

Science & STEM in the Newsletter

Science Summer Term Learning

This summer term has seen Year 7 and 8 get very creative with their science home learning. Year 7 have been researching different species and their adaptations. They have also found out about lots of specialised cells, with the aim of completing their diploma task by the end of term. I have been delighted by the diploma tasks already submitted. Students had to make a model of a specialised cell out of recycled material and describe how the features help it to carry out its functions.

Year 8 have moved on to the topic of Geology. They also have a selection of different tasks to choose from, posters, models and even top trumps cards! Have a look at some of the creations so far.

Ms Lusted, Science Department

Adaptations

The ways the red panda has adapted is it grew a bushy tail so it can balance on it while climbing trees it can the tail is also long enough to use it as a blanket when it sleeps.

Their feet are covered with fur to stop heat loss and to help them climb wet branches. They also use the fur to help them slowly slide down off a branch. They have bone on the inner part of the paw which they use as a thumb and grip tightly to bamboo



Elias Oyeibisi, Year 7

NEWS LETTER

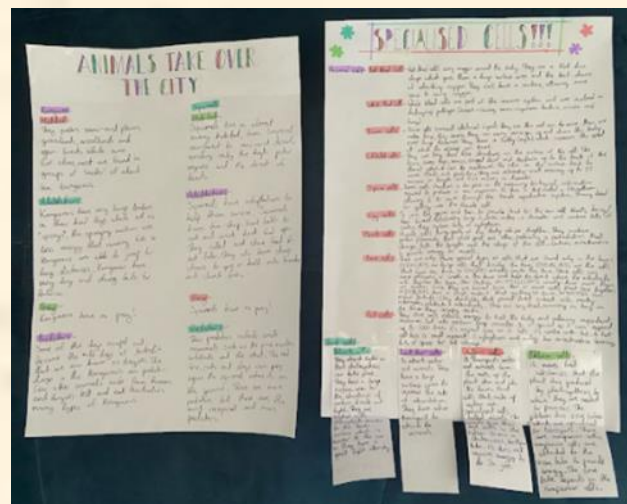


October 2020

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Yu Qi Ong, Year 7



Leila Stepanova, Year 7

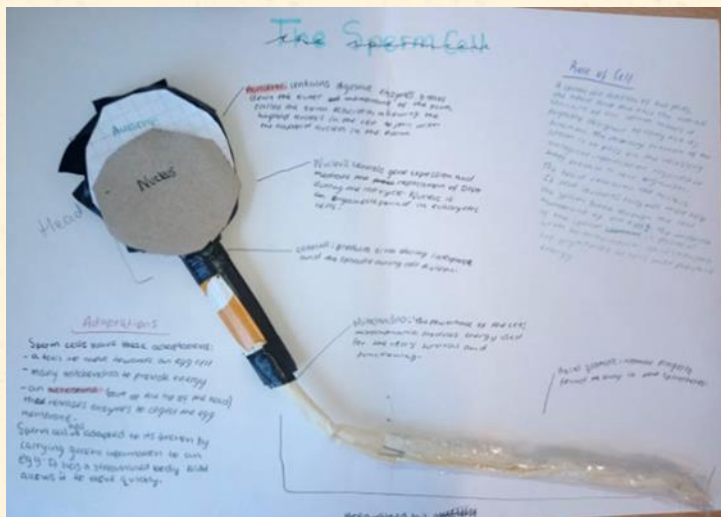


Isobel Stanley, Year 8



Feruz Ahmadjon, Year 8





Oluwademilade Samuel-Onette, Year 7



Edward Gearing, Year 7



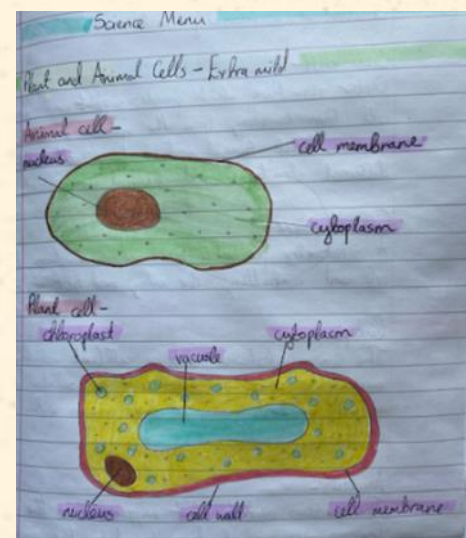
Rajashvi Hamal, Year 7



Leo Leupold, Year 7

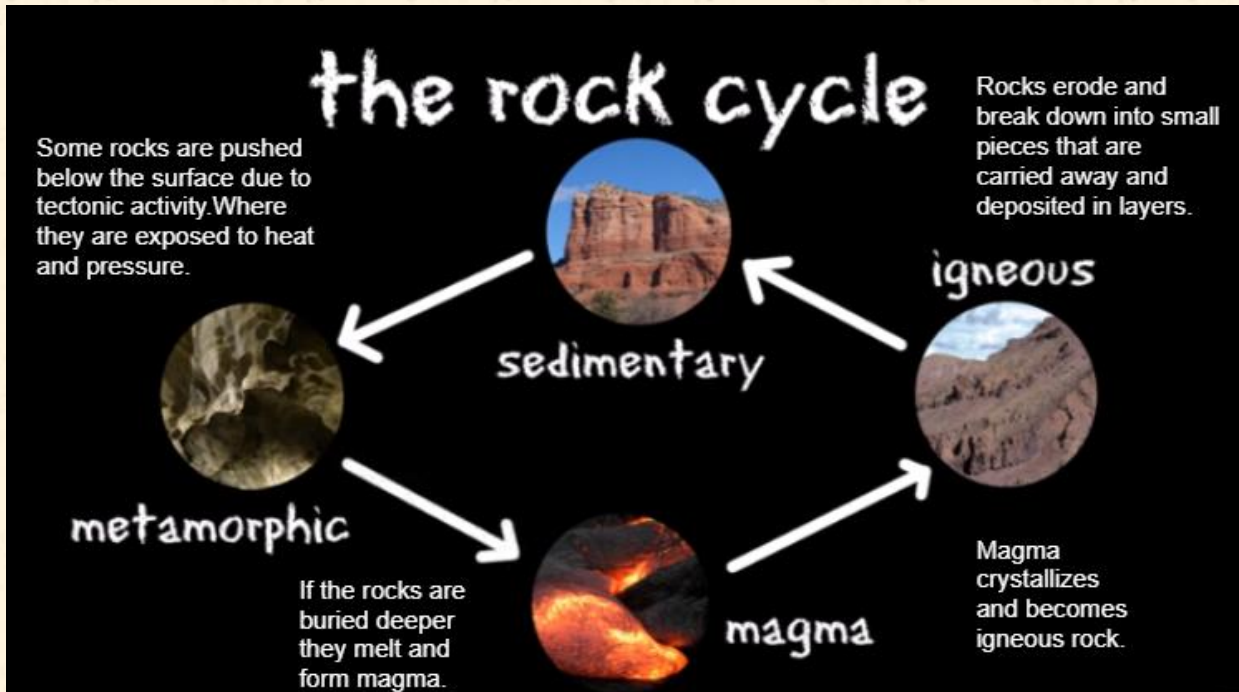


Isobel Stanley, Year 8



Leila Stepanova, Year 7





Lewis Abba, Year 8

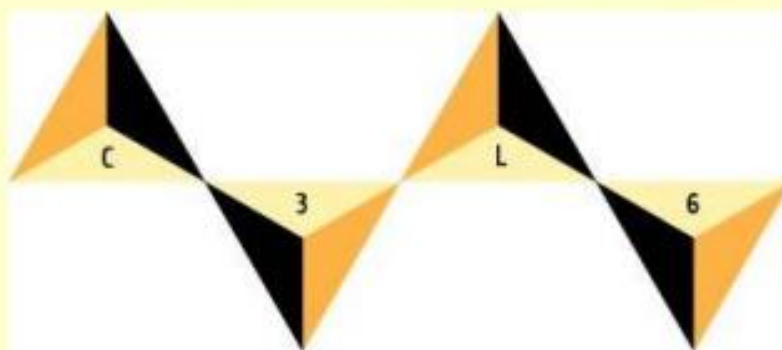


David Dobre, Year 8





Chemistry Cambridge Challenge 2020



Cambridge Chemistry Challenge Lower 6th

On Friday 26th June, some of our Year 12 Chemistry students took part in the annual Chemistry Cambridge Challenge Competition. Congratulations to Charlotte Allen, Samuel Gee, Damilola Hassan, Katherine Henderson, Natacha Loison and Ella Warren for taking part this year.

