

Project:

Design/Build a Drum

IDO – Industrial Design Outreach Spring 2006

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Class Site: SOTA - Academy of Arts & Science #147

Class Hours: Thursdays 1pm-3pm

Project: Drum Project

Duration: 3 weeks

Problem Statement:

In this project, you will design and build a drum using large cardboard tubes and other materials provided. Techniques for constructing the drum will be demonstrated in class. You will decorate the drum using glue, paper, acrylics, and/or other supplies that you may have available in the classroom or at home. Student mentors will be available to help with power tools and construction techniques as needed.

Day 1 (5/4/06): Project Intro, Ideation, Begin Construction

1) PowerPoint Presentation (10 minutes): Basic information on tradition of the drum, drum types, morphology, and acoustics.

2) Project Introduction (20 minutes): You will be creating a Goblet Drum with a Tyvek Drum Head. The drum will be tunable using rope lacings. We will walk you through the process of building this drum which you will then decorate on the surface.

- Applying the Drum Head (40 min). The Tyvek envelopes will be stretched over the 10" diameter tube with glue and staples.
- Create Holes for Lacings (20 min). A set of holes for each tube will be drilled with the help of a mentor.
- Preparing the Rim (15 min) The clear plastic flexible tubing creates an even surface for the rim, so that the "skin" can be stretched over it with high tension.

3) Decoration Ideation (20 minutes): You will be decorating your drum using your choice of colored markers, paints, patterns, fabric, magazine collages, laminated paper or any other suitable techniques.

You might start by covering/laminating the entire surface with brown or white paper using a mixture of glue and water.

Next Steps:

Homework - Due **5-11-06**:

On the assignment sheet, develop ideas of how you wish to decorate your drum. Frame drums will also require you to design some kind of handle system and mallet.

Day 2 (5/11/06): Work Day - decorate/design your drum

Day 3 (5/18/06): Complete Project - drum assembly, final touches, review designs

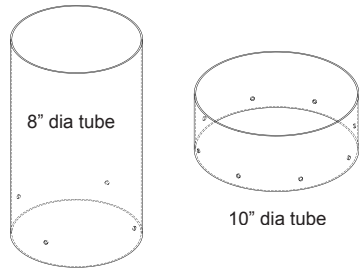


Goblet Drum (Construction Technique)

Day 1

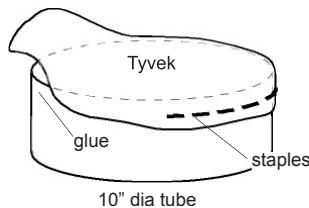
Drill Lacing Holes:

1) Using a template, mark eight (8) equidistant holes on the 10" tube and four (4) equidistant holes on the 8" tube. The holes should be .75" from the one end of the 10" tube and 1½" from one end of the narrower tube. With the help of a mentor, drill a ¼" hole through these marks. Sand down the holes, so the openings and surfaces are fairly smooth.



Applying the Drum Head:

2) Cut the Tyvek envelop open at seams to create a flat sheet. Cut a 13" diameter circle using a compass or template.



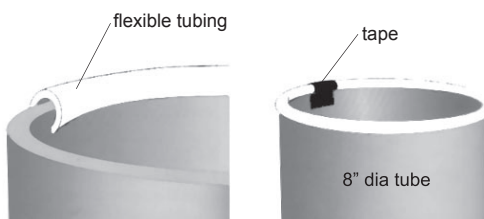
3) With the 10" tube positioned with the drilled holes toward the bottom, apply a 1.5" band of glue to the top outside edge and the rim of the tube.

4) Position the Tyvek circle on top of the tube, carefully centering it. Secure the Tyvek against the glued drum body using pressure, while pulling the Tyvek taut around the tube.

5) With the help of a mentor, staple the ends of the Tyvek to the tube. Starting from one point, staple one side of the Tyvek to the tube, and then staple the opposite side while pulling the Tyvek taut. Using this technique, work your way around the entire perimeter until you have closely spaced staples all the way around.

Preparing the Rim

6) Cut the soft plastic tubing to slightly longer than the circumference of the 8" diameter cardboard tube. Make a lengthwise slice through the entire length of the tube. Push the tubing around the edge of the cardboard and trim the tubing so that the ends meet neatly.



