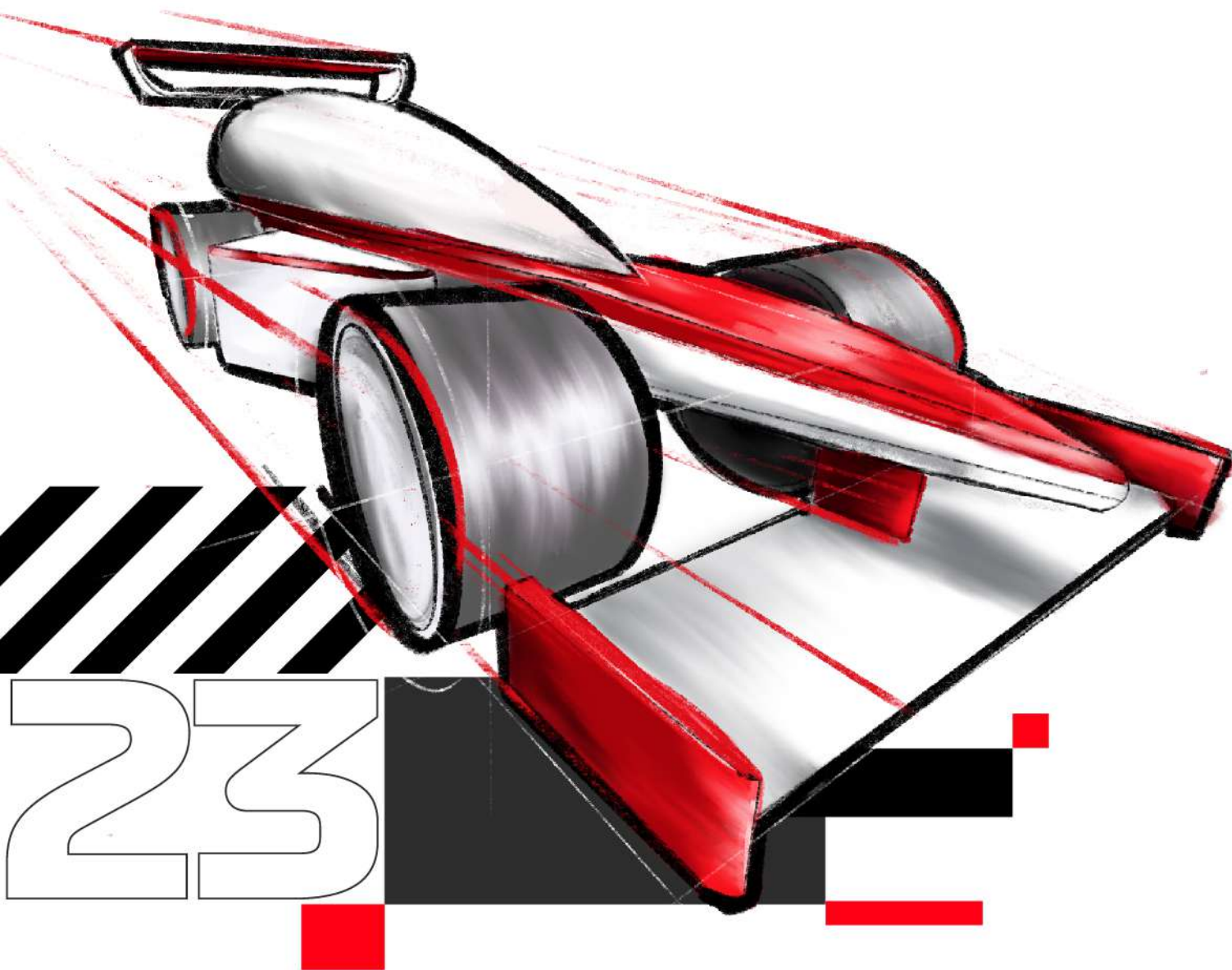




COMPETITION REGULATION

REGIONAL FINALS 2023



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.



TM

in Schools
Malaysia

What to do: **Your first steps...**



Your F1 in Schools™ journey – Where to start:

1. DOWNLOAD AND READ THE RULES

- Download and carefully read through this season's Technical Regulations, alongside this document.
- Download the competition pack from official F1 in schools Malaysia website and start to reach and check out all the detail and information of this competition.

2. Register your team(s)

- Register your teams through the F1 in Schools Malaysia website. **Schools can enter up to FIVE teams.** Each team can be from four up to six team members.

3. Design the F1® car of the future

- First, get yourselves kitted out with an F1 in Schools starter kit from **our official website**. Then, starting with a fresh piece of paper and a head full of ideas, start designing the basic aerodynamic shape of the body and wings of your car. *Remember no idea is too crazy at this stage...*

4. Download our stock CAD files

- Download the official CAD files from the **F1 in Schools downloads page**. We strongly recommend the **FREE Autodesk Fusion 360** software package, which is available to download through the **F1 in Schools website**. There are plenty of helpful tutorials available to help you get started.

5. Manufacture your car

- **Make sure your design is fully legal before manufacturing your car.** Using a CNC router such as a Denford F1 Router and a 3D printer such as a Makerbot, manufacture and finish your car assembly using the official F1® Model Block.

6. Create your Portfolios

- You must create one Portfolio.
- See the **Judging: Criteria and the Scorecards** section for guidance.

7. Prepare your Verbal Presentation

- You must prepare a 5 minute (Regional Final) Verbal Presentation.
- See the **Judging: Criteria and the Scorecards** section for guidance.

8. Register for a Regional Final

- Teachers **must** confirm the attendance of their team(s) by registering for a Regional Final on the F1 in Schools website. T&C's can be found online.

TURN UP ON COMPETITION DAY!

What do you need to produce?

Development Class - please also refer to the submission checklist

2X Development Class Race Car

Malaysia Regional Finals: 2 x identical race cars

1X A4 Portfolio

Malaysia Regional Finals: 5 pages portfolio

1 x 5 minute Verbal Presentation

A4 Car Renderings & Engineering Drawing

Malaysia Regional Finals: Maximum 7 Pages

1 x Pit Display

- 1 Meter x 1 Meter Space Provided
- Power Supply NOT allowed.

First stop - Regional Finals

6 Regional Finals will be held across Malaysia, where student teams will compete against each other to win a place at the Malaysia National Finals. The Malaysia National Finals will determine who will be crowned the Malaysia National Champions and invited to compete at the F1 in Schools World Finals.

SOUTHERN REGION	CENTRAL REGION
<ul style="list-style-type: none">- NEGERI SEMBILAN- MELAKA- JOHOR	<ul style="list-style-type: none">- SELANGOR- WILAYAH PERSEKUTUAN- KUALA LUMPUR- PUTRAJAYA
NORTHERN REGION	EAST COAST
<ul style="list-style-type: none">- PERLIS- KEDAH- PENANG- PERAK	<ul style="list-style-type: none">- KELANTAN- PAHANG- TERENGGANU
SABAH	SARAWAK

The Registration Process

Registration is simply the process of sending us your team details so we know you're actively competing in the competition, which is completed online at <https://www.f1inschoolsmalaysia.com/>. The key here is to try NOT to pay this yourself! Businesses will happily sponsor young, ambitious teams with the right approach; or if you know your way round a packet of cake mix, why not raise the money with an F1-inspired bake sale?!

We strongly suggest trying to raise your registration fee through either sponsorship or fundraising. This is your first chance to practice raising money ahead of the bigger task of attracting team sponsorship later in the project! Get your thinking caps on and work out how to raise your portion of financial, which ensures your team can take part in your nearest Regional Final.

