



The Collingwood Street Trolley Derby
KIDS DESIGN CHALLENGE
Sponsored by Challenge NZ Ltd

Name Oliver Perks
Year of Birth 1996
Phone 5418485
Mobile N/A
Email N/A

Design Portfolio

TOPICS TO COVER

Concept Drawings:

Sketch what you imagine your trolley will look like
Illustrate your ideas using *perspective* and *colour*

Plans:

Draw accurate scale top and side views
Define the length, width, height and weight

The Chassis and Running Gear:

Describe what your trolley will be made of
Explain how it will steer and brake
Predict how fast it will travel and how long it will take to stop

Description:

Tell the judges what inspired your design
Describe the strengths and weaknesses of your design
Identify the areas you anticipate needing help from a mentor
Explain why your design deserves to win

Please Note

- You must limit your *design portfolio* to a maximum of the four A4 sheets of paper in this Entry Form
- Use only **ONE** side of each page
- Include your *name*, your *grade* and your *year of birth* on **EACH** page.
- Your drawings can be created in *pencil*, *crayon*, *paint*, or *Image Editing software*... anything at all - as long as the judges can understand it!

Good Luck Designing your Ultimate Trolley!

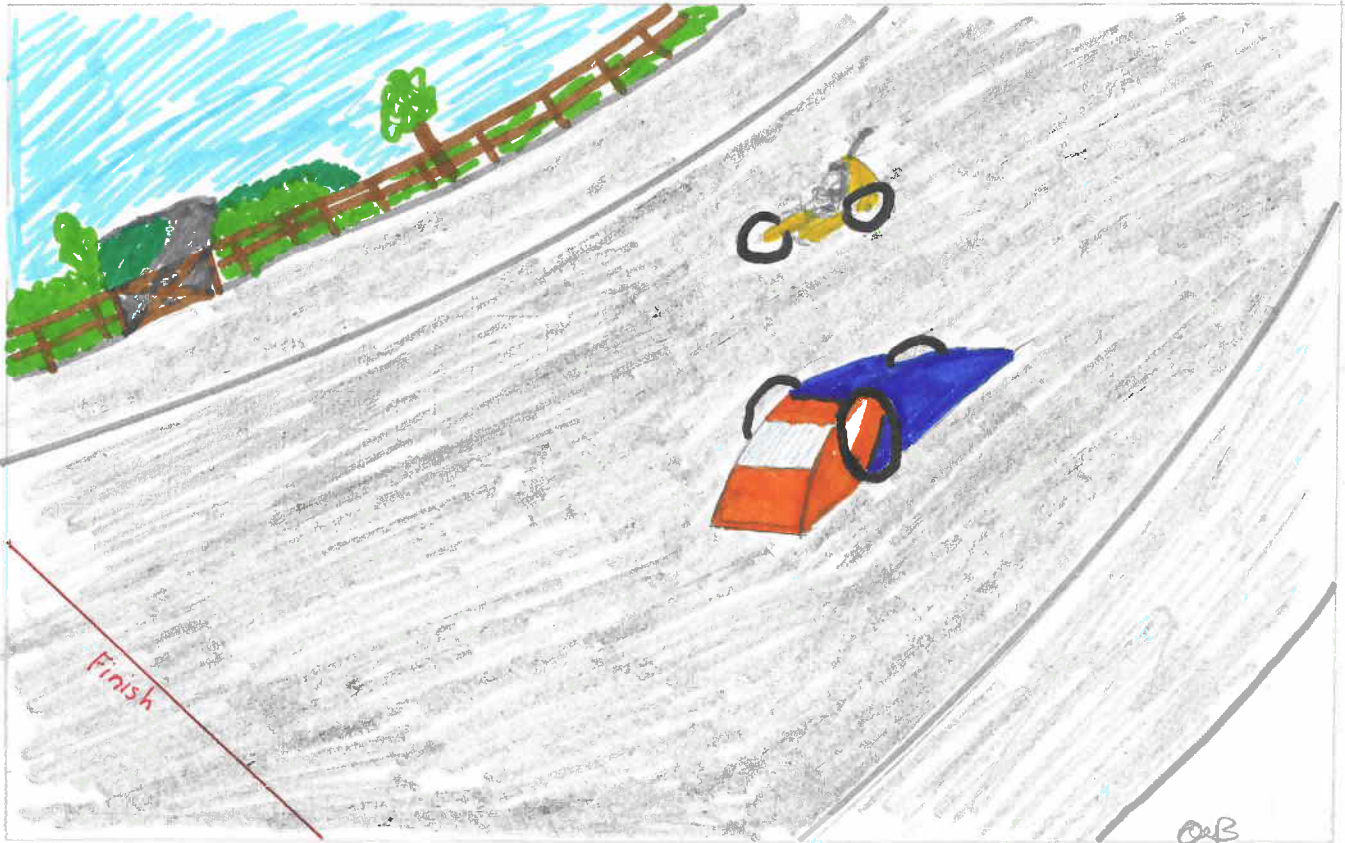


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Concept Drawings:





