

Welcome to the Glenrock Milk Carton Boat Races, here is some suggestions for constructing your prize winning vessel.

. Pick your Category

You have a choice between speed or style. Speed boats compete for a first over the line prize while style boats compete for best design prizes.

The category you pick will determine what your boat will look like. Some categories require your boat to have a theme.

2. Create Your Design

Once you have chosen your category, the rules and regulations are simple.

Your boat must rely completely on milk cartons for floatation, however, above the water line anything goes. Speed boats are usually long and narrow, like a canoe, while style boats are all shapes and creatively designed to win prizes.

Plan to build your boat by drawing it out, knowing dimensions and approximate weight when finished. Crew members make up most of the weight on a boat so prepare ahead of time by collecting milk cartons. Speed boats usually have one to four people while style boats can carry more than a dozen depending on size.

For every 100 kilograms on the boat you will need 100 x one litre milk cartons or plastic bottles.

This means that all your boat building materials PLUS the weight of all your crew members added up in kilograms- **So 1 litre bottle = 1 kilogram of floatation**

For a crew of four Scouts weighing 50 kilograms each PLUS 40 kilograms of wood, glue, cartons/bottles. You require 240 kilograms of lift or 240 one litre cartons or 80 three litre bottles

The design of the boat is up to you but keep in mind that there are things that could affect the outcome of the race. A boat that is too narrow for the weight on it will capsize. If your boat leans from one side to the other, it will go slower, therefore try widening the boat.

To propel the boats many will paddle them with oars. It is possible to use side wheels or propellers as long as they are moved by human power by the use of chains or belts. When turning the boat, a rudder is usually not needed. The more long and narrow boats may have a problem but as long as there is a clear patch of lagoon there should not be need for one.

Materials

The majority of the things needed to build a milk carton boat are easy to find, cheap and simple to use as seen below:

- 150 1 litre milk cartons

Note: These can be obtained by drinking milk and saving cartons or by ordering directly from a milk carton manufacturer.

- 2 large rolls of duct tape.
- 2 9.5 cm wide by 214.5 cm long plywood pieces
- 2 9.5 cm wide by 24 cm long plywood pieces
- 1 97.5 cm by 214.5 cm plywood piece

- 1 97.5 cm by 55 cm plywood piece
- 1 tube waterproof glue (bonds to both paper and wood)
- 1 paddle
- 2 152.4 cm long 5 cm by 5 cm piece of lumber
- 1 hand wood saw
- 1 lifejacket per person

III. Construction Steps

A. Preparation

WARNING

Always saw away from or to the side of the body! Sawing toward the body can result in bodily harm if the saw slips!

- 1) If unable to purchase correct size of plywood, either ask a hardware store representative to cut all plywood to proper dimensions or cut plywood to proper dimensions yourself.
- 2) Carefully close and then fold the tops of all but nine cartons into the center (see Figure 2). Tape each top tightly in place with duct tape, so that water does not leak in. This should make each carton into a rectangular box shape, so that it will fit together well on the underside of the boat.

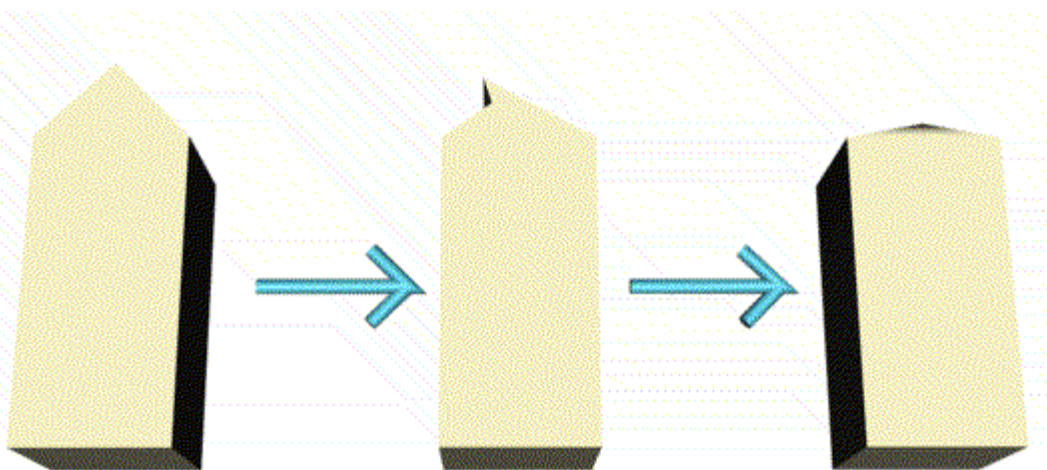


Figure 2: A folded and taped milk carton.