Next steps – Malaysia National and World Finals

The Malaysia National Finals is the ultimate stage of the competition in the Malaysia. The event is held at the end of the regional season, with the very best teams from the Regional Finals competing for the crown of Malaysia National Champions. After days of fierce competition, a select group of deserving teams will earn their passes through to the season finale, the spectacular F1 in Schools World Finals.

National Champions from over 40 countries around the world are then invited to compete at the World Finals where they will go head-to-head to become the F1 in Schools World Champions and lift the F1 in Schools World Champions Trophy. The following winning teams from the Malaysia National Finals will be invited to compete in the next World Final.

The Challenge

You are the Formula One Team commissioned to design, make and race the fastest F1® car of the future, driven by compact, compressed air power units.

In order to enter the championship, you must allocate job roles to the members of your group.

Ideally, one role should be allocated to each person. However, you may have to double up on your role and responsibilities, depending on the number of people you have available. The following job roles are examples of what could be covered by the members of your team:

Project Manager (maximum 1 person)

This person is responsible for managing the team, project management of all key deliverables and ensuring that all race cars are ready for the competition. The team manager works closely with all members of the team, offering assistance where necessary.

Finance Manager

This person organises budgets and resources needed for designing and making the car(s) and team project work. They might keep track of all expenses and income generated, allocating certain funds to certain areas of the project, for example Car, Pit Display, Portfolio, team uniforms.

Manufacturing Engineer

This person is responsible for advising team members on the manufacture of the car and the constraints of the machining process. Manufacturing engineers will need to liaise with the design engineers to report and help solve any problems with the construction of the car.

Design Engineer

This role is responsible for the styling and aerodynamic performance of the car design. Design engineers will need to liaise with the manufacturing engineers to ensure their ideas can be realised.

Graphic Designer

This person could be responsible for producing the colour schemes applied to the vehicle, including any special sponsorship decals, together with the final graphic renderings and any additional team marketing materials. The graphic designer will need to liaise with the design engineer to ensure any schemes will fit the shape of the vehicle and the resources manager for additional marketing development.

Sponsorship & Marketing Manager

This person could be responsible for generating sponsorship proposals for potential sponsors, contacting firms and marketing the team through different media. They may be tasked with creating and managing the team's social media accounts as well as thinking up ways to generate interest and income for the team through marketing events.

IMPORTANT – Please register your teams online at www.f1inschoolsmalaysia.com to attend a Malaysia Regional Final as soon as you have allocated your job roles.

There are so many tasks that must be mastered, in order to design, manufacture, prepare and finally, enter a car for racing. Teamwork and project management throughout the team will be vital to your success. A real F1 team succeeds because all the people learn to work together and support each other. Remember, no one person is more important than other members in the team.

PLEASE ENSURE YOU READ AND CHECK THE TECHNICAL REGULATIONS VERY THOROUGHLY BEFORE BEGINNING THE DESIGN AND CONSTRUCTION OF YOUR F1 IN SCHOOLS CAR.

Design Considerations



Design Preparation

Before beginning to design your car, you will need:

- A 3D CAD solid modelling software package at your school/college. We strongly recommend the use of Autodesk Fusion 360, which can be obtained **free of charge** through the F1 in Schools website at: www.f1inschoolsmalaysia.com
- Our 3D CAD file of the official F1® Model Block. This can be downloaded from www.f1inschoolsmalaysia.com
- The dimensions of the F1® Model Block are also available in the appendix of the Technical Regulations
- Hopefully, an endless supply of ideas!

Training

CAD packages will help you draw and develop your ideas in 3D. Of course, as with most drawing packages, it takes time to learn how to use them. Your technology teacher should be able to show you how the software works, but members of your team will need to spend some time exploring the software, so you can see what it can do and how it can help you design your F1 car. A wealth of Autodesk tutorial videos specific to the F1 in Schools competition are available via our website.

Research

Investigate existing F1 car designs. Your teacher may be able to help you use the internet to find out the latest developments occurring in the world of F1 design. Concentrate your research on areas that could help your team, for example, aerodynamics and car body designs and then try to apply the principles to your own ideas.

Testing

Your team may want to consider testing a variety of car designs, or car parts, in a wind and/or smoke tunnel to evaluate their aerodynamic performance. 'Autodesk Flow Design' virtual wind tunnel software is available to download free of charge.



Competition: **Explanations and definitions...**



ARTICLE C1 – DEFINITIONS

C1.1 Article

Each section in all documentation will be referred to as an Article which brings F1 in Schools documents in line with the Fédération Internationale de l'Automobile (FIA) documentation.

C1.2 Parc Ferme

A secure area where all race cars are held to prevent unauthorised handling but to allow technical inspections to be conducted by the Judges. (Literal meaning in French of 'closed park').

C1.3 Competition Schedule

The competition program will detail the schedule of judging activities for all teams.

C1.4 Key performance indicators (KPI's)

These are portions of text that feature on the scorecards within a corresponding points range. The KPI's describe the type of evidence the Judges are looking for in order to score the team appropriately.

C1.5 Car race time value

A 'car race time' value is the actual time taken for a F1 in Schools™ car to travel the track from start to finish, measured from the instant the launch pod fires to when the car breaks the finish line timing beam. In the case of reaction races, the 'car race time' value is calculated as the 'total race time' value displayed on the electronic start gate minus the 'reaction time' value displayed for that race.

C1.6 Total race time value

The 'total race time' value is displayed in the total time field on the electronic start gate at the conclusion of every race. This time is the sum of the 'car race time' value and any 'reaction time' value displayed on the electronic start gate.

C1.7 Reaction time value

A 'reaction time' value is the time recorded from the instant the five (5) start lights extinguish to the instant the start trigger is activated by the driver. This value is displayed in the reaction time field on the start gate.

C1.8 Project elements

These are any materials and resources that the team presents as part of its entry for any judging activity.

C1.9 Engineering Drawings

Hand drawn or CAD produced drawings, which along with relevant machinery and/or CAM programs, could theoretically be used to manufacture the fully assembled car by a third party. Such drawings include all relevant dimensions, tolerances and material information. F1 in Schools engineering drawings include detail to specifically identify and prove compliance for the virtual cargo and wing surfaces.

C1.10 Renderings

Renderings are images intended to illustrate the three-dimensional form of an object. These can be hand drawn or CAD generated in isometric projection, oblique projection or perspective.

ARTICLE C2 – GENERAL INFORMATION

C2.1 Competing teams

- **C2.1.1** Each team must consist of a minimum of 4 students to a maximum of 6, between the ages of 13–17. Team members competing at a Regional Finals must be those registered to compete on the official online registration form. If for any reason, a team member cannot travel to an event and is to be replaced by another individual, this must be brought to the attention of F1 in Schools prior to the event.
- **C2.1.2** Only the registered team members of any official competing team (maximum 6) are permitted to wear the team's uniform.

- **C2.1.3** During the competition, only the official core team members (maximum of 6) can represent the team at registration, Pit Display set up, Scrutineering review, Verbal Presentation, Design & Engineering judging and Enterprise judging, racing, on-stage presentations and any direct communication with the Chair of Judges or Event/Competition Directors.

C2.2 Team responsibilities

- **C2.2.1** Teams must read the Malaysia **Technical Regulations** carefully to ensure their car(s) comply with those regulations.
- **C2.2.2** Teams must read the Malaysia **Competition Regulations (this document)** carefully to ensure that all project elements satisfy these regulations and that they understand the requirements and procedures for all aspects of the competition and judging.
- **C2.2.3** During the competition it's the team's responsibility to ensure that team members are present at the correct time and location for all scheduled activities.
- **C2.2.4** Security of the pit display and its elements is the team's responsibility during competition.

C2.3 Role and responsibility of supervising teacher / adult.

