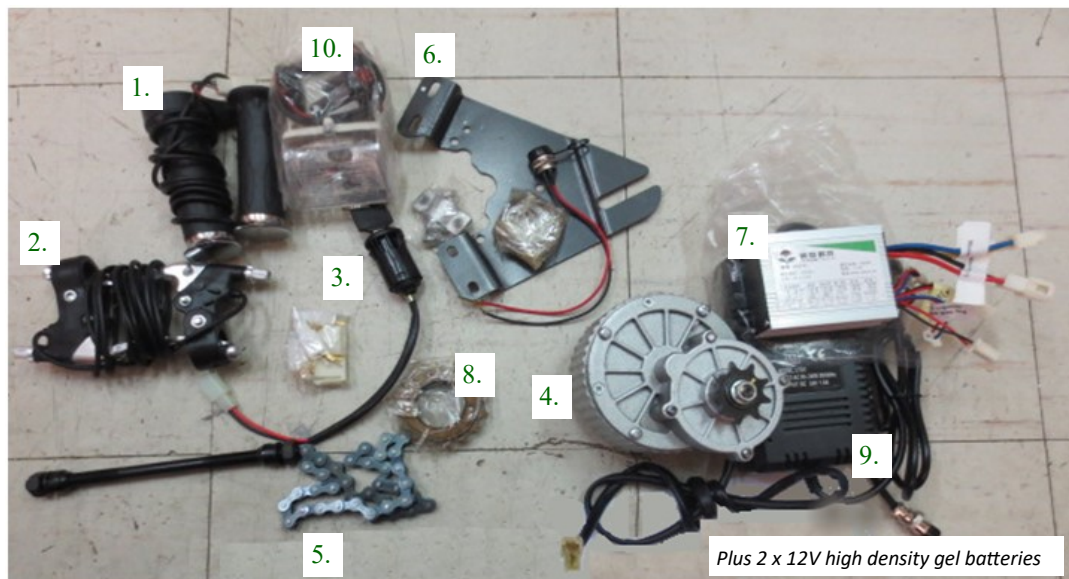


The Electric Vehicle Kit



Parts (as shown above):

- | | | | |
|------------------|------------------|---|----------------------------------|
| 1. Throttle | 2. Brake handles | 3. Key switch | 4. Motor & gearbox |
| 5. Chain | 6. Motor mount | 7. Motor controller | 8. Sprocket & free wheel ratchet |
| 9. Smart charger | 10. Light | (Plus 2 x 12V high density gel batteries) | |

Design, Safety and Scrutineering:

Design Guidelines. Entrants MUST consult these for design & safety requirements before building and during construction to ensure compliance <evolocity.co.nz>

Scrutineering. Vehicles will not be allowed to compete on Raceday unless they pass **Scrutineering**. Decisions will be based on the **Design Guidelines**. Please ensure these are read and adhered to.

Forum. Post questions on the Design Guidelines into the Forum for a quick decision from the Chief Scrutineer <<http://evolocityschools.freeforums.net/>>

Classes:

Standard class: **Bikes** up to 350W, **Carts** up to 350W, (24V standard kit)

Open competition class: **Bikes** up to 1kW **Carts** up to 1kW (at 24V - 48V)

If a team builds a vehicle that does not meet the standard motor and battery requirements they will be entered in the Schools Open class (if compliant). Some scoring normalisation then be applied.

The national **"EVolocity Top Team"** award trophy will be presented to the team that perform best in the Performance category & features strongly in Innovation, Show & EVy Categories

EVOLOCITY

FOUNDING SPONSOR **Orion**



Electric Vehicle Competition NZ Schools 2019



EVolocity in partnership with Orion, Enviroschools, Assist Energy Ltd, ETCO, University of Auckland and MeloYelo is proud to launch the school's programme for the fifth year of competition.

The programme, now extends from Canterbury through to Nelson, Wellington, Waikato, Manawatu, Wanganui, Wairarapa, Horowhenua, Bay of Plenty and Auckland schools.

