

CO2 DRAGSTERS RULES AND REGULATIONS



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VELOCITY TECHNOLOGY
SCHOOL SUPPLIES



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CO₂ Dragster Competition

Australia CO₂ Dragster

FRASER COAST TECHNOLOGY CHALLENGE

CO₂ Dragsters Queensland

10th - 12th September 2021

Venue

Maryborough SHS

Closing date for Queensland CO₂ Dragsters:

All entries must be received by

31st August 2021

Post to:
Velocity Technology School Supplies
5 Reef Court
Bargara 4670
Queensland.

National CO₂ Dragster Competition

7TH & 8TH OCTOBER 2021

Venue

WARWICK SHS

QUEENSLAND

All states are welcome to enter

Post to:
Velocity Technology School
Supplies
5 Reef Court
Bargara 4670
Queensland.

**Important –
Final Date for Entries
National CO₂ Dragsters
29TH September 2021**

The purpose of the CO2 dragster competition is to provide a means for students to demonstrate their ability using the design, make and appraise principals to draw, design and then build a dragster within a set of specifications. These finished dragsters will then be tested on a 20-meter track for speed and determine the fastest dragster in the State. However, the competition is not just a speed race, marks are also awarded for design, construction, presentation and an Engineering Drawing meeting Australian standard.

QUEENSLAND STATE CHALLENGE

2020 - 2021 SEASON

DIVISION A

General Shop Open (12 entries per school)

DIVISION B

Engineering and Technology Studies (12 entries per school)

DIVISION C

Special and Primary Schools (12 entries per school)

DIVISION D

Teachers' Open. (12 entries per school)

DIVISION E

Outlaw Class (students only) (12 entries per school)

DIVISION F

Show and Shine Dragster (Novelty) (12 entries per school)

AUSTRALIAN NATIONAL COMPETITION

2020 - 2021 SEASON

DIVISION A

General Shop (12 entries per state)

DIVISION B

Engineering and Technology Studies (12 entries per state)

DIVISION C

Special and Primary Schools (12 entries per state)

DIVISION D

Teachers' Open. (12 entries per state)

DIVISION E

Outlaw Class (students only) (12 entries per state)

DIVISION F

Show and Shine Dragster (Novelty) (12 entries per state)

Division A **General Construction**

This division is open to all high school students. Minimum requirement is that the dragster body must be made from the one piece of timber (Balsa preferred) can only use standard wheels. Students are judged only on its design, finish, construction processes and the race.

Division B **Science Technology Engineering & Mathematics (STEM)**

This challenge is open to all STEM and Design and Technology students. This is your chance to take part in a 3D printing contest and an opportunity for you to use your latest technology to create a CO2 Dragster. Entries in this division will be judged based on meeting the specifications, (supplied) ingenuity, creativity, and quality of presentation plus race results.

This division requires three A3 pages to be presented with your dragster:

1. Detailed Orthographic Drawing that meets Australian Standards.
2. 3D presentational drawing of your dragster.
3. A simple flow chart explaining from your design to its final construction.

Division C **Special Education and Primary**

This division is open to all primary and special education students only. Minimum requirement is that the dragster body must be made from the one piece of balsa wood and can only use standard wheels. This division only requires sketches of the top and side views of the dragster with basic dimensions, a coloured/rendered pictorial drawing is required on an A3 or 2 A4 pages. Students can use computer aided drawing or sketch programs.

Division D **Teacher's Open**

This division is open to all teachers. Please use specification sheet A to D and requires an orthographic drawing with dimensions that meet Australian standards on an A3 page, also a presentational drawing. Use of computer aided drawing software is highly recommended.

Division E **Outlaw Class**

This division is open to all students. The only requirements are the safety rules which must be adhered to or the dragster will not race. (see outlaw specification sheet)

Each dragster will have two races, one on each lane, best time, WINS!

**The outlaw division does not require any drawings.
This division is just a speed race and only recognizes 1st place.**

Division F **Show and Shine (NOVELTY)**

This division is open to all teachers and students. The Judges on the day will select the best presented dragster submitted. Schools can enter a dragster or show and shine vehicle and it does not have to race for this event.

