DEPARTMENT OF CHEMISTRY

UNIVERSITY OF OXFORD

Outreach newsletter: October 2021

Welcome to the October edition of our Outreach newsletter. We hope that you have a good half-term break whenever this is for you.

Please do pass this on to anyone who may be interested in receiving this bulletin. They are very welcome to subscribe using this link. If you wish to be removed, please email outreach@chem.ox.ac.uk.

With best wishes,

Dr Malcolm Stewart (Director of the Chemistry Teaching Laboratories), Saskia O'Sullivan (Educational Outreach Officer) and Matt Fifield (CTL Administrator)

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Upcoming events:

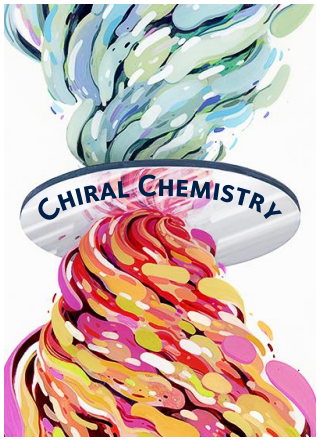
KS5 Chiral Chemistry Workshops [REPEAT]

Our Chiral Chemistry workshops will continue in the Autumn term of the 2021-2022 academic year. This is our online workshop for UK state school KS5 Chemistry students and teachers, which is delivered by our Department Ambassadors. Dates and times have been designed to avoid interruption of lessons. The session focuses on 3D shapes, chirality, the role of chirality in biological systems and the resources available to research chemists looking at proteins, such as the main protease in SARS-CoV-2, the latter being an active area of research in our Department. There is also an opportunity to ask our Ambassadors questions about their research and their academic careers to date.

REQUEST A SPACE

Students may attend without a teacher, provided we have a teacher contact.

The workshop will be delivered on the following dates/times:



Wednesday 10th November 2021	16:00-17:00
Thursday 2nd December 2021	16:00-17:00
Tuesday 11th January 2022	16:00-17:00
Wednesday 9th February 2022	16:00-17:00
Monday 14th March 2022	16:00-17:00
Thursday 28th April 2022	16:00-17:00

Please note, places are limited to students from state schools in the UK, Isle of Man and Channel Islands, and where we are oversubscribed, we will prioritise places for students who meet our widening participation and access criteria. Further information about this can be found at https://www.ox.ac.uk/about/increasing-access

Explore Chemistry – A super-curricular series [REPEAT]

KS5 UK state school students and their teachers are invited to sign up for this series of talks and Q&As. There will be a week to watch a pre-recorded talk (posted online), reflect and note any questions before joining a 45-minute online live Q&A session with the researcher presenting the talk. Our next talk and Q&A features DPhil Wojciech Stawski (Harry Anderson Group)

with a talk on molecular cages. This talk was released on **14th October**, and the **Q&A** is this Thursday, **21st October, 16:00-16:45**.

Following on from this, we will have a talk from DPhil Jack Ren (Ben Davis Group) on chemical biology and proteins. The talk will be released on **11th November** with the **Q&A** following on the **18th November, 16:00-16:45**.

Please note, places are limited to students from state schools in the UK, Isle of Man and Channel Islands, and where we are oversubscribed, we will prioritise places for students who meet our widening participation and access criteria. Further information about this can be found at https://www.ox.ac.uk/about/increasing-access

SIGN UP TO THE SERIES

Future Events:

School / Community / Oxford College Workshops [UPDATE]

Visits to Oxford Colleges have re-started and you are warmly invited to request a **College Workshop** when arranging a group visit with a College. Find out about your link Colleges here.

Thinking 3D

A workshop is for KS4 (14-16 yrs) and is designed to showcase the importance of maths and geometry in chemistry through a circus of activities. Most suitable for students who are interested in maths. Minimum of 20 students.

Unlock the OxBox - Poison Puzzle

This is for KS4 (14-16 yrs) and is a series of practical and theoretical chemistry problems. Minimum of 12 students.

Unlock the OxBox - The Lab Lurker

A series of practical and theoretical chemistry problems for KS5 (16-19 yrs) students. Would suit a class where at least half of the students are studying A level (or equivalent) in Chemistry. Minimum 12 students (at least 6 studying Chemistry A level, or equivalent).

Visits to Schools/Community venues are still suspended due to rising Covid infections.

Chemistry Teaching Laboratory (CTL) Workshops [REPEAT]

Despite an easing of lockdown restrictions, we now do not anticipate a return to CTL visits until **Jan 2022**. As soon as availability is confirmed, dates will be posted on our website and publicised through the usual channels. Please note, that building works will continue to disrupt the availability of workshops in the CTL for the foreseeable future.

