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F1 VWT Mk6 release
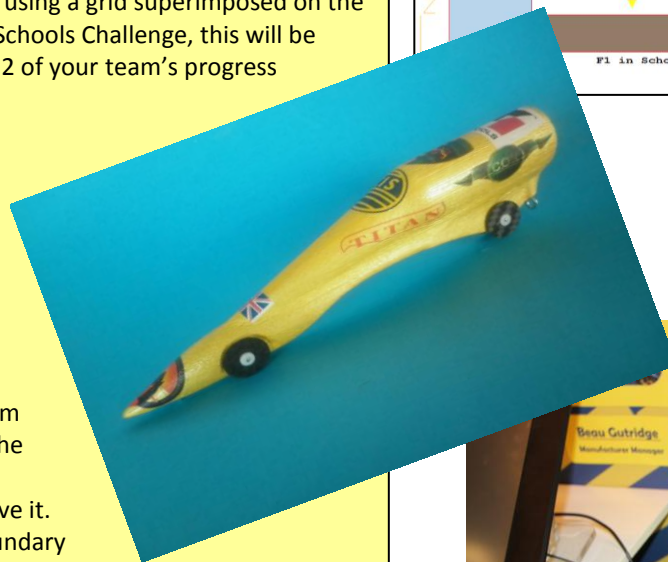
Virtual Wind Tunnel
Flow Simulation Software

NEW style for 2014

Single-copy, Multiple-copy & Network Schools Releases

Computational Fluid Dynamics (CFD) is the prediction of processes involving fluid flow, heat & mass transfer, chemical reaction and/or combustion. Anything that involves fluid flow can be simulated using these techniques; with varying degrees of accuracy.

CFD is based upon the laws of physics, of conservation of mass, momentum and energy. The equations are embodied within a mathematical model and solved using a grid superimposed on the region of interest. For the F1 in Schools Challenge, this will be your racing car design. I.e. Step 2 of your team's progress towards racing success.

1. **DESIGN**
2. *ANALYSE*
3. **BUILD**
4. **TEST**
5. **RACE**

Your design will be imported from CAD software and displayed in the Formula 1 Virtual Wind Tunnel (F1 VWT) already set up to receive it. You will alter initial settings, boundary conditions and other factors in the F1 VWT pre-processor, before starting the mathematical 'solver'. Once the solution has been reached, you will be able to visualise and animate the results interactively in graphical form, using the F1 VWT post-processor.

The results will provide you with information relating to the potential performance of your design, and provide guidance towards the areas for improvement. You will see velocities, pressures, areas of turbulence, lift and drag, using vector plots, contour plots, streamlines and iso-surfaces. The forces on the car body will be calculated and plotted.

Industrial design companies use CFD techniques to assist with their prototype designs ...

What you do with the information is up to you ...
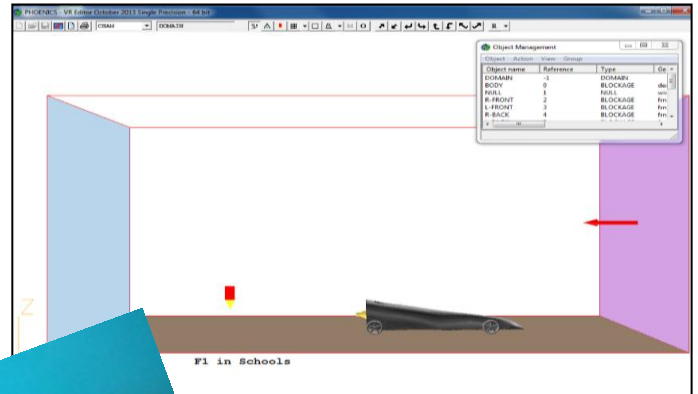
Pictures courtesy of Team Pulse, Devonport School for Boys, UK & World Champions 2008

