



Cariboo Junior Skills Competition

Scope Document

Gravity Vehicle Race 2018

Thompson Rivers University
March 2nd, 2018



Gravity Vehicle Race

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.

The challenge is to:

- Work as a team to design, build and name a Gravity Vehicle.
- Submit drawings and/or photos of the vehicle while under construction and upon completion.
- Prepare a presentation that indicates how gravity, weight, friction, aerodynamics, etc., influenced the design of the vehicle.
- Convey, during an oral presentation to the judges, the important aspects of vehicle design.

Note: The vehicle entered in the competition must be accurately represented in the drawings or photos

Registration:

- Teams **MUST** belong to schools that are affiliated with Skills BC. Please contact Pat Barringer, Cariboo Regional Skills Coordinator, for details on affiliation.
- Registration will open approximately December 1st, 2017.

Note: Should space permit, additional teams will be entered on a “first come, first served” basis. If necessary, schools should initiate a school-based run-off to see which team will advance to the regional competition.

Judging Criteria:

There are two sets of criteria: Track Performance and Technical Presentation.

Track Performance:

The vehicle will be judged by how fast it travels on a 32-foot long track. The race will be monitored by a video camera positioned over the finish line of the track. The vehicle of the team that wins the most races will be declared the winner.



That team may be invited to compete in the Skills BC Competition in Abbotsford on Wednesday, April 18th, 2018.

Technical Presentation:

Whereas Skills BC believes that Junior Skills Competitions should include math and science skills each team is requested to prepare drawings and/or photos of the construction and finishing of the vehicle and that the team is prepared to make an oral presentation. Each member of the team that has the best drawings/photos and gives the best oral presentation will receive a \$10 gift card.

Equipment, Tools, and Materials

Supplied by the school

- Material for building 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
- Photos of vehicles entered in past competitions.
- 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

Requirements:

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.

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

Technical Presentation:

The presentation may be on poster paper which cannot exceed 24"x36" or in digital format. All images utilized must be created by the team and may include:

- Photos.
- Drawings or sketches.
- Text.

Design Drawings:

The design drawings may be on poster paper which cannot exceed 24"x36" or in digital format. All images utilized must be created by the team and may include, accurate to scale, top, side and front views of the vehicle.

Oral Presentation:

The oral presentation should be approximately 5 minutes long. It should describe the design decisions made, the construction of the vehicle and other items of interest.

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

Advancing to the Junior BC Skills Competition:

The team that wins the gold medal will advance to the Junior BC Skills Competition to be held in Abbotsford on Wednesday, April 18, 2018.

Technical Committee Chair:

Mark Foan mark-west@shaw.ca

Technical Committee Member:

Kym Behms