



ROTARY DISTRICT 5280'S

**DISTRICT PICNIC
2011**

SUNDAY, October 2, 2011

11:00am - 4:00pm

SEASIDE LAGOON, REDONDO BEACH

CARDBOARD BOAT RACE

APPLICATION & INSTRUCTIONS

THE GOAL:

**BUILD A PERSON-POWERED CARDBOARD BOAT
THAT IS CAPABLE OF COMPLETING A 200-YARD
COURSE.**

THE TEAM:

**FELLOW ROTARIANS, ROTARACT OR INTERACT
MEMBERS FROM YOUR CLUBS**

DISTRICT 5280 CARDBOARD BOAT RACE ENTRY FORM

Please complete one form for each boat entered. Clubs are not limited in the number of boats they may enter.

ENTRY FEE: \$25.00

Entry Fee will be waived if your Club donates food or helps pay for an activity at the picnic

COMPLETE FOR EACH BOAT ENTERED:

1. ROTARY CLUB: _____
2. CLUB CONTACT FOR CARDBOARD BOAT EVENT:

3. CONTACT PHONE NUMBER: _____
4. CONTACT EMAIL ADDRESS: _____

DUE BY SEPTEMBER 15, 2010:

NAME OF BOAT:

NAMES OF PADDLERS:

1. _____
2. _____
3. _____
4. _____

PLEASE SEND THE ENTRY FORM SIGNED BY THE CLUB PRESIDENT AND THE ENTRY FEE (CHECK PAYABLE TO DISTRICT 5280) TO:

**Wendy Clifford
262 S. Norton Avenue
Los Angeles, CA 90004**

See the attached instructions for all rules and regulations. HAVE FUN!

Boats come in all sizes, shapes, and colors!
And, some have trouble going the same direction as others!

Have you ever wondered how a large supertanker filled with oil can float? Objects submerged in a fluid such as water appear to weigh less than they do when they are not in the water. The liquid exerts a buoyant force on the object.

Archimedes is credited with discovering that the buoyant force on an object is equal to the weight of the displaced fluid.

Archimedes Principle also applies to floating objects. An object floats on a liquid if its density is less than that of the fluid. For our supertanker to float it must displace a volume of water equal to its weight.

**Building a cardboard boat is all about applying Archimedes Principle
and with your club, trying to accomplish a goal**

Along the way, you will enjoy encountering and dealing with many small details. But look at the bright side you might accomplish something that most people wouldn't even try (why would they) -- building a boat made of corrugated cardboard.

First things first . . . start with some objective in mind. Maybe you want to build the fastest boat at the race. Perhaps you are more interested in one of the Judges Awards for design or eye appeal. Maybe you want to win the Best-Dressed Team Award or the Team Spirit Award. Perhaps you want to get on television or be the featured photo in the newspaper. Or just maybe you want to take home the Titanic Award for the most spectacular sinking.

Next . . . start with a design idea, a vision of what you want your cardboard creation to look like. But consider this first -- it doesn't have to be a boat at all! It can be any design you like or want to try out. There are some pictures of various cardboard boats attached to give you some ideas.

Try this to save time . . . build a model using a manila folder or other heavy paper or lightweight cardboard. That way, you can fold, re-fold, and fold again to your heart's content. You can cut it up, glue it together, and try out your design idea in small scale before working on a full-sized creation. Or you can throw out an idea that sounded great, but just won't work, then try something else before you have wasted any cardboard.

How about a little science? If you want, you can toss in a little physics or other sciences. Maybe you will choose to calculate the **displacement** of your design idea so that you will have some certainty about the buoyancy of your design. Here's the basic number: a cubic foot of water weighs about 62 pounds. That means that a 180-pound man will float in a boat that is 1 foot by 1 foot by 3 feet -- of course, that could be a bit uncomfortable! But at least you would know just how much boat you will need for you (and your crew) so you don't overdesign it and add unnecessary weight.

Then again, how about some art? Perhaps you have a really creative idea, maybe something that nobody has done before. Unless you get your kicks from putting in lots of hours and making discoveries along the way -- hey, sometimes that can be great fun -- you may want to at least try out that unique or innovative idea in model form. If you want to

put a palm tree in the middle of your "desert island," be sure you won't make the whole thing top-heavy -- unless, of course, you are trying for the Titanic Award.

Now, go full-scale . . . but first, think about this: make sure your creation will be able to get out the door of wherever you choose to build it. There have been many tales of woe about boats that had to be dismantled -- or even trashed and rebuilt -- just because no one thought about the size of the boat and the size of the door.