Learning Resources

Featured resource:

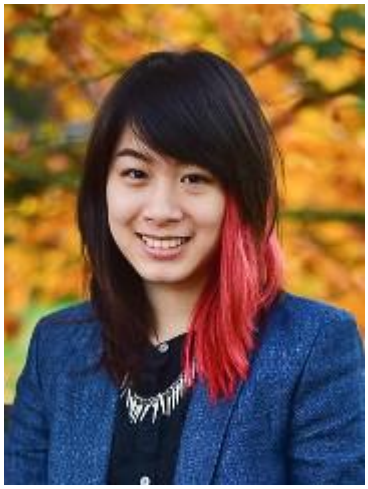
2021 Autumn Chemistry Conference [NEW]

Recordings of our 2021 Autumn Chemistry Conference can be found here - we hope you find the recordings interesting and enjoyable. Regrettably, there is some noise interference, which is particularly noticeable on Prof. Edwards talk. A reminder of the speakers and content below:

The Circular Carbon Economy, Professor Peter Edwards

Peter Edwards is Professor of Inorganic Chemistry and Fellow of St Catherine's College, Oxford. He grew up in Toxteth, Liverpool, looked after by two older sisters and a widowed mother, who held down three jobs to support the family. Peter, who received free school meals until he was an early teenager, was the first in his family to attend university, reading Chemistry at Salford where he stayed on to complete his PhD, before going on to study at Cornell University, New York, via a Fulbright Scholarship. He returned to the UK afterwards, to Oxford, as a postdoctoral researcher with John Goodenough (winner of the 2019 Nobel Prize in Chemistry), then on to the universities of Cambridge and Birmingham, before returning to the University of Oxford in 2004, as Statutory Chair in Inorganic Chemistry and Head of Department.

Chemical Journeys: Dr Marie Wong



Dr Marie Wong is currently working for an interdisciplinary commercial company, based in Cambridge. Originally from Malaysia, Marie completed her MChem and DPhil (PhD) at the University of Oxford, the latter in Prof. Ed Anderson's group. Her research focused on developing chemical methods for the synthesis of complex molecules, with applications in industries such as pharmaceuticals, agrochemicals and materials. During her undergraduate degree, Marie completed placements in the US at UC Berkeley focusing on palladium-catalysis with Prof. John Hartwig and at Yale University with Prof. Scott Miller, looking at peptide-catalysis. Marie's talk will focus on her career pathway and her DPhil research.

RSC Women in Chemistry: Making the Difference [REPEAT]

This project includes a number of engaging practical challenges suitable for after-school, classroom and home use, as well as resources around the research behind the challenges and the female chemists involved. These will be available throughout 2021-2022, with more to come.

Power UP! - Set by a team at Oxford Chemistry, the first challenge highlights the importance of battery technology and the quest for safer, longer-lasting, efficient and more powerful portable energy stores.

Dig it UP! - Set by Wolverhampton University, this involves investigating the degradation of "biodegradable" plastic and paper bags supplied from popular supermarkets. It provides an opportunity to explore control variables, and observe any visible degradation between the bags, comparing which look to have degraded more within the time period. The research showcases the Green Chemistry agenda at Wolverhampton and the pioneering work being done to repurpose plastic waste into high-value materials in agriculture, medicine and household items.

Light UP! - Set by the University of Warwick: a chance to investigate the Chemistry of Light! Participants make their very own Camera Obscura, view light diffraction, observe LED lights flickering faster than the eye can see alone, and investigate the UV protecting qualities of sunscreens.

Link UP! – Set by the University of Durham, exploring the fascinating process of gelation. Gels are formed when molecules link together to form networks, producing materials with interesting and useful properties. Participants make their own gels which mimic those produced by some strains of bacteria, and explore the use of (wo)man-made gels in healthcare applications, such as the delivery of drugs.

Proteam UP! - Set by Imperial College London and exploring the importance of proteins in our lives: what proteins are, the atoms of which they are made, how to extract proteins from biological matter and to visualise real proteins with the power of computational chemistry.

Look UP! Set by the Atmospheric Chemistry Research Group (ACRG) at the School of Chemistry, University of Bristol, exploring air quality and its importance in our lives: air quality, examining real air quality data and create a research presentation.

Please do share the website link as you see fit. The challenges, resources and events are designed for girls aged approx. 10-14 years (Upper KS2-KS3) and their supporters of any age!

https://makingthedifference.web.ox.ac.uk/home

Competitions

RSC Top of the Bench Regional Heats [REPEAT]

We are delighted that the 2021-2022 Thames Valley RSC Top of the Bench Regional Competition will go ahead this year, taking place in January 2022. The competition, which is set by the University of Oxford, will be based in each participating school and take place between the 10th – 24th January 2022, allowing teachers and technicians to schedule the competition as best fits their timetables. Teams of four, made up of two Year 9, one Year 10 and one Year 11 will take on a construction and analytical challenge as well as participate in an online quiz. Participants will need to use technology to collaborate and complete the challenge and to present their findings. The winning teams will be judged on their findings, collaboration and quiz score.

Please note, we anticipate the competition will take approximately 4 – 5 hours in total, however, this does not need to be scheduled all at once, and it is perfectly possible for the competition to be split up into shorter periods allocated across the fortnight. Participating schools will receive a competition pack with almost all of the required materials. There may be an expectation that the school provides a small number of low cost consumables (e.g. deionised/distilled water).

RSC LOCAL SECTION
THAMES VALLEY

Interested teachers should contact thames.valley.rsc@gmail.com to register your team.