

How to Build a Boat for the Milk Carton Boat Race

These instructions will help make sure your boat meets the rules. A race inspector will check every boat.

First: Start gathering containers

Start collecting milk cartons or jugs right away. Ask your family, neighbors and friends. Check with coffee shops, restaurants and cafeterias.

Get started: Get a bag or two of (50) milk cartons. Locations listed on the website.

Official rule: Only use *milk* or *soy milk* cartons and jugs.

While you gather: Decide what to build

Ask yourself these questions:

- How many people will be on your boat?
- What will they use to paddle?
- How will you bring your boat to the race: all together, or in a few smaller sections?

Next, sketch what you want to build. Think about how long and how wide it will be. List the supplies you'll need to complete the boat:

- Frame pieces and fasteners
- Decorations
- A life preserver (also called a PFD or life jacket) for each rider
- Paddles

Now that you know who will be on your boat, you can register here for the race. It's limited to 50 boats so register early.

Official rule: Each racer must have their own US Coast Guard-approved life preserver.

Official rule: Maximum boat length is 10 feet.

Official rule: Use only one single-blade paddle or kayak paddle for each racer. No fixed oars (like a rowboat) The use of pivot or oarlocks are not allowed.

Will it float?

This part is important: Estimate how much your boat and its riders will weigh, so you'll know how many cartons or jugs to use.

Here's how much weight each container size can float:

- A gallon jug floats 8 pounds.
- A half-gallon jug or carton floats 4 pounds.
- A quart carton floats 2 pounds.

How many cartons or jugs will you need to equal the weight of your boat and its riders — PLUS some extra to make sure your boat always stays above the water line?

Second: Build!

Build container modules

Connect your cartons or jugs into several modules with duct tape, builders' glue, or clear mailing tape. Make sure all the spouts or lids are tightly closed and glued shut.

Test each module in a bathtub or pool to make sure the containers don't leak.

Build your frame

Make your frame. You can use wooden boards such as two-by-fours, or aluminum or plastic. Be creative! Use plastic wrap, wood screws, glue, tape, or other construction materials *except nails* for fastening. Make sure all parts are securely fastened.

One way to make a wood frame: Get three boards that are 8 feet long. (Most people use "two-by-four" size.) Cut one board into four equal parts. Use these as cross-pieces to connect the other two boards. The frame will look like a ladder. A power screwdriver and a glue gun will make building easier.

Attach container modules

Connect your carton or jug modules to your frame. One way to connect cartons is with clear plastic wrap. For jugs, consider zip ties.

Official rule: Flotation must be from only empty cartons or jugs. (No styrofoam blocks, for example)

Official rule: Don't hide cartons or jugs completely within the frame. They must be visible.

Official rule: Use screws, bolts, clear or duct tape, builders glue and plastic wrap. (no nails)

Get ready to ride

With sandpaper or a nail file, smooth out any rough spots on the frame. (Remember, you'll be sitting or kneeling on it.)

Video instructions

Do you learn better by watching? Try these videos:

- https://drive.google.com/file/d/1qw8Jlo_M4vSkIQG-B1O7gNjAKg1eF80A/view?usp=gmail
- <https://www.instructables.com/Build-a-Milk-Jug-Raft/>
- https://www.youtube.com/watch?v=p_sXjcKQ9bY

Third: Test it!

If possible, take your boat to a place with still, calm water — a pool or pond, not a creek or river. You can even come to the race location at Westmoreland Park. The casting pond usually is filled by the end of April.

Have all your riders put on their life preservers. Then get on board and paddle. Does your boat float and steer as you expected? What adjustments does it need?

****Official rule (NEW THIS YEAR): Trial runs ARE ALLOWED in the casting pond on race day, before 11:30 am!**

Fourth: Decorate!

Above your boat's waterline, you can decorate however you choose. Add decorations and your boat's name to wow the crowd. Cartons may be flattened to create decorations. But keep in mind:

- On race day, you'll need to attach race numbers to the front and side of your boat.
- Leave enough room to paddle hard in the races.

Official rule: Boats and participants shall be family appropriate in presentation, design and apparel.