Keith Holledge
Race Director, Queensland and National
Retired HOD Industrial Technology and Design

QUEENSLAND FINALS

Email co2dragsters@frasercoasttechnologychallenge.com

GENERAL AND NATIONAL ENQUIRES

Email info@vtss.com.au



**Specifications (next two pages) –
please print the specifications
sheets back to back.**

SPECIFICATION SHEET FOR DIVISIONS A TO D

NAME	SCHOOL	State
CAR REGISTRATION NUMBER	ACTUAL WEIGHT in grams	

RACE DIVISIONS

DIV A GENERAL SHOP	Open		DIV B ENGINEERING / TECH	Open	
DIV C PRIMARY/SP. EDUCATION	Open		DIV D TEACHERS	Open	

(Please circle, tick or highlight division)

	PRODUCTION SPECIFICATIONS	MIN	MAX	Finished mm / g
	Dragster Body			
A.	Dragster body length	200 mm	305 mm	
B.	Dragster body height at rear with wheels		75 mm	
C.	Dragster body mass / weight with wheels	45 g	170 g	
D/r.	Dragster body width at axles – front & back (Rail Type) all wheels are outside the body 35mm - 42mm external measurement.	35 mm	42 mm	
D/s.	Dragster body width at axles – front & back (Shell Type) all wheels are inside the body 35mm - 42mm internal measurement with a minimum 3mm wall thickness each side.	35 mm	42 mm	
E.	Dragster Body width (including wheels)		90 mm	
	Axles / Axle Holes / Wheelbase			
F.	Number of axles	2	2	
G.	Bottom of axle hole above bottom of dragster	5 mm	10 mm	
H.	Rear axle hole from rear of dragster	9 mm	100 mm	
I.	Wheelbase	105 mm	270 mm	
	Spacers / Washers / Clips			
J.	Spacer washers		8	
K.	Axle clips or similar		8	
	Power Plant (CO 2 Cartridge Hole)			
L.	Power plant: depth of hole	50 mm	52 mm	
M.	Power plant: housing thickness (around entire housing)	3 mm		
N.	Power plant: housing (diameter) Please use a 3/4" Drill for best results.	19.5 mm	3/4"	
O.	Power plant: lowest point of chamber diameter to race surface with wheels	26 mm	36 mm	
	Screw Eyes			
P.	Screw eye or eyelet inside diameter	4 mm	8 mm	
Q.	Screw eyes (2) distance apart at farthest point	155 mm	270 mm	
	Wheels			
R.	Wheels: front diameter	32 mm	37 mm	
S.	Wheels: front width at surface contact point	2 mm	5 mm	
T.	Wheels: rear diameter	30 mm	40 mm	
U.	Wheels: rear at surface contact point	15 mm	18 mm	

(Assembled without CO2 cartridge)

PASSED INSPECTION	YES / NO	APPROVAL GIVEN FOR RACING	YES / NO
(Schools committee check)		(Office use only)	Race specs 2021

OUTLAW CLASS DIVISION E

NAME	SCHOOL
CAR REGISTRATION NUMBER	ACTUAL WEIGHT in grams

	PRODUCTION SPECIFICATIONS	MIN	MAX	PASSED
	Dragster Body			
A.	Dragster body length		305 mm	
B.	Dragster body mass / weight with wheels	45 g		
C.	Power plant: depth of hole	50 mm	52 mm	
D.	Power plant: housing thickness (around entire housing)	3 mm		
E.	Power plant: housing (diameter) Please use a 3/4" Drill for best results.	19.5 mm	3/4"	
F.	Power plant: lowest point of chamber diameter to race surface with wheels	26 mm	36 mm	
G.	Screw eye or eyelet inside diameter	4 mm		
	These specifications must be adhered to and all cars must have been raced and be signed off by a teacher that it is safe to race.	----- Sign here		

(Assembled without CO2 cartridge)

PASSED INSPECTION	YES / NO	APPROVAL GIVEN FOR RACING	YES / NO
<small>(Schools committee check)</small>		<small>(Office use only)</small>	<small>Race specs 2021</small>

Parent Consent Form

Dragsters Competition

Dear Parents / Guardian

Your son / daughter has been selected to represent our school in the National & State Dragster Challenge. This competition is a design, make and appraise challenge. This competition could take a student's dragster to an international level.

