

# Science and Mathematics Low Down



## Welcome to the first edition of the Science and Mathematics Low Down

In September, it was announced that The Downs School had been awarded a second specialism in science and mathematics, to accompany our existing language college status. With this new specialism, we are aiming to achieve three main objectives:

- Increase the number of students becoming scientists, mathematicians and engineers.
- Develop students' transferable skills for the future
- Enrich the school and local community with science and mathematics opportunities.

The second specialism launch event was a 'Space Day', led by the science department and involving every student and member of staff at the school. Despite taking place on a cold November day, the whole school was a hive of activity, with students from every year group involved in different activities based around the theme of space. Everyone thoroughly enjoyed the day and demonstrated a huge variety of different skills, making the day a huge success. You can read more about the activities that took place and students' experiences on page 2.



## Science



Sixth form students prepare to battle for their subject on Science Day

## Science and Maths weren't like that in my day!

The next major specialism event is scheduled to take place on **Monday 8<sup>th</sup> February at 6pm**. Parents are invited to revisit their school days and find out how the science and maths curricula have changed since they were at school through a number of interesting, informative and fun workshops, run by students and staff. We hope this will form the first of a series of science and mathematics workshops and lectures, to run throughout the school year. For more information on this event please see the back page. If you think you could help contribute to future events, or know anyone else who could, please contact Miss Sutlieff (email: [jsutlieff@westberks.org](mailto:jsutlieff@westberks.org))



# Space Day

As a science and mathematics specialism launch event, all students took part in a whole school science day, with a focus on developing personal learning and thinking skills such as team work, presentation skills and creativity. Each year group took part their own specially planned activity on the theme of space. Year 7 students prepared promotional material on different planets as the ideal destination for Earth tourists. They developed planet anthems and dances as well as creating their own language and translating it into English and French.

Meanwhile, Year 10 students debated who won the space race between the USA and the USSR and Year 11 students examined 'aliens in the movies' by re-enacting a Jerry Springer style show about alien abduction, making movies about alien encounters, designing their own aliens and interviewing 'alien abductees'.

The sixth form competed in 'battle of the subjects' to decide which area is most useful in modern life. This proved an interesting and thought provoking discussion with students arguing, for example, for the arts, languages or natural sciences. After lengthy debates and discussions, the judging panel decided that the students arguing for the natural sciences provided more convincing evidence on the day after they conveyed a picture of life without science – with most of us dying young and those left alive smelling pretty foul!



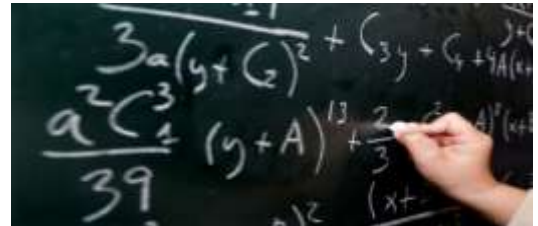
Year 10 students prepare to present their arguments for the USSR in the space race debate



Year 8 students in mission control at the National Space Centre

100 miles away, Year 8 students were visiting the National Space Centre in Leicester and taking part in two different challenges. In the first, students learnt about the Mars Rover missions and had to program their own Mars Rovers to compete successfully in missions on the surface of Mars. In the second challenge, 'Rendezvous with a comet', students were sent into space in a shuttle simulator to build and launch a probe that could collect data from a comet. This involved close cooperation between the students in mission control to avoid the astronauts running out of oxygen or colliding with the comet. Year 8 student Matthew Ennis said "The mission in space was really fun and got us working as a team."

# Maths News



## Mathematics Challenge

In November 2009, sixth form students from The Downs competed in the mathematics senior challenge. Twelve students received certificates in recognition of their high scores - a significant achievement in a national competition. Lucy Goodyear, James Atkins, Rebecca Smith, Emilie Putter, Henrietta Fforde-Lutter and Thomas Rees received bronze awards. Jack Whitby, Robert Dibble, Joshua Perrins, Pippy Wiseman, Angela Kwan and Oliver Wood-Smith received silver awards.

## New Mathematics A-level

A new course for A-Level students has been introduced. Use of Mathematics is designed for students with GCSE Mathematics at grade B or above. It is ideal for students who do not wish to follow the rigorous approach of GCE A-Level Mathematics, but want to learn how to apply advanced mathematics in real and interesting contexts. There is less emphasis on content than in a traditional mathematics course and more emphasis on process skills such as application, understanding, reasoning and communication.

## Mathematics Awards

There are three levels of award given for completing a variety of interesting mathematical activities. Well done to all of the following:-

In year 8: Georgia Vinall received her Yellow award and Rebecca Allan received the Blue Award.

In year 7: Bethany Duck, Freya Chaudoir, Sophia Vaughan and Ryland Hale all received Yellow Awards.

## Mathematics Club

Under the expert guidance of Mrs Sims, the mathematics club have tried their hand at various different logic puzzles and been busy making weird and wonderful 3-D shapes, including the amazing trihexaflexagons and hexahexaflexagons (they look like they've only got two sides, but the first has three and the second six!).

Students have also investigated rotational symmetry (creating some beautiful patterns in the process) and used origami to make 3D shapes, including an icosohedron (which has 20 sides).

Several students also entered the National Cipher Challenge, a web-based code-breaking competition organised by the University of Southampton. Students had to decipher messages to try to save the world's first computing engines from falling into the hands of arch criminals and enemies of the British Empire!

The mathematics club meets every Friday lunchtime in GT18.

## A Square Octet

|   |   |    |      |
|---|---|----|------|
| 1 | 7 | 4  | – 12 |
| 5 |   | 2  |      |
| 3 | 6 | 8  | – 17 |
|   |   |    |      |
| 9 |   | 14 |      |

## Try it yourself: Maths Puzzle

The numbers 1 to 8 have been placed at random in the diagram. The totals of the two rows and the two columns are shown.

It is possible to rearrange the numbers 1 to 8 so that these four totals become the same: I have found six different solutions. Can you do better?

(Of course I do not count rotations or reflections as different!)

*Science and Maths  
weren't like that in  
my day!*

- *Ever wondered how science and mathematics courses have changed in recent years?*
- *Do you want to know how specialist science and mathematics status will affect your child's education?*
- *Are you confused by new terminology and want to find out more about the science and mathematics courses your child is studying?*
- *Would you like to find out if the media hype about 'dumbed down' science is really true?*
- *Do you want to discover if exams really are getting easier?*

**If you want to find out the answers to these questions, and more, come along to the "Science and Maths weren't like that in my day" event.**

**Hear from science and mathematics teachers about the new initiatives in their subjects, and the benefits that being a science and mathematics college will bring to the school. Then take part in a selection of workshops, run by students and staff, to experience a snapshot of science and mathematics lessons at The Downs today, and speak to students and teachers about their experiences.**

**Date: Monday 8<sup>th</sup> February**

**Time: 6 - 8pm**

**To reserve your place at this event, please complete the slip below and return to school reception. Please note that teachers will not be able to discuss the progress of individual students at this event. If you have any questions, please contact Miss Sutlieff, Assistant Head of Science.**

Child's Name \_\_\_\_\_

Tutor group \_\_\_\_\_

Please reserve me \_\_\_\_\_ places at the "Science and Maths weren't like that in my day" event on Monday 8<sup>th</sup> February at 6pm.

Participants Names \_\_\_\_\_

Please return to Miss J. Sutlieff, via school reception