EVolocity Vision:

"To establish a programme that will enable participants to gain knowledge, skills and passion in the areas of design, engineering and technology that will prepare them for 21st century careers and empower them to create a more sustainable future."

Objectives:

- ◆ To involve students in exciting electric vehicle building projects embedded in school curricula
- ◆ To grow the skills & confidence of students in ICT, Mechanical & Electrical engineering
- ◆ To grow leadership & teamwork amongst students engaging in EVolocity
- ◆ To promote educational pathways related to this growing industry sector
- ◆ To strengthen the links between students and tertiary education providers
- ◆ To foster positive attitudes & actions towards environmental sustainability

Partners:



Create a bike or cart, powered by the standard electric motor kit to compete in:

Head to Head Drag & Deceleration: The maximum speed attained at the 60m mark along a drag strip will be measured by Police radar units. Vehicles must then be able to brake at the 'Stop' sign after the 60m mark and come to rest within their lane and a stopping distance of 14m. Drag times won't be recorded for vehicles that do not meet these stopping requirements.

Street Circuit: The shortest time around a set circuit & back into the original 'garage' park. (See circuit on website)

Economy run: The vehicles will be released at 5s intervals to drive as far as they can around a circuit using an energy drain of 50Whr. A device will be installed next to the battery to measure this energy drain. It will shut the vehicle off when this quantity of energy has been used. The distance travelled will be measured & vehicles ranked within classes. The event will be time limited to 1 hour.

Gymkhana event—TBA

Controller: The best overall performance in the Drag, Street Circuit and Economy Run events by a team that has built their own controller.



Scoring:

Teams will be ranked for each of the above events. Prizes will be awarded for each of Standard Bike, Standard cart, Open bike, Open Cart classes.

Vehicles of the future need new technologies to improve driving & control.

Innovation Challenge Award #1

"Collection & display of vehicle performance data"

Build a system into the vehicle to collect and send vehicle performance data, e.g. speed, location, electric current, battery status etc. This data could be stored on-board for later download or be transmitted to pit crew for immediate display.



Innovation Challenge Award #2

"Engineering excellence & innovation"

This award will recognise technological innovations and engineering excellence in design, materials and construction.



Scoring:

A written description of innovative features will be sent to judges when requested (and must not exceed 2 pages with diagrams). Innovative features are to be demonstrated to judges on Raceday.

Vehicles will parade past a judging panel with points awarded for;

- (5) Body design & appeal
- (5) Quality of finish
- (5) Amount of vehicle built from up-cycled / sustainable materials.
- (5) Most creatively outfitted team ... as though they were off to the Rugby 7s!



Scoring:

Winning team will have the most points allocated by the judging panel

Teams are to report on the concept, design, construction and evaluations of their electric vehicle throughout its development.

This can be a stand alone report, or your portfolio of evidence for course assessment.

- The report will be scored on:
- ◇ Completeness
 - ◇ Development of ideas
 - ◇ Design challenges and solutions
 - ◇ Clarity of explanation
 - ◇ Impact on sustainability



Scoring:

Will be based on points awarded for the five concepts above

To recognise creativity in presenting the sales pitch for electric vehicles and the effectiveness of delivering this to their community.

"The Pitch" Award.

Produce a 30 second commercial to convey the benefits of electric vehicles to viewers.

Scoring (panel of judges)

- ◇ Key messages
- ◇ Creativity
- ◇ Impact

Submitted by Friday 30th August

"The EVangelist" Award.

The effectiveness of delivery of the Pitch to the public.

A) Use **You Tube** to deliver your "Pitch" to as many viewers as possible. **Scoring** (# views)

B) Use **Facebook**, to tell the story of your build, the new skills of your team & the benefits of EVs. **Scoring** (# "Likes")

C) Use **other methods** such as newspaper article, unveiling event, to celebrate the creation of your vehicle & recognise your sponsors. **Scoring** (evidence sent to judges)