

Unit Name: Band-It

Time Frame: End of May-June

Author: Egg Harbor Township High School Science Department

UNIT

Subject: Sound

Country: **USA**

Course/Grade: Science/8th

State/Group: **NJ**

School: **Egg Harbor Township High School**

UNIT SUMMARY

Students explore sound by making stringed instruments and then playing tunes as a band. This will be conducted during the 4th Marking Period Sound & Light component

(Chapter 2: Sound).

UNIT RESOURCES

Chapter 2: Sound

- ✓ Pearson's Sound & Light Textbook
- ✓ Middle School Next Generation Science Standards

Internet Resource Links:

<https://www.pearsonsuccessnet.com/snpapp/login/PsnLandingPage.jsp?showLandingPage=true>

<http://www.nextgenscience.org/next-generation-science-standards>

STAGE ONE

GOALS AND STANDARDS

MS-PS4 Waves and Their Applications in Technologies for Information Transfer

MS-PS4-2. Develop and use a model to describe that waves are reflected, absorbed, or transmitted through various materials. [Clarification Statement: Emphasis is on both light and mechanical waves. Examples of models could include drawings, simulations, and written descriptions.] [Assessment Boundary: Assessment is limited to qualitative applications pertaining to light and mechanical waves.]

MS-ETS1 Engineering Design

MS-ETS1-2. Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.

MS-ETS1-4. Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.

ENDURING UNDERSTANDINGS

Optimize and Develop Solutions: Use a systematic process to combine parts of different procedures to create and refine new solutions.

ESSENTIAL QUESTIONS

1. What determines the pitch and volume of sound?
2. Why do we need to understand how sound is created?

KNOWLEDGE AND SKILLS

Pitch

1. What causes different pitches?
2. What can affect a string's pitch?
3. How will a rubber band's thickness affect its pitch?
4. How are your vocal chords related to pitch?

STAGE TWO

PERFORMANCE TASKS

1. Using various materials (shoe box, tissue box, different sized rubber bands, kite string, etc.) to build a four-stringed instrument that can play a tune.
2. Break up the students into groups of 3 or 4 and have them pick or create their own sixty second song (Create your own band!).
3. Each band will perform their song for their class.

OTHER EVIDENCE

1. Quizzes and tests on chapter lessons
2. Formative assessment: student's ability to continually refine their instrument
3. Summative assessment: Complete your instrument and play in your band

STAGE THREE

LEARNING PLAN

Science: 4th Marking Period Sound & Light Component

- Review/Discuss/Gain knowledge from Chapter 1: Characteristics of Waves
- Review/Discuss/Gain knowledge from Chapter 2: Sound
- Lessons Include
 - Lesson 1: The Nature of Sound
 - Lesson 2: Properties of Sound
 - Lesson 3: Music
 - Lesson 4: Hearing Sound
 - Lesson 5: Using Sound
- Project
 - Build a four-stringed instrument that can play a tune
 - Tape (Duct, Packing, Scotch, etc.)
 - Scissors

- String (Kite, etc.)
- Rubber bands
- Plastic cups
- Craft sticks
- Cardboard boxes/shoe boxes/tissue boxes
- Paper towel/toilet rolls
- Students will be broken into groups of 3 or 4 to create a band. Bands will be required to create and play a sixty-second song to the class.

Music Class

- Communication through music
 - Writing their music in proper notation (exposure)
 - Videos on music

English Class

- Write a Rolling Stone style review of each band's performance

Social Studies

- Students will be asked to find a piece of music that has a political message/changed history/shaped the world. Print out the lyrics, play the song, discuss.
- Talent Show