Musical Instrument Project

Scene Set: Students are hired to play background music for a movie using home-made instruments.

TEKS:

5D: demonstrate the application of acoustic principles such as echolocation, musical instruments, noise pollution and sonograms.
5B: demonstrate wave interactions including interference, polarization, reflection, refraction and resonance within various materials**.**
5A: demonstrate wave types and their characteristics.

Purpose: You will apply what you have learned about the properties of sound and acoustics to build a musical instrument that can play at least six notes on pitch. You will play a song on your instrument to demonstrate how you can change the instrument's pitch and loudness.

Materials: You will build your instrument with inexpensive materials such as fishing line and plastic tubes. Your teacher will try to supply books on musical instruments borrowed from a library and you will have the chance to do Internet searches for ideas for your musical instrument.

Procedure:

Musical Instrument Project Instructions

1. You are in charge of constructing a musical instrument. You can get help from family members, especially if tools, such as saws need to be used.
2. Your instrument can be a string, percussion or wind instrument.
3. Your instrument cannot use parts from other musical instruments.
4. If you play an instrument, pick another type of instrument to construct for this project.
5. You must play a scale of eight notes on your instrument: C, D, E, F, G, A, B, C.
6. You must play a song using at least six musical notes.
7. Prepare a short oral presentation to the class, explaining how you built your instrument, how your instrument works to change pitch and loudness, and the problems that you had in building your musical instrument. You must also tell the class where you found the idea for your instrument. Use a poster with pictures and diagrams or a computer slide show with pictures and drawings of your project in progress.

Once More For Safety: Use protective eye wear if you are cutting materials for your project. Let family members help you with tools. This project is yours, but safety is important.

Cut, Print and Wrap: Reminders for the day of the presentation:

1. Show your instrument to the class.
2. Play at least eight musical notes to the class.
3. Play the required song that uses at least six musical notes.

4. When you are finished playing your song, answer the following questions in your oral presentation to the class. You should use a poster or computer slide show in your presentation:

A. How did you build your instrument?
B. How did you change the loudness and pitch of your instrument.
C. What problems did you overcome when you were making your instrument?
D. Where did you get the idea and instructions for building your instrument? This would include the title of the book or the Internet web site.
E. On your poster or in your slide show you should include diagrams and pictures of building your instrument and anything that would make your presentation interesting to the class.

Check List

Oral Presentation:

_____ 1. The musical instrument was shown to the class.
_____ 2. You played at least eight musical notes on your instrument.
_____ 3. You played a song that uses at least six musical notes.
_____ 4. Your musical notes were pretty close to correct pitch.
_____ 5. During your presentation you explained how you built your instrument.
_____ 6. During your presentation, you explained how you changed your instrument's pitch.
_____ 7. During your presentation, you explained how you changed your instrument's loudness.
_____ 8. During your presentation, you explained any problems that you encountered when you were making your instrument.
_____ 9. Your poster/computer slide show included diagrams and/or pictures of your musical instrument as you built it.
____ 10. Your instrument played more than eight different musical notes.
____ 11. You played a more difficult song in addition to the required song.

Elaboration:

1. Did you hear destructive and constructive interference when instruments were played?
2. Describe how resonance is essential to building musical instruments.
3. Summarize the characteristics of sound waves based on this unit and project.