- **C2.3.1** All supervising teachers / adults should explain all relevant information to their students.
- **C2.3.2** It is the primary responsibility of any supervising teacher/adult to ensure duty of care/well-being for all their student team members. Any concerns arising during the event in relation to this should be brought to the attention of F1 in Schools immediately.
- **C2.3.3** The supervising teacher/adult is permitted to be present during any judging activity with their team but, must not interact in any way with the student team, judges or judging process. Any incident considered inappropriate will be brought to the attention of the Chair of Judges and penalty points may be applied.

C2.4 Regulations documents

- **C2.4.1** F1 in Schools issues the regulations, their revisions and any amendments made.
- **C2.4.2** Competition Regulations – (this document). The Competition Regulations document is mainly concerned with regulations and procedures directly related to judging and the competition event. Competition Regulation articles have a 'C' prefix.
- **C2.4.3** Technical Regulations – a separate document which is mainly concerned with regulations that are directly related to F1 in Schools™ car design and manufacture. Technical Regulation articles have a 'D' prefix for Development Class and a 'P' prefix for Professional Class.

C2.5 Interpretation of the regulations

- **C2.5.1** The final text of these regulations is in English, should any dispute arise over their interpretation, the regulation text, diagrams and any related definitions should be considered together for the purpose of interpretation.
- **C2.5.2** Text clarification – any frequently asked questions that are deemed by F1 in Schools to be related to text needing clarification will be answered. The question and the clarification will be published to all teams at the same time.

C2.6 Supplementary competition regulations

Other documents may be issued by F1 in Schools that provide teams with further logistic and important event information. Any supplementary regulations will be issued to all lead teachers and team managers, where the team manager has supplied F1 in Schools with a contact email address.

C2.7 Design ideas and regulation compliance queries

Teams are not permitted to seek a ruling from F1 in Schools, any competition official or judge before the event as to whether a design idea complies with the regulations. Rulings will only be made by the Judges at an event. Design compliance to the regulations forms part of the competition. As in Formula 1, innovation is encouraged and F1 in Schools teams may also find, sometimes controversial ways, of creating design features by pushing the boundaries in order to get an extra competitive edge.

C2.8 Team partnerships

- **C2.8.1** F1 in Schools teams are encouraged to develop mentoring partnerships with businesses, industry or higher education organisations throughout their project.
- **C2.8.2** All design work, text and scripting for all project elements presented for assessment must be wholly undertaken and created by the team. This includes all CAD and CAM data, electronic portfolio and graphic content.
- **C2.8.3** All aspects of any partnerships should also be represented in the team's portfolio. For project elements produced utilising some outside assistance, teams should be able to demonstrate to the judges a high level of understanding of, and justification for, any of the processes used.
- **C2.8.4** 'Common sense' will prevail for project elements or components that a team has purchased from a supplier. E.g. bearings, screw eye, display hardware. Teams should be able to explain and justify why a specific component was selected / purchased over other similar available components.

C2.9 Mandatory project elements for Regional Finals entry

The following is a summary of the mandatory elements required for judging:

Regional Finals:

- Two (2) F1 in Schools car including all optional replacement components
- One (1) A4 or similar Portfolio
- A 5-minute Verbal Presentation with laptop
- One (1) A4 or similar Engineering Drawing & Rendering Portfolio
- A Pit Display
- **C2.9.1** Car(s) – each team must produce a minimum of one (2) race car for Regionals Final
- **C2.9.2** Portfolios – each team must produce the following:

Development Class:

- One (1) 'hard copy' 5-page Portfolio
- One (1) 'hard copy' 7-page maximum Engineering Drawing & Rendering Portfolio.

Refer to judging scorecard for portfolio specification and content requirements.

- **C2.9.3** Pit Display – each team will be provided with a dedicated space size (1 meter x 1 meter) for set-up of their pitdisplay elements. The specific style and size of this space will be announced in supplementary event competition regulations. Teams are not allowed to use any power supply / power point at the event venue for pit display purposes. Refer to pit display specifications and content requirements.
- **C2.9.4** Verbal Presentation – teams will be required to deliver a Verbal Presentation in relation to their project to the Judges. The presentation must not last longer than **5 minutes**.

Teams must bring their own laptop with any slide show or other multimedia files that need to be shown as part of their Verbal Presentation.

C2.10 Team registration at the event

- **C2.10.1** Teams will be required to register with F1 in Schools once arriving for the event. At this registration, teams will be issued with a detailed event welcome pack. The student team manager and supervising teacher for each team should attend.
- **C2.10.2** The Regional accreditation material issued will include the official F1 in Schools™ 30x15mm car decals, for teams that have not manufactured their own. These decals must be fitted to each car by the team following registration and prior to the submission of their project elements.

C2.11 Submission of F1 in Schools™ car(s)

Once race-ready car(s) have been submitted, they are considered as being in Parc Fermé.

C2.12 Project elements to be retained by F1 in Schools

It is a condition of the F1 in Schools Regional National Finals entry that each team permits F1 in Schools to retain 1 x race car and 1 x copy of both portfolios. This can be submitted electronically if the team wishes to keep the printed version.

C2.13 Team names

No teams participating in the challenge are permitted to use any of the Formula One Word Marks (shown below) in their team name, logo, domain name, and/or any social media handle. For example, "Infinity F1" is not allowed and should be changed to something similar such as "Infinity" or "Team Infinity". No team will be permitted to use any of the prohibited word marks within their team name when participating in F1 in Schools from 2017 onwards.

The F1 IN SCHOOLS Logo, F1, FORMULA 1, FIA FORMULA ONE WORLD CHAMPIONSHIP, GRAND PRIX and related marks are trademarks of Formula One Licensing BV, a Formula 1 company. All rights reserved

C2.14 Benefit of doubt

The chair of judges will, where appropriate, seek to use 'benefit of doubt' when the assessment of compliance is marginal or unclear. In this situation, teams will be given the benefit of doubt rather than a firm penalty if a penalty cannot be clearly measured or identified.

C2.15 Spirit of the competition

Teams are expected to act in the spirit of the competition, both before and during any F1 in Schools events. Any team deemed by the chair of judges to be acting outside of the spirit of the competition, can be removed from certain or all aspects of the competition. For example, a team attempting to exploit the technical regulations to their advantage may, at the discretion of the chair of judges, be removed from racing and receive no points for this activity.

The spirit of the competition is simple; embrace and respect the rules and regulations, do your very best to compete legally and fairly, while contributing positively to F1 in Schools. Make friends, create positive relationships, network professionally and enjoy yourselves.

ARTICLE C3 – COMPETITION AND JUDGING FORMAT

C3.1 Competition program

- C3.1.1 Each team will be judged as per the competition program. The competition program will be formulated by F1 in Schools to best and fairly accommodate all judging and other competition activities. Teams will rotate around judging activities as per this program, with each rotation usually of 15 minutes in duration.
- C3.1.2 Judging Streams – the competition program will normally be divided into two parallel judging streams (Stream A and Stream B), to help ensure quality judging time intervals within the event time constraints. A number of strategies are implemented within the judging process, including judge briefings and judge reviews for cross-moderation to ensure there is consistency across the judging streams.

C3.2 Judging categories

There are six (6) main judging categories, each with its own team of judges and specified judging activities as detailed in further articles.

- Specification and Scrutineering Judging
- Portfolio Judging
- Verbal Presentation Judging
- Pit Display Judging
- Digital Media Judging
- Racing

C3.3 Judging scorecards

The F1 in Schools judging scorecards provide detailed information in relation to what the Judges will be looking for. They include key performance indicators which are referred to by the judges in awarding points during judging activities. The judging scorecards can be found from this document, alongside guidance for the corresponding judging category. Reading the scorecards carefully is important. They provide critical information for teams as to what needs to be presented for each judging category.

