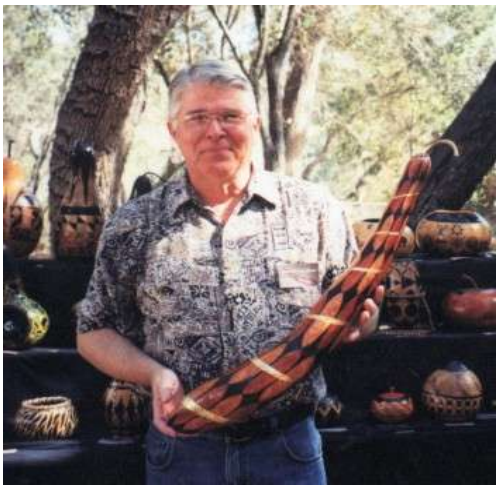
Orange County Gourd Society

Russ Conley's



RAINSTICK TUTORIAL

2011 Revised* Version

*Revised and updated by his friends Bill Duncan, Jack Thorp and Susan Sullivan, OCGS President

The methods and techniques presented here were developed by the late Russ Conley, a long time member of California Gourd Society & the Orange County Gourd Patch. Russ's classic rainsticks had clear tinkling sounds so unique they evoked amazed expressions on everyone that handled them. Russ always enjoyed sharing his techniques, displaying his creations, and inviting both children and adults to tilt the gourd instrument to experience that unmistakable rain forest sound. He made a CD to share what he had learned about making rainsticks. It is hoped this updated information based on that CD tutorial will encourage gourd artists and crafters everywhere to continue his traditions.

Note: This is an advanced project more suited to intermediate and expert level gourd craft students.

Materials List

1 Snake Gourd (Straight, strong and thick as possible)

Round toothpicks – Diamond brand works well

Dry Rice (or other filler material)

Titebond II or III wood glue

CA Glue (cyanoacrylate/ Krazy Glue) thin and thick

Sand Paper 80 and 120 grit

Sanding Sealer spray or liquid

Polyurethane spray or liquid

Paint, dyes, markers etc to decorate gourd

Tools List

Diagonal cutter pliers (Dykes)

Needle nose pliers

Ruler

Mini power saw and fine saw blades

Gourd cleaning tools-scrapers

Drill with bit calibrated to allow tight fit for your toothpicks (5/64 or Irwin #48 or #49)

A Toothpick Driver tool (see photo in Step 7)

Hose clamps or self sticking Velcro bands

Orbital sander (optional)

Safety Equipment

Respirator, dusk mask

Safety glasses

Step 1 CHOOSING YOUR GOURD

Find a strong firm fairly straight dry snake gourd that will not crack when squeezed. Snake gourds often have very thin shells…inspect it thoroughly. Clean the exterior of the gourd with soap and water and a pot scrubber and let it dry. Drying will lessen the chance the gourd will be damp and warp when cut in half and be difficult to put back together.

Step 2 CUTTING THE GOURD IN HALF

You want to dissect the gourd horizontally. A light pencil guide line is helpful. Avoid cutting through the center tip at each end of the gourd (the stem and the stern). When you come to each end, just cut to one side of the stem and the stern about ¼ inch, but other than that try to keep the two halves equal (symmetrical) as though you were splitting a banana lengthwise into two equal halves. It is best to use a very fine blade in a small electric jig saw.

Step 3 CLEANING THE INSIDE OF THE GOURD

Wearing a respirator or face mask, clean out the inside of the gourd removing seeds and pulp. Hand scrapers can be used, but a 3-M PAINT STRIPPER ATTACHMENT on your power drill works well. Be careful NOT to sand **on the cut edges** of the gourd…or they will not match up well later. It is ok to sand on the inside of the edge, just not the surface of the edge. If you have a place along the edge where the shell is very thin be careful not to sand away too much. The thicker the edge the easier it will be to match when gluing the halves back together.

Step 4 SANDING THE INSIDE

Sand the inside well. Remove all the loose fragments, cleaning it out so that the inside surface is very smooth. To strengthen the instrument and enhance the resonance, spray a light coat of Deft Sanding Sealer and sand lightly again. If you cannot get Deft, any sanding sealer will do or you can substitute Step 5 that follows.

Step 5 SEALING THE INSIDE

Tape edges to avoid getting sealer on raw edges.

