



# ENGINEERING FOCUS

NOVEMBER 2013

## THE STRETCH!



Simon Haydn from Bloodhound SSC with some of our future ambassadors

### INSIDE THIS ISSUE:

WGSB STEM  
Ambassadors 2

Teentech 2

STEM  
Ambassador Training 3

Opportunities? 4

### NEXT TIME:

FI in Texas  
Special issue

**Opportunities are important. Whether you take them or ignore them. If you never get the chance to do something different, try a new activity then you don't get to find out about yourself.**

At Wilmington Grammar School for Boys we try to give students new opportunities outside of lessons so that they can develop new skills, make new friends and learn more than the government requires.

So far this year students have had the opportunity to go to Teentech, to sign up

### Students take on a range of challenges



for the active robots activity or to become STEM ambassadors and it is great to see so many people taking these opportunities and enjoying taking part.

Phil Leonard, the STEM ambassador who led the first training day for our new WGSB STEM Ambassadors talked about the stretch and that if you want something you have to go that extra mile to get it, not just sit around and expect it to come to you.

At Engineering Focus we like to give you opportunities, some we prepare for you and it is a simple matter of signing up; others are just the information you need so that you can decide whether to get involved with out of school activities like Nuffield Bursaries, Smallpeice residential courses or applying to be Arkwright Scholars. Students who take these opportunities always come back excited and challenged by the activity and with new skills that they are able to use in their work.

Details of these activities are on the back page, I recommend you find out about them and decide whether you are ready to make 'the stretch'.

# WGSB STEM AMBASSADORS



WGSB working  
with Primary  
Students

“The coolest  
thing I saw  
today was the  
Samsung  
curved OLED  
screen”

Louis Albrecht  
Teentech  
visitor



Teams had to carry  
out forensic tests to  
track down a murderer



Making  
efficient  
turbine  
blades



**WGSB students have always assisted with Primary outreach projects. Helping young students succeed in their challenges and impressing primary teachers with their skills, abilities and knowledge.**

Looking at the work these students do we wanted to give them an award that they could use as evidence of their diverse skills when applying to university or scholarships or when completing their CV's. Something that would make them stand

out from the crowd. So this year we have launched the WGSB STEM Ambassador initiative.

Students taking part have attended at least one training session during which they have had the opportunity to interview a Scientist, Technologist, Engineer or Mathematician. This has given them the opportunity to apply for the nationally recognised STEM Leadership Award, successful applicants can then become a WGSB STEM Ambassador.

“As a STEM Ambassador they can work with

students in school as a study buddy in the STEM subjects or run a club within technology for students younger than themselves as well as volunteer to support me running outreach activities at local primary schools. Something I cannot do without their support.” Mrs Smith, Engineering Specialism Co-ordinator.



## TEENTECH 2013

**Teentech 2013 was once again a jaw dropping experience.**

Ten year 8 students had the opportunity to come face to face with emerging technologies from leading national and international companies developing engineering solutions for the future.

Microsoft, Samsung, JVC, Pfizer, the armed forces and many more were showcasing developing technologies and the careers their industries offer to anyone interested in Science, Technology, Engineering and Maths.

During a packed event students solved real world problems, programmed

computers to launch virtual missiles and worked out ‘who dunnit’ on the forensic stand. They also learnt about the huge improvement in the efficiency of the turbines that power the Royal Navy destroyers as well as developing a turbine blade of their own.

One of our teams taking the lead in the challenge by producing the most fuel efficient turbine blade of the day.

The Samsung stand was truly amazing with an ultraHD screen showing images at a resolution 4x greater than current HD images - stunning! A television showing two



channels at once, your glasses selected the channel you saw with the sound coming from speakers in the legs of the glasses. No more arguments about what to watch! Interactive phones that linked together easily to act like one larger screen and a 900mm x 600mm tablet/table with 42 contact points—mind-blowing!

This event was truly amazing and the students were spell bound.

# STEM AMBASSADOR TRAINING

**Four STEM ambassadors came into school in September and ran our first WGSB STEM Ambassador training day. Students had the opportunity to try a series of STEM based challenges using K'nex.**

The warm up activity had the teams building the tallest possible free standing tower with a small number of k'nex



pieces. The solutions were fantastic and as time raced by towers grew taller. Getting the height without the weight of the pieces causing the top of the tower to gradually keel over was complicated and some teams started adding extra pieces to the tower to try and balance out the parts causing it to bend.