Where to get cardboard?

District 5280 has made arrangements to purchase corrugated cardboard sheets from: PaperMart, 2164 N. Batavia Street, Orange, CA 92865-3104 (www.papermart.com) our salesman is: Charles Johnson 1 800 745 8800 ext 330 cjohnson@papermart.com order online or call Charles

They will deliver for a fee or you can pick it up yourself.

Or you might get cardboard from appliance stores. The shipping boxes for refrigerators and big freezers can be good possibilities. Maybe you can get boxes for TVs, bedding, bookcases, or other furniture. Of course, you can also use smaller sheets and glue them or fasten them together.

Let's see, other materials . . . you can use glue and tape. You can use paint and water sealant and other stuff. But first, take a look at "The Rules" to find a short list of substances that are not to be used. We're not trying to make it tough on you, but we are steering you away from stuff that is toxic, either for you or for the environment. There is also a difference in the materials that are allowed in the Class II cardboard creations, so be sure to check out that section of "The Rules."

Handling cardboard -- you will find it easier and more fun if you keep in mind a few tips.

- You can have strength and still keep your boat light if you laminate layers of cardboard. In fact, try placing one layer so that the corrugations run in one direction, then placing the second layer so that the corrugations run at a 90-degree angle to the first layer.
- To fold cardboard across the corrugations, consider scoring the line of the fold with the butt end of your utility knife or other rounded edge of a tool.
- Don't step on your cardboard! If you break the corrugations -- well, think about it.
- To keep your cardboard dry, don't forget to seal the edges with caulk or silicone. If water gets into your corrugations, you can have great fun watching it get drawn through the corrugation just like in a drinking straw. That may be okay when you have time to do something about it, but if you see this happen in the middle of a race . . . !!

Here's a bunch of other items to think about:

- A flat bottom is recommended. A V-shaped bottom is likely to tip over unless the V is very gentle.
- The lowest center of gravity is the most stable; kneeling or standing will cause you to tip over.
- Longer boats go faster, but they are harder to turn.
- Boats shorter than 10 feet are difficult to steer.

- For height, allow about 18 inches for you to sit and paddle effectively without the edge of your boat blocking your arms.
- For width, figure about 18 inches for a kayak, about 23-24 inches for a canoe. Figure about 30 inches maximum for 1 person, 48 inches for two people.
- Paint all the surfaces before gluing, caulk the edges, then glue (carpenter's glue works great).
- Avoid oil-based stains, caulk, and glue because the oil soaks into the cardboard, may never dry, and this weakens the cardboard.
- Duct tape shrinks when it is painted.
- Clear tape melts when it is painted.
- Reinforced paper tape works well over caulked edges and seams.
- Forget about "glue guns" because that type of glue melts on hot days.
- Have Fun! Be Creative! If you can dream it, you can do it!

Boat Building Rules:

- The first ingredient in cardboard boat building is creativity
- The second important ingredient is problem solving
- Then there is cardboard, of course, and it has to be corrugated

The great part about this event is that there is no one way to build a cardboard boat. There are some requirements about the use of certain substances and materials for boat construction. But other than those, people are encouraged to have fun.

Approved Construction Materials:

- Only corrugated cardboard may be used.
- It can be of any thickness but must not be bonded to any other material such as vinyl. Non-corrugated (solid cardboard) material may not be used, especially the kind of resin or wax-type coating found in packing cases.
- Tape, water-soluble caulk or silicon sealant, water-based wood glue, and water-soluble, outdoor latex-based, primer paint is permitted.
- No foam, plastic, or wood allowed in building your boat!
- You may not wrap the hull in tape, plastic, shrink wrap or any other material.
- There are no restrictions placed on decorative materials as long as they do not aid in the flotation or propulsion of the boat and do not create a safety hazard.
- Boats will be subject to a technical inspection before the race and must adhere to these guidelines. The 4-Way Test will be applied.
- Clubs will provide their own paddles.

We're not trying to make it tough on you, but we are steering you away from stuff that is toxic, either for you or for the environment.

Exception: you may use wooden paddles or use wood to make paddles or oars.

IF YOU HAVE ANY QUESTIONS, CONTACT WENDY CLIFFORD AT 323-938-0318 AND SHE'LL TRY TO GET THE ANSWER!

Photos from the 2010 Cardboard Boat Race