The judging scorecards are not to be viewed as assessment criteria but are for the purpose of ranking teams at F1 in Schools events. Marks given may differ between events, so scores should not be used exclusively to determine the strengths and weaknesses of a team.

C3.4 Malaysia Regional Champions

The F1 in Schools™ Malaysia Regional Champions trophies will be awarded to the team with the highest totalscore, sum of all judging categories. In the case of a tied points score, the team with the highest racing score will be determined the winner.

C3.5 Point allocations

Points will be awarded to teams across six (6) categories in Development Class, with maximum possible scores as detailed in the following table:

Specification and Scrutineering Judging (170 points)	
Specifications	110 points
Engineering Drawings	20 points
Renderings	20 points
Quality of Finish and Assembly	20 points
Portfolio Judging (180 points)	
Portfolio	180 points
Pit Display Judging (60 points)	
Pit Display	60 points
Digital Media Judging (60 points)	
Digital Media	30 points
Verbal Presentation Judging (160 points)	
Technique	60 points
Composition	40 points
Subject Matter	60 points
Racing (220 points)	
Time Trials	110 points
Reaction Racing	110 points
TOTAL	820 points

C3.6 Classification of Technical Regulations

- C3.6.1 The technical regulations are classified as either: **GENERAL**, **SAFETY**, **PERFORMANCE**. Please refer to the Technical Regulations for more information on compliance and penalties.

GENERAL	SAFETY	PERFORMANCE
Regulations that shape the way the car fundamentally looks and works, vital to the style of an F1 in Schools car.	Mandatory rules that govern the safe running of the car. Cars must meet these rules to be considered 'safe to race'.	Rules that have a direct impact on the performance of the vehicle, these typically carry the heaviest penalties.

- P3.6.2 If a race car is judged as being NON-COMPLIANT with any Performance Regulation they will be INELIGIBLE for the awards of: 'Fastest Car' and 'Best Engineered Car'. All Performance regulations are highlighted in yellow throughout the Technical Regulations document for each class.



Judging: **Criteria and the** **scorecards...**



ARTICLE C4 – SPECIFICATION & SCRUTINEERING JUDGING (170 points)

C4.1 What will be judged?

Scrutineering judging is a detailed inspection process where all race cars plus any optional replacement components are assessed for compliance with the F1 in Schools Technical Regulations. The A4 Engineering Drawings, A4 Renderings and quality of finish & assembly will also be assessed. **Refer to the scrutineering and specification judging scorecards for scoring details.**

- **C4.1.1** Optional replacement components must be identical to those fitted to all race cars and must be submitted with the car. Only the following replacement components are permitted:
 - Rear wing/support structure – maximum of three (3)
 - Front wing/support structure and / or nose cone – maximum of three (3)
 - Wheel/wheel support system – maximum of three (3) car sets

Submitted replacement components that are determined by the judges to not be identical to that which is fitted to the car will not be allowed to be used. Submitted components will remain in Parc Fermé and only be handed back to the team if needed during racing and / or car servicing.

C4.2 Team preparation

Teams must ensure that their car(s) and any optional replacement components are complete and ready for specification judging and racing before they are submitted.

C4.3 Who needs to attend?

Specification & Scrutineering judging is a closed activity that no team member or supervising teacher may attend. At Malaysia Regional Finals, for selected teams there will be a specification review session scheduled that must be attended by the team manager, team design and manufacturing engineers as a minimum.

C4.4 Judging process / procedure

Teams begin specification judging with a full allocation of 110 points. Any infringements of the Technical Regulation articles, on either car, will result in points being deducted as detailed in the Technical Regulations.

There are two (2) parts to the specification judging process.

- A. **Specifications** – this is conducted within the confines of Parc Fermé, where the specification Judges will scrutineer all cars submitted and optional replacement components for compliance to the Technical Regulations. A series of specially manufactured gauges will be used to broadly check compliance. Accurate measuring tools, such as Vernier calipers will then be used to closely inspect any dimensions found to be near to dimensional limits per the initial gauge inspection. Scrutineering commences immediately, as soon as cars and optional replacement components are submitted.
- B. **A4 Engineering Drawings & Renderings** - these documents are used along with the car(s) to assess Engineering Drawings, Rendering and Quality of Finish & Assembly as on the Scrutineering Judging scorecard – this is conducted within the confines of Parc Fermé, where the specification Judges will assess both cars as per the Scrutineering scorecard.

The specific areas to be assessed are described on the scorecard and specifications sheets on the following pages.


Scrutineering Judging Scorecard

Team Number:

Team Name:

School:

Scrutineering				
	Low band	Middle band	High band	SCORE
Engineering Drawings	Limited detail, Little or no annotation	Third angle orthographic projection. Excessive or insufficient detail	Third angle orthographic projection and un-rendered isometric view or similar. Additional views to show sufficient detail. Parts list / bill of materials and regulation compliance shown	
	1 2 3 4	5 6 7 8 9 10 11	12 13 14 15 16 17 18 19 20	
Rendering	Basic use of colour and 3D to show finished car	Well-proportioned full colour 3D renders showing more than 1 view. Detail close to final car.	Many different views. Very close match to final car including branding. Fitting environment and lighting. High end drawing / rendering technique	
	1 2 3 4	5 6 7 8 9 10 11	12 13 14 15 16 17 18 19 20	
Quality of Finish and Assembly	Reasonable finish with some inconsistencies	Good overall finish quality and assembly with attention to details	Excellent finish quality on all components. Very high attention to detail across all assembly and finishing. Two cars are identical	
	1 2 3 4	5 6 7 8 9 10 11	12 13 14 15 16 17 18 19 20	
Scrutineering Total =				/60
Notes:				




Specifications Score Card


Please enter ✓ for a pass and F for a fail

(CO₂) - measured with full 8g CO₂ cartridge

Team Number: **SAMPLE**
Team Name: **Sample**
School: **Sample**



Reg	Regulation Overview	Min/Max Quick Guide	Penalty per car	Initial Scrutineering		Value		Initial Scrutineering		Value		Initial Scrutineering	
				Car A		Car B		CoJ	A	B	CoJ	A	B
ARTICLE D3 - FULLY ASSEMBLED CAR													
D3.1.1	Designed and engineered using CAD / CAM	Check Portfolio	-5										
D3.1.2	Body manufactured using CNC only	Check Portfolio	-5										
D3.1.4	Both Cars Identical	Visual Check	-5										
D3.2.1	Safe Construction - Specification judging	Safe to race at Scrutineering	-10										
D3.3	Undefined features	Check D1.1	-20										
D3.4	Overall length	PP+ Min: 170mm Max: 210mm	-5	mm	mm	mm	mm						
D3.5	Width	PP+ Max: 90mm	-5	mm	mm	mm	mm						
D3.6	Total weight	PP+ Min: 60.0g	-10	g	g	g	g						
D3.7	Additional Components	Nothing removed	-5										
ARTICLE D4 - Body													
D4.1	Body construction	F1 Model Block	-20										
D4.2	No-go-zone	Check Eng. Drawing	-25										
D4.3	F1 in Schools logo decal location	Check D1.11	-5										
Assessed by: (Initials)													
Checked by: (Initials)													
Page 1 Notes:													