B. Pontoon Construction

- 1) Make two lines with eleven milk cartons per line. Figure 3 shows what two cartons look like. Each line will become a pontoon.

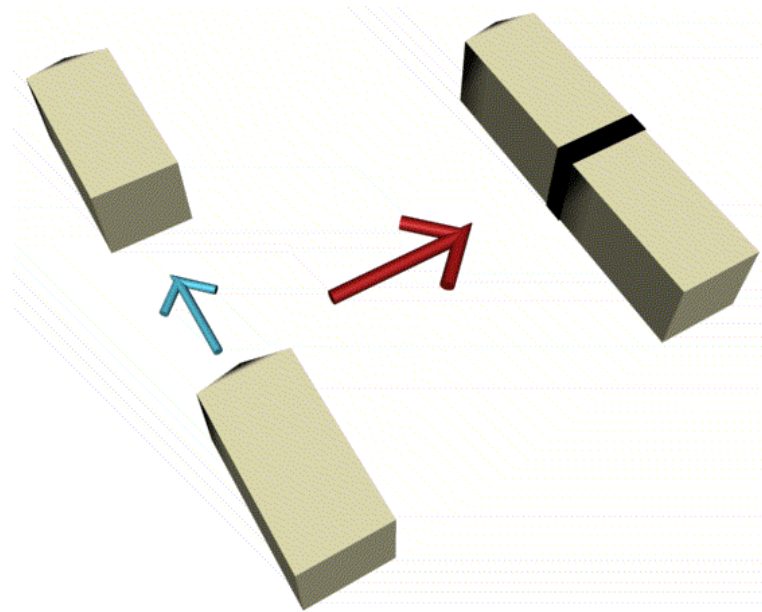


Figure 3: Two milk cartons taped together with duct tape.

- 2) Set each pontoon on a firm level surface.
- 3) Put a large stripe of glue on the top of each row of milk cartons.
- 4) Place each piece of 9.5 cm wide by 214.5 cm long plywood on its own row of milk cartons (see Figure 4). This strengthens each pontoon.

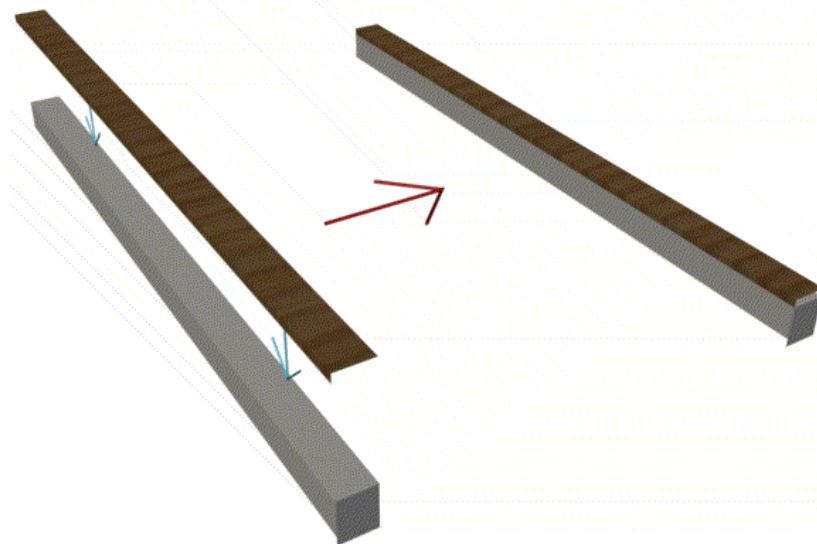


Figure 4: Plywood mounted on the pontoon.

C. Main Hull Construction

- 1) Make four more lengths of eleven milk cartons joined end to end (see figure 3 for reference).

- 2) Join two lengths side by side with glue. Repeat with the other two lengths. These will be used for the main hull of the milk carton boat.
- 3) Glue each section to the 97.5 cm by 214.5 cm plywood piece spaced 9.5 cm apart as seen in Figure 5.

