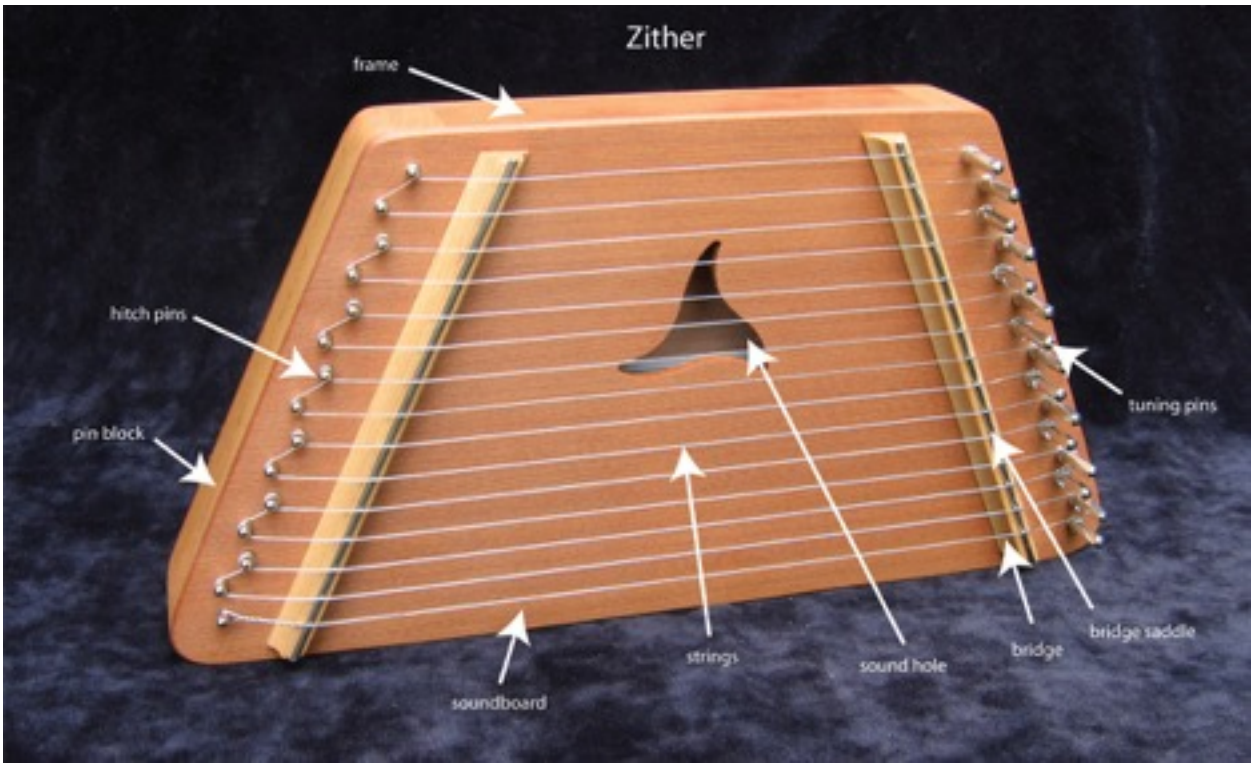
Two Octave Zither Study Guide



Goal

The student will gain an understanding of the materials, components and principles of construction that are used to create an acoustic musical instrument.

Woods

- Can you identify the woods in your instrument?
- Can you find a descriptions and photos of the trees that provided that wood?
- What is the grain in wood?
- How many grains per inch are there?
- How thick is the wood in the various parts of the instrument?

Function of the parts

- What is the purpose of the frame?
- Pinblocks?
- Soundboard?
- Soundhole?
- Bridges?
- Bridge saddles?
- Tuning pins?
- Hitch pins?
- The finish?

Acoustics

- What is sound?
- What causes sound to be produced and why can we hear it?
- How many different notes/pitches are there on your zither?

Two Octave Zither Study Guide

- Why are there short strings and longer strings?

Answers

Woods

- Can you find the name of the woods in you zither?
  - Go to https://www.jamesjonesinstruments.com/woods to make the identification.

- Can you find a photo of the tree that wood came from?
  - Go to http://www.wikipedia.org/ for a description and maybe a photo of the tree.

- What is the grain in wood?
  - The grain in wood are the lines which define each year of a tree's growth.

  - On the soundboards, most of the grain runs vertically which means it is quarter-sawn. Many of the other pieces will be plain sawn or something in between.

- How many grains per inch are there?

  - Each grain represents a year of growth; fairly easy to count on quartered sawn pieces but more difficult on plain sawn.

- How thick is the wood?

  - Get your rulers out and measure

Function of the parts

- What is the purpose of the frame?

  - Provides the strength to withstand the tension of the strings and creates the inside depth of the instrument.

Two Octave Zither Study Guide

- Pinblocks?
    - Provides a place where the hitch and tuning pins can be placed. The harder wood makes it so the tuning pins will hold the tension of the strings.
- Soundboard?
    - This member is the most important part of a musical instrument. The soundboard is the diaphragm. It is the part that vibrates in response to you picking a string. As a result it must be thinner so it can vibrate.
- Soundhole?
    - Sound waves generated by the soundboard exit through the sound hole.
- Bridges?
    - Bridges transmit the vibrations of the strings to the soundboard. Their location defines the length of the vibrating strings.
- Bridge saddles?
    - Bridge saddles provide a hard contact point which the strings pass over allowing the strings to vibrate clearly.
- Tuning pins?
    - These are literally fine threaded screws which when rotated clockwise with the tuning wrench tighten the string and raise the pitch. Turning the pin counterclockwise will reduce the tension on the string and lower the pitch.
- Hitch pins?
    - These pins hold the end of the string and define the string spacing or distance between the strings.
- The finish?
    - The finish makes the wood look a whole lot better and brings out the grain and color. Finish also protects the wood from getting dirty.

Acoustics

- What is sound?
    - Sound is a wave or vibration that has various characteristics. The two most recognizable are amplitude (volume) and frequency (what pitch or note it is).

Two Octave Zither Study Guide

- What causes sound to be produced and why can we hear it?
    - We cause a string to begin vibrating by plucking it with a pick. That vibrational energy is transmitted by the bridge to the soundboard. The soundboard causes the air inside the instrument (the soundbox) to vibrate . The soundbox amplifies those vibrations and sends them out into the air to our ears. The diaphragm of our ears vibrates and that vibration is connected to nerves which allows us to hear what is being played.
- How many different notes/pitches are there on your zither?
    - There are twelve different notes/pitches or frequencies on your zither
- Why are there short strings and longer strings?
    - The short strings are the higher notes, the longer strings are the lower notes.

James Jones Instruments
1384 Coltons Mill Rd
Bedford, VA 24523
(540) 586-6319
Visit my web site!
http://www.jamesjonesinstruments.com/