# F1-VWT
MK8
Powered by PHOENICS

F1-VWT Mk8 is a Virtual Wind Tunnel Software, which used as part of the F1 in Schools STEM Challenge – the worlds biggest and most exciting STEM-based (Science, Technology, Engineering and Maths) educational project.

F1 in Schools, with its multi-disciplinary approach, encourages teams of students to learn about physics, aerodynamics, CFD (Computational Fluid Dynamics) and to apply that knowledge creatively and effectively. Teams use CFD software, such as F1-VWT Mk8, to analyse the aerodynamics of their F1 model block cars, as part of the design/analyse/make/test and race process of the Challenge.

CFD is an integral part of the process employed by industrial design companies to assist with their prototypes, and in the case of car manufacture is can help to streamline vehicle shape by predicting and modelling levels of drag and downforce.

F1 in Schools teams design their car using CAD software and then import and display the design in F1-VWT Mk8, which is set up to receive the geometry. Teams will change initial settings, boundary conditions and other factors in the pre-processor and then run the mathematical solver. The solver provides information relating to potential performance of the design and guidance as to areas requiring improvement. Velocities, pressure, areas of turbulence, lift and drag, vector and contour plots, streamlines and iso-surfaces will be visible. Once the solution has been reached, it can be visualized and animated, in graphical form, using the F1-VWT Mk 8 post-processor.
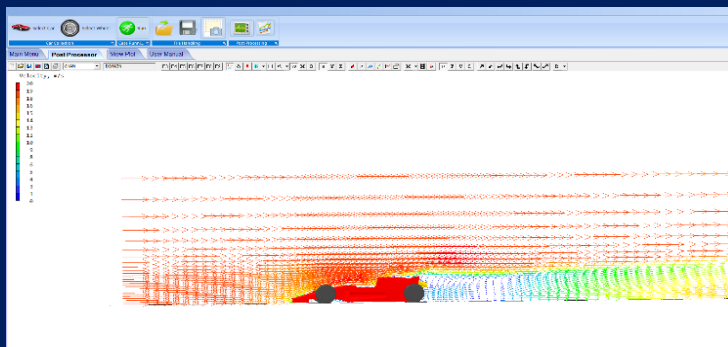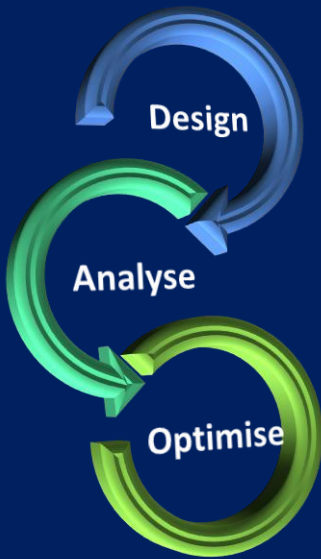
1. Make
2. Test
3. Race
4. Win

Use these results to optimise and improve your design before race day, and ensure that your model is the fastest one out there!

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Changes from Mk7 to Mk8:

1. Regulations required changes to Body Width:
   Min 0.05m
   Max 0.065m
2. Regulations required changes to Body height:
   Min 0.0435m
   Max 0.05m
3. A minimum distance between wheels of 100mm is now required and has been taken into account.
4. Changes were made to the Axle to implement the requirement that wheels must be connected via axles.
5. It was necessary to allow a virtual cargo volume with a similar volume check to that in place for the block or no-go zone.
6. Standard wheels must now be used which required a new wheel.dat