



## Engineering Design Challenge: Create an Instrument



This rubric is focused on a challenge for 8<sup>th</sup> grade students.

Upon completion of the activity students will self-evaluate themselves (participation, communication with group, and overall thoughts of project)

	3	2	1	0
Materials are recycled/used (nothing should be purchased for the use in this activity)	All materials are recycled/used	1-2 new items	3 new items	All new
The instrument must demonstrate a variety of volumes	4+ Variable volumes	3 distinct volumes Ex. Loud, Medium, soft	2 or less volumes	One volume only
The instrument must demonstrate a variety of pitches* in order	7+ Variable pitches	6/5 distinct pitches	4 or less pitches	3 or less pitches
Initial design	Complete with labels, measurements, pictures, materials	Missing some components	Missing most components	none
Student log includes thought processes, material experimented with, dates,	Due Date 1-includes all requirements	Missing some components	Missing most components	none
	Final Due Date 2-includes all requirements	Missing some components	Missing most components	none

Creativity and uniqueness	Project is creative and unique as compared to others	Project is creative in approach to materials but similar in function to others (or vis versa)	Project is not unique but has some creativity	Not unique or creative
Presentation	All group members were involved in creation and can play the instrument	Majority of group members were involved in creation and can play the instrument	2 group members were involved in creation and can play the instrument	1 group member completed the creation and can play the instrument

\*Pitch is a [perceptual](#) property of [sounds](#) that allows their ordering on a [frequency](#)-related [scale](#).

Anssi Klapuri, "Introduction to Music Transcription", in *Signal Processing Methods for Music Transcription*, edited by Anssi Klapuri and Manuel Davy, 1–20 (New York: Springer, 2006): p. 8.