



Clifton State High School

Achieving in every field

# 2018

## Clifton Cart Challenge A STEM Initiative

### Format, Rules and Regulations



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## COMPETITION OUTLINE

Designing and developing a Pushcart can be an enjoyable and productive way of incorporating technology and science outcomes in your School Program.

Benefits also arise through physical activity, teamwork, sportsmanship and community partnerships.

### Points to Note:

a) New Pushcarts must be designed in consultation with the school students competing and built in the year of competition.

d) If there are 8 teams or more in any division, they may be run as a separate competition at the discretion of the race director. Format will be advised by email as soon as entries are finalised.

e) Judges will scrutinise pushcarts prior to, and throughout, the competition, for safety and maintenance issues.

f) The one-day event is divided into 3 competitions:

1: Junior

2: Senior

3: Open

### CO-ORDINATOR CONTACT

Race Coordinator/Director is:

**Mr Keiran Carson**

Email: [kmcar29@eq.edu.au](mailto:kmcar29@eq.edu.au)

Phone: 07 4697 4777

# THE THREE EVENTS

## Competition 1 – Junior Sprints

This event is open to all students in years 4-8 with 2 age divisions:

- **Junior Sprints – Division 1 – Year 4 and 5**

This sprint will be conducted over 50 m on a straight track with a grassed surface. Teams will consist of a driver and 2 pushers.

The driver's feet must remain inside the cart at all times. A **five (5) second** penalty will be applied for each breach. False starts will be restarted without penalty.

- **Junior Sprints – Division 2 – Year 6 to 8**

This sprint will be conducted over 100 m on a straight track with a grassed surface. Teams will consist of a driver and 2 pushers.

The driver's feet must remain inside the cart at all times. A **five (5) second penalty** will be applied for each breach. False starts will be restarted without penalty.

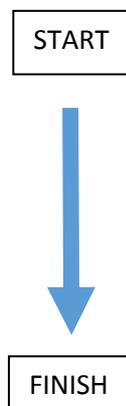
**Final positions will be decided based on completion times across all heats.**

### Track info

Format: Straight line sprint

Distance: 50-100 metres

Surface: Grass



## Competition 2 – Senior Endurance

The senior event will be a 600m endurance race conducted on a 150 m circuit with a grass surface.

Teams will consist of a driver and 6 pushers, only 2 pushers are permitted on the track at any time. Team members can be any student from Year 9 to 12.

There is a **minimum of 3 pit stops** per race with a **compulsory pusher changeover**.

The driver's feet must remain inside the cart at all times. A **five (5) second** penalty will be applied for each breach. False starts will be restarted without penalty.

**Track info – See below**

## Competition 3 – Open Endurance

The open event will be a 600m endurance race conducted on a 150 m circuit with a grass surface.

Teams will consist of a driver and 6 pushers, only 2 pushers are permitted on the track at any time. Team members can be any individual from year 9 to 12 and community members.

There is a **minimum of 3 pit stops** per race with a **compulsory pusher changeover**.

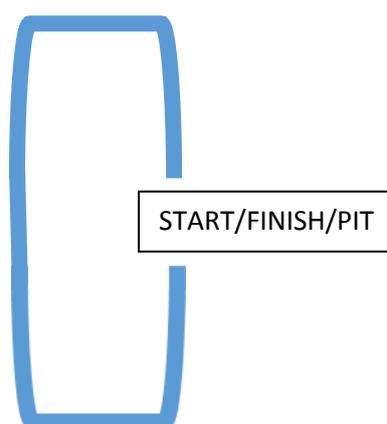
The driver's feet must remain inside the cart at all times. A **five (5) second penalty** will be applied for each breach. False starts will be restarted without penalty.

### Track info

Format: Circuit endurance

Distance: 600 metres (4 x 150 metre circuit)

Conditions: Pit at 150metre intervals



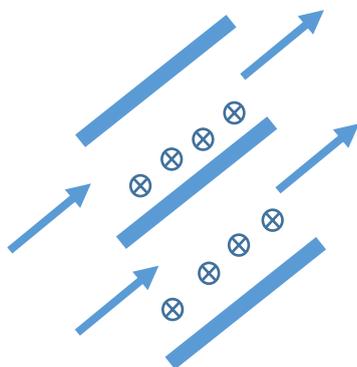
### Pit stop rules

As a Cart enters the pit all participants in pit must stand against the right hand side of pit bay until the Cart comes to a complete stop.

Once the Cart is stationary, participants may move around bay and change runners/pushers.

Cart may only exit the pit bay when all participants (Excluding those runners/pushers exiting with the Cart) have returned to the right hand side of the pit bay.

Failure to follow Pit rules will result in a time penalty. Repeated breaches will lead to disqualification.



# DESIGN SPECIFICATIONS

## GENERAL

1. The cart shall have a minimum of four wheels, a braced push bar, brakes and front-end steering.
2. Any durable construction material may be used.

## BRAKES

3. Brakes will be assessed to ensure that they effectively **slow** the vehicle.
4. At no time, should the pusher attempt to physically 'pull-up' the cart, **nor should the rider attempt to use their feet for braking**; feet will remain on the foot pegs until the cart is fully stopped.

## WHEELS

5. Wheels, including tyres, may not exceed 400 mm diameter, when fully inflated.
6. As all events will take place on grassed surface it is recommended that teams utilise an appropriate tyre, considering both size and width, to allow the cart to easily travel over the grassed surface.
7. To avoid wheels locking or rubbing, the front wheels must not contact the cart on full steering lock (i.e. when vehicle is turning hard).
8. Rope, cord or wire systems are **not allowed** for steering.

