

Physics Musical Instrument Project (110 points)



Objectives:

1. To design and build a musical instrument.
2. To play the instrument and describe how it works.
3. To write a report that explains the physics of the instrument.

Time:

~4 weeks-

Check Point	Due date	Points
Design Plan	November 25	20
Construction	December 4	30
Demonstration	December 11-12	20
Written report	December 19	40
	TOTAL	110

Examples of instruments:

Flute, xylophone, banjo, electric guitar, trumpet, other

Examples of Materials to use:

PVC pipe, plywood, plexiglass, wire, glue, nails, screws, others

- **You are required to provide your own materials.**

Group size:

You may work by yourself or with one partner.

Demonstration of Instrument

Play instrument for your classmates.

Resources:

<http://www3.telus.net/ereiswig/>

www.pinterest.com

www.youtube.com

www.google.com

“How to build a _____” will yield specific examples for you.

Requirements

You may create your own instrument.
Must be made of safe materials!!

Design Plan (20 pts)

	Max Points	Self-assessed	Teacher assessed
Instrument name	1		
Visual of instrument: scaled sketch with dimensions included	10		
Materials lists & cost estimate	5		
Resources utilized thus far (be specific)	4		
TOTAL	20		

Construction (30 pts)

	Max Points	Self-assessed	Teacher assessed
A photograph of YOUR instrument up to this point.	5		
calculations	10		
aesthetics of instrument - sturdy, neat, school appropriate	5		
log book up to this point. Clearly written list of each student's daily contributions (typed)	10		
TOTAL	30		

Demonstration (20 pts)

	Max Points	Self-assessed	Teacher assessed						
Change loudness of sound	5								
Playing the instrument	15								
<table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td>Plays one note</td> <td>13 pts</td> </tr> <tr> <td>Plays 2 or 3 notes</td> <td>14 pts</td> </tr> <tr> <td>Plays 4-6 notes</td> <td>15 pts</td> </tr> </table>	Plays one note	13 pts	Plays 2 or 3 notes	14 pts	Plays 4-6 notes	15 pts			
Plays one note	13 pts								
Plays 2 or 3 notes	14 pts								
Plays 4-6 notes	15 pts								
TOTAL	20								
**Extra credit - play a tune (5 pts)									
TOTAL	25								

Written (TYPED) Report (40 pts) - no more than 2 pages excluding pictures and calculations

	Max Points	Self-assessed	Teacher assessed
Instrument Name	2		
Student Name(s)	2		
Final Construction Plans (2pts) Photograph of finished instrument (5 pts) Final scaled sketch- may use original if no modifications (5 pts) Final calculations- may use original if no modifications (8 pts) Complete Logbook	20		
Evaluation (typed) (3 pts) Did your final instrument differ from your original idea? (4 pts) What were the challenges you faced throughout the project? (3 pts) What was creative about your instrument? (3 pts) How well did your instrument work? (3 pts) What suggestions do you have to improve the project?	16		
TOTAL	40		