This competition aims to stretch and challenge students interested in chemistry, and provides an excellent experience for anyone considering taking their studies further. Set by an experienced team of teachers and university chemists, it is designed to be accessible to Year 12 students, but will take them significantly beyond the syllabus and encourage them to think about science in the way they would at university.

There are also online challenges at <http://www.c3l6.org/> with over 180 puzzles that are available to students. Each challenge has five levels. You can use whatever means you like to solve the problems, just type your answer in the box and click Submit. If your answer is correct, you will progress to the next level. Please see the example below

Mrs Moore, KS5, Science Leader

What 'bright spark'



uses this?



Despite being stuck at home students are still getting involved in some exciting activities.

Over the Easter holidays students watched a huge range of science documentaries. Their choices included a huge range of topics; from the effects of Cane Toads on Australian ecosystems to the secrets of light, and from the engineering behind the building of Kansai Airport to quantum physics.



If you would like to watch an interesting documentary or docuseries, here is IMDBs top 50:
<https://www.imdb.com/list/ls059688385/>

Alternatively, while out on those daily walks you could try one of these podcasts:

For younger kids:

<https://medium.com/kidslisten/19-great-science-podcasts-you-can-listen-to-with-kids-6fe46ac506b8>

For older students:

<https://www.lifewire.com/best-science-podcasts-4174919>

Although neither list contain my favourites:

The Curious Cases of Rutherford and Fry
The Infinite Monkey Cage



Online Courses for Everyone

The Year 11s and 13s have been finding ways to keep busy, build their skills and indulge in their interests. There is a whole range of summer schools, virtual work experience opportunities as well as free online courses.

Online courses chosen by our students in Year 11 demonstrate not only their wide range of interests, but also their proactive approach to using their time in isolation effectively. It is highly likely that universities will be asking what they did with this time. It will also provide them with something to discuss in personal statements and interviews that can demonstrate a sustained interest in their subject of choice at university.

Courses that our students have already signed up to include Medicinal Chemistry, Gateway to Medicine, Understanding Political Concepts and even Moral and Political Philosophy at Harvard!

If you or a young person in your home would like to start a free online course, there is an absolutely huge range available at

<https://www.mooc.org/>



HARVARD
UNIVERSITY

Earth Day is Wednesday 22nd April so already past by the time you read this! But we can still take the opportunity to celebrate our amazing planet. Whether it is by stargazing this week to spot the **Lyrid meteor** showers from your gardens or enjoying the spring blossoms on the trees during your outdoor exercise there are plenty of ways to appreciate the natural world.



Return to Offender Campaign

One project I have been involved in that you could too is the **#ReturntoOffender Campaign** by Surfers against Sewage. The idea is to make companies more accountable for the rubbish that is discarded in our natural areas. Although I must stress **DO NOT PICK UP RUBBISH**. At the moment litter picking may put you at risk of spreading coronavirus. However, you can still name and shame plastic producers!

When you see a branded piece of plastic pollution while you're out on your daily exercise, simply **SNAP IT** and **SHARE IT**.

#SeeIt – find branded items on beaches, rivers, parks, and countryside

#SnapIt – take a picture of it, clearly showing the brand name

#ShareIt – Using Twitter or Instagram, share the picture with the hashtags **ReturnToOffender** & **SurfersAgainstSewage**, and tag the brand's social media account & @sascampaigns.

Ms Lusted, Stem Coordinator



top Latest People Photos Videos



Danielle (Dani) Boobyer @Primate... · 1h

Hoped to spot ducklings today on my isolation walk 🦆, instead found plastic pollution from @CocaCola, @ROWNTREES, @OfficialMAOAM & @CadburyUK. Brands - what are you doing to end plastic pollution like this? #EarthDay2020 #ReturnToOffender @sascampaigns





BRITISH SCIENCE WEEK

British Science Week, although restricted and reduced by the current crisis, still had many successes.

We were very sad that the Ambassador of the Maldives was unable to attend in the end and this talk was cancelled and the Marine Engineering Workshop only took place on one day rather than three.

However, Year 7 - 10 students all took part in activities in lessons, Years 7-9 also had a special Science Week assembly and a third of the Year 8 students developed their engineering skills building model boats with the Sea Cadets. Throughout the week teams were forged, designs developed and aspirations raised!