Specifications Score Card


Please enter ✓ for a pass and F for a fail

(CO₂) - measured with full 8g CO₂ cartridge

Team Number: **SAMPLE**
Team Name: **Sample**
School: **Sample**



Reg	Regulation Overview	Min/Max Quick Guide	Penalty per car	Initial Scrutineering	Value	Initial Scrutineering	Value	Initial Scrutineering			Value			Initial Scrutineering		
				Car A		Car B		CoJ	A	B	CoJ	A	B	CoJ		
ARTICLE D5 - CO2 Cylinder Chamber																
D5.1	Distance from track surface	Min: 20mm Max: 30mm	-5	mm	mm	mm	mm									
D5.2	CO ₂ cartridge visibility (CO ₂)	No obstructions in rear view	-10													
ARTICLE D6 - Wheels																
D6.1	Number and location	4, 2 x 2 / standard design	-25	mm	mm	mm	mm									
D6.2	Visibility (plan and bottom views)	Not obscured	-25													
D6.3	Visibility in the front view	Only obscured below 20mm	-10	mm	mm	mm	Mm									
D6.4	Racetrack contact	All 4 wheels touching track	-2.5 PW	FL:	FL:	FL:	FL:									
				FR:	FR:	FR:	FR:									
				RL:	RL:	RL:	RL:									
				RR:	RR:	RR:	RR:									
D6.5	Rotation	Reasonably minimal effort	-5	°	°	°	°									
Assessed by: (Initials)																
Checked by: (Initials)																
Page 2 Notes:																

D	Specifications Score Card Please enter ✓ for a pass and F for a fail (CO ₂) - measured with full 8g CO ₂ cartridge			Team Number: SAMPLE Team Name: Sample School: Sample															
				Initial Scrutineering		Value		Initial Scrutineering		Value		Initial Scrutineering		Value		Initial Scrutineering			
				CoJ	A	B	CoJ	A	B	CoJ	A	B	CoJ	A	B	CoJ			
Reg	Regulation Overview	Min/Max Quick Guide	Penalty per car	Car A		Car B													
ARTICLE D7 - Wing and Wing Support Structure																			
D7.1	Description and placement	F & R & Height (D1.10)	-25																
D7.2	Wing identification	Check Eng Drawing	-5																
D7.3	Construction and Rigidity	Span constant during racing + rigid	-5																
D7.4	Rear wing location	Behind RW CL	-10																
D7.5	Rear wing height	Min: 35mm from track	-10	mm	mm	mm	mm												
D7.6	Front wing location	In Front of FW CL	-10																
D7.7	Visibility of front wing	Visible from Front	-15																
D7.8.1	Front wing span	PP+ Min: 60mm	-5	mm	mm	mm	mm												
D7.8.2	Rear wing span	PP+ Min: 60mm	-5	mm	mm	mm	mm												
D7.9.1	Front wing chord	Min: 15mm Max: 30mm	-5	mm	mm	mm	mm												
D7.9.2	Rear wing chord	Min: 15mm Max: 30mm	-5	mm	mm	mm	mm												
D7.10.1	Front wing thickness	Min: 5mm Max: 15mm	-5	mm	mm	mm	mm												
D7.10.2	Rear wing thickness	Min: 5mm Max: 15mm	-5	mm	mm	mm	mm												
ARTICLE D8 - Tether Line Guides																			
D8.1	Location	2 guides, 15mm fore/aft CL's	-10																
D8.3	Internal dimension	Min: 3.5mm Absolute Max: 6mm	-5	mm	mm	mm	mm												
Assessed by: (Initials)																			
Checked by: (Initials)																			

ARTICLE C5 – PORTFOLIO JUDGING (180 points)

C5.1 What will be judged?

The portfolio judges will mark your 5-page Portfolio so that they can assess the team's car design and use of CAD/CAM technologies along with the quality of manufacture of all race cars submitted.

C5.2 Judging process / procedure

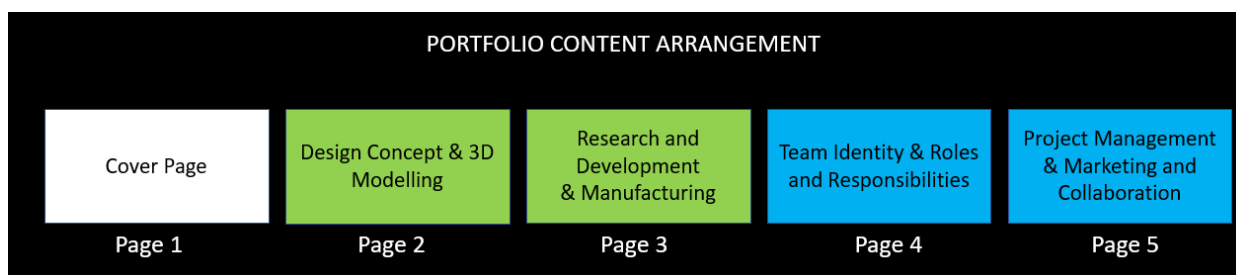
Teams will be awarded points as per the key performance indicators shown on the scorecard. Judges will review the portfolio in a 'closed to teams' session programmed. The quality of car manufacture and car assembly will be judged during a separate 'closed to teams' session.

C5.3 Portfolio requirements

The portfolio must be in a printed 'hard copy' format or saved as a PDF of A4 or similar size. Submission details will be provided to teams prior to the event.

Development Class: The portfolio is limited to **5 pages** of content, which include the front covers. This should be 5 single sided sheets. If a portfolio comprises more than 5 pages, the Judges will only assess the first 5 PRINTED pages including the front cover.

The specific areas to be assessed are described on the scorecard on the following page.



Portfolio Scorecard

Team Number:

Team Name:

	Low band	Middle band	High band	SCORE
Engineering Pages Assessment (Page 2 &3)				
Design Concepts	Single or basic hand sketched concepts	Multiple hand sketched concepts with links to research. Some evidence of physical 3D modelling	Several clearly annotated, hand sketched ideas for different car components. Experimentation of ideas using physical and CAD 3D modelling	
	1 2 3 4	5 6 7 8 9 10 11	12 13 14 15 16 17 18 19 20	
3D Modelling	Basic application. Only final design 3D modelled	Appropriate 3D modelling in development stages. Dimensional constraints of F1® model block considered	Advanced use of physical and CAD 3D modelling techniques to develop final concept through iterative approach. Designed for manufacture considerations (i.e. fillets)	
	1 2 3 4	5 6 7 8 9 10 11	12 13 14 15 16 17 18 19 20	
Research & Development	Limited evidence of R&D	Some scientific & mathematical theories and principles considered. Logical research-based design developments explained	Relevant R&D throughout the entire product design & development cycle, demonstrating high level CAD skills where appropriate. Design developments justified from research findings	
	1 2 3 4	5 6 7 8 9 10 11	12 13 14 15 16 17 18 19 20	
Other Manufacturing & Assembly	Limited manufacturing presented. Outsourcing with minimal understanding or justification	Manufacturing process and stages described. Appropriate use of manufacturing resources documented (i.e. tools, finishes, jigs, fixtures)	Details all manufacturing stages and processes. Quality assurance and workplace safety considerations evident. Appropriate outsourcing justified	
	1 2 3 4	5 6 7 8 9 10 11	12 13 14 15 16 17 18 19 20	
Engineering Pages Assessment Total =				/80
Enterprise Pages Assessment (Page 4 &5)				
Overall Team Identity	Inconsistent, limited or obscure identity	Effective team identity consistent through various project components e.g. car matches team uniform	Excellent and highly effective team identity. Team 'brand' consistently applied through all project elements.	
	1 2 3 4	5 6 7 8 9 10 11	12 13 14 15 16 17 18 19 20	
Roles and Responsibilities	Limited evidence of clear roles and responsibilities within team	Team roles and responsibilities identified, with some evidence of task and/or activity breakdown	Team members identified and a highly structured team created with clearly defined job functions and appropriate responsibilities.	
	1 2 3 4	5 6 7 8 9 10 11	12 13 14 15 16 17 18 19 20	
Project Management	No or very limited project management	Simple management and planning used to guide progress. A range of project resources identified. Basic team budget	Comprehensive project management. A range of factors considered; e.g. scope, time, resources and project risks. Plan changes discussed. Comprehensive financial management.	
	1 2 3 4	5 6 7 8 9 10 11	12 13 14 15 16 17 18 19 20	
Marketing and Collaboration	Limited evidence	Partner hierarchy and roles described. Some evidence of marketing and ROI.	Range of relevant partners. Creative activities linked to ROI. Evidence of F1 in Schools™ program marketing.	
	1 2 3 4	5 6 7 8 9 10 11	12 13 14 15 16 17 18 19 20	
Enterprise Pages Assessment Total				/80
Document Total				
Document Presentation	Difficult to follow with basic presentation	Document clearly structured and well organised	Document has high impact and professional throughout. Consistent and clear organisation	
	1 2 3 4	5 6 7 8 9 10 11	12 13 14 15 16 17 18 19 20	
Document Total				/20
Engineering Pages Assessment Total + Enterprise Pages Assessment Total + Document Total = Portfolio Total =				/180