Edges need to remain porous to absorb glue when halves are rejoined.

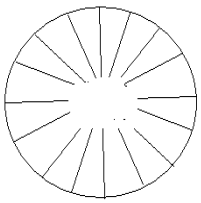
Next spray a coat of sealer. The purpose of steps 4 – 5 are to make the inside of the gourd hard and improve resonance. You may want to apply a second coat. When dry, sand and apply another coat or two of sealer and let it dry. Try to avoid getting sealer on the raw edge surfaces, as that may make it less likely glue will adhere well to hold the halves together.

New products such as liquid Wood Petrifier (hardener) designed to harden and strengthen wood may also be useful to try. It will strengthen the gourd and may improve resonance. Follow manufacturer's directions. If you use wood petrifier product, you will probably NOT want to use a sealer first because the petrifier works by being absorbed into the gourd.

Step 6 DRILLING THE HOLES FOR THE TOOTHPICKS

Holes should be staggered about ¾ inch apart, with rows every half inch. Use a template or randomly mark hole locations as a guide for drilling. Put the drill bit on the hole mark BEFORE turning on the drill to help keep the bit on the mark. Test by drilling holes on a scrap piece of gourd first, a piece about the same thickness. Use these holes to check for toothpick fit.

Choose a quality round toothpick. You will need approximately 200 toothpicks per foot of gourd. The size drill bit should be whatever size makes for a tight fit for the toothpick, about 3/1000 smaller than the diameter of the toothpick. An Irwin #48 pr #49 (5/64) usually works well. If the toothpick slides in easily the hole is too big. You should have to force the toothpick in to assure a tight fit. Holes should be drilled at the proper angle as though you were aiming for the center or hub of a circle. See diagram below.



Step 7 INSTALLING THE TOOTHPICKS

It is helpful to use something to install or seat the toothpicks… like a thimble pushes a needle. A helpful driver tool designed by Russ has 4 holes drilled in one end of a 5 inch piece of 1 x 1 wood. The holes are drilled at different depths. Use the deepest hole first, for most shallow penetration. Then use other holes as needed to move the toothpick deeper into the gourd.

As you add rows and approach the edge of the gourd, rather than put too much pressure and crack the gourd, enlarge the hole slightly so the toothpick will fit in with less pressure. Placing about two rows of toothpicks and then gluing those rows before proceeding seems to work best, and makes it easier to place glue drops exactly at the base of each toothpick.

Step 8 GLUING THE TOOTHPICKS

Install one row or two rows and glue the toothpicks by putting glue all around the **interior** base of the toothpick. Try to avoid getting glue on the exterior of the gourd. One bottle should be enough to complete gluing. Use rapid drying glue. Cyanoacrylate glue (Krazy Glue) the thinnest, runniest kind is recommended. It will run into and be absorbed in the hole around the toothpick. Use a long neck dropper to reach into each row and touch each toothpick base. With CA glue, by the time you finish gluing each couple of rows of toothpicks, the glue is dry and you can install the next row(s) of toothpicks. On a large gourd, it may take more than one bottle of the Krazy glue to complete the project.

Avoid using Gorilla Glue or other glue products that expand.

Ideally, to make the best sound, no toothpicks will be touching. Before gluing the toothpicks, make sure they are not touching other toothpicks. If they are touching, you may need to back those toothpicks out a little (use a needle-nose pliers) and/or adjust the angles so that they do not touch. This will assure the best sound for your rainstick. You get more of a flat thud sound if the toothpicks touch and more of a melodious ping if they don't.

Once installed, toothpicks in each gourd half should not cross the plane into the other half when the halves are joined. Look at one gourd half of your rainstick once the toothpicks are installed. To assure the toothpicks in one half of the gourd would not touch the toothpicks in the other half of the gourd once the two halves come together, lay a ruler across the two edges of each half (like a bridge across the gourd half) and slide that ruler from one end to the other, it should not touch any toothpicks. Trim tips to shorten any toothpicks that touch others.

Step 9 CUTTING THE TOOTHPICK ENDS OFF THE OUTSIDE OF THE GOURD

Use a very thin, very fine tooth circular saw blade attachment for the Dremel to cut the toothpicks down to sanding size… i.e., to get them trimmed close to the gourd surface so they can then be sanded smooth. Use caution using the Dremel saw blades.