## SAFETY

9. All components must be attached in such a way as to prevent them from working loose during the competition. K-clips, split pins or similar devices may be used to retain nuts etc.; however, a **variety of fastening devices**, for any component other than wheels, is **essential**. The intention of rule # 9 is to encourage the use of various fasteners that require the use of tools in their application, so that students learn to identify and utilise them.
10. Protruding bolts must be cut off and jagged edges filed smooth.
11. Neither inertia reels, Velcro strips nor plastic fastenings will be allowed.

12. The front of the pushcart must have a foam, or similar, protective buffer, attached; to minimise injury, should a collision occur.
13. The push bar **must** extend at least 10 cm above the helmet of the tallest rider.

#### **VEHICLE IDENTIFICATION**

14. To aid in identification during judging, each vehicle may display their school name somewhere on the vehicle. For schools entering multiple teams, it is useful to have different marking, and/or colours, for each vehicle, too.

## COMPETITION RULES

1. The team may obtain assistance from other students, relatives, friends, local tradespeople, community groups etc., during the initial construction of their vehicle.  
**However**, adults are not permitted to assist during any of the student races on the day.  
**N.B.** Any interference by adults will incur an appropriate penalty against the related team, and the team manager will be asked to remove the offending adult/s, for the duration of the competition.
2. It is the team manager's responsibility to ensure that the cart is scrutineered by the co-ordinator **as soon as possible** on the race day.  
If the vehicle does not comply with the pre-race scrutineering sheet, on page 10, it will be excluded from the event, unless and until the fault/s has/have been remedied to the satisfaction of the scrutineer.
3. The construction and racing of the carts should be a team effort. The purpose of the event is to promote understanding of design and engineering practices across the school community and the design, production and use of the carts should encourage this.
4. Power for the vehicle must come solely from the 2 team members pushing the cart. The pusher may run and push, but at **NO** time are they to ride on the back of the cart, while scooting it along. A **five (5) second** penalty will occur for each infringement, at any time during race day.
5. Stopping the vehicle must be primarily as a result of the driver applying the brake; the driver's feet must remain on the vehicle until it has stopped. Under no circumstances are feet to be used as brakes or a **five (5) second** penalty will be incurred. It is not recommended that the pushers attempt to pull the vehicle to a halt, as this may also result in injury to the pushers. Continued unsafe practices may result in team disqualification, at the discretion of the race director.
6. Each member of the team **must** wear an approved bicycle helmet when competing. Gloves and sunglasses are optional.
7. Undesirable event behaviour (e.g. students arguing at changeover, "pacing" or harassment of race marshals by anyone) **will** result in a **ten (10) second** penalty for their team, at the discretion of the race director, in consultation with the marshals.
8. To ensure fair competition on the day, all rules will be strictly enforced and penalties applied by the director/marshals. If accidents occur, which unfairly disadvantage one team over another, the stage/heat may be re-run at the discretion of the race director.

9. Teams are encouraged to display, on their vehicles and uniforms, any signs/logos that promote healthy school, industry and community links. Sponsorship support must be consistent with the health and welfare of young people.
10. Signs/logos/stickers etc. representing cigarettes, drugs, alcohol or illegal substances or practices are not permissible. (If sponsorship has been obtained from a hotel, the co-ordinator should be contacted for prior approval of advertising and all care should be taken to represent them in such a way as to remove any reference to alcohol. Failure to secure such approval may result in modifications being required at the scrutineering stage, or the cart will not be passed.)
11. If you have any doubts about the suitability of a sponsor or sticker, please contact the co-ordinator. The organisers reserve the right to remove any offensive signage.
12. All teams are required to complete the official entry requirements 4 weeks prior to the event (21<sup>st</sup> September 2018), including paying the entry fee. **NO LATE APPLICATIONS WILL BE ACCEPTED.**
13. On race day, upon arriving, team managers **MUST** report to the race director to confirm their attendance and to receive a copy of the race schedule. This draw acts as a guide for the order of the teams, throughout all events.
14. At no time during race day, will ongoing scores/tallies be displayed or revealed to anyone outside of the race co-ordination team. This is in order to retain key goals of the competition: to have FUN, by maintaining a level of anticipation and competitiveness throughout the day. All requests for scores by team managers, competitors or spectators will be denied. Persistence by any team may be regarded as harassment of the race co-ordination team, henceforth may be subject to a penalty for this indiscretion.
15. Please remember: the race co-ordination team are there for you, they are ALL volunteers – including the co-ordinator/race director – and they want to have a fun day, too!

## PUSHCART – PRE-RACE SCRUTINEERING CHECKLIST

<b>Team name:</b>	
<b>School:</b>	
<b>Criterion</b>	<b>Approved</b>
Minimum 4 wheels, push bar, brakes, front-end steering	
Brake – operates effectively, on at least one rear wheel. Is controlled by the rider, not the pusher	
Front wheels <b>do not</b> contact cart, on full lock	
Rope, cord or wire not used for steering system	
Components <b>cannot</b> work loose	
Protruding bolts are cut off, with jagged edges filed smooth	
Front of the pushcart has sufficient foam - or similar – protection, to minimise injury should any collisions occur	
The push bar is at least 10 cm above the helmet of the tallest rider	
Push bar braced. No protruding bars likely to cause injury	
School/team name displayed on the vehicle	

**Scrutineer:** \_\_\_\_\_

**Date:** \_\_\_\_\_