NEW Options
Mk6 incorporates options for "Formula 1" type & "Bloodhound" type race car standards.
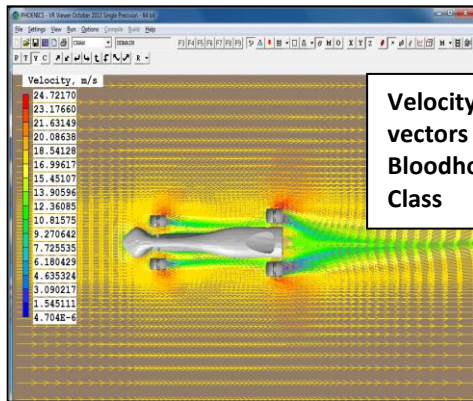
NEW Features
Mk6 has post-processing 'push-and-play' macros for default views of velocity, pressure, centre of lift, and animations.
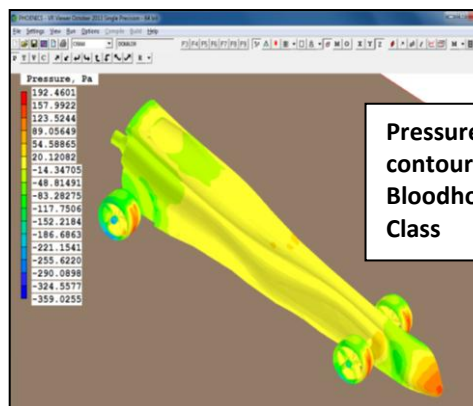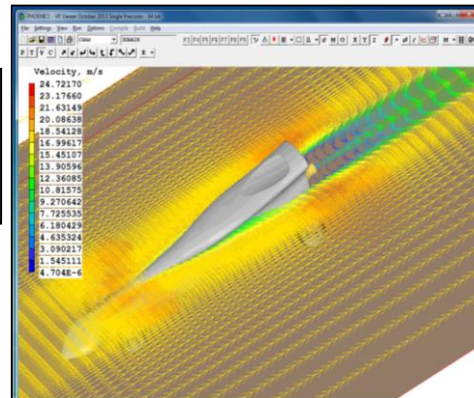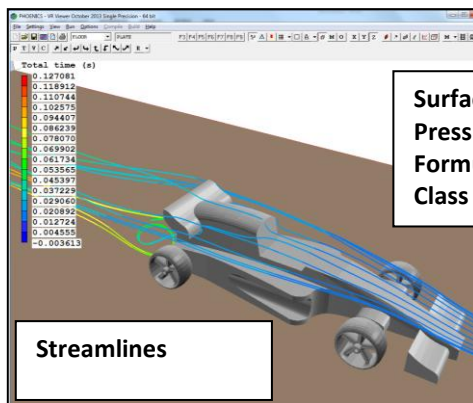
F1 in Schools
Virtual Wind Tunnel with CFD

Velocity vectors Bloodhound Class

Pressure contours Bloodhound Class

Surface Pressure Formula 1 Class

Streamlines
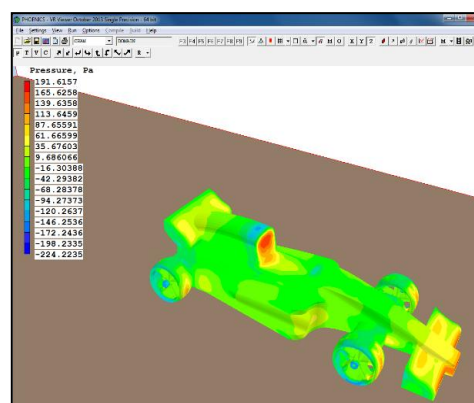
The F1 in Schools VWT is based upon the PHOENICS general-purpose CFD software package developed by CHAM Ltd, London, UK. Web: www.cham.co.uk

The F1 in Schools Challenge is sponsored by, amongst others, Denford, BAE Systems and Jaguar to encourage the awareness and use of engineering technology within education – click on www.f1inschools.com for further details.

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The F1 in Schools VWT software is supplied exclusively by Denford Ltd, Birds Royd, Brighouse, West Yorkshire, HD6 1NB, UK, Tel: +44 (0)1484 728000, Fax: +44 (0)1484 728100
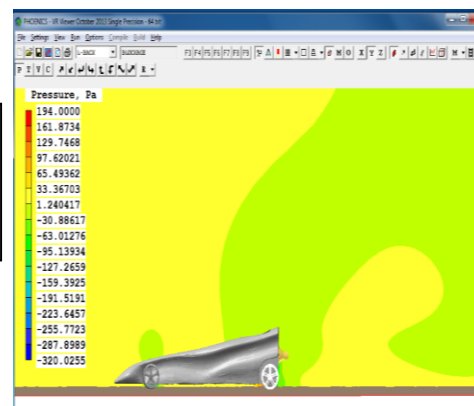Web: www.denford.co.uk