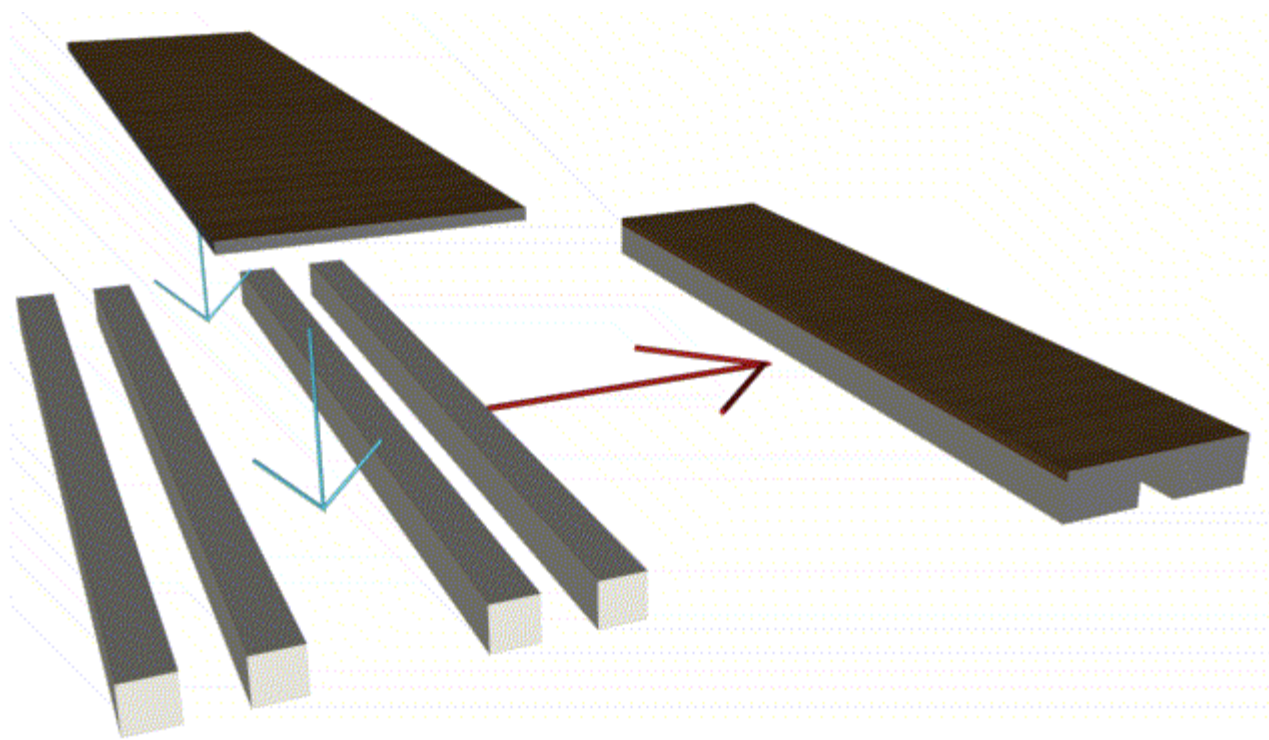


Figure 5: Main hull.

D. Joining and Finishing

- 1) Center each 152.4 cm section of the 5 cm by 5 cm, an outrigger, on the hull.
- 2) Glue the outriggers to the ends of main hull (see figure 6).

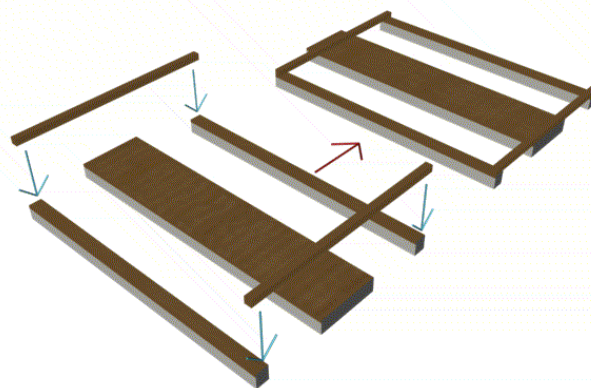


Figure 6 Outrigger attachment.

- 3) Glue the pontoons to the outriggers (see figure 6).
- 4) Cut main hull bow plywood to shape as seen in Figure 7.

