



# Cariboo Junior Skills Competition

Scope Document

*Gravity Vehicle Race 2024*

Thompson Rivers University  
March 1, 2024



# Gravity Vehicle Race 2024

## **Eligibility:**

This competition is open to teams of students in grades 6 through 9. Each team may be comprised of up to four (4) students.

## **Purpose of the Challenge:**

- To increase students' awareness of careers in trades and technologies through a hands-on competitive event.
- Your vehicle will be judged by how fast it travels on a track thirty-two feet long. Don't forget to name your vehicle!

## **Judging Criteria:**

### Track Performance:

The vehicle will be judged by how fast it travels on a 32-foot long track. The race will be monitored by electronic timing. The vehicles will be raced in a round robin tournament, in which the top 10 cars with the most wins will then race in a double knock out elimination championship round.

Round Robin Tie Breaker: Fastest Elapsed time

### Best Appearing:

Before the races start, each team, teacher and judge will cast 1 vote for the car that they feel is the best appearing vehicle.

The team member of each team that has the best appearing car will receive a \$10 gift card.



## **Equipment, Tools, and Materials**

### **Supplied by the school**

- Material for building the vehicle
- Materials for developing design drawings display
- Materials for developing marketing poster

### **Supplied by Cariboo Regional Skills Coordinator:**

#### **Before the competition**

- Gravity Vehicle Scope Document
- Judging criteria
- Specifications for gravity vehicle track

#### **On the day of the competition**

- T-shirts for all competitors
- Track for contest
- A competition schedule
- Electronic Timing Device
- Panel of Judges

### **Vehicle:**

The only source of energy is the potential energy from gravity as the vehicles sits at the top of the track. To fit in the track, the maximum size of the vehicle is 100mm (4 inches) wide. The underside of the nose of the car (the most forward point of the vehicle) must be no higher than 25 mm (approximately 1 inch) off the surface of the track when the vehicle is sitting on its wheels, to ensure that the most forward part of the car comes in contact with the starting gate ensuring that all competitors have an equal start and can be judged equally. The vehicle can be made from any common materials found in school such as wood, metal, plastic and recycled materials from electronic devices. The vehicles must be made from scratch by the students and not be constructed in any form from any type of kits or 3D printed materials except as noted. The only commercially manufactured or 3D printed parts allowed will be wheels and/or hubs. All ballast weights must be secured solidly to the vehicle.

**NOTE: The maximum weight of the finished vehicle is 600 grams.**



### **Running Rules:**

- Each vehicle will be weighed as the teams arrive.
- The vehicles will be kept on a judges table separate from the teams until the start of each race.
- Only the judges will have access to the vehicles once they arrive on site.
- No modifications to the vehicles that fundamentally change the appearance of the vehicle will be allowed once the teams arrive at the competition. With permission from the Technical Chair minor changes may be allowed as long as the core design of the vehicle is not changed and racing is not delayed. The car must pass another inspection before it is allowed to race.
- Only repairs approved in advance by the judges may be made to vehicles once the competition begins.
- At the conclusion of the racing, each vehicle will be weighed again. This weight must match the original weight, or the vehicle will be disqualified.