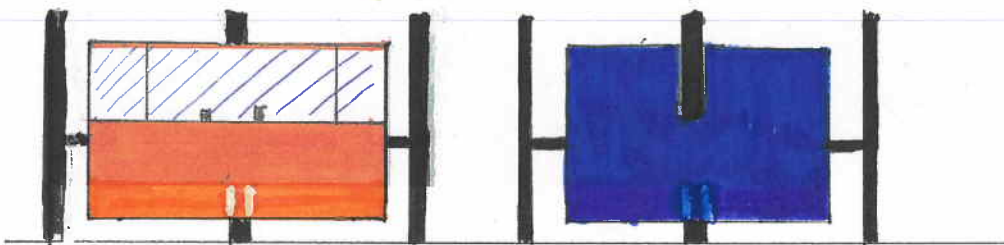
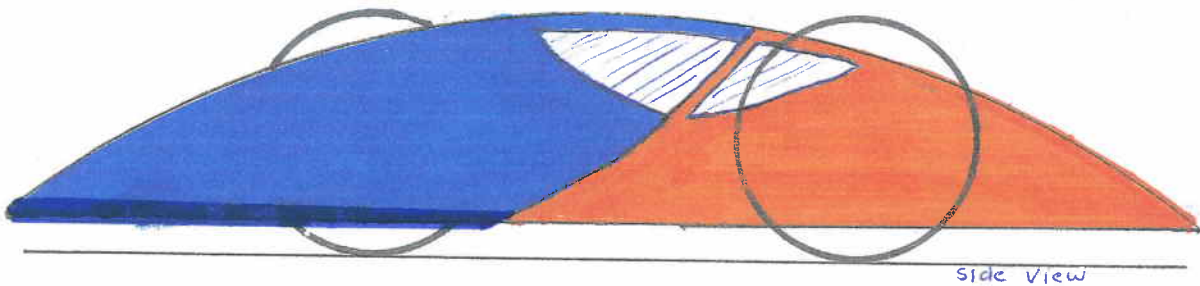
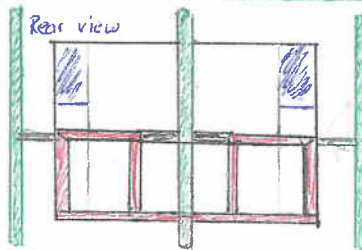
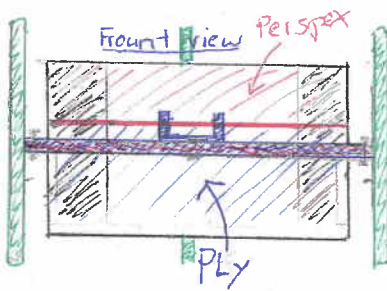
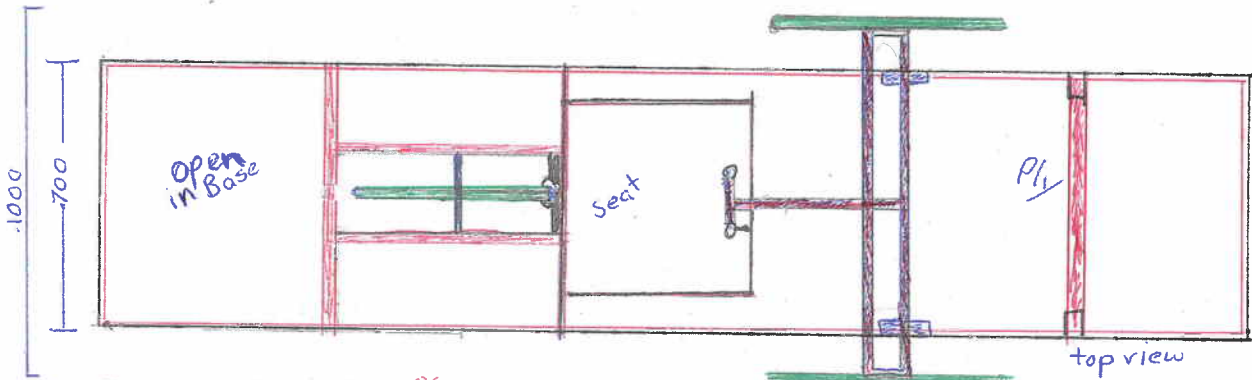
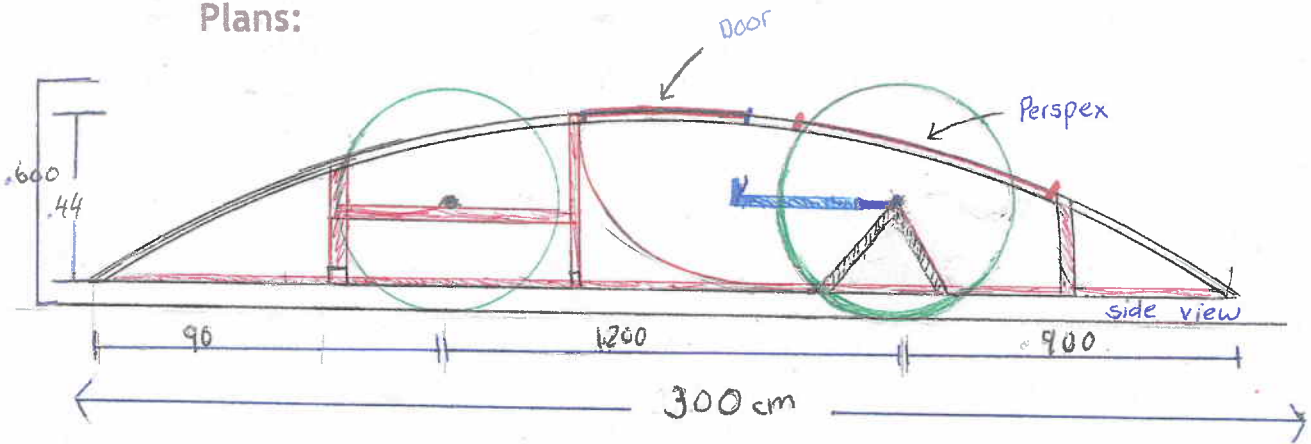
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scale : 1:200

