



AROUND THE PALACE Science Week Special Bulletin

Dear all,



Welcome to this special Science Week edition of the Bulletin, which celebrates the many exciting activities organised by our Science Department and Science Prefects for Science Week.

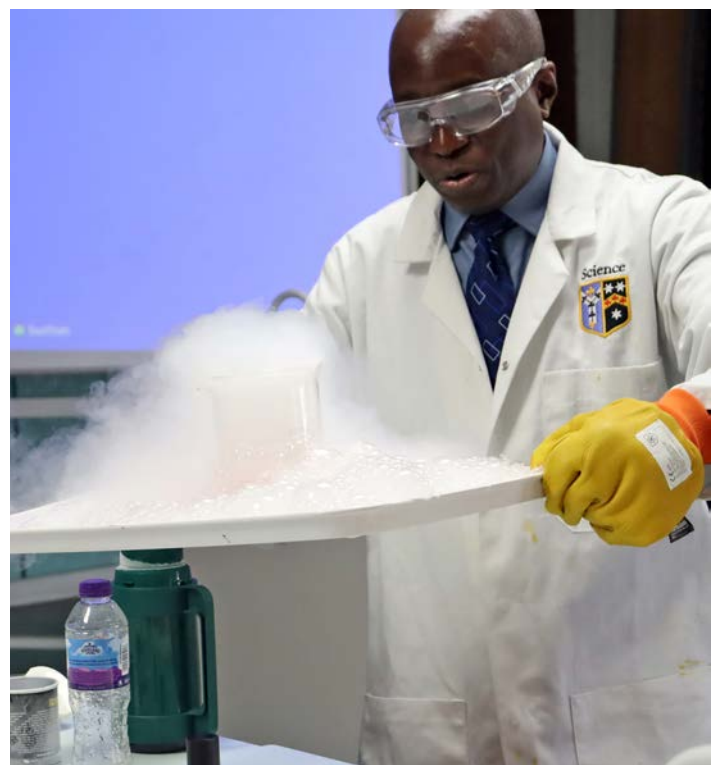
The theme this year was 'Connections'. Science really came to life for our Year 7 students who had made models of flowers to illustrate how they are connected to each other and how some are reliant on pollinators and took part in a 'Bubble' workshop. The girls also enjoyed a fun Scavenger Hunt in the school grounds as well as a fascinating visit from the UK Owls and Raptor Centre. It was quite something to see birds of prey flying across the Banqueting Hall!

Year 8 students took part in an engineering Practical Problem Solving Competition (SATRO) whilst Year 9 were once again treated to the annual Flashes and Bangs lecture/demonstration.

Year 10 enjoyed a very exciting Liquid Nitrogen demonstration and the Science Prefects organised an excellent revision quiz for Year 11 students.

Finally, our Year 12 Biology students have been working alongside students from Whitgift and other schools as part of the 'Whitgift Diploma for Biomedical Science'. In their final session, during Science Week, they completed a guided dissection of a veal brain, carried out across three labs by internal video link, giving a real undergraduate feel to the event.

Jane Burton, Head



Practical Problem Solving Competition (SATRO)

SATRO is an engineering competition in groups to construct a device to complete a task under strict timed conditions.

The SATRO Practical Problem Solving Challenge was an enjoyable but educational experience as it helped everyone to develop their teamwork and communication skills. A lot was going on, so it was important for everyone to stay calm and work together.

Evangeline, Year 8



Year 11 Quiz

The Science Prefects were very involved in delivering the Science Week activities. The Prefects organised and delivered a revision quiz for Year 11 and helped with other activities including the Year 7 scavenger hunt around the Medieval Gardens.

Winners were Hannah, Sanvi, Jinalle and Neha.



Year 7 Scavenger Hunt

Congratulations to the winner of the scavenger hunt Sanaya in 7H

Lakshmi (Year 12) the Biology Prefect wrote

'During Science Week, a variety of engaging activities took place where students had the opportunity to work as a team to solve challenging puzzles as well as testing their own knowledge on a wide range of topics.

The theme this year was 'connections' which the Science Department celebrated by holding scavenger hunts, science quizzes, exciting experiments and poster competitions which allowed both students and teachers to interact. Students enjoyed exploring this theme and were always looking forward to participating!'



Year 12: Biology Students Take Part in Whitgift Biomedical Diploma

The Year 12 students have been working alongside students from Whitgift and other schools as part of the 'Whitgift Diploma for Biomedical Science'. They have completed an exciting two terms of lectures and practical work on anatomy, physiology, pharmacology, neuroscience and developmental biology. In their final practical session they completed a guided dissection of a veal brain.

