

# Tech Wars 2020 – Niagara County Community College

**Competition Category:** Short Track CO2 Car Race

**Level of Competition:** Middle School

**Event Coordinator:** [michaelnucci@grandislandschools.org](mailto:michaelnucci@grandislandschools.org)

**(Any Questions? Contact the Event Coordinator)**

**Description of the Competition:** Students design, build, and race CO2 cars. Cars will be designed and built using some of the TSA building rules and specifications outlined below.

Students will place in the event purely on race results. A MAXIMUM of 7 CARS PER SCHOOL. All cars will race for time, top 16 cars make the playoffs.

## **Rules of Competition:**

1. NO REPEATS of projects from prior Tech Wars competitions!
2. Car designs must meet these metric TSA specifications: length, height, eye spacing, and wheelbase. (See Page Two of this document)
3. Wood blanks used for cars must be cut from a standard 2"x4".
4. Cars must be shaped from a solid one-piece block of wood with no attachments.
5. Students can utilize any tools or machines to build their car.
6. All cars must be painted. (Car must be dry prior to inspection)
7. Tune cars with lubricant of choice before inspection.
8. The judges will inspect, seed, and impounded all cars at the competition.
9. Students will not be allowed to tune cars between races.
10. Students will not be allowed to make repairs to cars.
11. If a wheel falls off the car, it will be disqualified.
12. Standard 8gm Pitsco CO2 cartridges will be supplied for races.

## **Added Safety Specs and Restrictions:**

1. If design is a rail style car, the center section of the car must have a cross section diameter of at least 5mm.
2. Power plant housing must be deemed thick enough by judges. (3mm spec)
3. Power plant housing depth must meet minimum TSA specs.

## **Material Requirements:**

1. Wood blanks used for cars must be cut from a standard 2"x4".
2. There is no limit to cost of materials.
3. Pitsco-type wheels must be used without alterations.
4. Ball bearings can be used.
5. Axles and bushings can be of any type.
6. Paints of any type are acceptable. (It must be dry prior to inspection)
7. Stickers and decals are allowed. (attached drivers, windshields, mirrors, etc. are not allowed)

## **Scoring/Evaluation:**

Judges Score \_\_\_\_\_

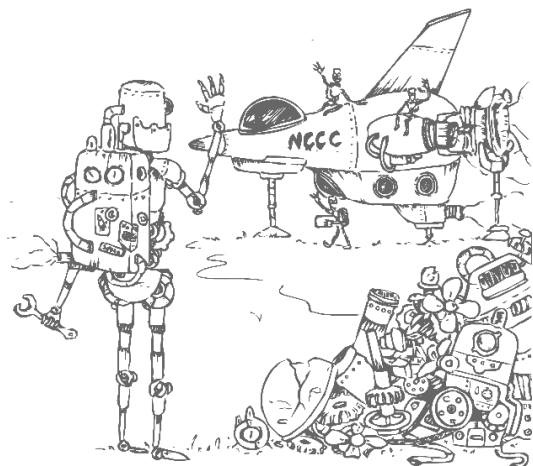
Student Name: \_\_\_\_\_

School: \_\_\_\_\_

| 2. Dragster  | MIN    | MAX      |
|--|--------|----------|
| a. Axles (diameter)                                      | 3 mm   | 3 mm     |
| b. Axles (length)  | 42 mm  | 70 mm    |
| c. Axles bearing (diameter)                              | 3.5 mm | 4.5 mm   |
| d. Axle hole (diameter)                                  | 3.5 mm | 4.5 mm   |
| e. Axle hole (position above body bottom)                | 3.5 mm | 9 mm     |
| f. Axle hole (position from either end of body)          | 9 mm   | 100 mm   |
| g. Brass spacer bearing (diameter)                       | 7 mm   | 9 mm     |
| h. Dragster body (length)                                | 200 mm | 305 mm   |
| i. Dragster body (height at rear <b>with</b> wheels)     | 56 mm  | 75 mm    |
| j. Dragster body (mass with wheels)*                     | 30 g   | 170.10 g |
| k. Dragster body (width at axles - front and back)       | 35 mm  | 42 mm    |
| l. Power plant depth of hole                             | 51 mm  | 51 mm    |
| m. Power plant housing thickness (around entire housing) | 3 mm   |          |
| n. Power plant housing (diameter)                        | 19 mm  | 20 mm    |
| o. Power plant C/L (from body bottom)                    | 31 mm  | 35 mm    |
| p. Screw eye (eyelet inside diameter)                    | 3 mm   | 5 mm     |
| q. Screw eyes (2) or C/L of bottom, distance apart       | 155 mm | 270 mm   |
| r. Wheels, front (diameter)                              | 32 mm  | 37 mm    |
| s. Wheels, front (width at greatest diameter)            | 2 mm   | 5 mm     |
| t. Wheels, rear (diameter)                               | 30 mm  | 40 mm    |
| u. Wheels, rear (width at greatest diameter)             | 15 mm  | 18 mm    |
| v. Wheelbase   | 105 mm | 270 mm   |



## TECH WARS



2020