Gravity Cars

Comox Valley Schools
A Community of Learners
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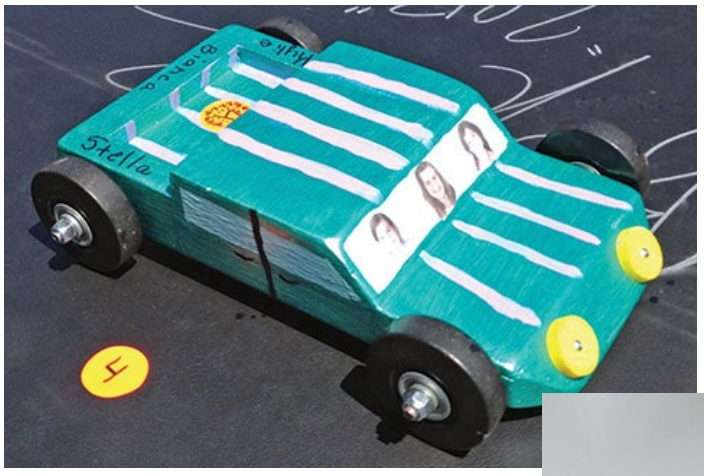

ADST Project

Skills Compétences Canada
British Columbia

Gravity Cars are a great ADST project for students in grades 4-7.

The first thing that you will need to do as a teacher, is get trained in using your school Maker Cart. Once you are Safe and Certified you will need to do an inventory on your ADST Toolbox kits (there are 12 for your school) and your Maker Cart. Each cart and your 12 kits have master lists of what should be in them. If you are not sure or if you will need additional resources, please contact your District Careers Coordinator and they will be able to help you, Dawn.Anderson@sd71.bc.ca or Steve.Claassen@sd71.bc.ca

Jr. ADST (Applied Design Skills and Technology)

ADST courses have been designed so that students can gain hands-on learning experiences and skills through design and creation. The Curricular Competencies within these courses ask students to understand context, define what they need to do, ideate with others and evaluate, prototype, test their ideas, make and share.
With this, these booklets have been designed to support new to experienced users and there are many ways to approach each step.
Feel free to challenge your students to come up with new ways to compete a step in the booklet. Some of the steps are challenging and should be completed with a partner.
Please share if you have a good approach to a step and we can tweak the booklet for all.

For this project you will need the following items:

1. Hammer
2. F Clamp
3. Measuring Tape
4. Safety Glasses for each student
5. Ear Plugs (if wanted)
6. Hand saw
7. Glue Gun and glue
8. 1 1/4" Screws and wood wheels
9. Sandpaper
10. 1” x 3” wood
11. Drill with bit
12. Recycled materials (list included)

Once you have everything you are ready to start your project. Don’t forget to put on your safety glasses.

STEP 1:

Read over the following document. Students will be able to design their own car based on the specifications outlined below, from the Skills Canada Scope Document Rules book.

Skills Canada Vehicle Specifications:

The only source of energy is the Potential Energy from gravity as the vehicle sits at the top of the track. To fit in the track, the maximum size of the vehicle is 101mm (4 inches) wide, 152mm (6 inches) high and 304mm (12 inches) long. There is a 600 gram weight restriction on the vehicle.

The vehicle can be made from any common materials found in the school such as wood, metal, plastic and recycles 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.

STEP 2:

Students can bring in any recycled materials from home to help them design.

Example Materials:

- Old CD's for wheels (can 3D print hub, many TL's can support this)
- Old nails, screws, bolts (for weight)
- Old batteries
- Doweling
- Old cutlery

STEP 3:

Students can use the ADST brainstorming sheet, see attached, to walk through designing, ideating, prototyping and testing etc.

When prototyping/building, students will use the hand saw, drill etc to build their car. It could have a body and a chassis or just one chassis with items screwed and glued on for weight. There are many ways to put a car together and students can ideate.

It's nice to **not give** examples as this allows students to think on their own and be creative. Some may need guidance one on one.

STEP 4:

Once students are ready with their cars, you could start a class competition. Students line their cars up two at a time and first place goes into an A pool and second place goes into the B pool. Race until each car has gotten second twice, except first and second (process of elimination). Or follow a competition chart.

Example double elimination chart: https://www.interbasket.net/brackets/20-team/double-elimination

Gravity Car ADST

Name:_____

Materials:	**Specifications:** Height, Length, Width	**Idea #1:**	**Idea #2:**
Idea #3	**Peer Feedback:**	**Prototyping & Building:**	**Testing:** What went well, what could be changed?

Notes and additional changes/modifications:_____

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