

# EQUILIBRIUM

RHS AND THE COMMUNITY – KEEPING SCIENCE IN BALANCE

Issue 10 April 2009

## Member of staff or in Year 9-13? Want to star gaze?

The Physics Department has a fantastic new telescope along with a tripod and numerous accessories available for any member of staff or student in the years 9-13 (not just Physics students) to loan.

You can borrow the equipment for up to a 3 week period and it all comes equipped with a full instruction manual. Anyone who is interested should see Mrs Mighall in the Physics department. Please note that a car is essential for transporting the telescope to and from home as the box is rather large and heavy.

## Einstein Day Thursday 12<sup>th</sup> February 2009



delicious selection of tea, coffee and cookies on arrival at Rugby School's fantastic Science Department on a cold Thursday morning. Einstein Day. The day was the fourth of its kind, hosted by Rugby School as part of the Independent State School Partnership between schools in the Rugby area.

Our first activity was a fascinating introductory lecture on *Einstein's Nobel Prize* in the wonderfully equipped Foxcroft Lecture Theatre by Rugby School's Head of Science, Nick Fisher.

We all knew we were in for a treat when we were served a

Einstein received his Nobel Prize in 1921 for his work on the photoelectric effect, not for his theory of relativity as is widely assumed.

After a short break, we dispersed into smaller groups to begin a series of seminars and practical exercises. Each session was designed to highlight Einstein's most famous papers: The Photoelectric Effect, Brownian Motion and Special Relativity. Each paper was published in a prestigious scientific journal *Anna/en Der Physik* in 1905, the year which later became known as Einstein's *annus mirabilis* (miracle year). He achieved a lifetime of work, worth numerous Nobel Prizes, in this single year.

We enjoyed lunch in the *Ten to Three Café* in the Sports Centre, with scrumptious food, square plates and a lovely view over the snow-covered tennis courts. It was just what was needed after a morning of intensive learning.

The day ended with a brief plenary session, during which an evaluation took place to gather comments and improvements to action upon in the next instalment of Einstein Day. Overall, it is safe to say an enjoyable and greatly enlightening day was had by all. Many thanks go to Nick Fisher at Rugby School for instigating the day, and Mrs Mighall for organising Rugby High School's participation in the event. I recommend this day to anyone doing GCSE, AS or A-Level Physics.  
**Alice Pease, 13WS**

### CONTACT THE TEAM

**Yvette Grogan**

Assistant Head - Specialisms

**Joyce Mundie**

Community Science Technician

**Frances Myers**

Science Community Co-ordinator

**Jenny Mason**

Maths Community Co-ordinator

**Rosy Aaron**

IT Community Co-ordinator

**Rosanna Atkins**

Specialisms Assistant

## Maths Community Update

During the Autumn term I visited our partner primary schools – Long Lawford and Wolston St Margaret's – and worked with the Year 6 children on a challenging task which lasted for their morning session. The children worked very hard and enthusiastically, attacking the task in lots of different ways and all successfully came to the solution. I also visited Dunchurch Infants' School with some Year 10 students to support the children during their Maths lesson, following which, on return to RHS, the students created two Maths Magazines, one for the Year 1 children and one for those in Year 2.

Our students had applied to take part in this opportunity and worked very hard balancing their contributions to the magazines - they produced some excellent results. They commented that they had really appreciated this memorable experience and gained a great deal from it. Their comments included: "It showed me how basic maths evolved". "It made me consider how to explain things, what kind of language they use...", and "it was interesting to work as a team with the children and people of my age".

In November, Mr Turner took some Year 10 students to Birmingham University for a Masterclass lecture entitled "How to go a long way on limited resources". The following week, Mr Walker returned with some Year 12 students for another entitled "Rubik's Cube and Group theory". The students felt that the lectures were challenging, particularly those in Year 10, and that the experience had been worthwhile.

We were visited by some students from Bilton School for a Key Stage 4/5 A level taster session, when their Year 11 students joined our Year 12 and 13 students during their A level maths lessons to find out about the type and extent of the work in the AS-level course. The feedback was very positive.

