



Hayesfield Girls' School

Celebrating Technology College Status



Science Activities

Technology Activities

Maths Activities

ICT at Hayesfield



Welcome to our publication which has been produced to celebrate our status as a Technology College.

Technology College Status has enabled us to make excellent use of an additional resource to enrich the experiences of students at Hayesfield and in our partner schools. The collaboration with the business community and the University of Bath provides us with the opportunity to lead exciting curriculum developments and supports innovation and creativity in teaching and learning. Indeed, Technology College activities were noted as a strength of the School by Ofsted in February 2009 and we have been identified as lead practitioners in Mathematics, Science and Technology.

I hope you enjoy this publication.



Erica Draisey

Techlink Event 2009

The Techlink Event 2009 took place at the Department of Mechanical Engineering of Bath University on June 11th.

190 primary school students attended the event. Most were from schools in the area but some came from as far as Exeter! All had come to race their gas-powered cars in the T1 Primary Racing Challenge.



That's some drag strip!

Teams of 5 students had produced the cars in their schools based on templates created by Hayesfield School staff. Each team modified the basic shape to produce a winner. Power for the car comes from a CO2 gas cylinder which fires the car down a 20 metre track. The fastest cars managed to complete the 20 metres in less than 1 second. A blink of an eye!

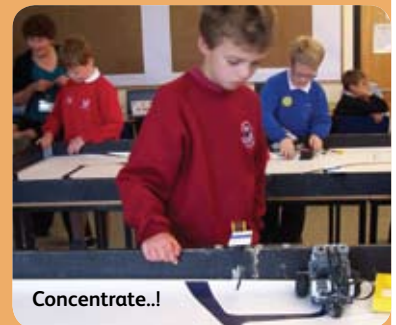


On your marks!

The T1 overall fastest car was produced by the "Devil's Armour" team from St John's School in Keynsham. They received individual medals, and a trophy, presented by Andrew Denford, Chairman of Denford Ltd, plus a CraftROBO machine donated by Denford Ltd.



Printing the graphics



Concentrate..!

The car with the best graphics was judged by Dr David Barlex, Director of the Nuffield Foundation. Winners were the Widcombe "Cheese Mongers" team. They received individual medals and a trophy.

As well as the T1 racing there were fantastic presentations by students from Oldfield Park Junior, Newbridge Junior, Moorlands Junior and Widcombe Junior. They explained to a packed lecture theatre how they had been working with Hayesfield teachers on new Primary Solutions booklets for the Nuffield Foundation. We also heard about Hayesfield's new Techlink website at www.techlinkinschools.com where materials are available for schools to download, and the new Techlink Lab which will open at Hayesfield Upper School in September 2009.

If you were not in the lecture theatre or racing your car then the other activity was programming a robot in a challenge organised by John Trickett and his team from Bath University Setpoint.

A great day was had by students and adults alike. We are all looking forward to the Techlink Event 2010.

Maths @ Hayesfield

What Technology College Status means for the Maths Department

The world of Maths is ever changing and the need for people with logical and sequencing skills is growing as technology develops.

By securing Technology College Status we are able to run events that encourage, enrich and enthuse young minds.

We are able to work with Junior Schools and nurture, cultivate and support our prospective students, and we can offer activities that support and stimulate our wider community.

Most importantly we can enjoy and embrace progress.

Julia Cleveland *Head of Maths Faculty*

Working with Partners

Dyson Morning

40 Year 7 students were selected to take part in a morning activity working with Dyson engineers.

They found out all about the design processes in industry and how products finally get to be in shops. The students were given cardboard, glue guns and pieces of Dyson machines and challenged to build a piece of equipment that was new and innovative.

The winning team invented a paint dispenser with a drier built in to dry the paint as it hit the wall.

All the students thoroughly enjoyed the session and gained a real insight into how design processes work.



Dyson Morning

Working with the Community

Sixth Form Role Models

A group of 8 A level students planned and delivered a set of activities to students at Moorlands Junior School. The lessons involved learning through the use of games, IT and interactive lessons. The students played Mathionnaire, Maths Dominoes and Maths Pictograms.

The Sixth Form girls were amazing and simply took over from the class teachers. They enthused, encouraged and engaged all the Junior School students. They thoroughly enjoyed the afternoon and showed themselves to be excellent role models.

Enriching Students' Education

Bathematician

Hayesfield hosts an annual get together for Maths Sixth Form students from all across Bath.