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As an alternative to using the Dremel saw blades, you can hand-trim off the toothpick ends individually with side cut pliers or dikes (diagonal cut pliers). Just don't pull or twist the pliers or cutters, being careful not to disturb or break the glue bond when applying pressure while cutting off the toothpicks. Sand the cut nibs of the toothpicks to smooth the gourd surface. You should not feel the toothpick ends if you rub your fingers over the gourd surface.

Step 10. FINAL FINISH - SANDING THE NIBS FLUSH to FINISH THE EXTERIOR SURFACE

An orbital sander can be used to sand the external toothpick nubs flush using 220 grit sandpaper. Don't try to move the sander or the nubs of the toothpicks can tear the sandpaper. Instead, hold the sander in one spot until the toothpicks in that area are sanded flush and then move to a different spot. Repeat until the entire gourd surface on each half is smooth.

Once the nubs are sanded, give the entire gourd a good sanding. Caution, do not try to sand to remove the dark spots on the shell of the gourd. It is too easy to inadvertently sand through the gourd surface. The objective should be only to have a smooth surface with the toothpicks flush with the shell of the gourd. Your design work can cover or enhance the dark spots and natural markings on the gourd. Be sure to remove all pencil marks from the gourd.

Step 11. DRY FIT AND SOUND TEST

Once all the toothpicks are in place in both halves of the gourd, it is time to see how the two halves fit back together, gently realign the two halves, making note of places that do not seem to fit smoothly and may need pressure to bring them into alignment. Mark these places lightly with pencil on the exterior of the gourd.

To test the sound, add about ½ cup of regular white rice (not instant and not COOKED!) gently pouring it into one half of the gourd as it lays flat on a table or counter top. Put the other half of the gourd on top. If the fit is good, just hold the two halves together and do a sound test by tipping it up and down. You can add or subtract to the amount of rice until you are satisfied with the resulting sound. If the fit is not good, try using some tape to bring it into alignment and tape over any gaps that might "leak" rice to allow for the sound test. Place pencil marks at points where sides are out of alignment for later clamping and gluing.

Note: Some other choices of filler items besides rice can be tried including lentils, small beans, split peas, popcorn. Or try inorganic matter such as jewelry beads, BBs, crushed shells, aquarium gravel, tiny shattered pieces of safety glass, etc. Note: filler matter does not have to be uniform in size, but be sure no filler item is so large it will get hung up in the toothpicks and stop the flow of filler matter from one end of the gourd to the other.

Step 12. GLUING THE GOURD HALVES BACK TOGETHER

Once you have added the right amount of rice (or other filler) in one half of the gourd, lay it on your work surface. Determine if tape is going to work to hold the two halves together during the gluing process or not. If not, plan what will be needed to accomplish this. Another pair of helpful hands? Before applying the glue, you may want to "dry fit" the halves and see where to place the hose clamps or Velcro bands. Mark any problem area or place where the fit may need to be adjusted or eased. Be careful…do not over tighten whatever you use, at because that may crack the gourd. A big NO-No!

Next - Use Titebond II glue to adhere the two halves of the gourd back together. Apply it with a brush to both halves of the raw cut gourd edges. Keep a wet rag handy as you will need it to wipe excess glue off the edges, the seam, and your fingers.

Dry fit the hose clamps

Apply bead of glue to raw edges with brush or finger.

Have damp rag handy to wipe fingers or remove drips or smears.

When you have an even bead of glue covering the surface of the cut edges, place the other half of the gourd on top matching up the two halves. Using the lines you marked at problem areas, adjust and ease these together and apply clamps or Velcro strips. Start at the center and work toward each end. Adjust bands or hose clamps as needed for an even fit. Allow glue to dry for 8 to 12 hours. Remove tape, clamps or Velcro strips and sand the sealed joint line smooth if needed.

Velcro hook n loop strips

Packing tape

Congratulations! If you followed this process you now have a completed rainstick instrument and are ready to apply a surface design and decorate. You are now the owner of a rainstick made using the methods Russ Conley developed. It very likely has a sound that is superior to others you have heard. We know our friend Russ would be proud of you!

For more information and links to gourd art and craft ideas, visit these websites.

American Gourd Society www.Americangourdsociety.org

California Gourd Society www.calgourd.com

Orange County Gourd Society www.orangecountygourdsociety.org