



Skills Canada Manitoba would like to invite you to participate in the:

13th Annual Cardboard Boat Race, December 4, 2019

Armed with cardboard, duct tape and a few other odds and ends, senior high school students (grades 10 - 12) from across the province use their skill and ingenuity to transform these materials into a vessel for the water. Not only does their "boat" need to be quick, but it must be capable of carrying passengers as well.

Students are up to the challenge and those who participate have a great time! The experience helps develop new skills, in addition to strengthening their leadership, teamwork and problem solving ability.

- **Wednesday, December 4, 2019 - 17 Wing Fitness and Recreation Centre,**
- **680 Whyteford Road (in St. James).**
- **9:00 am-3:00 pm**
- **Registration fee \$80.00 per team (includes lunch for team of 4 plus one advisor)**

THE CHALLENGE:

Teams of four students (from the same school) will design and construct a boat and participate in both a race and a weight challenge in a pool. Students will be given the materials to construct the boat, and will have 2 hours of building time.

The boat should be solidly constructed and easy to race. The propulsion must come from members of the team paddling down (hands only) the race course.

Boats will be judged on design, quality of construction, teamwork/organization, safety/cleanliness, visual appeal, speed and weight capacity. Each race and weight challenge will be timed and recorded by our panel of judges.

TEACHERS:

Teachers (advisors) are only allowed to provide building advice before construction begins and during one 10 minute break. This challenge is designed to test problem solving skills and involves a broad base of curriculum, including:

- Design, research and presentation
- Friction and direction control
- Adhesives and bonding
- Principles of structure, strength, and rigidity
- Buoyancy and displacement

- Propulsion
- Water permeability
- Physical fitness, Leadership, Teamwork and FUN!

ELIGIBILITY:

- Secondary schools (Grades 10, 11 or 12) of four (4) students each.
- Please note registration is on a first-come, first-serve basis.
- Each team must have one teacher/advisor
- Teams must be made up of students from the same school.
- Please fill out and return the registration forms by **November 20, 2019**. Fax or mail signed registration confirmation forms to (204) 927-0258 or Skills Canada Manitoba, 31-1313 Border Street, Winnipeg, MB, R3H-0X4

BOAT SPECIFICATIONS:

- Each team will be assigned a number and be provided an adhesive sheet with their team number. Students will attach this number in a visible location on the boat.
- Only the following materials may be used:

Tools and Materials:

Supplied by Skills Canada Manitoba:

1. Two 4' x 8' sheets of $\frac{1}{4}$ " cardboard
2. String - 25 ft.
3. One 48 mm x 54.8 m roll duct tape
4. Two 237 mL bottles of Pres-Tite Green Contact Cement
5. Two pair protective gloves
6. One paint brush
7. PFD/life jackets
8. Lunch

Supplied by teams:

1. Any type of measuring/marketing device
2. Tape measures
3. Cutting devices
4. Pencils/pens
5. Decorations to enhance the design
6. Suitable attire to race in pool.

(Note: No other tools or equipment may be used in the construction of the boat. No hammering or bonding devices allowed (if in doubt please contact Skills Canada Manitoba prior to race day). Electrical power will not be available at any time.)

- CONSTRUCTION RULES AND REGULATIONS -

1. Each team must bring **two** copies of their boat design sketch. One copy is to be submitted for evaluation at the time of arrival and registration. The second copy of the boat sketch may be used by the team on the day of the event. (CADD drawings are permitted.)
2. Boats must be designed to allow team members to be **fully contained** within the structure of the boat. Rafts or surfboard styles will not be permitted.
3. You may not use any devices to propel the boat in the water including those constructed from the cardboard and materials provided.
4. Contact cement must be used as a **bonding agent only**, and will be permitted to secure exposed seams. Exposed internal and external walls (sides, hull, floor) of boat must be free of contact cement.
5. Supplies provided to teams which **cannot** be used in the construction of the boat include: paintbrush, gloves and contact cement can.
6. Teams are permitted to bring materials with which to decorate their boat. Decoration must not aid in the speed or buoyancy of the boat. Lacquers, waxes, latex/water-based paints, spray paints, or additional adhesives other than those supplied are not permitted for decoration. The use of aerosol cans, confetti and glitter is strictly prohibited.
7. Teams are not permitted to use aids such as a full size prototype, to-scale patterns or prefabricated materials for tracing purposes at the event.
8. Adhesive sheet with specified team number must be attached in a visible location on the boat.

