

Junior tech challenge

The practical
side of
science and
tech

Presentation and Rules

within
Regional Finals **ODYSSEE**
SCIENCES

Sort It!

2020-2021 EDITION



A program of



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The Challenge

By choosing materials from the list of permitted materials, design and produce a prototype that allows you to sort different types of objects and distribute them into assigned recovery containers.

A LES for the class... and much more

The Junior Tech Challenge "Sort It!" is a LES for the classroom, but it is also a competition that can be experienced at different levels. Teams can be registered directly to the regional finals, or in-school competitions can be held where teams can be selected to participate in the finals. In some areas, school service centers invite their schools to participate in finals. All the while, creating a bonding opportunity for students and staff!

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 service center finals, there may be some variation in the presentation of events and how they unfold.

A LES adapted to Today's Reality!

This year, the Réseau Technoscience, through its regional organizations, will arrange regional finals throughout Quebec in a virtual format. These finals will take place in May as part of the Odyssée des sciences. Projects from the elementary level of the Hydro-Québec Science Fair, as well as animations from the Débrouillards will also be presented.

Your Mission!

An essential piece of your city's main sorter broke overnight and you are told that it is impossible to replace this part ... so you are asked to design and make a prototype that can sort all the materials. The truck which must collect the sorted materials arrives tomorrow morning! It's urgent! There is no time to waste!

Tools for Teachers

The following teaching tools are free and are designed as a step-by-step guide to help teachers to prepare the "Sort It!" challenge in class. Most of these teaching tools are available at technoscience.ca :

- Teacher's Guide
- Student Handbook
- Slideshow
- Certificate
- Frequently Asked Questions (FAQ)

This is your first time taking on the challenge and you'd like some support?

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

A MISSION FOR ALL!

Cycle 1:

Sort three different types of objects and divide them into a minimum of two assigned recovery containers. One of the objects can remain in the sorter.

Cycles 2 and 3:

Sort three different types of objects and divide them into three assigned recovery containers.

Different Objects to Sort!

Cycle 1:

- 5 macaronis
- 5 marbles
- 5 ping pong balls

Cycle 2:

- 5 marbles
- 5 centicubes
- 5 steel washers 1/2" (12.7mm diameter bolt and 34.93mm outer diameter)

Cycle 3:

- 10 marbles
- 10 centicubes
- 10 steel washers 1/2" (12.7mm diameter bolt and 34.93mm outer diameter)

Warning!

The containers are not an integral part of the sorter. The containers consist of 20-23 cm round aluminum plates, and are used by all teams.

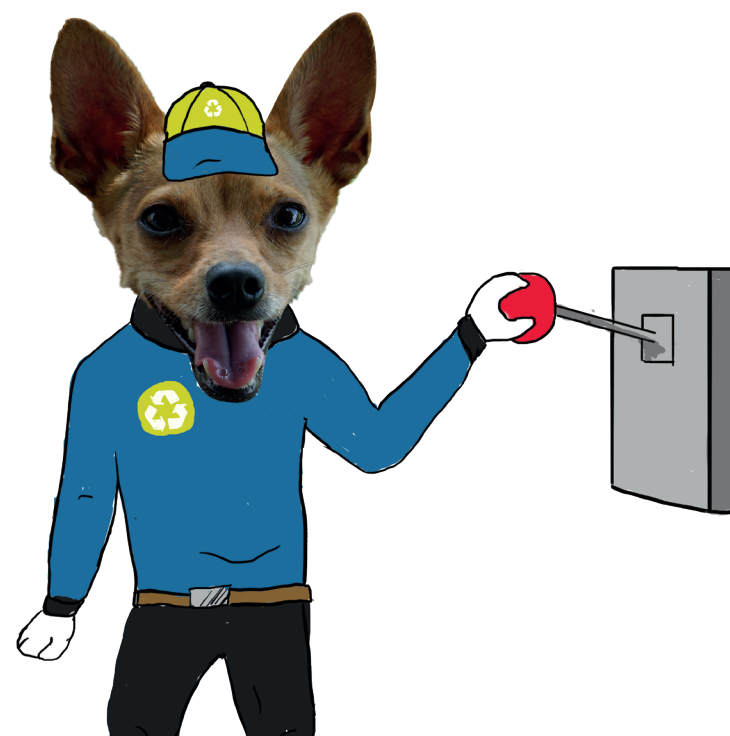
Specific Rules

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

Frequently Asked Questions

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

TECHNOSCIENCE.CA



Construction

- 2.1 If the team is made up of two teammates, each teammate can build his/her own prototype.
- 2.2 The sorter should fit into a cardboard box designed to hold 5,000 letter-sized sheets of paper (216mm x 279mm).
- 2.3 The sorter must be made solely of materials that are in the list of permitted materials (see box "Materials to be Used for the Design of the Prototype").
- 2.4 The sorter must have an opening that allows the teacher to easily place the objects in it. The opening can close once the items are placed in the sorter.
- 2.5 The sorted objects must be distributed in the designated recovery containers. The team can place the containers in any order they want.