It was carried out across three labs by internal video link, giving a real undergraduate feel to the event. Invited speaker, Dr Clemens Kiecker, Reader in Neuroscience Education from King's College London, KCL led the students through the external appearance of the brain. Then the different internal structures were identified from their position and colour and carefully dissected. He explained how brains in other mammals differ, the regions of the brain that coordinate different functions and medical problems.

The activity was completed during the British Science Week which this year has the theme of 'connections'. Students learned that there are approximately 87 neurones in a human brain and nearly half of them are in the cerebellum.



Liquid Nitrogen Demonstrations

Year 10 had the exciting opportunity of watching a liquid nitrogen demonstration, and a select few had the chance to make ice cream with Mr Taruwona and Mrs Oakley in the Food Tech room.

During the liquid nitrogen demo, Mr Taruwona poured liquid nitrogen onto a few different objects. The banana became an effective hammer, some

rubber tubing shattered on touch and a balloon expanded and deflated multiple times without popping.

After many different experiments, the grand finale was upon us. Having filled an empty plastic bottle with liquid nitrogen, we headed out to the Medieval Gardens where Mr Taruwona ran out to the middle, put down the bottle and ran back

at a safe distance behind the arches. There was a short gasp as the bottle fell over, and another as we heard the nitrogen hiss out of the bottle. Finally, it exploded, spitting plastic across the courtyard with a bang.

Altogether we had a great time and learnt a few new things while we did it.

Natalie, Year 10



Year 7: Making Flower Models for Science Week

As part of their topic of reproduction, Year 7 made models of flowers to illustrate how they are connected to each other and how some are reliant on pollinators. They showed amazing creativity and resilience to represent their ideas. The teaching lab looked like a florist's at the end of term.

'I made a model representing animal pollination with a bee as my example. At the beginning of making this model, I gathered all the useful objects I could find to help build the main structure of the flower which consisted of: light bulb cases, a small cardboard box and a soap bottle, to be the ovary, base for the flowers and the tree trunk respectively.

To show animal pollination, I needed an animal to fly from one flower to another, therefore I have added the tree with a moving handle which enables me to hang and move a bee but can also be pushed down on to each of the flowers, emphasizing how the bee touches the anthers and transfers pollen to the other flower as is done with animal pollination.

A main issue I faced was when attempting to paint the tree trunk brown, it started to flake off, so I had to papier mâché the entire bottle, before trying to paint it. For the bush on top of the tree I used cotton wool balls and dipped them in green paint to make them like a bush, due to the fact that I did not own enough green pompoms. Within the flower structure I struggled significantly with the stamen as I found it difficult to find what to use for the filament; eventually I found yellow pipe cleaners which worked very well for this purpose. Cut up tablet cases with a generous amount of glitter made great representational models for the anthers.

When attaching all the pieces together I attempted to use PVA glue, however it became too damp, so using a hot glue gun to stick most of the components together worked more effectively. Although this project was a lot of trial and error, I had a lot of fun doing it and I am proud of the outcome.'

Riya B

'When I was doing the animal-pollinated flower (a black lily) I was debating how to do the labelling. The whole process of making the lily was very paradoxical. Everything was delicate because the filament, style, stem, and petals had to stand without collapsing or breaking. In the end, everything stood.'

Erin

'I really enjoyed creating my flower as I learnt the difference between wind-pollinated flowers and insect-pollinated flowers. I also enjoyed learning the parts of a flower while I was making it.'

Hawwa



'My biology project was an animal pollinated flower. The flower was red, and it had a big bee. The materials were kitchen rolls, a plastic cup, modelling clay, cardboard, and fluffy straws. I really enjoyed making the flower especially the big yellow bee.'

Elise C



Year 7: Visit from the UK Owls and Raptor Centre

For Science Week's theme of 'Connections' Year 7 had a visit from the UK Owl and Raptor Centre. The team talked to Year 7 about the birds and working with them, gave a flying demonstration and explained how animals are connected to each other in food webs.

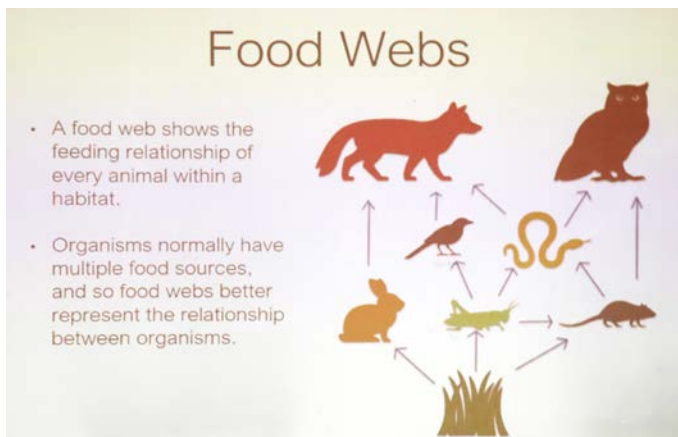
'The rapture project was very interesting. We got to see different species of owls. The owls were different sizes, and all had different names. We learnt about the food chain and how it could affect animals. For example, if a rat were poisoned, a snake wouldn't know and then eat it, which carries the poison into the snake, and then the owl eats the snake, not knowing it is poisonous, and then it goes up to the owl affecting it. I really enjoyed it even though the owls were flying over our heads.' - Renelle

