

# mind<sup>TM</sup>

## CRAFTS

science and fun rolled into one!

# ANYWHERE GUITAR ACTIVITY KIT

## GUITAR SCIENCE:

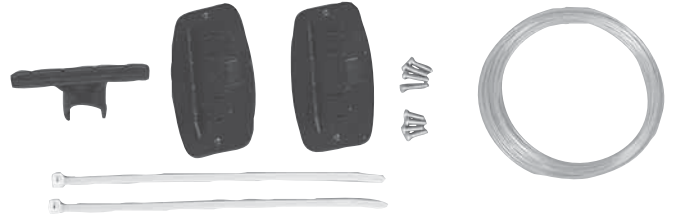
Guitars work by creating sound through vibration. When you strum the string it vibrates. This alone usually does not create enough volume to be able to hear well. However, when the ends of the strings are fixed to a solid point, the vibration transfers through this point and into whatever structure is attached. In this case, it's our box. Once the box begins to vibrate, the air inside begins to move. This larger volume of air will help recreate and focus the vibrations more intensely. This creates a larger sound than the string by itself. The size and type of box greatly affect this volume. Typically larger rigid boxes will create more volume. Experiment with different box sizes and shapes to add more dynamics to your instrument. Most of all.... Have Fun!

## ASSEMBLY GUIDE:

Read completely through the instructions before beginning assembly.

1. Using your hobby knife or scissors, cut a round hole about 4" in diameter where shown. Behind the circle, cut a 1-1/4" x 2-1/4" hole for the box bridge. **Note:** The sound hole can be any shape you like as long as the open area stays about the same as a 4" round hole. On both ends of the box cut a 7/8" hole at the center/top edge.
2. Insert the wood handle/dowel through both holes so that about 1/2" sticks out the bottom.
3. Place the bridge plate (this will be the "box bridge plate") into the box. Install the strap and tighten firmly. Cut off the excess strap.

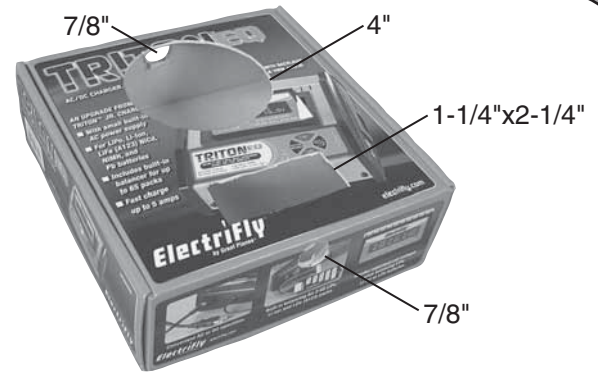
## INCLUDED ITEMS:



- |                    |                          |
|--------------------|--------------------------|
| Bridge Plate (2)   | Plastic Straps (2)       |
| String Slide (1)   | Tuning Screws (4)        |
| Roll of String (1) | String Anchor Screws (4) |

## ITEMS REQUIRED:

1. You may use the box your kit came in or find a box about the size a shoe box. For the best sound, use a box made of fairly stiff cardboard.
2. A standard wood broom handle or 7/8" (22mm) wooden dowel that is at least 36" long.
3. You will also need a screwdriver and scissors/hobby knife for assembly. (Ask an adult to help if you only have a hobby knife.)



1



2

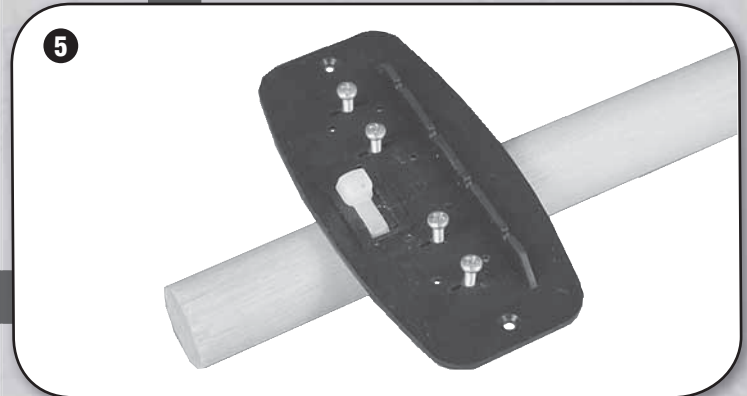
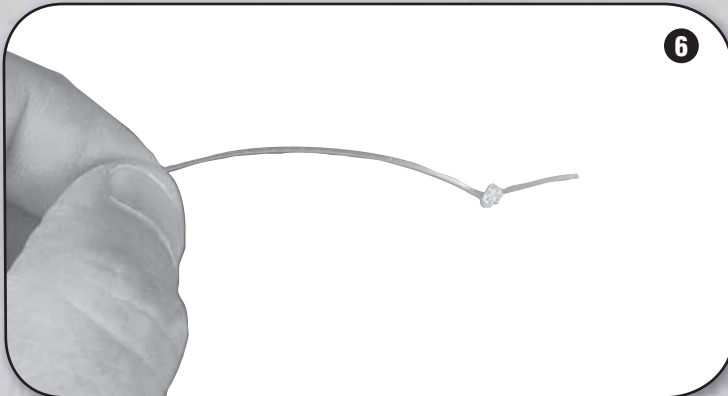
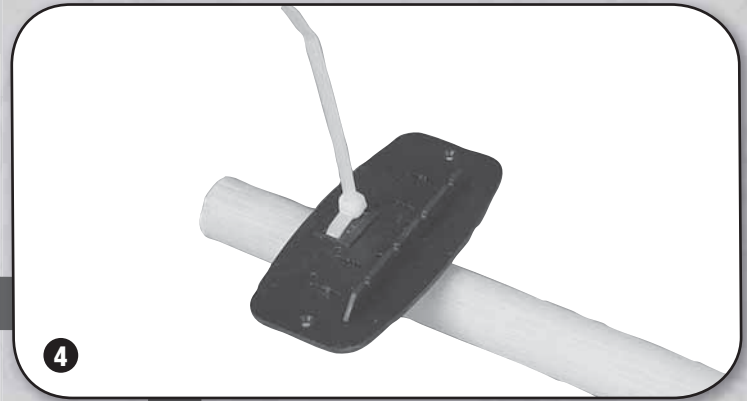