I returned to Bilton in December with some of our Year 11 students for a "Life after GCSE" revision afternoon during which our students worked with fellow Year 11 students from Bilton. A most enjoyable and informative time was had by all.

It was during the Spring term that the Year 10 students returned to Dunchurch Infants' School with the completed Maths Magazines and supported the Year 1 and 2 children as they worked through the Magazines. Mr Walker took Year 9 students to assist Nursery, Reception, Year 1 and Year 2 children during a special Maths Day. One of the students has written a report in this edition of Equilibrium about their experience.

I have returned to Wolston St Margaret's to support their Year 6 students with their work on Decimals and again the children worked very well and their teacher commented that they were thoroughly delighted with their morning.

Mrs Howes organised the UK Maths Team Challenge regional final held at RHS and a report is included in this edition.

**Jenny Mason, Maths Community Coordinator**

## Animation Workshop

The ICT department are continuing to run a series of Animation Workshops for our partner primary schools and the odd "close friend primary" too. These have seen a little snake of 5-11 year olds "sneaking" through our corridors under the impression Miss Aaron had forgotten to tell the Head they were coming (she tells them this every week!). The sessions continue to produce unique translations of well known nursery rhymes, action scenes as well as the odd tragic tale. The children have loved it.

The helpers, a mix of our own Year 9 and 10 students, have enjoyed, and benefited too, from the experience. At the end of the series of workshops, each school is presented with a CD of their animation and the offer of help to publish these on their own school's website.

**Rosy Aaron, IT Community Co-ordinator**



## Year 7 Parents' Taster Evening

This event was held on Tuesday 7<sup>th</sup> October in Wolfson Lab.

Twenty one parents gathered expectantly in the foyer one Tuesday evening, imagining that they were going to listen to a presentation about Year 7 Science at RHS. In fact, they had a practical experience ahead of them, as each science had nominated a Year 7 practical session for them to have a go at.

The apprehensive parents used choice chambers and woodlice to find out which environmental conditions the animals preferred and made careful observations about their behaviour. Then it was time for safety goggles and Bunsen burners for a beautiful array of colour produced in the flame test of a variety of chemical compounds. Finally, they attempted to find out how much energy snack food contained by burning them. They concluded that the digestive biscuits contained more energy than they imagined; cheesy wotsits drip oil when they burn and that they had not carried out a fair test.

After each activity there was a chance to consider the outcomes and what would happen next in the scheme of work. Our new Year 7 curriculum has a new "How Science Works" emphasis and hopefully the experience will equip the parents in discussing and finding out more about their daughter's science work. Overall it was a very enjoyable evening and not too many pink slips or after school detentions were issued. Homework was, however, set and is due in shortly!

**Mrs Myers**

## Maths Visit to Dunchurch Infants School

On Wednesday 19 November, twelve students from Year 10 went on a trip to Dunchurch Infants School. The aim of the visit was to observe Key Stage One Maths lessons and work with the pupils in order to gain an understanding of their capabilities. It was an enjoyable and rewarding experience; we all learned a lot, and had a really great time, and nobody wanted to leave when it was time to go!

As part of our Science Specialist status, we are currently in the process of developing two Maths Magazines, which the Year 1 and 2 children will work through when we visit them again in January. Everyone is already looking forward to the return trip!

**Rachael Hodge, 10 HH**

## My Day at Dunchurch Infant School.

By Louisa Jukes

On Wednesday 4<sup>th</sup> February, a large group of year 9 students went on a trip to Dunchurch Infant School and I was one of those lucky people. We had been told that we were going to help the children with maths as they were having a special maths day based on 'Jim and the Beanstalk', and no, **not** Jack and the Beanstalk.

At the beginning of the day, we all hopped into the school mini bus and took a short ride to Dunchurch Infant School. I could really feel the excitement coming from everyone as we turned the corner into the car park. I knew it was going to be a great day.