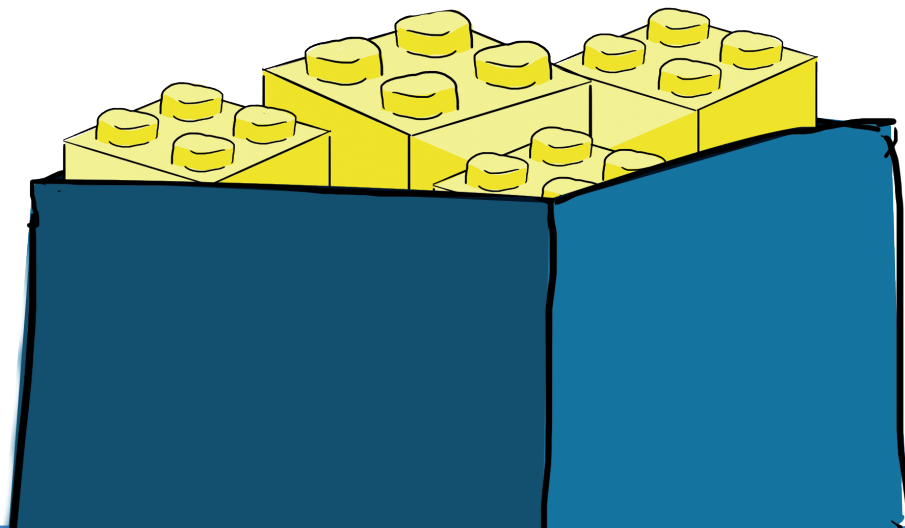
Materials to be Used for the Design of the Prototype

- Cardboard or a cardboard box (cardboard must be easily cut with scissors)
- Aluminium container or aluminium tray (any type)
- Paper (any type)
- Aluminium foil
- Popsicle sticks
- Pipe cleaners
- Paper clips
- Thumbtacks
- Wooden sticks
- String
- Felt
- Rubber bands
- Paper fasteners
- Nails
- Magnets
- Sticky tack
- Adhesive tape (any type)

Any other material is prohibited!

Schedule of Events

- 3.1 The team must submit their prototype for inspection to ensure that the rules have been followed.
- 3.2 Each team can test their prototype before the competition begins.
- 3.3 The competition consists of two identical rounds. The best of the two rounds will be selected for ranking. In the event of a tie, the other round will be counted as well.
- 3.4 Each team must designate an operator to manipulate the sorter throughout the sorting process. Teams may change operators for the second round. The other team member may verbally intervene during the round.
- 3.5 In a team of two where each of the teammates has built their own prototype, the teammates may decide to use a different prototype per round or to keep the same one for both rounds.
- 3.6 Only the teacher places the objects in the sorter.
- 3.7 The stopwatch starts when the teacher places the objects in the sorter at the location indicated by the student.
- 3.8 The stopwatch stops when the student announces that the sorting is complete.
- 3.9 During the sorting, it is forbidden to touch the objects to be sorted with your hands or with any other object.
- 3.10 Once the items have fallen outside the sorter or in the recycling bins, the student cannot retrieve them.



Scoring

The team must sort as many items as possible in the shortest time possible.

Each item is worth 10 points. The time taken to complete the round will be deducted from the accumulated points.

$$\text{10 points per sorted item} - \text{Sorting time in seconds} = \text{Final score}$$

- Objects outside the recovery container will not be counted.
- An object that is found in the wrong recovery container will not be counted.

Example A

Cycle 1 items

All items are sorted into the correct recovery containers.

Sorting Results:



Sorting time:

54 seconds

Scoring for the sorted objects:

$$(5 + 5 + 5) \times 10 = 150$$

From this total we deduct the sorting time:

$$150 - 54 = 96 \text{ points}$$

Example B

Cycle 2 Items

Items found in another recovery container will not be counted.

Sorting Results :

In the event of a tie

The total of the two rounds will be used to determine the position of the teams.



Sorting time:

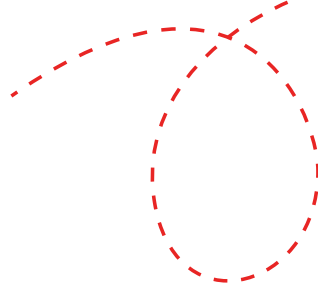
42 seconds

Scoring for the sorted objects:

$$(4 + 5 + 4) \times 10 = 130$$

From this total we deduct the sorting time :

$$130 - 42 = 88 \text{ points}$$



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 who 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 ONLINE REGISTRATION FORM on the website.

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

Contact us

for details on costs, registration, scheduling, etc.

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Junior Tech Challenge Program Manager

Sara Gosselin

Scientific review

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

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Xavier Trudeau

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