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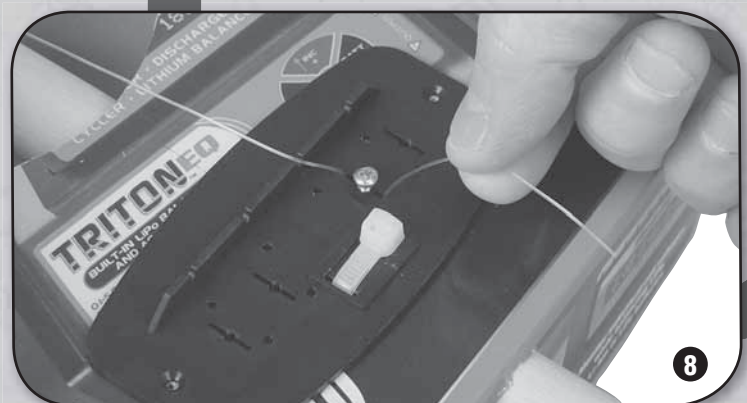
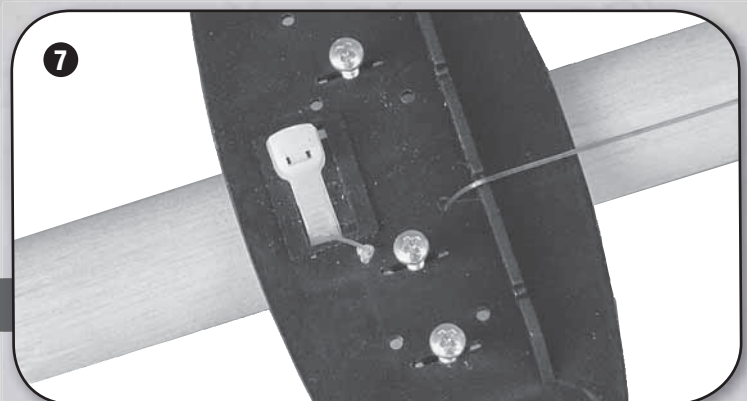


**WARNING:**  
**CHOKING HAZARD** — Small parts.  
Not for children under 3 years of age.

4. Attach the second bridge plate (this will be the “neck bridge plate”) so the bridge bars are approximately 29” apart. Install the strap and tighten firmly. Cut off the excess strap.
5. Screw the “short” tuning screws into the “neck bridge plate” so they are about 1/8 of the way into the hole.
6. If needed, cut the string roll into 4 equal pieces. Tie a “triple” knot at one end of each string.



7. Working at the neck bridge plate, pass each string through the small hole at the top, then under the screw, and then back up through the second hole.
8. At the box bridge plate, for each string, loop the string and push it into the hole. While holding it in place, screw in the long screw so it is mostly in the hole. **DO NOT tighten yet.**