Students work in mixed school groups and each group faces a variety of challenges. These include calculus questioning and differentiation; building the tallest tower, finding the largest volume of a building and icing a biscuit!

The day ends in a presentation where all students sing, whistle or play along to a newly created Maths song. These can now be viewed on Youtube.



Bathematician

Finance Day

All students in Year 9 take part in our annual Finance Day. They have £2500 counterfeit money provided as a float (made with photographs of themselves on). The aim is to make as much money as possible by the end of the day. Throughout the day pupils experience budgeting for Glastonbury; credit card searches; horse racing and understanding odds; stocks and shares; insuring a car and finding the best mortgage. The Tutor group with the biggest total for the day receive a prize. Last year they were bought a donkey from Oxfam.



Working with the Community

Technology @ Hayesfield

What Technology College Status means for the Technology Faculty

Technology College status and the extra funding that it brings has enabled us to invest in opportunities to work with our local feeder primary schools. helping these schools to deliver the teaching of Design and Technology. Primary students clearly enjoy Technology and gain sound knowledge and understanding of the key concepts.

Another impact of technology status is the ability to sustain and expand the resources available within each workshop. We are well equipped with the most up-to-date equipment, machinery and software. We believe that the best experience is gained by students through 'learning by doing' in Technology subjects. This is now widely possible at Hayesfield.

Nigel Isaac *Head of Technology Faculty*

Working with Partners

Laser Cutter Technology and the Medlock Trust

Last year we invested in a laser cutter to help us develop our CAD (Computer Aided Design) and CAM (Computer Aided Manufacture) facilities. All students, from our Techlink Primary Year 6 students to our Year 13 students, have used the laser to cut materials ranging from acrylic and plywood to felt and cotton.

The machine has improved the student's creative design skills and ability to access CAD and CAM. The Medlock Trust has supported us in providing funding towards a second laser cutter. The new laser will be larger, enabling students to create and cut out even bigger designs. We now have a laser cutter on both sites.

Working with the Community

In a joint venture with our local primary schools and the Nuffield Curriculum Centre, we have taken three of their publications and developed each to include CAD CAM. Groups of six Gifted and Talented KS1 and 2 children have worked alongside Hayesfield teachers to develop these CAD CAM solutions, which complement existing manual design and making methods.

Following the development stage, the six class experts visit Hayesfield with their whole class and spend a whole day dedicated to the project. The class experts lead the learning which tests the effectiveness of the development work.

The three booklets titles are: *What should be stuck to your fridge? How fast will your buggy be? How will you store your favorite things?* These are now published through the Nuffield Curriculum Centre website and are being used internationally by primary aged children.

Enriching Students' Education

Year 12 AS Level Textile students visited the Mulberry factory at Chilcompton. The visit focused on the "story" of a Mulberry bag from conception, through development to manufacture. Back in school the girls were set the brief to re-design and make a Mulberry bag. A CAD package was used to draw the template pieces, as we had seen on our visit, and then Prototypes were made in paper to test out the designs. The girls were encouraged to use CAD/CAM where appropriate on their bags and this enabled them to etch lining fabrics using the Laser-cutter, print linings using the Sublimation equipment and embroider logos using the Computerised Machine.



Using the latest bag production technology

Extra Curricular Enrichment in Technology

Year 8 Technology Camp

The Technology Faculty run an annual Year 8 Residential at Tir-Y-Cwm cottage in North Wales. Over a hundred students each year have the opportunity to take part. The students take part in various activities designed to help them think about the applications of Technology in a whole range of contexts. The activities include gorge walk, climbing, abseiling, caving, camping, outdoor cooking, as well as a range of design challenges and team-building activities.



Year 8 Technology Camp!

Science @ Hayesfield

What Technology College Status means for the Science Faculty

Having Technology College Status allows the Science Department to fund a wide range of opportunities for both students at Hayesfield and people in the wider community.

We are able to offer many exciting projects to students that involve innovations in Science. It enables us to capture the interest of primary school children by giving them hands-on experience of science beyond what their schools could usually offer.

One of the most significant features of having this status is that it raises students' expectations about what they are able to experience in Science and ensures they are challenged in this area. We have also been able to invest in equipment that enriches the science experience at Hayesfield and provides students and staff with the opportunity to access computers and the internet. This allows our lessons to be flexible and keep us abreast of the latest developments!