- RACE RULES AND REGULATIONS -

1. Outside shoes will not be permitted on the pool deck.
2. Boats will race in timed heats of 2 boats per heat.
3. Heat sheets will be posted in the construction area. It is the responsibility of the team to know which heat they are in prior to the race. There will be no re-matches for missed heats.
4. Two team members must race the boat.
5. Only kneeling or sitting in the boat will be permitted to move across the pool.
6. One team member, on the pool deck, is allowed to steady the boat for the start of the race.
7. Pushing of the boat at the start will not be permitted.

- TRANSITION BETWEEN RACE AND WEIGHT CHALLENGE -

1. All intact boats must proceed to the weight challenge immediately following their race heat.
2. Boats deemed unsafe by a lifeguard will not be permitted to enter the weight challenge.
3. Teams are not permitted to reinforce or adjust their boat design in any way following their race heat, prior to the weight challenge.

- WEIGHT CHALLENGE RULES AND REGULATIONS -

1. Weight will be determined by the combined body weight of the individuals in the boat. Additional weight-bearing objects (hand weights, weighted belts, dumbbells etc.) will not be permitted.
2. Individuals must be fully contained within the structure of the boat. Teams may have one member touch the pool edge to steady the boat.
3. Feet and legs must be contained within the boat.
4. Only kneeling, crouching or sitting in the boat will be permitted.

5. Boats must begin weight challenge with their declared weight (individuals). (All team members will be weighed upon registration so that they may be able to declare the weight that the team will start with during the weight challenge)
6. Boats must hold declared weight for two minutes without "sinking" to score any points. **Sinking** - once **any** part of the top edge of boat falls below water surface for 3 or more seconds, the boat will be declared "sunk".
7. Additional weight (individuals) may be added to boats after two minutes have passed. Each new weight must be held for an additional two minutes.
8. The final weight held for two minutes will be recorded as the maximum weight achieved for the team.

WEIGHT CHALLENGE:

- 10 points for holding declared weight for 2 minutes
- Additional points awarded for the top 5 maximum weights held overall.
- **JUDGES' DECISIONS ARE FINAL**

HOW TO GET INVOLVED:

Register your boat teams and fax signed registration confirmation forms as soon as possible!

ON THE DAY:

1. All team members should come prepared with bathing suits/shorts and towels to enter the pool for the race and/or weight challenge.
2. Bring your own straight edges, tape measures, cutting devices, pencils/pens and decorations.
3. Lunch will be provided for students by Skills Canada - Manitoba. If students feel they require additional sustenance, it is highly recommended they bring it with them (granola bars (peanut free please), apples, juice boxes etc.).
4. Evaluation forms will be provided to all participating schools upon arrival and registration.

SCHEDULE FOR THE DAY

9:00am-9:30am	Arrivals and Registration
9:30am-9:45am	Announcements/Instructions.
9:45am-10:45am	Boat Construction
10:45am-10:55am	Break - advisors may meet with team
10:55am-11:55am	Boat Construction
11:55am-12:40pm	Lunch (provided for participants)
12:40pm-1:00pm	Boat touch ups/change/move to pool area
1:00pm - 2:30pm	Races/Weight Challenge
2:30pm-2:45pm	Evaluation - teams will remove all boats, change and move to theatre
2:45pm-3:00pm	Race Results and Awards

AWARDS

- **Best in Class** - to be a combination of weight challenge, course time and design
- **Best Time**
- **Weight Challenge**
- **Best Design**

**2019 CARDBOARD BOAT RACE
JUDGING CRITERIA**

BOAT # _____

CONSTRUCTION/DESIGN

Design: _____ /10 points

Drawing: _____ /10 points

Quality of Construction: _____ /10 points

Teamwork/Organization: _____ /10 points

Safety/Cleanliness: _____ /5 points

Visual Appeal: _____ /5 points

TOTAL CONSTRUCTION/DESIGN POINTS: _____ 50 points

SPEED CHALLENGE

Time: _____ Completed Course: _____ /5 points Heat Winner: _____ /5 points

Additional race points based on overall fastest times:

1st – 15, 2nd – 14, 3rd – 13, 4th – 12, 5th – 11, 6th through 10th – 5

Additional points awarded: _____ /15 points

TOTAL SPEED POINTS: _____ /25 points

WEIGHT CHALLENGE

Declared Weight: _____ Declared Weight held for 2 min: _____ /10 points

Additional weight challenge points based on overall most weight held:

1st – 15, 2nd – 14, 3rd – 13, 4th – 12, 5th – 11, 6th through 10th – 5

Maximum weight held: _____

Additional points awarded: _____ /15 points

TOTAL WEIGHT POINTS: _____ /25 points

GRAND TOTAL: _____ /100 POINTS OVERALL RANKING: _____