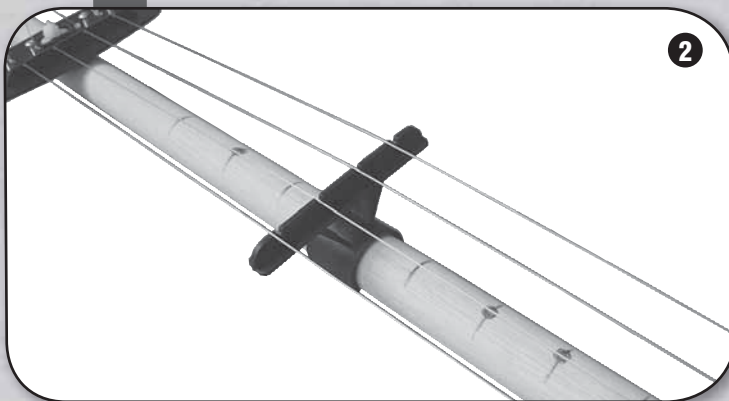
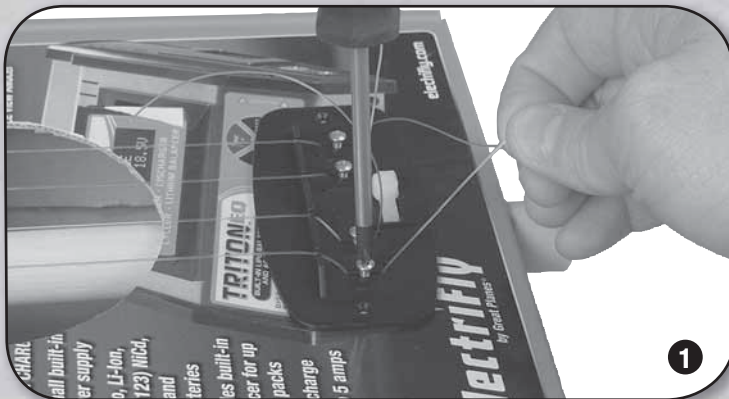
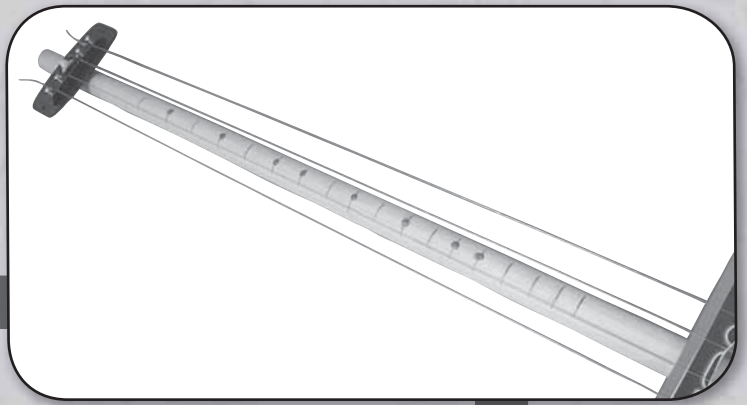


## SCALE MARKING:

You may have noticed on a real guitar that the fret spacing changes from end to end. Your box guitar is no different. To achieve this proper spacing, mark the handle as follows.

Place a yard stick against the box bridge bar. Place a mark at each of the measurements listed here. On measurements that are bolded, place a dot in the center of the mark. This dot will be a note location for notes in the "Major" scale.

8-5/8"	<b>12-1/4"</b>	16-3/8"	22-3/8"
9-3/8"	12-15/16"	<b>17-7/16"</b>	<b>23-3/4"</b>
10"	<b>13-3/4"</b>	<b>18-1/2"</b>	25-3/8"
10-3/4"	14-5/8"	19-3/4"	
<b>11-1/2"</b>	<b>15-9/16"</b>	<b>21"</b>	



## TUNING:

**The Basics:** The box guitar tunes easiest when the two inner strings are tuned to higher notes and the two outer strings are tuned together. When tuning, you want the strings to harmonize with each other. This is done by tuning them based on the Major scale. To explain this, sing to yourself: "do ra mi fa so la ti do". Tune the two outer strings to the lower "do". Tune one of the middle strings to "mi". Tune the remaining middle string to "so".

1. Starting with the outside strings, pull each string tight enough (from the box bridge) so they will vibrate freely while producing a low tone. Then while holding, tighten the box bridge plate screws so that they will pinch and hold the string (but not too tightly or the string may break). Repeat for all strings so the tone is about the same on the outer strings and slightly higher on the inside strings.
2. Insert the String slide under the strings and clamp it to the handle. The slide should be able to move freely on the handle. This is what you will use to play different chord tones and notes.
3. Using the tuning screws on the neck bridge, fine tune the outer strings so they match. Then using the inner tuning screws, tune to match the "mi" and the "so" from above. **Note:** If you run out of tuning range, you may have to tighten the string more from the box bridge end. Another way to tune would be to move the slide up two scale notes (dots) and tune the next string to match that tone when you move the slide back down.

## PLAYING:

To play a song, simply move the string slide up and down the handle. Once you figure out a song, write numbers on the handle so you can "follow the numbers" the next time you want to play. Have fun and start with some very easy songs like Twinkle Twinkle Little Star. A tip to find songs would be to search for "tab" guitar songs from the internet. Once you find a song you like, write the scale notes of the key the song is written in next to the dots. From there, follow the tab and have fun!

