

F1 IN SCHOOLS CHAMPIONS AT SILVERSTONE



“A thrilling experience that showed me what I could achieve in my future.”

**Will Stone
Team
Vortex**



Iconic images and developing technologies a fascinating combination



Teams had a guided tour of the paddocks



Preparation. Planning. Testing. Innovation. Development. Skill. Teamwork. Knowledge. Experience. Talent. Dedication. Sponsorship.

All of these words describe F1 and F1 in Schools. Lewis Hamilton would not be racing towards another World Championship Victory without a team behind him brimming with all of these qualities.

Equally for a team to succeed in the F1 in Schools challenge is just as demanding.

Team Vortex enjoyed a unique opportunity to see their larger counterparts racing at Silverstone as the reward for the innovative car design, planning and preparation that saw them crowned Bloodhound SSC Class national Champions 2015.

This is the third successive year that a WGSB team has taken this title.

They were accompanied on their fantastic tour of the Silverstone paddocks during the practice day by Cyclone Racing.

Cyclone Racing, consisting of students from Wilmington and Invicta Grammar will be representing England at the world finals in Singapore in September 2015.

Why is the team made up of students from across the county? Because of their ability to identify their strengths and weaknesses and to put together a team that can excel in all areas—because that is how you win.

As we toured the paddock looking for F1 stars on their way to their cars, we were shown where members of “The Paddock Club” stand looking down into the paddocks hoping to catch a glimpse of their heroes. Were they jealous of us!!

Even at Silverstone Team Cyclone were planning for the world finals



ENGINEERING BEHIND THE SCENES AT SILVERSTONE



Everybody focuses on the cutting edge technology of the F1 cars themselves. However, what became immensely apparent to me on my first visit to this famous circuit was the engineering behind the scenes.

The sheer logistics of organising such huge numbers of visitors to the event without blocking up the local road network for miles is an engineering feat in itself.

When we arrived we passed row upon row of articulated lorries. These are the vehicles that transport the mobile hospitality buildings for each of the teams. A fraction of the lorries are shown in the picture below.

The engineered architecture apparent in the hospitality buildings is astounding. These structures have to be collapsed down quickly and easily for transportation from one continent to another whilst offering a sumptuous level of comfort for drivers and sponsors in their temporary home.

Optimum results from the tyres relies on high quality production methods and precise pre-race preparation and storage

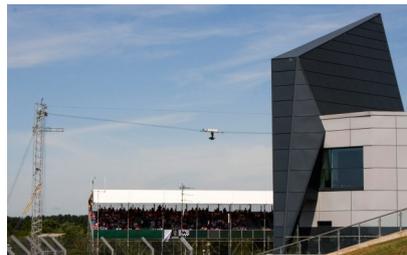
Considering the fact that each of these buildings must function efficiently the design style behind them is immensely varied and range from the Bauhaus style Red Bull venue to the beautifully curvaceous Honda building. In this forum style and visual impact are everything.

The hospitality buildings in the paddock varied greatly in design style



“Tyres for each car are kept in air conditioned storage units, each one labelled by driver and wheel position. All are kept at the optimum driving temperature ready for immediate use during a race.”

Annabelle Denford
FI in Schools



BLOODHOUND SSC ROCKET CARS



“Fantastic engineering experience that I really enjoyed because I got really involved.”

Matthew Neep
7 Darwin



Designs varied immensely



Aerodynamic shapes were carefully drawn, cut and shaped and finished



Rocket cars are amazing, small blocks of polystyrene carefully cut and shaped then fitted with a solid fuel rocket so it can be launched along an 18m track—brilliant!

That’s exactly what members of year 7, 8 and 9 did during the last few weeks of term.

We were visited by the experts from Bloodhound SSC who brought us up to speed with the progress of the Bloodhound SSC build.

Bloodhound SSC is the car which is currently being built in Bristol with the target of reaching the huge speed of 1000mph in 2017. It’s first test will be a low speed run of only 200mph at Newquay in Cornwall on November 17th 2015.

As a Bloodhound SSC education centre we have worked with the Bloodhound SSC education team on several projects in the past so when the opportunity to build rocket cars came along how could we say no?

The ambassadors talked to the students about aerodynamics, weight, friction and rockets before setting them off on the task of designing their own cars.

Working in pairs, the teams gradually developed their cars with help and advice from the experts.

Some cars were tested for their ability to run straight using the compressed air launchers from the k’nex car challenge. This gave teams the chance to tweak the cars to improve performance before the big test with the real rockets.

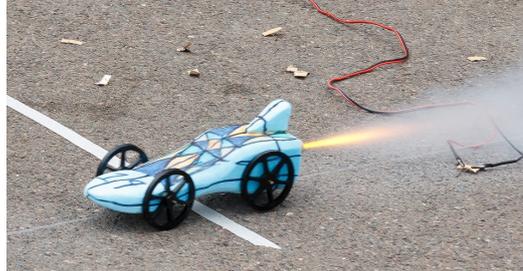
As you can see in the cars below we had a wide range of car shapes and graphics.

One of the challenges was to streamline the car sufficiently without cutting away too much of the body so that the rocket could be housed safely in the back.

Stabilising the designs lead to a range tailfins and spoilers being added.



POLYSTYRENE AND PYROTECHNICS!



After a morning of designing and building, the afternoon promised to be full of explosive excitement.

The solid propellant model rocket engines that we used were fitted into a pre-drilled hole in the back of each car.

To launch it a small detonator is fitted which is fired by putting an electric current through the connecting wires. This lights the charge which in turn ignites the rocket firing the car down the track.

Our cars were measured for speed and time over 18m although the track was considerably longer.

It took less than 1.5 seconds to cover the 18m. After about 15 meters the rocket motor was ejected from the car and after 25m the car crashed into the foam tube used to slow the cars before they crashed into the end wall.

As you can see from the pictures it was still travelling extremely quickly at this point.

Safety was paramount. The rocket engines are similar to fireworks and so could not be launched unless the track was clear

Times over the two days varied considerably with the fastest taking just 0.5 seconds to complete the track and the slowest nearly a whole second longer.

Watching the cars travelling the course showed just how uneven the ground was as they bucked and bounced considerably from start to finish.

We had two winning teams, one for each day. These teams will receive certificates to confirm their success and their team names will appear on the immense tailfin of the Bloodhound SSC and so will, in time, be traveling at 1000mph across the South African Desert.

It was all over in seconds, most of the cars survived



“I really enjoyed the Bloodhound day. I learnt a lot about the Bloodhound project and the activities were fun. I loved the level of control that you had on the design of the car.”

Theo Wilson

9 Newton



Photo: © Bloodhound

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We are representing England at the 2015 World Finals in Singapore in September!

This sets us the enormous challenge of raising £22,000. This is needed to fund our travel and staying over fees in Singapore as well as any resources needed for the competition. To date we have raised £14,000 thanks to support from a wide range of organisations, with more recently a large contribution from British Aerospace (BAE Systems) really helped boost our totals.

Despite a lot of funds still having to be raised we are confident we will be able to reach our target through the generosity companies and individuals giving as much or as little as they can. We need all the support we can get. If you or anyone you know may be able to contribute to the team whether it be through a monetary donation, offering of services or resources, or possible promotion please do not hesitate to contact us either through the Facebook and Twitter QR Codes below or email us at:

info.cycloneracing@gmail.com

Help us make England World Champions again!!



For further information regarding any topic in the Engineering Focus please contact esmith@wgsb.org.uk
Or visit our website at <http://wgsbengineeringfocus.weebly.com/>



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