

Where's That Sound Coming From?

Discovering Mechanical and Sound Energy with an Accordion



Overview

Students will explore sound energy by learning how an accordion operates and how it transforms mechanical energy into sound energy. They will identify how the parts of the accordion create musical notes.

Education Standards

Science:

TEK 5.6 (a) Sound Energy

Force, motion, and energy. The student knows that energy occurs in many forms and can be observed in cycles, patterns, and systems. The student is expected to:

(A) explore the uses of energy, including mechanical, light, thermal, electrical, and sound energy;

Background Information:

The accordion is an instrument played by compressing or expanding the bellows while pressing buttons or [keys](#), causing pallets to open, which allow air to flow across strips of brass or steel, called [reeds](#). These vibrate to produce sound inside the body. The

accordion is played in German Polka music. The Polka originated as a Czech peasant dance in 1834 and continues to be popular in German music festivals.

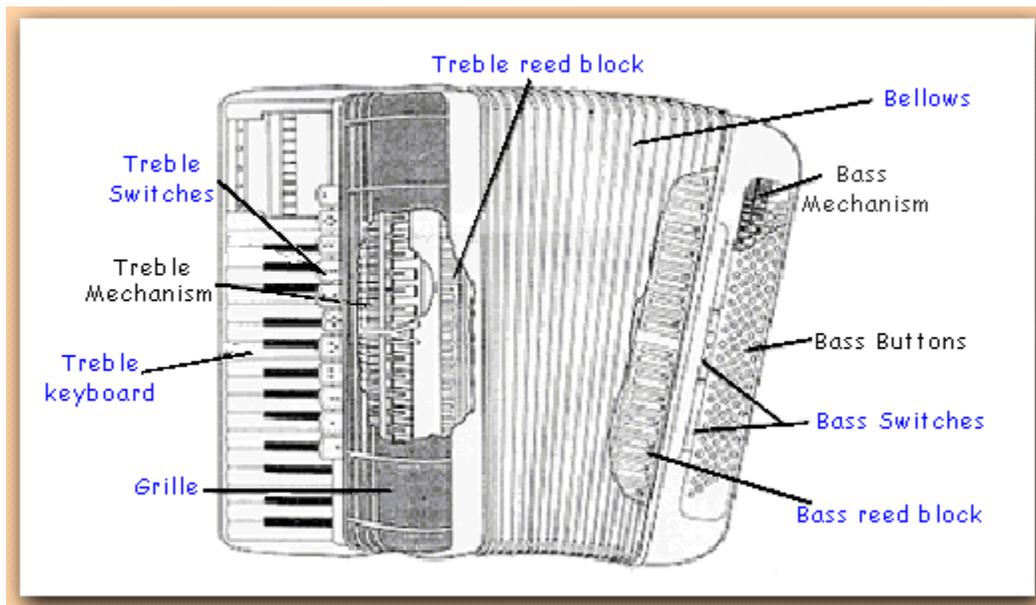


Diagram of an Accordion- Parts Labeled

Materials Needed

Youtube Videos

How Accordions are Made:

<https://www.youtube.com/watch?v=F8XIEHCEcCo&index=3&list=LLVvVo6777IYoRGL9vksdVw&t=0s>

Quick Animation of How Accordions Work:

<https://www.youtube.com/watch?v=rwHO5oltX8&index=4&list=LLVvVo6777IYoRGL9vksdVw&t=0s>

Matching Card Game: (make copies before the lesson (1 deck per group of 4)

Vocabulary

Mechanical Energy

Sound Energy

accordion

Student Objectives

The student is expected to explore the use of sound energy and can identify how sound is created.

Activity

1. TW recall parts of the Musical Bridges Concert of German Polka performers and will review what kind of instruments were used to make the polka music. TW focus on the accordion and ask students to share if they know how an accordion works.
2. TW show the 5-minute video of how accordions are made and the 12-second animation of how it works.
3. The class will have a discussion of what each part does. The teacher can display the diagram of the accordion. *Which parts are using mechanical energy and which parts are creating sound energy?*
4. SW get into groups of 4. SW match the correct accordion picture card with the correct function of the part. Then students can put the picture cards in order of how an accordion works. For instance, when an accordion is played, what happens first, next, then and last to create that sound. Lastly, students can identify if each part function is mechanical or sound energy.

(make copies and pre-cut before lesson)

Extension

Students can make a paper accordion instrument using this YouTube tutorial:

[How to make a paper accordion](#)