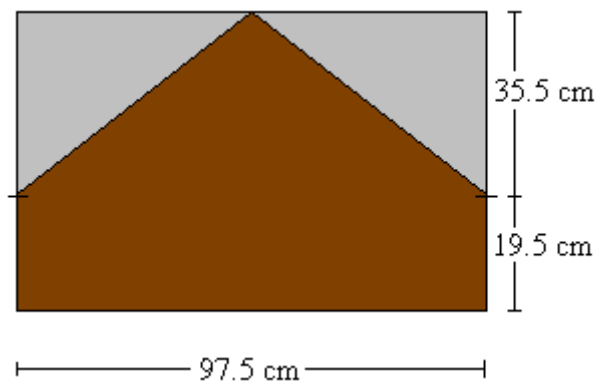


Figure 7 Main hull bow plywood cutting.

- 5) Cut pontoon bow plywood to shape as seen in Figure 8.

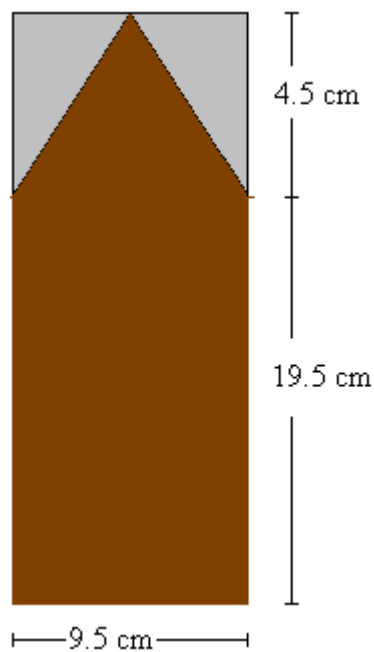


Figure 8 Pontoon bow plywood cutting.

- 6) Glue the rest of the milk cartons to both bow plywoods like Figure 9.

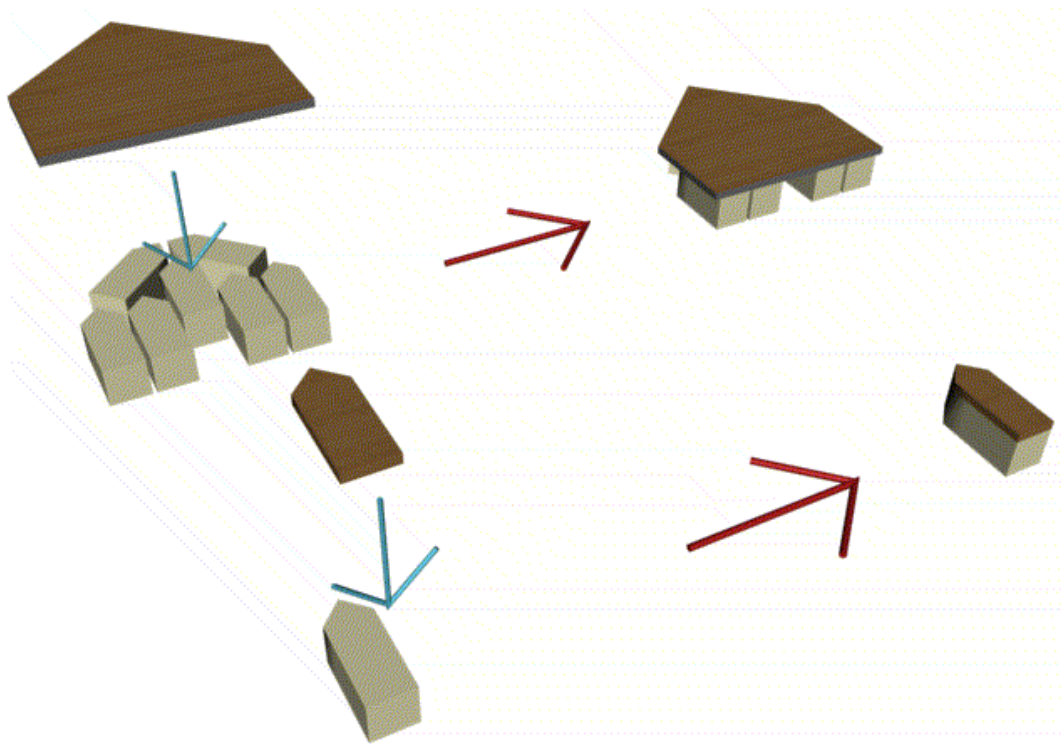


Figure 9: Bow Assemblies.

