

Junior tech challenge

The practical
side of
science and
tech

Rules

2018-2019 EDITION

A technology challenge
for elementary students

READY, SET,

ROLL!

Regional finals within
ODYSSEE
SCIENTIFICS

A program of

 **RÉSEAU
TECHNOSCIENCE**
Together for a new scientific generation

for over 50 years!



Table of Contents

The challenge	3
Tools for teachers	3
Specific rules.	4
Frequently asked questions (FAQ)	4
The rules	
Construction	5
Schedule of events	7
Competition area.	8
Scoring	9
How to register	10
Levels of competition.	10
Acknowledgement.	11

A program of



Premier partner



Media partners



Mise à jour: 3 août 2018

THE CHALLENGE



To design a vehicle that can go down an inclined plane and stop as close to the target as possible.

A LES for the Class...and much more

The Junior Tech Challenge is a LES for the classroom, but it is also a competition that can be experienced at different levels. As a matter of fact, you can register teams directly for the regional finals, as well as holding in-school competitions to select teams for the final, while creating a bonding event for students and staff. In some areas, school boards also invite their schools to participate in a final.

The Réseau Technoscience, through its regional organizations, will be arranging regional finals this spring throughout Quebec. These finals will take place in May as part of the Odyssée des sciences. Projects from the elementary level of the Science Fair, as well as animations from the Club des Débrouillards will also be presented.

The rules

In this document, you will find useful information as well as the rules to successfully complete this year's Junior Tech Challenge.

The rules listed here are for an in class or school challenge. At the regional or school board finals, there may be some variations in the presentation of events and how they unfold.



All the information
in one place
TECHNOSCIENCE.CA

Teaching tools

The following teaching tools are free and designed to guide teachers step by step, making it easy to prepare the challenge in class. Most of these teaching tools are available at technoscience.ca :

- Teacher's guide
- Student's handbook
- Certificate
- Frequently asked questions (FAQ)
- And many more tools!

Are you are a pedagogical consultant looking to organize a final for your school board?

Contact a member of the Réseau Technoscience in your area to receive all necessary information and support.

Frequently asked questions

The frequently asked questions section is there for you and your students! You'll be able to find details on the rules:

TECHNOSCIENCE.CA



Specific rules

- 1.1 The Junior Tech Challenge is a Réseau Technoscience program. The latter and its regional organizations are responsible for holding regional finals throughout Quebec.
- 1.2 The Junior Tech Challenge is open to the students from all cycles of elementary school.
- 1.3 Each team is comprised of one or two participants. Any team with students from two different cycles must compete the challenge from the higher cycle.
- 1.4 The prototype shall be designed and built by the team.
- 1.5 Failure to observe the rules or any other breach from the organizing committee's directives may result in the disqualification of a team.

The Challenge

To design a vehicle that can go down an inclined plane and stop as close to the target as possible.

An adapted level of Difficulty

cycle 1

Students must build their vehicle from a plastic bottle OR cardboard milk/juice container. The vehicle must reach one of the three targets.

cycle 2

Students must build their vehicle from a plastic bottle OR cardboard milk/juice container. The vehicle must reach two of the three targets.

cycle 3

Students must build their vehicle from a plastic bottle. The vehicle must reach targets A and C. Their departure zone is limited (see the plan on page 8).