Sarah Bravington *Head of Science Faculty*



The Rotork Team

Working with Partners

Young Engineers

The Engineering Education Scheme is an EDT Programme which links teams of Year 12 students with local companies to work on real scientific, engineering and technological problems.

The local company we work with is Rotork, a manufacturer of electric, pneumatic and hydraulic valve actuators. Rotork's main headquarters is located in Bath and from here they have become the world leader in the design, development and production of valve actuators.

This year's brief was to research, design and build a prototype of an actuator which can produce movement through the use of Shape Memory Alloys (SMA) or so-called 'Memory Metals'.

The pictures show the team with the finished working prototype that they built using facilities at the University of West of England.

Working with the Community

Primary Challenge Days

There are up to 300 Primary School students who attend these events each year. They undertake a range of open-ended activities designed to encourage them to work creatively and use teamwork. We set them challenges which will absorb them during the day and be enjoyable.

The theme is always engineering and students are encouraged to solve problems that are open-ended. Activities include make a parachute and package that will enable a raw egg to land safely from a 7 metre drop; build a structure that will support a windmill; and make a self-righting buoy.

Enriching Students' Education

Open University's Young Applicants in Schools Scheme (YASS)

This scheme allows Sixth Form students to undertake undergraduate courses from the first year of an Honours degree programme. YASS represents an excellent opportunity to broaden their knowledge in a number of different areas of science, which may be a field very different to the students' selected courses in Sixth Form. For example, the OU currently offers courses in Archaeology, Forensic Science, How the Universe Works, Human Genetics and Human Nutrition.

We are hoping that parents may also be interested in taking modules in the future.

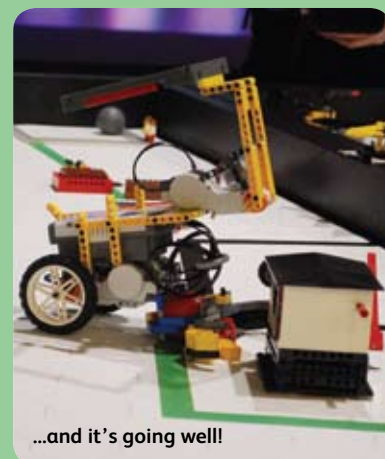
Robot LEGO

Over the past four years, Hayesfield has entered the **First Lego League Challenge** achieving a great deal of success. The competition comprises of four elements: team work, a research project, robot design and the Lego robot competition, where each team builds and programs a robot to complete as many tasks as possible in 2½ minutes.

We have been very successful in the competition and in the last 2 years the Year 11 team have finished 2nd in the regional competition and won a place in the national finals, where they have acquitted themselves very well and won praise from judges.



First Lego League Challenge...



...and it's going well!

ICT @ Hayesfield

What Technology College Status means for the ICT Faculty

Technology College status has meant investment in up-to-date equipment. This has allowed students and staff to have the hardware and software needed to keep up with the rapid expansion of computing technology, as well as interactive whiteboards and other equipment. It has also allowed us to invest time and money into working with members of the community. We are particularly proud of our work with the Silver Surfer group who are now expert bloggers!!!

Nicola Jennings *Head of ICT Faculty*

Working with Partners

We are working with partner schools and colleges (Norton Hill School and the City of Bath College) to deliver the ICT diploma from 2010, which will have close links to industry and higher education.

We also work with partner primary schools and staff have been working with a group of gifted and talented students from Newbridge Primary School on a CAD/ CAM project. The outcome has been the production of a display case consisting of 2D designs showing their work this term on the Caribbean.

Working with the Community

Hayesfield ICT staff have been offering free Silver Surfer courses throughout the year. The sessions are regularly attended by 15 senior members of our community seeking to improve their own ICT skills. The sessions have covered a range of skills from using a digital camera and emailing friends and family to knowing how to hunt for bargain buys on the internet.



Movie Making for Year 9

During the schools annual enrichment week all Year 9s are able to make movies using a new type of video camera called the Flip camera. Students plan and produce an advert for selling chocolate, they then use movie maker to edit and add special effects. We are creating the TV producers of tomorrow!

Enriching Students' Education

Year 8 Technology Day

As part of the Year 8 Technology Day the ICT department ran a workshop for students to design their classroom of the future using technology.

The day started with students using some of the latest games software taking turns to "ski", dance on an electronic dance mat; and then having a go at strumming a tune on "Guitar Hero". All in the confines of the school gym!



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