Our sponsors like to see reports and photographs of the winning students with their dragsters and therefore I now seek your permission in the following:

1. I do do not give permission to reproduce photographs, sound or vision (eg. videos of film) taken in the course of my student's representing this activity for the purpose associated with the promotion of the activity or your state education department.

2. I do do not give permission for my student to be named in such media that may include team photographs, local media releases and other publications including Internet web sites.

.....
Parent / Guardian Signature

.....
Date

**PLEASE COULD PRINT THE SPECIFICATIONS SHEETS BACK TO BACK
THIS WAY THE PARENT CONSENT FORM IS COMPLETED**

SPECIFIC REGULATIONS

All entries must be received and registered by the date specified.

All entries must be free from need for repair and/or maintenance at the time of registration.

No repairs or maintenance to entries will be allowed after entries have been received. Any dragster damaged during the race will be assessed by the contest coordinator to determine whether it will be allowed to continue racing.

JUDGING

All contest entries will be judged according to the dragster rating sheet below.

Contestants will be ranked in order of final scores determined by the judging panel. The judges will consult with each other to determine the winner in the event of a tied score.

All judges' ratings will remain confidential.

Scoring will be based upon the following:

Division A (only)

Design		16 points
(a)	Design qualities	10 points
(b)	Appearance	3 points
(c)	Finish	3 points
Construction Quality		24 points
Race Points		60 points
Total		100 points

Division B to D

Design		6 points
(a)	Appearance	3 points
(b)	Finish	3 points
Drawing		10 points
(a)	Accuracy (Dragster will be compared to presented drawing).	4 points
(b)	Line work	3 points.
(c)	Dimension	2 points
(d)	Presentation	1 point
Construction Quality		24 points
Race points		60 points
TOTAL		100 points

STARTING SPECIFICATIONS

Division A through to D

Dragsters must be proven safe to race at state level by trialling at your school. A note from the teacher stating that the dragster has been tested at school level maybe required in some cases.

Division A and C

Dragsters shall have a one piece, all wood body construction. Parts such as fenders, canopies, exhausts or aerofoils may be glued or attached to or enclosed within the dragsters.

Division B

Dragsters must be a 3d printed models. The CO₂ cylinder must fit the power plant hole without any clamping required to hold it in place.

Division D

Dragsters must be safe to race and meet the minimum specifications. (As per specifications)

GENERAL INFORMATION

Bearings and lubricants may be used in construction. All dragsters must meet the official specifications. (See Specifications Page) All dragsters must have four wheels (2 Front, 2 Rear) Wheels must be made entirely from plastic with the exception of the Engineering and Technology students and teachers divisions. Races will be over 20 metres unless deemed otherwise by the race coordinator.

DRAWINGS

A two view (top and side) drawing with dimensions on A3 or school drafting paper is required. A photo or pictorial can be included.

Drawings may be made using pencil, ink or CAD.

Only originals will be accepted.

The title block requires only the students **Name, School and State**

Race points:

1 st place	60 points
2 nd place	56 points
3 rd place	52 points
4 th place	48 points
5 th and 6 th place	45 points
7 th and 8 th place	40 points
9 th – 12 th place	35 points
13 th – 16 th place	30 points
17 th – 24 th place	25 points
25 th – 32 nd place	20 points
All others run	10 points



**POSTING PROCEDURES
For Queensland**

Dragsters are to be posted to:

**Velocity Technology
School Supplies**

**5 Reef Court
Bargara Qld 4670**

**Please post the dragsters in a Post Office
Mailing Box Size, BT 430mm x 305mm x
140mm to suit A3.**

**Please include all drawings and
specification sheets. All cars must be
clearly named. (Recommend under the
body)**

**Your support to the 2021
Fraser Coast Technology Challenge is appreciated.**