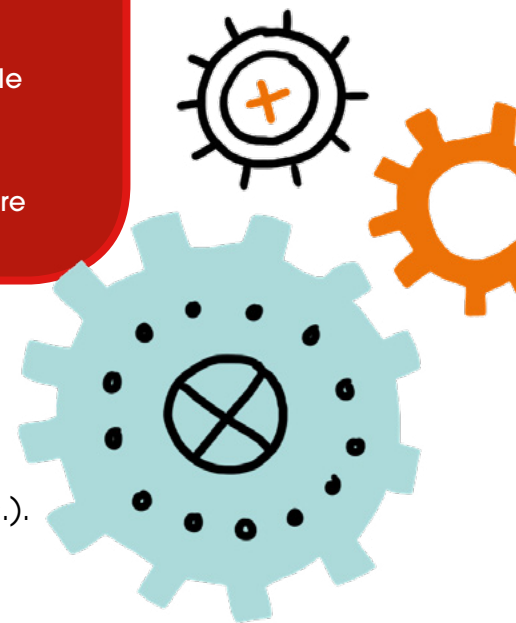
Construction

- 2.1 The maximum length permitted for the vehicle is 50 cm.
- 2.2 No accessories outside the vehicle will be permitted (ex. launching ramp, stop blocks, etc.).
- 2.3 Mandatory material for designing your vehicle :

Cycles 1 and 2 : a plastic bottle (2 liters max) OR cardboard milk/juice container.

3e cycle : a plastic bottle (2 liters max).

Note : for safety reasons, plastic bottles must be unperforated.
- 2.4 The vehicle must absolutely roll on the inclined plane. It cannot slide or glide.





2.5 Wheel conception

- Cycle 1 : Competitors can use pre-manufactured wheels and axles, such as wheels from toy vehicles.
- Cycles 2 and 3 : Competitors must make their own wheels and axles from everyday objects (ex: disks, thread spools, plastic lids, straws, etc.).

2.6 The team can attach the axles directly to the cardboard or the bottle. They can also design a chassis, but participants will have to make it themselves.

2.7 Materials not permitted :

- Components that could cause injury or alter the competition area;
- Liquids;
- Hazardous products;
- Any chassis from a commercial toy;
- Wheels and axles coming from toys (for cycles 2 and 3).

2.8 Teams can make changes to their vehicle between rounds. A minimum of 5 minutes is granted.

2.9 The answers published in the Frequently Asked Questions serve as a reference for the interpretation of the rules.



Schedule of events

3.1 The team must submit their vehicle for inspection, to ensure that the rules have been followed.

3.2 Each team can test their vehicle before the competition begins.

3.3 The competition consists of two rounds. Teams must reach one target per round (see map on page 8).

Cycle 1 : The team picks which target it wishes to reach. The choice can change from one round to the next.

Cycle 2 : The team must reach 2 different targets of their choice.

Cycle 3 : The team must reach target A in the 1st round and target C in the 2nd round.

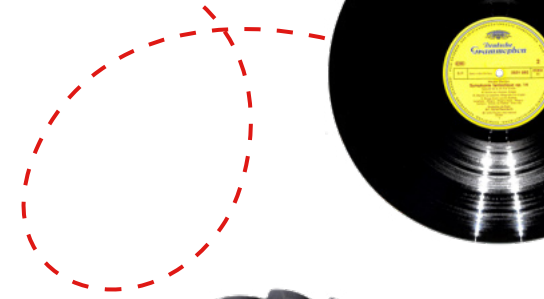
3.4 In each round, the team has 30 seconds to set up their vehicle at the start area (see plan).

The use of templates to position the vehicle in the starting area is permitted, but they must be removed before the departure of the vehicle.