ARTICLE C6 – VERBAL PRESENTATION JUDGING (160 points)

C6.1 What will be judged?

- Presentation technique (how your team comes across during the presentation)
- Presentation composition (how well you structure your presentation)
- Subject Matter (the topics which need to be talked about)

C6.2 Team preparation

Each team is required to prepare a **5-minute (Regional)** Verbal Presentation as per the requirements. Any multimedia content, slides etc. must be saved on and shown, using the team's own device. Teams must have all presentation resources tested and ready with them for Verbal Presentation judging. Most importantly, teams should read the Verbal Presentation judging scorecard carefully to ensure their verbal presentation features all elements and content that the judges will be looking for.

C6.3 Who needs to attend?

All team members must be present during the Verbal Presentation judging session.

C6.4 Judging process / procedure

Verbal Presentation judging is scheduled for the same duration of other judging sessions, usually 15 minutes. The judging will take place at team's pit display. Teams will be given an opportunity at the start of their time to set-up and test their device and any other presentation technologies and resources. The team will inform the judges when they are ready to begin. The judges start timing the 5-minute duration and will provide a discreet time warning signal when one minute of presentation time remains. The team will be asked to cease presenting when the time limit has been reached. At the conclusion of the team's presentation time, the judges may choose to provide some feedback and / or ask any clarifying questions they feel necessary.

C6.5 Verbal presentation video recordings

The Verbal Presentations of all teams may be video recorded by F1 in Schools for the purpose of judging review and/or post event publicity and promotional purposes by F1 in Schools™.

The specific areas to be assessed are described on the scorecard on the following page.

Team Number:

Team Name:

School:

Verbal Presentation Scorecard

	Low band	Middle band	High band	SCORE
Technique				
Visuals	Little use of aids	Some aids used effectively	Highly professional aids effectively improve communication	
	1 2 3 4	5 6 7 8 9 10 11	12 13 14 15 16 17 18 19 20	
Team Contribution	Minimal team participation	Good contributions from most team members	Excellent teamwork with all members participating effectively	
	1 2 3 4	5 6 7 8 9 10 11	12 13 14 15 16 17 18 19 20	
Energy / Engagement	Artificial and/or low energy, with minimal engagement	Speakers generally enthusiastic with lively delivery. Some audience connection at times	Passionate with effective and appropriate levels of liveliness. Audience fully engaged and excited throughout presentation	
	1 2 3 4	5 6 7 8 9 10 11	12 13 14 15 16 17 18 19 20	
Technique Total				/60
Composition				
Concept Clarification	Several concepts lacked clarification	Clear and appropriate concept explanations	Everything presented was understood through excellent explanations	
	1 2 3 4	5 6 7 8 9 10 11	12 13 14 15 16 17 18 19 20	
Time / Presentation	Too fast or ran out of time. No structure presented	Good timing. Balanced topic depth and pace. A basic structure / outline provided and could be followed by audience	Ran on time or under. Excellent balance of depth for each topic. Clear presentation outline / overview. Excellent connections between topics and easy for audience to follow	
	1 2 3 4	5 6 7 8 9 10 11	12 13 14 15 16 17 18 19 20	
Composition Total				/40
Subject				
Innovation	Little project innovation presented	Project innovations described and justified	Originality. Clever innovations with high positive project impact	
	1 2 3 4	5 6 7 8 9 10 11	12 13 14 15 16 17 18 19 20	
Collaboration	Little collaboration discussed	Links with industry or higher education described	Collaborations justified with links to learning and project outcomes	
	1 2 3 4	5 6 7 8 9 10 11	12 13 14 15 16 17 18 19 20	
F1 in Schools Learning Experiences	No real reflections discussed	Good explanation of some learning outcomes with reference to career aims	Compelling accounts of how the competition has impacted on life skills and career aspirations for a range of team members	
	1 2 3 4	5 6 7 8 9 10 11	12 13 14 15 16 17 18 19 20	
Subject Total				/60
Technique Total + Composition Total + Subject Total = Verbal Presentation Total =				/160
Notes:				

ARTICLE C7 – PIT DISPLAY JUDGING (60 points)

C7.1 What will be judged?

The Pit Display judges will assess each teams' Pit Display and overall Identity, through all project elements.

C7.2 Team Preparation

Each team must prepare a Pit Display as required. Most importantly, teams need to read the judging scorecard carefully to ensure that all areas to be assessed are included within the design of their Pit Display and/or additional competition project elements. The judges will assess each teams' Pit Display and all other project elements, so it's important to have a continuous theme throughout all your work.

C7.3 Who needs to attend?

All team members must be present during the Pit Display judging session.

C7.4 Judging process / procedure

The Pit Display judging will take place at each teams Pit Display. The Judges will usually introduce themselves then ask the team to stand clear of their display so the Judges can conduct assessments, while asking further questions about the work. Outside judging slots, the Judges will also be given some time to conduct pre-judging and review of each team's Pit Display and other competition elements.

C7.5 Pit Display setup and parameters

- C7.5.1 At Regional Finals, teams will be given a space (no bigger than 1m x 1m) to present their pit display.
- C7.5.2 At Malaysia Regional Finals, no part of the teams completed Pit Display is allowed to protrude beyond the physical dimensions of their allocated pit space.
- C7.5.3 ONLY student team members are permitted to set-up their pit displays. There must be no supervising teacher / adult or other outside assistance, unless deemed by F1 in Schools to be a health and safety issue.

IMPORTANT HEALTH & SAFETY: Please ensure that Health and Safety measures are considered when working on all aspects of your Pit Display. F1 in Schools reserves the right to apply a penalty of up to 50 points at the discretion of the Chair of Judges for unsafe activity.

- C7.5.5 F1 in Schools and / or the Chair of Judges may instruct a team to take action to reduce noise or remove display inclusions deemed to be inappropriate. F1 in Schools will instruct teams to remove or alter any display inclusions considered to be a safety hazard.
- C7.5.6 Any appliance must be powered by battery. At Regional Finals there is no availability of power for teams, so it is advisable that to consider all your electrical devices limit for your pit display.

The specific areas to be assessed are described on the scorecard on the following page.