### **Race Protocol:**

The Technical Committee members will conduct all races. They will

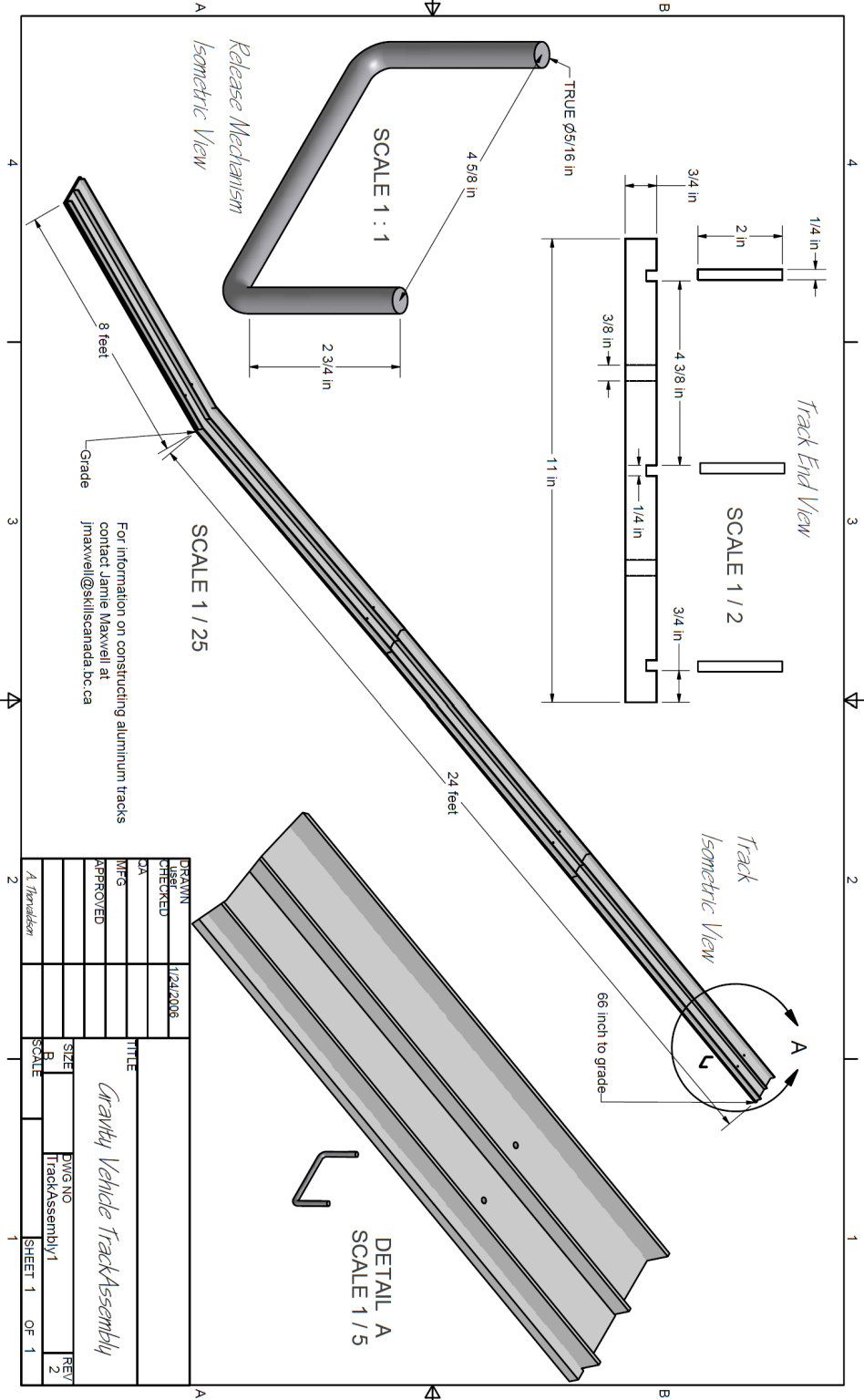
- produce the race schedule
- ensure the cars are placed fairly in the starting gate
- start the race
- determine the winner of each heat.
- determine the winner of the competition

### **Registration:**

All competitors must be registered by their teacher representative. The registration port can be found here: <https://skillscanada.bc.ca/registration-login/> under the Teacher Login for Competition Registration (Regionals and Provincials) header.

### **Technical Committee Chair:**

Jason Schapansky – [jschapansky@tru.ca](mailto:jschapansky@tru.ca)



PREPARED	1/24/2006	TITLE	
CHECKED		Gravity Vehicle Track Assembly	
DATE		SIZE	DWG NO
APPROVED		R	TrackAssembly1
		SCALE	SHEET 1 OF 1
A. Maxweller			REV 2