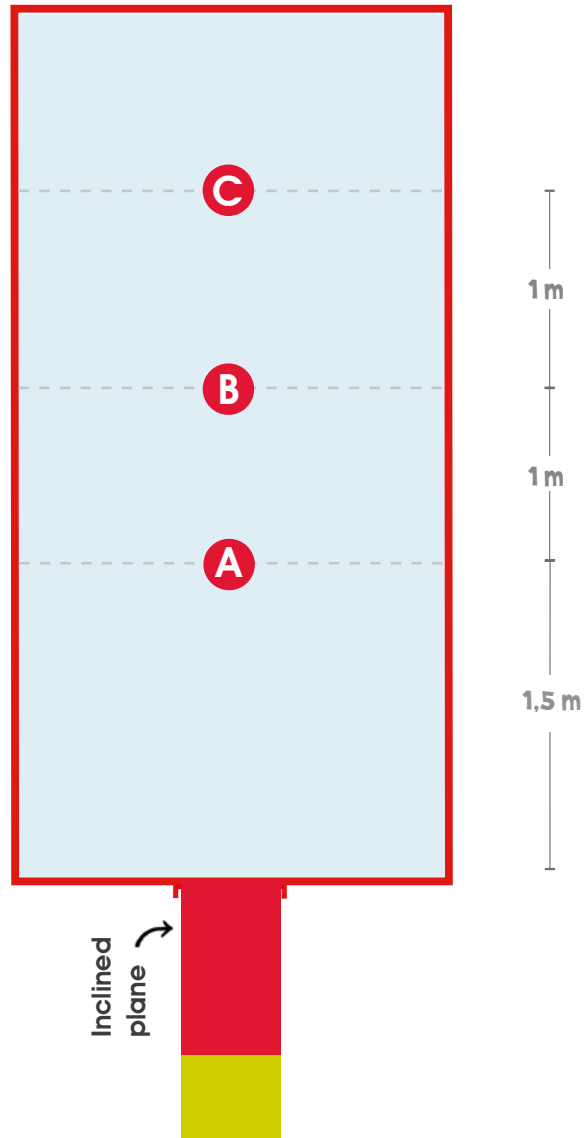
Cycles 1 and 2: The team sets up their vehicle in the area they want on the inclined plane.

Cycle 3: The team sets up their vehicle at the start zone. The wheels of their vehicle must be touching this zone.

3.5 At the starting signal, the team must release the vehicle – pushing is prohibited.



Competition area

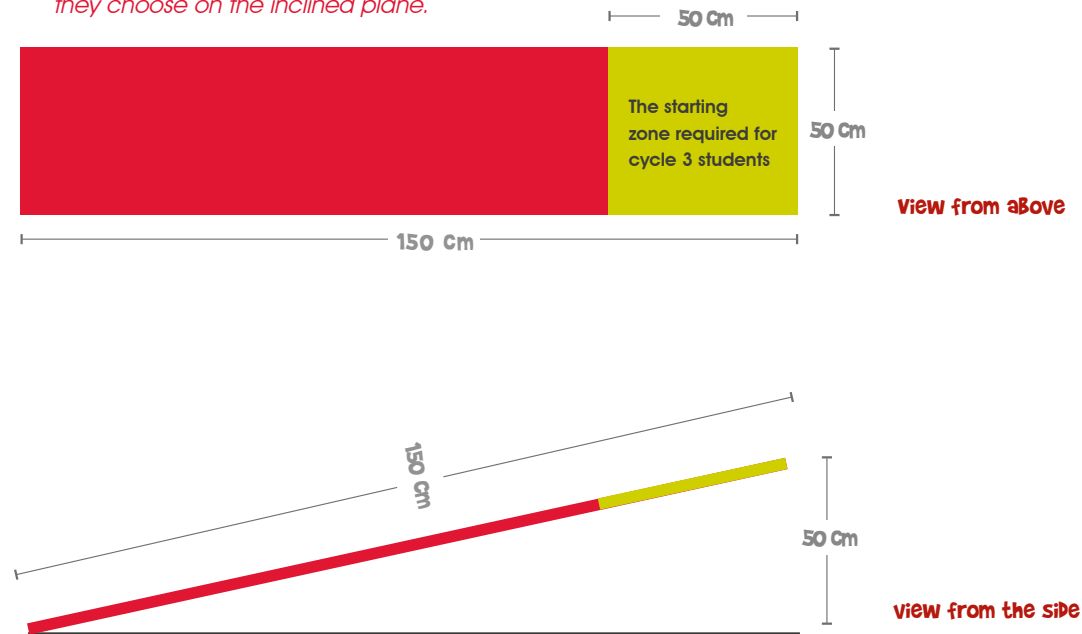


Inclined Plane

The inclined plane consists of a sheet of coroplast (150 cm long by 50 cm wide) resting on two cardboard boxes of printing paper. The vertical drop must be approximately 50 cm.