In addition, the Art Department got involved with the whole of Year 8 designing a new stamp to commemorate the 200th anniversary of the discovery of Antarctica. About 50 entries were selected and sent off to the Foreign and Commonwealth Office for judging and we will hear if any are selected to be turned into real stamps in June!

That will be something to look forward to, hopefully, when everything calms back down and a reminder that life goes on even in these crazy times!

If you are looking to do some fun science experiments at home there are loads of great ideas on YouTube like these:

https://www.youtube.com/watch?v=6xz_bTl3II

Ms R Lusted, STEM Coordinator & Science Department





NEWSLETTER



26th February 2020

www.bexleygs.co.uk

National Women and Girls in Science Day

To celebrate this event, I took a small group of girls from Years 11 and 12 along to a conference at Imperial College. Firstly, just visiting the campus was pretty impressive, I definitely didn't have organic farmers' market style food stalls outside my uni buildings! Aside from the fantastic lunch choices the girls and I were treated to a number of talks by a range of extremely impressive women. All were staff at Imperial, but from a variety of backgrounds. The overarching message was that anyone can work in STEM and it is not even essential that are a fantastic scientist at school. You should just do what you love and if you work hard you can carve yourself an amazing career, working with the greatest minds and travelling the world. I hope the girls were as inspired and impressed as I was.

Ms R Lusted, STEM Coordinator

Whilst I knew that I was interested in the field of STEM, and had an idea of roughly what area of STEM particularly interested me, I found that the "Women in STEM" conference at Imperial college not only assured me of the potential to be successful in it (as two of the female speakers were working in said field), but it also encouraged me to consider a wider range of STEM areas, which I never would have considered otherwise. I would say that the main things which I gained from the event were firstly, the extent to which women are more than able to excel in Science and Technology, knowledge of just how broad the STEM field can be, and that the (subject) choices we have made at this age do not actually constrain us in our future careers.

Azeezat Hassan, Year 12





Calling all budding medics, biologists, chemists or pharmacists!

If you are thinking about going on to university to study something in the realms of medicine, biology, chemistry or pharmacy, we have a very exciting opportunity for you!

We are being visited by Ms Siew a **Director at eValue8**. She works for a company that ensures the smooth and effective provision of healthcare. She has also previously worked in pharmaceutical research and has lectured in chemistry at the University of Pennsylvania. She will be delivering an assembly for students interested in attending in Years 11, 12 and 13.



Applications must be made via the google form circulated by email to students.



What a fantastic opportunity to learn a bit more about healthcare provision and also career pathways into the field of medicine that might not be the traditional doctor route.

Also, this term:

The House STEM competition will be running from November 4th to December 9th with teams competing to design, build and race model cars. Teams include two Year 8s and two Year 9s with a Sixth Former to support. There must be an even mix of boys and girls in each team. Traditionally a closely fought battle the House STEM event allows students to showcase their engineering and creative skills in a way that no other house competition does. I look forward to seeing what this year's teams will come up with!



Science clubs will be starting again with the new Year 7s getting a chance to try out some fun experiments with the support of our science prefects. This year the new Advanced Science Club will be starting for Year 8s and 9s who have a particular interest in the sciences, to further develop their skills outside their normal lessons. Both these clubs will involve an exciting hands on practical each session and will run on alternate weeks. Details to follow!

Other STEM clubs also starting this term include DT club and Computer Science clubs. Keep an eye out for further details.

Ms Lusted, Stem Co-ordinator



Not only have we been really busy in school with STEM activities ranging from science club to robotics, there are a number of events this autumn that I would like to draw your attention to.

The Royal Institution runs a huge variety of events for families and individuals to attend. These include evening lectures on a huge variety of topics such as the effectiveness of DNA testing or even whether the 'baby boomers' stole your future! The world-famous Christmas Lectures are now running their ballot and we have entered to try and win our students some tickets! Fingers crossed for the draw later in the month! If you are interested in attending any lectures or family days, please use this link



<https://www.rigb.org/families>

The **Imperial STEM Potential Program** is currently taking applicants. Students in Year 10 and Year 12 should apply now (closing date for Year 12 is Oct 13th and Year 10s is Oct 27th). This is an incredible program of support available to only 90 students across London who will attend three events including workshops, lectures and networking. You must apply now! Good luck!

