**Create Your Own Musical Instrument Project**

Humans have been making and playing musical instruments for thousands of years. New instruments are invented, and existing instruments are modified to produce different sounds. Probably many cultures have used a hollow log as a simple drum. Many instruments are based on vibrating strings. One category of instrument, horns, depends on the vibrating lips of the player to create sound. Other instruments use vibrating reeds. The many flutelike instruments create a sound by causing a column of air to vibrate. In this project, you will design, build, and test your own musical instrument. At the end of the project, you will demonstrate your project in a class demonstration.

**Project Rules**

* You must be able to demonstrate how to change the **intensity** (loudness) and **pitch** of the sound of your instrument
* Your instrument must be durable enough to be used repeatedly
* Your instrument must be made of *safe materials*. Cover any sharp edges with tape.
* You may not use electricity in your instrument in any way.
* Loud sounds can damage hearing. Do not play your instrument too near students’ ears.
* You must demonstrate in a class presentation.
* Bonus points will be awarded if a student can play a recognizable tune/song using their instrument

**Suggested Materials**

You may use almost anything to build your musical instrument, such as different sizes of rubber bands, cardboard boxes, different lengths of cardboard tubes or plastic pipes, string, wooden craft stick or tongue depressors, drinking straws, and bottles. Practically anything can be incorporated into a musical instrument. Your instrument cannot be made of musical instruments or toys that were already designed to make noise.

**Musical Instrument Explanation Notecards** (4x6 or ½ sheets of paper)

Include the following vocabulary terms: *sound, wave, energy, vibration, amplitude, volume, frequency, pitch,* and *medium*.

**Card 1 – Introduction**

* What type of instrument did you make? Is it an original design or similar to instruments that already exist? To what group of instruments does your instrument belong (wind, string, or percussion)?
* What materials did you use to create your project?
* Why did you choose these materials? What makes them good materials to transfer sound waves?

**Card 2 – Sound**

* How does your instrument create sound waves?
* How can you increase the amplitude of the sound wave produced from your instrument?
* How can you change the pitch of the sound wave from your instrument?
* What medium are the sound waves traveling through?

**Card 3 – Diagram**

* Create a diagram of your instrument that labels all the key parts.
* You should also label how the initial vibration is created and how the instrument can be “played” to change the note.
* You should use this diagram in your presentation to the class.

**Project Hints**

* Think about whether you will want to play your instrument by blowing into it, strumming it, striking it, or by some other method.
* Be creative! Don’t limit yourself to the materials suggested by your teacher. Part of your teacher’s assessment of your project will be based on originality.
* As you decide on your design of your instrument, remember that you will need to play at least three different notes (pitches) to it must be adjustable yet durable.

**Scoring Rubric**

**Functionality and Durability**

**1 2 3 4 5 6 7 8 9 10**

**Explanation Cards (Neat, Complete and Accurate)**

**1 2 3 4 5 6 7 8 9 10**

**Presentation (Loud, Clear, Accurate and Engaging)**

**1 2 3 4 5 6 7 8 9 10**

**EXTRA CREDIT – (Playing a song on the instrument)**

**DUE DATE \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Planning Your Musical Instrument**

Having trouble getting started? The following tasks will HELP you start the design phase of this project.

1. Brainstorm all the ways you can think of that musical instruments make and modify sound. You might want to begin with instruments that are familiar to you, either because you or someone you know plays them, or because music you like is played on them. Then think of instruments you may not know as much about. As you brainstorm, you may find it helpful to classify instruments into categories, such as instruments with a mouthpiece and instruments in which strings make the sound. Finally, try to think of ways to make and modify sound that may not be used in a conventional instrument.
2. Draw a diagram of your proposed instrument. Be sure to label its parts, and the materials you will use.
3. How will you play your instrument? Exactly how will your instrument make sounds? What will vibrate to create sound waves? How will your instrument make sounds of different pitch and volume?
4. Make detailed notes on the construction of your instrument. Will you need to use other materials for certain parts of your instrument? How will the parts fit together? Will you need glue or special tools to make your instrument?

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