Note : You can strengthen the coroplast or not.

Students from cycles 1 and 2 can position their vehicle anywhere they choose on the inclined plane.



Scoring

Scoring per round (m) is calculated as following :

$$m = 100 - d$$

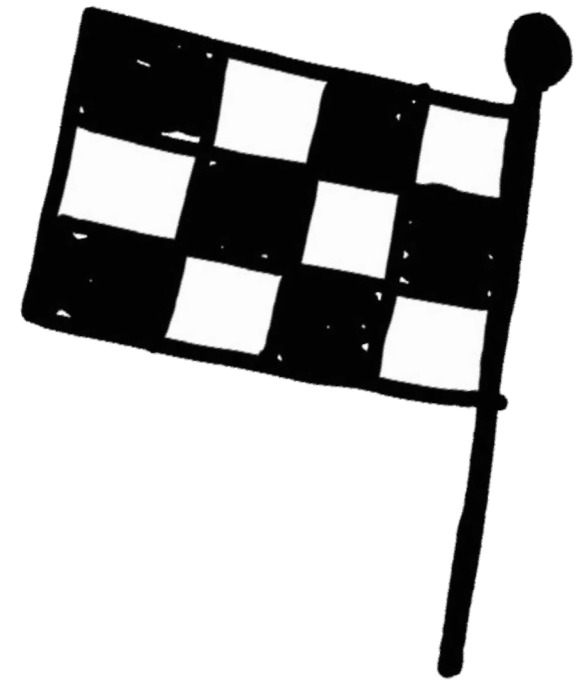
d : distance measured in centimeters from the target to the part of the vehicle that is closest.

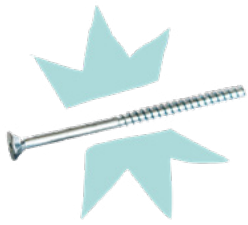
Winners

The winning team for each cycle is the one with the most points after both heats.

In case of a tie

Teams that are in a position to win a prize will go another round. This time, the distance (d) is measured in millimeters. $m = 1000 - d$.





New Challenges at every level of Competition

During the regional finals, the challenges can be presented in a different format. The goal in doing this is to allow the students that participate at different levels of the competition to renew their experience. Everything will be put in place so that students can review the notions learned in class while continuing to have fun!

How to register

To register your teams for the regional final, you must use the [ON-LINE REGISTRATION FORM](#) on the website.

However, if your school board is organizing a final, you must register your team with the individual responsible for the final at your respective school board.



To contact the regional Réseau Technoscience member in your area go to TECHNOSCIENCE.CA

Contact us

for details on costs, registration, scheduling, etc.



Junior Tech Challenge Program Manager

Isabelle Jutras

Junior Tech Challenge National Committee

Stéphane Coupal, conseiller pédagogique, Commission scolaire de Laval

Jean-Marc Drouet, professeur et ingénieur, Faculté de génie de l'Université de Sherbrooke

Donald Gaudreau, conseiller pédagogique, Commission scolaire de la Pointe de l'Île

Alain Labonté, professeur invité, Programme d'éducation préscolaire et d'enseignement primaire, Université du Québec à Montréal

Stéphanie Lafortune, enseignante spécialiste en science et technologie au primaire

Graphic design

Maxime Lacasse Germain & Xavier Trudeau

Revision

Gael Hervé et Sara Gosselin

Acknowledgements

This edition of the Junior Tech Challenge was created in collaboration with la Table régionale en science et technologie au primaire In the Laval-Laurentians-Lanaudière regions which includes :

*Commission scolaire de la Seigneurie-des-Mille-Îles,
Commission scolaire de Laval,
Commission scolaire de la Rivière-du-Nord,
Commission scolaire des Affluents,*

*Commission scolaire des Laurentides,
Commission scolaire des Samares,
Commission scolaire Pierre-Neveu,
Commission scolaire de la Pointe-de-l'Île.*