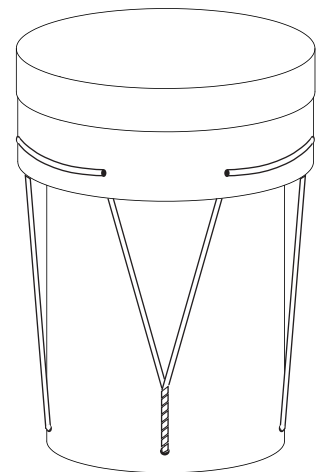
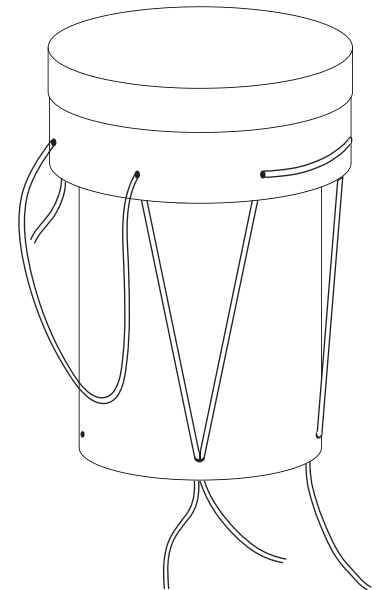
Prepare Lacings:

Cut four (4) 30" lengths of rope of your color choice. With the help of a mentor, use a lighter to melt the ends of the rope so that they do not fray.

Install Lace Tuning:

Thread the rope through the holes as shown in the illustration below. With the ends of the rope in the inside of the 8" tube, take a 2" dowel, and make a double or triple knot around it.

Once you have all four rope/dowel sets completed, you can begin tuning or tighten the drum head by twisting the dowel in the inside of the tube. The concave curvature of the tube will keep the dowel in place.



Homework 1:

Drum Ideation, due 5/11/06

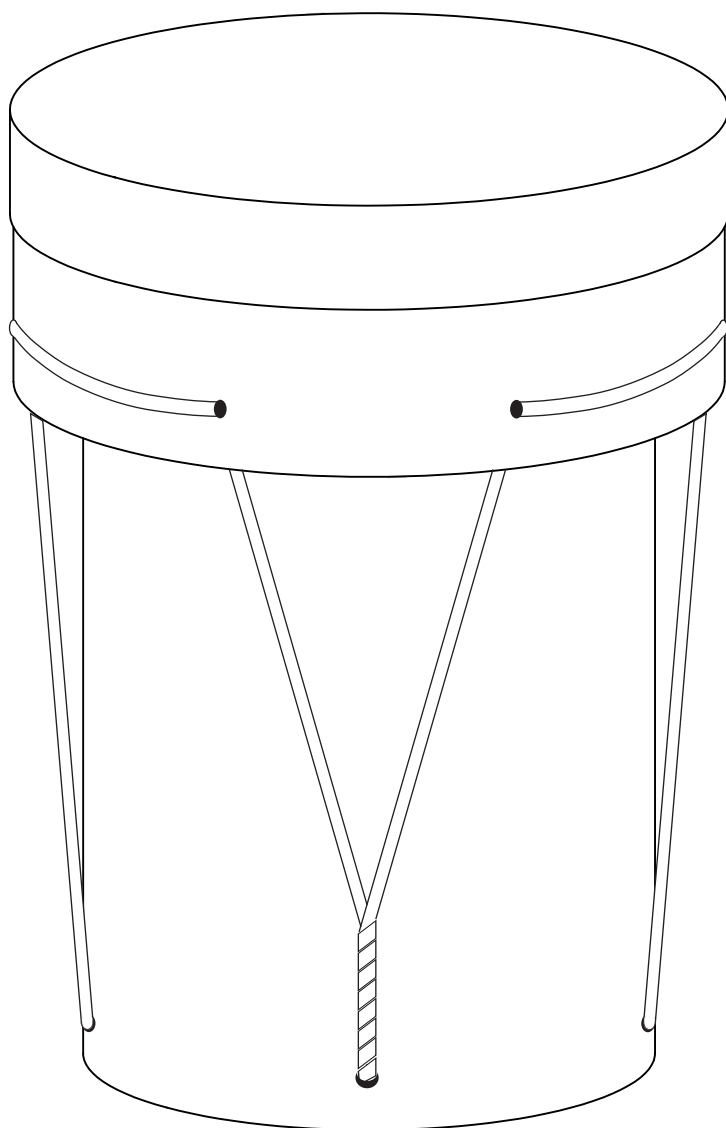
Name: _____

Ideation: Design/decorate your drum

Decorate your drum body using your choice of materials in class or from home (colored markers, paints, patterns, fabric, magazine collages, laminated paper or other decorative items.) You may cover the entire drum body with plain white or brown paper to create a solid background.

Fill in the four boxes to the right with thumbnail sketches of ideas. Use the template below to plan out your Final Design scheme. Use the back of this page if needed.

Proposed Final Design



Thumbnail sketches

