

ENGINEERING FOCUS

DECEMBER 2012

STUDENTS RECEIVE PRESTIGIOUS ENGINEERING SCHOLARSHIP

James Bevis and Joshua Brown were awarded a prestigious Arkwright Engineering Scholarship recently at a ceremony hosted by the Institution of Engineering & Technology, at Savoy Place, London. Joshua was presented with his Scholarship by Sir John Armit FEng, Chairman, Olympic Delivery Authority and James was presented his scholarship by Dervilla Mitchell FEng, Aviation Business Leader UKMEA, Arup.



**James Bevis with Andrew Stafford from
The Dulverton Trust**

The Arkwright Engineering Scholarships support young people from across the UK who have the potential to be industry's future leaders in engineering and design. During their Sixth-Form studies, Scholars receive £600 to support their technical courses and have access to a range of exciting opportunities to learn more about engineering, such as mentoring and company visits. The school also receives £400 per Scholar.

Scholars follow a rigorous selection process comprising a detailed application form, a two-hour aptitude exam and an interview hosted at a top engineering university.

The National Director of the Arkwright Scholarships Trust, Dr Martin Thomas, commented: "This year's assessment process

was extremely tough. Any secondary school can become affiliated to enter students and this year we had 1103 applicants competing for just 335 Scholarships. James and Joshua and all of our new Scholars have absolutely phenomenal potential for future careers in the engineering profession. Congratulations to James and Joshua!"

The Arkwright Scholarships Awards Ceremony on the 26th October was a very impressive event, with over 1000 attendees, scholars and their guests, but also representatives of the sponsoring organisations and several VIP guests.

After the event, Josh said "I feel very privileged to have been afforded this opportunity and look forward to being able to advance my education in this fascinating subject". Mr Williamson added "I am delighted that both boys have had their talents recognised. This is the first year that the school has put any students forward and for companies like Rolls Royce to recognise and support them is fantastic."



Josh Brown with Rani Gill from Rolls Royce

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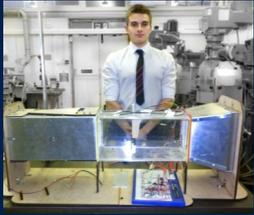
Celebrating
the success
of our
Students!

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Get
Involved!!

NEXT TIME:

- ◆ Science Museum Feedback
- ◆ Bloodhound Update

WHERE NEXT?



Patrick with the prototype wind tunnel.

F1 car displayed in the wind tunnel.



“TEAM

Together

Everyone

Achieves

More”

- Oaklands Primary School



Receiving CREST certificates



Patrick Kirk is one of the many superb students who attend WGSB with a desire to progress into a career in engineering.

Patrick is currently applying for a university place to study either Aerospace or Marine Engineering, his work during his A-Level engineering course shows the skills and knowledge that he has developed in the subject which will ensure his success when studying for his degree.

Patrick was approached by one of our F1 in school's teams to design and build a wind tunnel to

help them design and develop their prototype cars.

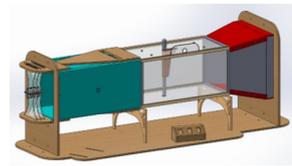
As part of the Engineering Diploma Patrick completed his work experience with Lola Cars and was given the opportunity to perform various tasks on their 2010 Le Mans car within their wind tunnel facility, so he was eager to demonstrate what he had learnt.

Having researched, designed and developed the tunnel to his client's specification, backing his work up with his knowledge in Maths and Physics to ensure the shaping and power output where suitable, Patrick

presented his Solidworks model to the team and with their approval went on to manufacture the final design.

The team were extremely happy with their wind tunnel and use it for testing and streamlining their designs. Patrick has already started working out how it could be improved like all great engineers.

I would like to thank Patrick for allowing me to highlight his work and wish him well at University.



CREST SUCCESS

During each academic year a whole range of opportunities are available for students to get involved with Science, Technology, Engineering and Maths—collectively known as the STEM subjects.

Students choosing to get involved always develop their skills and knowledge within this subject and get the chance to apply for awards recognising their achievements. One of the national awards that is on offer is the British Science Association CREST Award.

Students from the school have applied for the award for a range of projects.

- During enrichment week Bloodhound SSC students applied the knowledge they had acquired from testing k'nex cars being fired down a track to the cars that they designed and made using the laser cutter. Their laser cut cars were all tested for straight running, speed and distance and most importantly whether the driver, Little Andy, survived!

- The Go4SET challenge set a team of students the task of making the school more energy efficient and environmentally friendly giving the team the chance to find out about

different methods of improving the schools carbon footprint and then producing a 3D model and presentation demonstrating their ideas.

- STEM club gave students the freedom to select their own research and development project and carry out tests and experiments to demonstrate their ideas.