Team Number:

Team Name:

School:

Pit Display Scorecard

	Low band	Middle band	High band	SCORE
Pit Display				
Sustainability	No or limited sustainability considered.	Sustainability strategy signposted with some evidence of implementation.	Sustainability strategy and activities clearly evidenced, showing consideration of economic, environmental, and social factors.	
	1 2 3 4	5 6 7 8 9 10 11	12 13 14 15 16 17 18 19 20	
Visual appearance	Limited, relevant graphics or advertising methods employed	Attractive display, including relevant graphic elements and implementation of some advertising methods	Professional looking display, incorporating highly effective graphics, use of ambient advertising enhance display	
	1 2 3 4	5 6 7 8 9 10 11	12 13 14 15 16 17 18 19 20	
Pit Display Content	Limited detail, with some basic items of relevance	Clear and effective use of relevant items to engage visitors. Appropriate multimedia used to enhance display	Clean, well-organised and interactive. Excellent integration of technology and multimedia, with an appropriate range of tactile display items	
	1 2 3 4	5 6 7 8 9 10 11	12 13 14 15 16 17 18 19 20	
Pit Display Total				/60
Notes:				

ARTICLE C8 – DIGITAL MEDIA JUDGING (30 points)

C8.1 What will be judged?

The social media judges will be evaluated your official digital media platform such as Instagram, Facebook, Tiktok, Youtube, Website and etc.

C8.2 Judging process / procedure

Teams will be awarded points as per the key performance indicators shown on the scorecard. Judges will review the digital media platform in a 'closed to teams' session programmed.

C8.3 Digital Media requirements

The digital media account must be shared to technical officer at registration venue. Submission details will be provided to teams prior to the event.

The specific areas to be assessed are described on the scorecard.

Pit Display Scorecard

	Low band	Middle band	High band	SCORE
Pit Display				
Digital Media	Limited or low level of documented planning, understanding and execution.	Some evidence of strategic planning and execution in line with documented strategy, consideration for audience and platforms	Clear, structured and well-communicated digital strategy with execution in line with documented plans, proactive use of platforms, creativity and audience engagement.	
	1 2 3 4 5 6 7 8 9	10 11 12 13 14 15 16 17 18	19 20 21 22 23 24 25 26 27 28 29 30	
Digital Media Total				/30
Notes:				



Racing: **How it works...**



ARTICLE C9 – RACING (220 points)

C9.1 What races will be conducted?

At Regional Finals, the F1 in Schools racing points will be awarded through the staging of one (1) type of race event:

Reaction Racing – manual / driver launch mode, two races in each lane.

Reaction racing will be split over one (1) sessions of four races. The average 'car race time' value from all reaction races will determine the Fastest Car Award (refer to C9.6). Refer to ARTICLE C3.5 and further information following for details on how points are calculated and awarded.

C9.2 Team preparation

- **C9.2.1** Teams should be familiar with the operation of the F1 in Schools Race System. There will normally be a section demonstration track within the venue where teams can practice race starts during free time prior to their scheduled races.
- **C9.2.2** Manual / driver starts – one or more team members (driver/s) must be appointed for launching of the teams' car using the manual launch method. The driver must stand within the dedicated starting area.
- **C9.2.3** Finish line management – at least one member of the team must be appointed as responsible for managing the finish line deceleration system or teams' own system (refer C9.10.2) and return of car along the track to the start.
- **C9.2.4** Start line car staging – one team member may be appointed as being responsible for 'aligning' the car. This team member is only permitted to set the alignment of the car behind the start line, with respect to the launch pod and track under close supervision from the racetrack Judges. Team members are NOT permitted to interfere in any way with the CO₂ cartridge or vertical alignment of the launch pod. This process must be completed within a time limit of 30 seconds. Appointment of this team member is optional. All four wheels must be in contact with the track surface after completion of the car staging time. The race Judges can assist or perform this task for the team.
- **C9.2.5** Teams must ensure that both cars are race ready, a car service session will be provided before the next race event (refer C10.2). If a teams' car is damaged beyond achievable repair, then teams will forfeit any races that the car would have been used for.

All team members must be present during their scheduled racing sessions and should assemble at the track start for briefing by the racetrack judges at their scheduled time.

C9.4 Reaction race procedure (Regional Finals)

Cars are launched in manual (driver launched) mode with four (4) races total per team, two (2) races in each lane. The TOTAL RACE TIME displayed, and the REACTION TIME displayed for each race is recorded. The reaction races will be conducted as follows:

1. Teams race in order as shown in the competition program. To begin racing, the lowest team number will start in lane 1. All cars will be loaded onto the track, Car A first then Car B
2. One team member to track finish for deceleration system control
3. Judge arms launch pod – SAFETY ON – makes initial launch pod adjustments
4. Race 1 (Car A) – Judge sets cars on track / tether line and inserts CO₂ cartridge
5. A team member is then allowed 30 seconds to 'fine tune' the alignment of their car, please see C9.2.4 for more detail
6. Driver and team stand trackside with corresponding lane start trigger
7. Judge checks deceleration system is ready, track is clear for racing, switches launch pod – SAFETY OFF
8. Judge presses the start system reset button – cars are launched by driver pressing start trigger
9. Judge records TOTAL RACE TIME and REACTION TIME displayed on start gate
10. Team member at finish moves car into storage zone at the end of the track

11. Race 2 (Car B) conducted in same lane as above, driver can be inter-changed as nominated
12. Team member at finish control returns car and empty CO₂ cartridge along track to the start with minimum handling
13. Judges remove cars from tether line and change lanes
14. Race 3 (Car A) and Race 4 (Car B), driver can be inter-changed as nominated
15. Cars removed from track and returned to Parc Fermé

C9.5 Reaction race scoring

All four (4) 'total race times' recorded from the reaction races are considered. The fastest of these four (4) times is used in the following formulae to calculate the points awarded:

- Fastest 'total race time' = 110 pts
- 2nd fastest 'total race time' = 105 pts
- 3rd fastest 'total race time' = 100 pts
- Slowest 'total race time' = 5 pts
- Base Time = 120% of 3rd fastest 'total race time'
- 4th fastest and all other teams score points using the following formula:
- Team Points = $5 + (95 / (\text{Base Time} - \text{fastest 'total race time'}) \times (\text{Base Time} - \text{teams fastest 'total race time'})$
- Any team with a best 'total race time' that is slower than the base time will score 5 points. To further discriminate between any teams scoring 5 points, a deduction of 1 point will be made for any did not finish (DNF) reaction race result

C9.6 Time Trial race scoring

The four (4) 'car race times' recorded during the reaction races will be considered. From these four (4) races, the team's 2nd and 3rd best 'car race times' will be averaged. This average time is used in the following formulae to calculate the points awarded:

- Fastest average (avg.) time = 110 pts
- Second fastest avg. time = 105 pts
- Third fastest avg. time = 100 pts.
- 'Base Time' = 115% of the third fastest avg. time of all teams avg. times.
- Fourth (4th) to slowest avg. time score points using the following formula:

Team Points = $20 + (80 / (\text{Base Time} - 3^{\text{rd}} \text{ fastest avg.})) \times (\text{Base Time} - \text{teams avg.})$

- Any team that has an average slower than the base time will score 20 points. To further discriminate between these teams, a deduction will be made of 5 points for any did not finish (DNF) time trial result
- If after discarding a team's fastest time there remains less than two (2) times from races finished, due to DNF's, the slowest time recorded is again input to the average equation until there are a total of four (4) times to average

C9.7 DNF (Did not Finish) race results

Damage or part separation occurring during a race, before the car crosses the finish line, (e.g. wheel or any other part of the car separating), or car not crossing the finish line at all, effects in a DNF race result. The Judges may refer to video evidence to verify a DNF result.

C9.8 False starts

- **C9.8.1** A false start (jump start) occurs when the driver presses the trigger button before the five (5) start gate lights have extinguished. This will be signalled with the outer red light above the lanes illuminating.
- **C9.8.2** All reaction false starts will incur a 2.5-point penalty and by default, forfeit that race. This penalty does not apply to knock-out racing.
- **C9.8.3** During knock-out racing – if one team false starts (jump starts), the other team should continue to race as normal. The team who false started forfeits that race, scoring a DNF and the other team's time is recorded. If both teams false start, the race counts as one of the two (2) runs.

