

# Tech Wars 2020 – Niagara County Community College

**Competition Category:** 3D Printed “OUTLAW” CO2 Car STEM Project

**Level of Competition:** High School

**Coordinator:** [hkursten@newfane.wnyric.org](mailto:hkursten@newfane.wnyric.org)

**3D Printed “OUTLAW” CO2 Car Definition:** A 3D printed CO2 car with NO specifications (except a few for safety, starting gate, and timing reasons)

## Description of the Competition:

Use an engineering design process to create a 3D printed “OUTLAW” CO2 car and race it!

- Research aerodynamics
- Use your research to help you create the best design for your “OUTLAW” CO2 car
- Use SolidWorks, Inventor, or any other engineering 3d parametric modeling software to create 3D models of your design, related drawings of your design, and renderings.
- Print your prototype design from a 3D printer.
- Add axles, any manufacture **stock CO2 car front wheels** (narrow), any manufacture **stock CO2 car rear wheels** (wide), and two eyehooks, **securely fastened (hooks may be reinforced with glue)**, so the car can be raced.

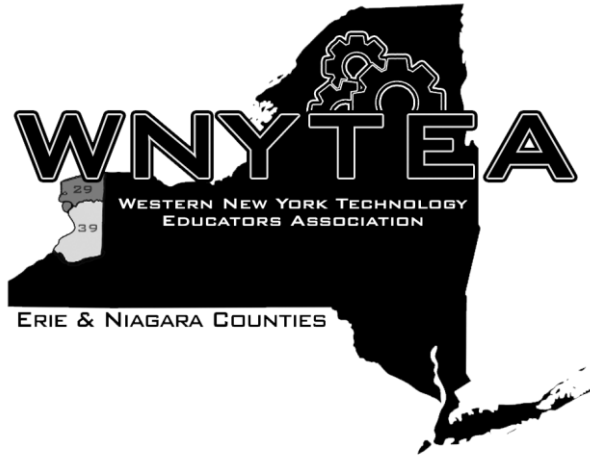
## Scoring:

- Evidence of your research, calculations, and/or engineering that helped you in designing your car. Related drawings and renderings: multi-view, isometric, parts, assembly, etc.
- 3D model aesthetics
- Speed of your car

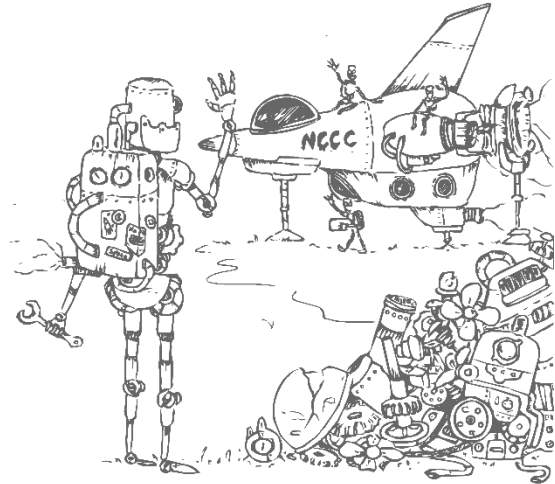
## Rules of Competition:

- Each car is limited to one student (No Teams)
- Use stand-alone presentation medias for your research, drawings, and renderings that can be left with your car unattended on a table (No laptops please)
- Use any 3D CAD software and 3D prototype printer you have available to print a **single-part solid model**. **NO GLUING OF PIECES TOGETHER.**
- Do not paint or enhance the printed model in any way
- Car Safety, starting gate, and timing Specs:
  - power plant hole depth = 50-51mm
  - power plant diameter of = 20-21mm
  - power plant minimum safety zone thickness around entire CO2 = 3mm
  - power plant centerline must be between 35-55mm from the track surface to fire
  - Eye hook at front and back of car **securely fastened**
  - Maximum car height 95mm

- Minimum car height 58mm
- Maximum car width 100mm



# TECH WARS



2020