- 7) Glue bows to the main hull and pontoons as seen in Figure 10.

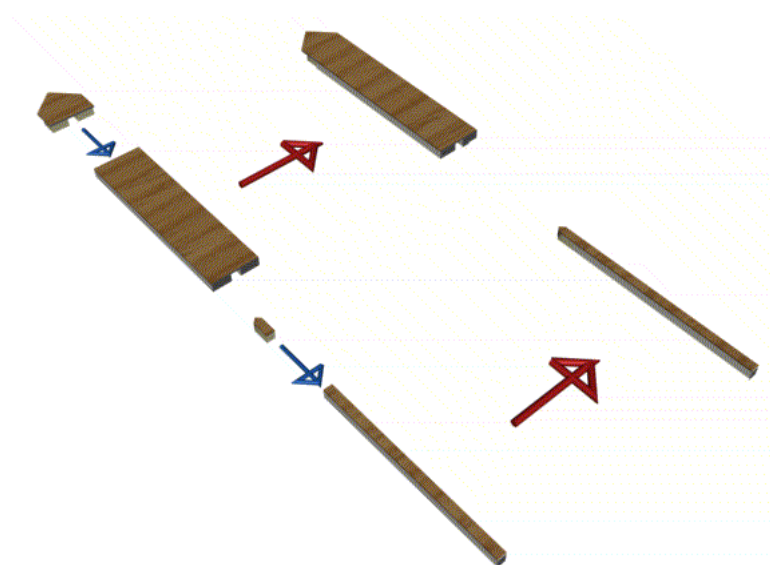


Figure 10 Bow assembly.

DANGER!

Before testing your completed milk carton boat, load 1 lifejacket per person on board. Milk carton boats are inherently unseaworthy and may capsize! There is a risk of drowning if no lifejackets are present! After all, they are only made of milk cartons!

Congratulations! You have finished your first milk carton boat (see Figure 12 for completed boat). You are now ready for testing in the water.

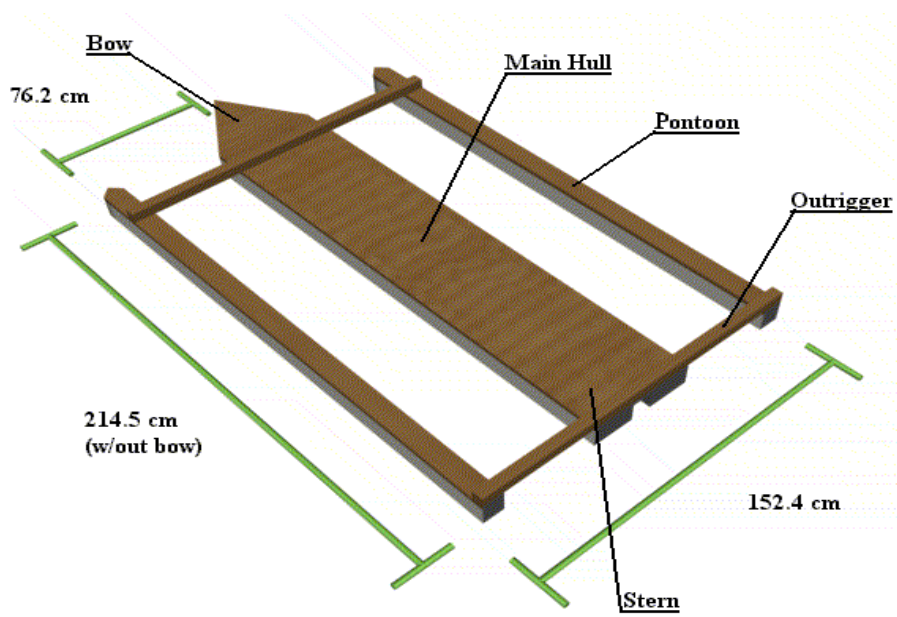


Figure 12 The completed trimaran.

Examples of Milk Carton boats from previous races.





Please contact me by email (preferably) or if you really would like to ask any questions I am on 49571186 after hours or 0425 246572 .

Regards
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