Plans:





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The Chassis and Running Gear:

My trolley will be made from 25mm box section steel.

The box section steel will also be used to for the upright framing, wheel housing and construction of the steering.

The exterior cladding will be made of ply

Floor: 9mm H3 DD2 (ply) **Side's:** 5mm H3 DD2 (ply) **Top:** 5mm H3 DD2 (ply)

The top and sides will be screwed and glued together using 30mm square timber battens as bracing.

The top window is 5mm Perspex's (approx. 60cm x 70cm square) the side windows are the same thickness (5mm) and approx. 70cm x 20cm. As shown in the plans.

Steering and brakes

Brakes: One set of callipers brakes on the rear wheel.

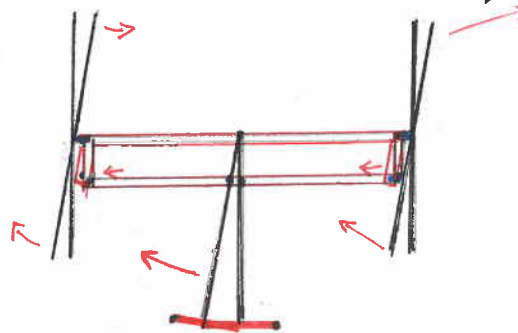
Steering: A simple pivot mechanism with a non turning handle. See details below.

Estimated speed: 75kph. **Braking:** 4-5 seconds depending on the speed.

Name: Oliver Perks

D.O.B:1996

Grade:Sprinters





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Description:

I have wanted to get into the finals for three years. The concept that I have could be a winning design.

Weaknesses. The wheels are vulnerable to be hit if two carts come together into close proximity.

Strengths: The bar behind the seat will act as a roll bar if or when crashing.

The aerodynamics are simple and inexpensive to construct.

Help: I will need help to make the steering mounts, the main frame of the steering assembly, welding the main frame and outside wheel bearings.

This design deserves to win because it can be made simply and cost affectedly for my age.

Name Oliver Perks

D.O.B 1996

Grade Sprinters