For more information about the CREST awards turn to the back page.



LEADING THE WAY



Leaders Award for STEM
create a ripple...



Primary Engineer is an organisation that is passionate about engineering and introducing students to this fascinating world.

Students achieve a Leaders Award by completing a well written report of an interview with a STEM professional. Therefore researching different careers; and finding out what they are like for themselves.

STEM Leaders

Students who interviewed Steve Smith from Delphi Pumps and representing the Institute of Mechanical Engineers discovered how research and development works in industry and how challenging, varied and exciting a career in engineering can be.

Colin Wheeler, organiser of the annual Trevithick's Industrial Heritage Day in Dartford, discussed his experiences running a local engineering firm that manufactured products in lead. He has worked in countries across the world producing high spec lead shielding for the nuclear industry.

I personally found Scott Servante's interview of Mr Winter enlightening as I had no idea how widespread and well travelled his career has been so far.

As well as producing a report about what they have found, students also work with other students of their own age or younger on STEM projects.

Many students accompany me on my primary projects helping with balloon cars, k'nex cars and doorhangers, others were involved with helping visitors to the school on our Bloodhound SSC Education centre launch day.

Information about applying for the award is on the back page.

"A chance to open students aspirations by speaking directly with professionals from different fields in STEM."

– Leaders Award

Primary Engineer

CATERHAM 7 BUILD

Students quickly learnt that building a kit car, even one as well packaged as the Caterham, is not like playing with Lego or building with Meccano!

In total twenty students, aged 12 to 17, have been involved in the project. One team of students worked on the front assembly and another at the rear. At the front, the steering rack, uprights, suspension, anti roll bar and brakes were all added whilst at the rear, a lot

of groaning and muttering could be heard as the suspension, differential and driveshafts were all put into place.

After these key components were installed, different members of the student team turned up each week to help with various aspects of the bodywork and the interior.

The students thoroughly enjoyed the project. Matthew, aged 16, fully agrees. "Every week is a new challenge but it is great walking past the car and seeing it slowly take shape. My friends and I are already looking forward to the day we actually get it on the road."

Finally, sincere thanks must go to Luke Russell who works on



engine assembly at the Dartford based factory and gave up his free time every Friday afternoon to come and help the staff and students at the school. As Mr Harper explains. "As well as his technical expertise, Luke has a lovely manner with the students and his presence alone is inspiring them to go and work in the automotive industry".



GET INVOLVED!!



Getting involved in engineering activities is a great way to boost your skills, knowledge and employability. Activities are fun and educational and give you the chance to try out new things while you learn about Science, Technology, Engineering and Maths.

Whether you are thinking about going into a STEM based career or not, taking part in Smallpeice Activities, applying for Leaders Awards or helping out with other students demonstrates to future employers and educational organisations that you are different from the crowd and worth investing in.

This page will always suggest things that you could 'Get Involved!!' with, the opportunities are there,



Leaders Award for STEM
create a ripple...

STEM Leadership Awards

I am currently organising the activities for students who are applying for the STEM leadership awards. Key Stage 3 students will assist me with projects in primary schools, Year 10 are going to assist in running sessions relating to air to primary students and Year 7. Sixth Formers will support students taking part in the Primary Engineer Challenge. Interviews with STEM professionals will take place in March.

If you are interested you can get more details from <http://www.leadersaward.com/index.php> and e-mail me with your name and form before January 18th so that I can include you in the interviews.



Smallpeice Trust

smallpeice

From Marine Technology to Low Carbon Energy Challenge, 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 9 -12. This isn't stuffy, dull classroom work - in fact, many students tell us how intriguing, inspiring and surprising they found their event.

These are residential courses and details can be found at <http://www.smallpeicetrust.org.uk/> look for the residential course tab.



Arkwright Scholarship

The Arkwright Scholarships Trust administers one of the most prestigious scholarship schemes in the UK. We identify and nurture future leaders in engineering and related areas of design. We do this by awarding Arkwright Engineering Scholarships, through a rigorous selection process, to high-ability students in Year 11. Our Engineering Scholarships support students through their A Levels and encourage students to pursue engineering at university and to take up careers in engineering or related areas of design.

For more information go to <http://www.arkwright.org.uk/>

The deadline for Arkwright Applications is 25th January 2013. See Mrs Smith for a letter explaining how to apply and the password for the online application.



CREST Awards

If you are interested in completing a project for a CREST award then find out what is involved at <http://www.britishecienceassociation.org/crest-awards>. Then see Mrs Smith to discuss your project and find out if it is possible to run the activity. Team projects are suitable and mean you have more support throughout the project. If you need an industrial mentor for the silver award Mrs Smith can arrange it.



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