- **C9.8.4** During any manual / driver starts, if a driver false starts and distracts the other driver the race will be re-run and the driver who caused the distraction will forfeit their race.
- **C9.8.5** Distractions outside of the race start area will be assessed by the lead track judge and track officials to determine if the race should be re-run. Spectators must keep noise down to a minimum and not use flash photography.

C9.9 Track, tether line and timing system information

- **C9.9.1** The F1 in Schools Elevated Racetrack, supplied by Denford Ltd will be used. The official length of the track, from start line to finish is 20 metres. A monofilament tether line of diameter 0.6mm, fixed at the finish end, passes down the centre of each lane. At the start end the line passes through 90 degrees over a single pulley then attached to a 1.0kg mass suspended above the floor.
- **IMPORTANT: Teams are not permitted to add anything to the racetrack until 250mm after the finish line/gate.**
- **C9.9.2** Launch/Timing – The F1 in Schools Launch/Timing System will be used for launching cars and timing races and driver reaction times to 1/1000th of a second.

C9.10 Car Deceleration system

- **C9.10.1** The Car Deceleration System acts to bring cars to rest once crossing the finish line. F1 in Schools will provide a standard Car Deceleration System, consisting of tapered brushes positioned behind the finish line of each lane.



- **C9.10.2** Teams may supply their own deceleration system and the team will be responsible for its management. Any system supplied by a team must be simple to setup within 1 minute and must not impede the opposing track lane, race car or the race schedule in any way. The judges, at their discretion, can rule any system supplied by a team to be inappropriate and revert to use of the standard deceleration system.
- **C9.10.3** Deceleration systems must be located a minimum of 250mm after the finish line.

C9.11 CO₂ Race cartridges

CO₂ cartridges to be used for all competition races will be supplied by F1 in Schools. Each CO₂ cartridge will be separately weighed before competition to ensure that all CO₂ cartridges used for races are within a weight range of 0.5 grams. All race cartridges will be kept in a temperature-controlled environment of 21 degrees Celsius.

C9.12 Car weight checks

Cars will have their weight checked at the racetrack prior to commencing a race event. This is done to ensure each car remains at a legal weight during all races. If a car is judged to have gone under weight whilst stored in Parc Fermé, the judges will add ballast to return the car weight to what it was when first submitted to Parc Fermé, without penalty.

C9.13 Judges handling cars

The race Judges will not be required to comply with any special car handling requests made of them by teams. This includes use of any special gloves or tools.



TM

in Schools
Malaysia

Details:

Things to be aware of...



ARTICLE C10 – CAR REPAIRS AND CAR SERVICING

C10.1 Car repairs

- C10.1.1 All damage issues and related repair work during racing is at the Judge's discretion and may be referred to the scrutineering Judges and/or Chair of Judges for a final decision.
- C10.1.2 No items can be removed or added to a car during racing, other than CO₂ cartridges, except in the case of a repair.
- C10.1.3 If any race car sustains damage during racing and this damage is ruled to be related to engineering deficiencies, the damage can be repaired using any of the defined replacement components. Any repairs using replacement components that can be safely performed in under 30 seconds will not incur any race penalty points. A timer will start when the race official places the damaged car on the official repair table. If the repair takes longer than 30 seconds, doesn't use the defined replacement components or the car is not race ready, then a **5-point penalty will be applied**. A repair time limit of 120 seconds (2 minutes) will be applied, if the car is not race ready at the end of this time then any further repairs must take place in the next service session. This may include but not be limited to car body, wings & wheels being damaged as part of racing including damage occurring within the deceleration area. *Please note: The Best Engineered Car award is calculated using several scores from the competition, including penalty points incurred through damage during racing.*
- C10.1.4 Engineering deficiencies may include but not limited to damage to car body, wings & wheels as part of racing including damage occurring within the deceleration area.
- C10.1.5 Curing time for adhesives must be included in 30 second repairs.
- C10.1.6 Tool kits are allowed to be taken racing. Teams must supply all of their own tools and other necessary resources. Judges will not be able to assist teams with any additional resource requirements
- C10.1.7 If the Judges rule that damaged sustained was not due to engineering deficiencies, immediate repairs will be permitted without penalty.
- C10.1.8 No penalty is applied for damage incurred during knock-out racing or a car's final race of any race event.

ARTICLE C11 – PROTESTS

C11.1 Submitting a protest

Any protest issues must be submitted by the team manager to an Event Director, no more than 10 minutes after the conclusion of the final scheduled race event. This will be registered and immediately lodged with the Chair of Judges. Any protest or appeals submitted after this time may be disregarded. All protests must be lodged in writing via the official protest form available from the Event Directors. The Chair of Judges decision related to any protest is final.

C11.2 Unsuccessful protests

Teams should carefully consider their grounds for submitting a protest or appeal. Any protest or appeal that is unsuccessful, with the Judges initial decision remaining unchanged, will result in the team having a **15-point penalty** applied against their total score.

ARTICLE C12 – JUDGES

C12.1 Overview

At Regional Finals, there will be a minimum of five (5) teams of judges plus officials that form the entire judging panel. Each judging team will have one (1) judge appointed as the Stream Lead Judge. Judges are education and industry experts invited by F1 in Schools. All judges sign a 'declaration' to ensure there are no conflicts of interest with respect to judges and the teams they are judging.

C12.2 Chair of Judges

This is an independent authority appointed by F1 in Schools who oversees all judging procedures. The Chair of Judges will determine the final judging decision where a protest has been submitted or other judging issue needs resolution. The Chair of Judges will also preside over a meeting of all Lead Judges to ratify the final results along with nominations and winners for relevant awards.

C12.3 The Judging teams

- C12.3.1 Specification and Scrutineering Judges – will assess all race cars as per the Specification and Scrutineering scorecards.
- C12.3.2 Portfolio Judges – will assess each team as per the portfolio scorecard.
- C12.3.3 Verbal Presentation Judges – will assess each team as per the Verbal Presentation scorecard.
- C12.3.4 Pit Display Judges – will assess each team as per the Pit Display scorecard.
- C12.3.5 Race Judges – will oversee and rule on all race events and any incidents.
- C12.3.6 Car servicing officials – will oversee all car service activities and rule on any infringements that may occur.
- C12.3.7 Digital Media Judges – will assess each team's use of digital media platform.

C12.4 Judging Decisions

THE DECISION OF THE JUDGES AND OFFICIALS IS FINAL.

ARTICLE C13 - AWARDS

C13.1 Awards Celebration

The Regional Finals awards will be presented at the Awards Ceremony at the end of the competition.

C13.2 Participation Recognition

All students will receive an official participation certificate from F1 in Schools.

C13.3 List of awards to be presented

A full list of awards to be presented will be announced before the Regional Finals event. All awards will be presented to the team that achieves the highest score in each category taken from the scorecards unless otherwise stated below.

Achievement and list of awards

1. Regional Champion
2. 1st Runner-up
3. 2nd Runner-up
4. Fastest Car Award
5. Best Engineered Car Award
6. Best Portfolio Award
7. Scrutineering Award
8. Best Pit Display Award
9. Best Verbal Presentation Award
10. Best Digital Media Award
11. Team Identity Award
12. Best Marketing Award
13. Innovative Thinking Award

**Please make sure you have also read the
F1 in Schools Regional Final 2023
Technical Regulations**

**Work hard, see
you at the
Regional Finals!**

If you need any help at all, just get in touch with us.

F1 in Schools Malaysia

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