'I have never seen such a huge variety of different sizes of birds in just one 1 hour. This taught me a lot about the food chain and the endangerment of birds. I love seeing the birds fly over my head and slightly touch my hair.' - Elise M

'I really enjoyed watching the birds of prey flying over our heads in the

Banqueting Hall as the professionals explained about the importance of how pesticides have had negative impacts on our natural world. It made me and my friends want to protect these amazing birds and other creatures that are at risk. I personally love animals and Zazu, the southern African owl touched my heart with his big amber eyes.' - Luella

The raptor display was really fun and fascinating. We saw four different types of birds and we saw their food chains as well as talking about what they eat. I learnt that an owls can't move their eyes 360 degrees without moving their head but we can, so they can move their head far back but we can only move our eyes and can't turn our head that far back.' - Rishita



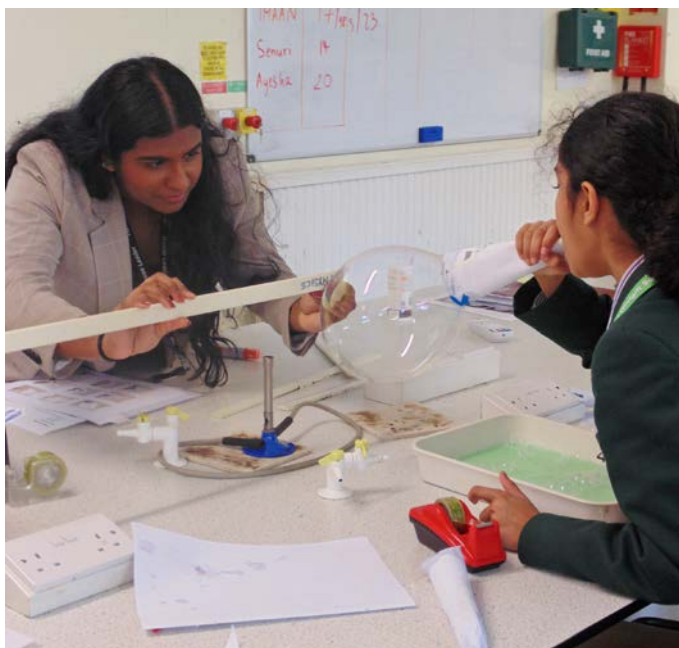
Year 7: Bubbles

During Science Week, we held a Bubble Workshop where we experimented with bubbles.

We also organised a small competition about who could make the biggest bubble.

Later on, we went outside and watched as staff and Sixth Form helpers made some large bubbles. Some of us even got to be in the bubble!

Liana, Year 7



Flashes and Bangs

In this lecture-demonstration, students have the opportunity to witness exciting, very visual reactions that go beyond the requirements of the specification. The reactions are used as an opportunity to get students thinking and applying what they know to unfamiliar contexts. They explore the energy changes, redox and combustion processes involved as well as discussing some 'real life' applications.

During Science Week, our Year 9 pupils were once again treated to the annual Flashes and Bangs lecture-demonstration. Let's hear what they thought:

I enjoyed the methane rocket as it was interesting, and it related to a real-life event with Space X. I also enjoyed the screaming jelly baby experiment - it was interesting to watch, and the sound was unexpected too.

Mahima

My favourite experiment was the methane rocket because I hadn't seen it before. The experiment had fire and sound and movement so it was fun to watch. It used methane and oxygen to propel the rocket across the room and it was interesting to see how fast just a little bit of methane could move it.

Ines

My favourite experiment was the cannon fire, which involved a very small amount of potassium manganate (VII) powder - around half a gram- being poured into a mixture of hydrogen peroxide solution and ethanol. The reaction produces loud bangs as well as a very high flame.

Lauryn



My favourites were the combustion reaction and the methane rocket because they were loud and unexpected but also very visual; it was a great demonstration of chemical reactions and was really cool to watch!

India

The screaming jelly baby: There was a lilac colour and flash produced due to the potassium chlorate V. There was also smoke produced that gave of a sweet smell.

Hepzibah

My favourite experiment was the Elephant's Toothpaste because I enjoyed watching the foam expand and flow over the side of the tube. I learnt how washing up liquid, hydrogen peroxide and potassium iodide mix to cause a rapid decomposition in the hydrogen peroxide. As the experiment took place, bubbles were made, and a colour change occurred.

Olive