

## Physics of Musical Instruments

Choose an acoustic musical instrument to investigate.

Present your information in any format you prefer.

### Questions to answer include:

- How is the sound created in this instrument?
- How are different notes made?
- How do you tune this instrument? What does tuning do/how does it change the sound?
- How is the sound amplified?

These are suggestions. Feel free to add to this list! Your presentation should be as thorough as possible.

### Suggested terms to include:

If there are terms important to your instrument that are not on this list, add them! If some of these terms don't apply, exclude them.

- Resonance
- Standing waves
- Wave impedance
- Harmonics
- Overtones
- Beats
- Constructive/destructive interference
- Natural frequency
- Timbre
- Open/closed tube

### Sources:

Cite all of the sources you used in MLA format. Plagiarism will result in a 0 for the entire project.

<b>Category</b>	<b>100%</b>	<b>75%</b>	<b>50%</b>	<b>25%</b>
<b>Knowledge of sound physics</b> (30 pts)	Demonstrates a complete understanding of the physics of sound. Explanations include relevant examples.	Demonstrates a mostly complete understanding of the physics of sound. Explanations include examples.	Somewhat demonstrates an understanding of the physics of sound. No explanations included.	Explanation attempted. Understanding not demonstrated.
<b>Knowledge of sound as related to instrument</b> (30 pts)	Demonstrates a complete understanding of the instrument and how the sound is created and changed. Explanations include relevant examples.	Demonstrates a mostly complete understanding of the instrument and how the sound is created. Explanations include examples.	Somewhat demonstrates an understanding of the instrument and how the sound is created. No explanations included.	Explanation attempted. Understanding not demonstrated.
<b>Organization and transition</b> (15 pts)	Organization is exceptional. Entire project flows smoothly.	Project is organized. Somewhat jumpy between topics.	An attempt has been made at organization and transition between topics.	Organization very weak. No transition efforts made.
<b>Presentation/publishing</b> (15 pts)	Neatly done. Best effort is evident.	A good attempt.	On the verge of being a mess. Careless work.	Almost no effort expended.
<b>Sources</b> (10 pts)	Sources cited using MLA format.			