After thirty minutes of inventive problem solving it was time to measure up and see how well each team had done. A new record of 1.06m was set – well done to the winning team!

Trebuchets and cranes were to follow with students taking their ideas to new heights of

ingenuity, not all of the designs were successful but they all showed innovative thinking, teamwork and problem solving skills and it was great to watch the designs evolving from paper into k'nex models.

Engineering issues like cost versus quality, simple effective solutions against complex over engineered solutions and the simple challenge of finishing the task on time all came to the fore.

It was a fantastic day and we are very grateful to the team of ambassadors that came in to help us develop our skills, knowledge and understanding of STEM in schools and in the world of work.



**“I think the streamlined shape of the Bloodhound SSC will be perfect for breaking records.”**

Zoe Smith

Primary School Student

## BLOODHOUND SSC AMBASSADOR TRAINING



**As the South East Education Centre for the Bloodhound SSC project all of the outreach projects that we run centre around the 1000mph car. So it seemed obvious that our ambassadors needed training about the project they would be discussing with primary school students.**

Thank you to Simon Haydn from Bloodhound SSC for running a fantastic event for our students to learn about the project—why it was started, what they are trying to achieve, when they will achieve it and where they are up to on the build of the car. All questions our ambassadors are likely to be asked by the primary school students we meet when we run k'nex cars, balloon cars and science fairs.

It is a fascinating project and the car itself is finally in the build stage after 5 years of planning, designing, testing and development.

The team has had to move to a new, larger base in Bristol so they can fit both the show car and the real car in and have

space for visitors to see the pioneering work they are doing.

With a detailed understanding of the project, the students then learnt about the projects they will help to run in schools and discussed which clubs we could run here at WGSB.

The event was very successful and should give all of our ambassadors an excellent start when giving primary school students the opportunity to find out more about Bloodhound SSC.



# OPPORTUNITIES!

## SMALLPEICE RESIDENTIAL COURSES

'From Marine Technology to Low Carbon Energy, our courses are as exciting as they are varied. And they all offer young, aspiring engineers the chance to connect with industry professionals and technical specialists.'



Based at some of the country's leading universities and other secure venues across the country, courses are available to young people in school years 8 -12.

This isn't stuffy, dull classroom work - in fact, many students tell us how intriguing, inspiring and surprising they found their event.'

Students who have attended these courses have always found them fantastic, the most popular courses fill very quickly so even though they don't start until March I would recommend signing up as soon as possible at <http://www.smallpeicetrust.org.uk/>

## NUFFIELD RESEARCH PLACEMENTS

'Nuffield Research Placements is a UK-wide scheme giving students a chance to work alongside professional scientists, technologists, engineers and mathematicians for 4 - 6 weeks over the summer holidays.'



Are you:

- ◆ In your first year of post-16 studies (Year 12 or equivalent)?
- ◆ Studying one or more A-levels (or equivalent) in maths or science?
- ◆ Studying at a UK school or college?

If you are interested in studying a STEM subject at university then this is an excellent way to get yourself noticed by the university of your choice. An opportunity to learn about the world of work in your chosen area and to develop skills that will help you succeed. For more information go to <http://www.nuffieldfoundation.org/information-applicants>

## ARKWRIGHT SCHOLARSHIPS



'The Arkwright Scholarships Trust offers Engineering Scholarships to Nurture and inspire high calibre school students to pursue a career in Engineering and related areas of design'

### What Do I Get from a Scholarship?

A highly-respected Scholarship to go on your university or higher apprenticeship applications - get noticed!

Experience days

Mentoring & Networking

Free CREO™ CAD software

Enrichment courses

Trade magazine subscription

£600 personal award'

If you are interested in applying for the Arkwright scholarship you must complete the application process by mid January and have paid to take the aptitude test at the start of February. This is an extremely prestigious scholarship aimed at future leaders and universities are much more likely to offer you a place if you have a scholarship like this demonstrating your skills and knowledge as well as the fact you have gone the extra mile to achieve the scholarship. For more information go to <http://www.arkwright.org.uk/>

If you would like more information about any of the items in this newsletter, or would like details of our primary outreach work then please do not hesitate to contact me at [esmith@wgsb.org.uk](mailto:esmith@wgsb.org.uk)



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