.

- Chimes
- Xylophones
- Hand bells
## TEACHER SCORING GUIDE

Use this scoring guide to provide consistency in assessing student compositions.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Distinguished (Level 4)</th>
<th>Exelled (Level 3)</th>
<th>Adequate (Level 2)</th>
<th>Basic (Level 1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The student composition juxtaposes music of different pitch and dynamics.</td>
<td>The students demonstrate thoughtful juxtaposition of 3 pieces of music with different pitch and dynamics to create a unified composition.</td>
<td>The students mainly demonstrate thoughtful juxtaposition of 3 pieces of music with different pitch and dynamics to create a composition.</td>
<td>The students demonstrate some thoughtful juxtaposition of 3 pieces of music with some different pitch and dynamics to create a composition.</td>
<td>The students demonstrate little to no thoughtful juxtaposition of pitch and dynamics to create a composition.</td>
</tr>
<tr>
<td>The students are able to accurately measure pitch through graphing approximate wavelength.</td>
<td>The students demonstrate approximate representation of pitch by drawing wavelengths that correlate with their composition.</td>
<td>The students mainly demonstrate approximate representation of pitch by drawing wavelengths that correlate with their composition.</td>
<td>The students demonstrate pitch somewhat correctly by drawing wavelengths that correlate with the composition.</td>
<td>The students do not accurately approximate the pitch of their composition.</td>
</tr>
<tr>
<td>The students are able to accurately measure dynamics through graphing approximate wave height.</td>
<td>Students approximate the dynamics of our music correctly by drawing shallow and deep waves on each graph that correlate with their composition.</td>
<td>Students mainly approximate the dynamics of our music correctly by drawing shallow and deep waves on each graph that correlate with their composition.</td>
<td>Students approximate some of the dynamics of our music correctly by drawing shallow and deep waves on each graph that correlate with their composition.</td>
<td>Students do not accurately approximate the dynamics of their composition.</td>
</tr>
<tr>
<td>The students worked together to create and graph their composition.</td>
<td>The student team shared active roles in the creation and graphing of their piece.</td>
<td>The student team mainly shared active roles in the creation and graphing of their piece.</td>
<td>The student team shared some of the tasks in the creation and graphing of their piece.</td>
<td>The student team neglected to share active roles in the creation and graphing of their piece.</td>
</tr>
</tbody>
</table>
**STUDENT SCORING GUIDE**

Use this rubric to help guide your work and to reflect on your completed compositions and graphs.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Distinguished (Level 4)</th>
<th>Excellled (Level 3)</th>
<th>Adequate (Level 2)</th>
<th>Basic (Level 1)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>My composition juxtaposes music of different pitch and dynamics.</strong></td>
<td>We demonstrate thoughtful juxtaposition of 3 pieces of music with different pitch and dynamics to create a unified composition.</td>
<td>We mainly demonstrate thoughtful juxtaposition of 3 pieces of music with different pitch and dynamics to create a composition.</td>
<td>We demonstrate some thoughtful juxtaposition of 3 pieces of music with some different pitch and dynamics to create a composition.</td>
<td>We demonstrate little to no thoughtful juxtaposition of pitch and dynamics to create a composition.</td>
</tr>
<tr>
<td><strong>We am able to accurately measure pitch through graphing approximate wavelength.</strong></td>
<td>We demonstrate approximate representation of pitch by drawing wavelengths that correlate with our composition.</td>
<td>We mainly demonstrate accurate representation of pitch by drawing wavelengths that correlate with our composition.</td>
<td>We demonstrate some of the pitch by correctly drawing wavelengths that correlate with our composition.</td>
<td>We do not accurately approximate the pitch of our composition.</td>
</tr>
<tr>
<td><strong>We are able to accurately measure dynamics through graphing approximate wave height.</strong></td>
<td>We approximate the dynamics of our music correctly by drawing shallow and deep waves on each graph that correlate with our composition.</td>
<td>We mainly approximate the dynamics of our music correctly by drawing shallow and deep waves on each graph that correlate with our composition.</td>
<td>We approximate some of the dynamics of our music correctly by drawing shallow and deep waves on each graph that correlate with our composition.</td>
<td>We do not accurately approximate the dynamics of our composition.</td>
</tr>
<tr>
<td><strong>We worked together to create and graph our composition.</strong></td>
<td>My team and I shared active roles in the creation and graphing of our piece.</td>
<td>My team and I mainly shared active roles in the creation and graphing of our piece.</td>
<td>My team and I shared some of the tasks in the creation and graphing of our piece.</td>
<td>My team and I neglected to share active roles in the creation and graphing of our piece.</td>
</tr>
<tr>
<td>Dynamics</td>
<td>Pitch</td>
<td></td>
<td></td>
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<tr>
<td>----------</td>
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<td></td>
<td></td>
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</tr>
<tr>
<td><strong>Quiet</strong></td>
<td><img src="image" alt="Short Wavelength" /> <strong>High Pitch</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Loud</strong></td>
<td><img src="image" alt="Long Wavelength" /> <strong>Low Pitch</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Identify the graphs below as having quiet, medium, or loud dynamics. Then decide if each graph is high, medium or low pitch.
Part 1: Pitch/Dynamics

Instrument:

8 count measure

Part 2: Pitch/Dynamics

Instrument:
Part 3: Pitch/Dynamics

Instrument: