

## **Cardboard Box Regatta Team event**

This challenges units to design, build and navigate boats made entirely of corrugated cardboard and propelled by paddles, oars, etc. The goal is to build the best boat you can and to be able to complete a 100 yard course in the fastest time. You will find this both intriguing and challenging. Awards recognize Best Construction, Team Spirit, Best Decorated, Best Original Design, and -- most coveted the Most Spectacular Sinking Award. You are given two hours to build a boat using the supplies and rules in Addendum #1. Additional items may be brought by each unit but must conform to the Rules. Any paint or adhesives used must be applied and DRY before the event begins or the boat will be disqualified.

Each team is comprised of 4 individuals. There are 2 hours to complete the building process. The first 25 teams to register will build and race. We will provide 2 pieces of cardboard to each of the 25 teams.

### **Cardboard Regatta Rules Supplies allowed for building your cardboard boat:**

1. A box cutter or sharp cutting tool
2. Contact cement
3. Construction adhesive (like Liquid Nails) and a caulking gun
4. Duct tape
5. Yardstick or ruler
6. 2 pieces of cardboard (provided by the judges)
7. Pencil
8. Latex enamel or spray paint for final coats [no multi-part paints allowed] (optional)
9. 2 sheets of plastic [one to be used to protect the work area]
10. Paint brushes and rollers (optional)
11. Building square (optional)
12. Wallboard screws for holding cardboard together while glue dries. These must be removed when glue dries. (optional)
13. Battery drill or screwdriver for installing screws (optional)
14. Decorations can be any material but not used to reinforce the structure of the boat (optional)

Getting Started Along the way, you will enjoy encountering and dealing with many small details. But look ahead to the satisfaction of knowing you accomplished something that most people won't even try -- building a boat made of corrugated cardboard.

First- start with some objective in mind. Maybe you want to build the fastest boat. Perhaps you are more interested in one of the awards for design or eye appeal. Maybe you want to win the Team Spirit Award. Or just maybe you want to take home the Most Spectacular Sinking Award. Next - start with a design idea, a vision of what you want your cardboard creation to look like. It can be any design you like or want to try out you can consider: submarines, aircraft carriers, PT boats, lake freighters, pirate ships, and so on. 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 get your design. 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. 61 Version 2016.2 – 10.27 Creative problem-solving is the name of the game. Whether you get your creative insights from methodical effort or from wide-ranging trial-and-error, building a cardboard boat, will be - both fun and challenging. There are no plans, no pre-set designs, and no step-by-step instructions here. No recipe cards, no fill-in-the-blank formats. The first ingredient in cardboard boat-building is creativity. The second important ingredient is problem-solving

Handling cardboard - you will find it easier and more fun if you keep in mind a few tips. 1. 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. 2. To fold cardboard across the corrugations, consider scoring the line of the fold with the butt end of your utility knife. 3. Don't step on your cardboard! If you break the corrugations - well, think about it. 4. To keep your cardboard dry, don't forget to seal the edges with duct tape. 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 3 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.
- Duct tape shrinks when it is painted. Some of the fun is in the discovery. So that's it for tips. Now go for it! Keep in mind the other lessons you learn along the way. That will make building your next boat just that much easier.

"The Rules" for this event are primarily for safety: participants have to wear PFDs (lifejackets) while in the boat. There are some requirements regarding the use of certain substances and materials for boat construction. But the great part about the event is that there is really no one way to build a cardboard boat, so the rules don't limit the creativity of participants. But other than those, people are encouraged - no, expected - to be creative.

General Rules 1. Only corrugated cardboard will be used. It must not be bonded to any other material such as vinyl. Non-corrugated material may not be used. No solid cardboard and no carpet roll tubes may be used, except for decorations. 2. Wood, metal, Styrofoam, or other materials that would aid in flotation or make the hull rigid are prohibited, but may be used for decoration. This restriction applies to the keel, transom, ribs, hull, etc. 3. Hulls may be painted with any "one-part" paint. No epoxy glues, fiberglass resins or "multi-part" varnishes or paints may be used. Hulls may not be "wrapped" in plastic,

duct tape or anything else. Tar based substances like roof coatings are not permitted. 62 Version 2016.2 – 10.27 4. Joints and seams should be taped. No nails, metal, wood fasteners, or staples may be used in the construction of the boat (small amounts may be used for removable decoration only). 5. Design is “builder’s choice.” Let your imagination reign supreme! A minimum of 65% of the boat’s volume must remain above water during racing. Failure to meet this rule will result in a 20 second time penalty. 6. Decorations may be made from any material but may not be used to reinforce the actual structure of the boat. 7. Boats from previous years will not be allowed. 8. No boat will be allowed to leave the starting gate unless all persons on board are wearing a Personal Flotation Device (PFD). (Participants will provide their own PFDs and paddles.) 9. Boats are subject to inspection and disqualification for each violation of the above General Rules, (with the exception of rule # 6 which results in a 20 second time penalty). 10. All entrants must ensure that their portion of the pit area has been cleaned prior to departure on Regatta day. All boats must be removed from the pool or cut apart and placed in trash containers. 11. Prior to the races, boats will be judged in the following categories: Best Original Design (most creative design and best use of corrugated cardboard), Best Construction or Construction Technique, Best Decorated, Team Spirit (most spirited and best organized (?) team ... the looks of the boat aren’t considered), Most Spectacular Sinking (most spectacular sinking ... to qualify, you must salvage the remains completely). 12. Units may have multiple teams in the event. 13. **Boats must be propelled by paddles, oars, etc.** Note: Rules are subject to change. Units will be notified in writing if changes are made.