We entered the school that was recognisable to some of us and then proceeded into the hall where the

children were waiting and having their register taken. In our set pairs we were all given a mixed class of receptions, year 1's and year 2's who we were going to work with and then we headed off into the classrooms where our first activity began. Here, the class Lauren and I were with did a mixture of things all at one time. The receptions painted beanstalks, the year 1's cut and stuck pictures of beanstalks and the year 2's were working out how tall the beanstalks would have grown after a certain amount of time.

There were around five more activities during the day, such as making the giant's glasses out of art straws and tape, using money to work out how to buy things for the giant, and some children even went and did some 'jimmastics'!

It was sad when we had to leave because through the day we had made a connection with the children and we wanted to see them again. It was really sweet when a girl from year 1 said to Lauren and me "Thank you so much for helping me with my maths, maybe tomorrow you can help me with my..." and that's all we heard.

I absolutely loved working with the children and I think it was a great success! If you have the chance, I would recommend going because you feel happy and feel like you have accomplished something truly amazing. Also, because you will gain teaching experience, you will learn how to communicate with people younger than you, and just have a fun and creative day.

....."helping the children with Maths gave us a connection to them".....

## Science Week at RHS!

**Dry Ice Bullets? Searching for life in the Universe? Screaming Jelly Babies?**

Just a few of the exciting events that were lined up for Science Week. The theme for National Science Week this year was "Changes" – focusing on Astronomy and Darwinism, and, to celebrate, we had fantastic demonstrations, a major competition in conjunction with the Classics Department, a fun quiz all week, and, throughout the week's lessons, a look into the world of mythology!

We were especially pleased to welcome Mr Nick Fisher from Rugby School who very kindly offered to come along to tell us about Life in the Universe – and what the likelihood was of us being contacted by aliens???

## Searching for Alien Life!

On Tuesday 21st October, 28 students from the Year 11 separate science group went to Rugby School for a lecture on 'The Search for Alien life' by Dr Lewis Dartnell.

We were very disappointed to hear that aliens do not look like Mr. Spock, Yoda or the aliens from The Simpsons. In fact, they are more likely to look like flying whales, lizards with six legs and plants that look like upside down umbrellas. We learnt that there may be life on Europa, Mars, Titan and many other moons and planets. It turns out that there are proteins in our cells that look like clowns and some really ugly creatures live in boiling hot acid.

Overall, we had a great time, in which we learned a lot of interesting things about astrobiology (and we got to drink hot chocolate instead of doing P.E!). A signed copy of the book is available in the school library.

**By Harriet Dainty and Emily Cockerill**

## CREST – Visit to London



On 3<sup>rd</sup> to 6<sup>th</sup> March, the CREST team went to London to compete in part of the Big Bang- UK Young Scientists and Engineers Fair. Over the three long days we were there, we were judged repetitively, having to present our project to members of the public and many important people. The Duke of York, Lord Drayson - Minister of Science - Kate Humble and Ben Fogle all visited the event with a special announcement from Gordon Brown.

We set up displays of our projects at the QE2 Conference centre and had a number of judges, members of the public and Scientific VIP's visit us to talk about our work. The Gold project involved research into whether plants can reduce carbon dioxide surplus near Power Stations, whilst the Bronze Project investigated which dental health care products on the market were most effective.

One organised event was a party at the Ministry of Sound, which included fire jugglers and interesting concoctions to drink in test tubes. Another night's entertainment was going to see "Billy Elliott", the musical, which was very enjoyable.

At the 11<sup>th</sup> hour of Tuesday night, the Bronze group discovered that all their apparatus had been left behind at school. Emergency action was taken and they decided to make hotel-made "toothpaste". Ingredients included strawberry milkshake, sugar, chewits, blusher and a year old lipstick. The results were not particularly appealing but entertaining, especially when one judge asked to try it.

The Bronze toothpaste experimental project received runner up for the Bronze Crest Science Award whilst the Gold project, offsetting carbon footprints by growing broad leaf plants, was awarded gold commendation. Our prizes of medals, a trophy, and over £400 were presented on the last morning, leaving us heading back to Rugby on a high.

**Thanks to Mrs Mighall and Mr Thomas for making it possible.**