<https://www.imperial.ac.uk/be-inspired/student-recruitment-and-outreach/schools-and-colleges/students/on-campus-activities/programmes/stem-potential-programme/>

Ms Lusted, Stem Coordinator

Bexley Grammar Periodic Table Mural Wins Art Competition

Element Kent is a week of FREE events in Whitstable at The Horsebridge Arts Centre's Creative Laboratory, celebrating the International Year of the Periodic Table. Running from 21st - 27th October.

Part of this program is an art exhibition which is going to feature Bexley Grammar School's periodic table mural! We have been selected among a number of entries to be displayed alongside local artists.

A great opportunity to visit a free local event, brush up your chemistry knowledge and see our amazing work featured!

***Ms Lusted
Science Department***





STEM News



The final of the annual House STEM competition took place this week. Teams of Years 8, 9 and 12 showcased their finished race cars and then we all enjoyed watching them in action with a nail biting photo finish race. To be honest, the photographic evidence was sometimes needed to establish which cars went more in the right direction than the others rather than actually crossed the finish line! Regardless, it was an amazing effort from all teams and the fact that they could build a working car from scratch in that short period of time is astounding.

Parent-governor Mr Woodhall kindly joined us to judge the teams' efforts, alongside head of DT Mr Reynolds. Teams were awarded points for the quality of finish, the design, teamwork and of course, the race. Mr Woodhall commented:

"It was a pleasure to spend time with such an enthusiastic and engaged group of people. I was impressed by the thought that had gone into all the designs and how articulately the students presented their work."

I have oversight of recruitment processes at Ford in Europe and the skills that the teams demonstrated in terms of developing prototypes and working together in small teams are exactly the sort of thing we are looking for in the industry."

Although, Kirkman were the clear winners, Wellman also had an excellent race with both these cars literally streaks ahead of the rest. All the teams did well and I was impressed with their resilience and team spirit throughout the competition. Final results were:

Kirkman ~ 1st
Wellman ~ 2nd
Collins ~ 3rd
Johnson ~ 4th
Mabbs ~ 5th
Prothero ~ 6th

What a fun end to the year!

Ms Lusted, Stem Coordinator





Inspiring Careers in STEM

On Monday 25th November the whole school was off timetable for Power Day 2. The theme was Industry and Enterprise and Year 9 and 10 students completed a series of workshops delivered by a wide range of external providers.

The activities included cooking, architecture, engineering, outbreak simulations, police robotics, town planning and many more.

We were very grateful to have a huge number of ambassadors from various industries who visited the school and delivered these workshops. One was an ex-pupil Lydia Hyde, who now works with The Metropolitan Police.

Here is some of the students' feedback:

"As someone who's interested in the field, the session not only heightened my knowledge, but also gave me an opportunity as the session holders answered my question after the session and told me about something I can do in the future to help me if I want to get into the industry " - An anonymous comment about the Public Health England Outbreak Simulation.

"It was a really creative and hands on activity, and the engineering students came round and helped us, giving us advice, so our rollercoaster was really successful." - A comment on the engineering workshop run by UCL student ambassadors.

Year 13s also completed the practical element of their coursework in both Physics and Chemistry. With over 80 students in total there was a real buzz across the science laboratories. Concentrations were calculated, gases collected, magnets propelled and spheres were levitated in a dazzling array of scientific endeavour.

Finally, if you are looking for something different to do this winter break try looking here for family activity suggestions:

For a fun and interactive family activities, why not try the London Transport Museum?

<https://www.ltmuseum.co.uk/learning/families>

Ms Lusted, STEM Coordinator







STEM News

It has been a very busy term in Science Club with Year 7 and Year 8 students getting stuck in with a wide variety of activities. These included making rainbows with different densities of sugar solution (harder than it sounds). The steadiest hands were then chosen to try and create a giant density column at the end. I think everyone learnt that patience is a virtue and I enjoyed seeing their resilience in this tricky task.



Another memorable Science Club was with Year 8. We were planning to make scribble bots who can draw by themselves but in the end, we had a 'robot wars' style battle between them instead! It was great fun seeing them scoot around the floor and knock each other's propellers off!

There have been many other activities from dissecting a kidney to carrying out displacement reactions. We look forward to lots more fun activities as we go through the Spring Term.

Ms Lusted, Stem Coordinator

