



Set Up

This activity follows the ***Intonation and Set Up PowerPoint*** which can be downloaded at www.guitarbuilding.org. Setting up the electric guitar involves making both coarse and fine hardware adjustments in order to achieve optimal/desired playability for the musician. The set-up process includes: adjusting the truss rod for proper relief, setting string height (a.k.a. “action”) at both the bridge and the nut positions, and setting bridge saddle positions to ensure that the instrument plays in-tune along the length of the fretboard. This activity is suitable for middle school and above.

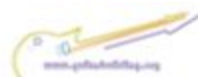
Learning Objectives:

1. Students will read and follow instructions. (See *Guitar Set Up PowerPoint* on guitarbuilding.org)
2. Students will differentiate between a properly set-up guitar and a poorly set-up guitar.
3. Students will take accurate measurements ranging from .010” - .080”.
4. Students will identify causes of “fret buzz” and determine appropriate techniques for addressing it.

Standards:

CCSS.MATH.CONTENT.HSN.Q.A.1: Use measurement units as a way to understand problems and to guide the solution of multi-step problems

CCSS.MATH.CONTENT.HSN.Q.A.3: Choose a level of accuracy appropriate to limitations on measurement applications





Materials Required:

1. Guitar Set Up PowerPoint Presentation - guitarbuilding.org
2. Allen Key for Bridge Saddle Adjustment
3. Phillips-head Screwdrivers for Bridge Saddle Adjustment
4. String Cutters
5. Straight Edge
6. Feeler Gauges
7. String Height Gauge
8. Tape Measure
9. Capo
10. Under String Radius Guide
11. Oscilloscope and/or Electronic Guitar Tuner

Safety:

Basic eye protection

References:

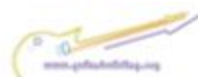
Technology of the Guitar - French, Springer 2012

Assembling an Electric Guitar Building Guide

<http://www.guitarbuilding.org/assembling-an-electric-guitar/>

Setup PowerPoint - guitarbuilding.org

<http://www.guitarbuilding.org/intonation-and-setup-powerpoint/>





Activity:

Setting up the electric guitar involves making both coarse and fine hardware adjustments in order to achieve optimal/desired playability for the musician. The set-up process includes: adjusting the truss rod for proper relief, setting string height (a.k.a. “action”) at both the bridge and the nut positions, and setting bridge saddle positions to ensure that the instrument plays in-tune along the length of the fretboard. You will follow a series of instructions for setting up your instrument for optimal/desired playability, in the form of a slideshow presentation.

Visit www.guitarbuilding.org and download the ***Intonation and Set Up Powerpoint***

View/present the *Intonation and Set Up Powerpoint* and follow the instructions to successfully set up your instrument. As noted above, this process will include the following stages:

1. String nut installation
2. String-up
3. Truss rod adjustment for setting proper/desired neck relief
4. String height (“action”) adjustment at both nut and bridge ends
5. Intonation adjustments at individual saddles

Your attention to detail and using the right tool for the right job in the right way will ensure an instrument that plays to your liking!



Name _____

**Assessment
Set Up**

1. *Set Up* is different than *Intonation*.

True -or- False

2. Which of the following is NOT a Set Up operation?

- A. Install string nut
- B. Rough in bridge saddles
- C. Set saddle radius to match fret board radius
- D. Check harmonic frequency at the 12th fret

3. Intonation adjustments include setting the string action at the first fret position.

True -or- False

4. An open string buzz is a common problem of a poorly installed and fitted nut.

True -or- False

5. What is the fretboard radius for the guitars built in this course?

- A. 9"
- B. 10"
- C. 12"
- D. 14"

6. The smallest string diameter of the six strings used for the guitars build in this course:

- A. 9's - .090"
- B. 10's - .010"
- C. 11's - .011"
- D. 12's - .012"





7. Electric guitar strings are primarily made of _____ for its magnetic properties.

- A. Aluminum
- B. Steel
- C. Copper
- D. Chromium

8. Which of the following is NOT a purpose of the string retaining bar / string tree?

- A. Eliminate buzzing
- B. Eliminate side-to-side motion at the nut
- C. Increase “break angle” at nut
- D. Increase tension of strings

9. When adjusting the truss rod for neck relief, _____.

turn truss rod adjuster clockwise to **lower** the middle of the neck.

-or-

turn truss rod adjuster clockwise to **raise** the middle of the neck.



10. Choose the correct order of the six strings of the guitar starting with STRING #1 (thinnest).

- A. egbEDA
- B. ebgDAE
- C. begADE
- D. ADgbeE



Assessment Key:

1. True
2. D - Check harmonic frequency at the 12th fret
3. False
4. True
5. C - 12"
6. B - 10's - .010"
7. B - Steel
8. D - Increase tension of strings
9. turn truss rod adjuster clockwise to *raise* the middle of the neck.
10. B - ebgDAE

Reviewing Faculty Cohort Members:

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