



King's High School



BRITISH
SCIENCE
WEEK

FRIDAY 5th MARCH

Assembly

Science Week launch assembly

Café Scientifique leaders will talk about Innovation for the future and how women in STEM are contributing.

Whole school

MON 8th MARCH

1:05-1:35pm, Co-curricular Team – Café Scientifique channel

Smashing Stereotypes in Science

A talk by PhD student from Coventry University, Fatmah Khalefah, on her research and her journey into Science research.

Investigating the cellular, molecular and intercellular cardiotoxic effects of anti-muscarinic ipratropium in order to identify the signalling pathways involved in cardiomyocyte death.

KS4 and Sixth Form

TUES 9th MARCH

1:05-1:35pm, Co-curricular Team – Moventis Scientiam channel

Moventis Scientiam: live practical session

A Live practical hosted by Birmingham University's Department of Chemistry with Dr A.K.Pearce.

KS4

WEDS 10th MARCH

1:05-1:35pm, Co-curricular Team – Café Scientifique Channel

Headline speaker: Dr Andrew Bassett, The Wellcome Sanger Institute

"A CRISPR way to understand genetic disease"

The huge technological advances in DNA sequencing in the last decade have allowed us to identify thousands of potential genetic causes of disease. However, in many cases it is still difficult to be certain of the genes involved, and what function they have. We now have the ability make pluripotent stem cells from anyone using a simple skin or blood sample, and use these to generate essentially any cell type in the body. I will show how our lab combines these cells with cutting edge genome engineering techniques including CRISPR to make specific changes to the genome to fully understand the role of individual genes and genetic mutations in disease.

I lead a group of around 13 scientists that develop genome engineering technologies to make specific, precise changes to the genome, ways of differentiating stem cells into different cell types in a dish as well as using these techniques to understand the genetic causes of neurodegeneration such as Alzheimer's and Parkinson's diseases.

The Wellcome Sanger Institute is perhaps most famous for its crucial involvement in generating the first human genome sequence. Work at the institute now focuses on understanding and interpreting genomes and the effect of mutations. The institute is still involved in large-scale sequencing of human populations including a recent project to sequence around a quarter of a million genomes to understand the genetic causes of disease, and sequencing all eukaryotic organisms in the UK. It now also focuses on how the genome is used and read during development and disease including identification and characterisation of every cell type in the human body and genetic screening for mutations involved in cellular function.

<https://www.sanger.ac.uk/group/gene-editing-and-cellular-research-and-development/>

KS4 and Sixth Form – KHS and WS

WEDS 10th MARCH

1:35-2:05pm, Co-curricular Team – KS3 Science Club Channel

Sight and perception workshop: What you see isn't always what you get!

Ms Ostrander explores how what we see via our eyes isn't always what we perceive via the brain. This will be explored by looking at some fun illusions and considering the ways our perception can go wrong such as experiencing face blindness and synaesthesia. There will be some practical elements – have paper and pens ready!

This is a great mixture of Biology and Psychology and would suit anyone who is curious about either of these subjects.

KS3

THURS 11th MARCH

1:05-1:35pm, Co-curricular Team – Café Scientifique Channel

Student presentation: "The Bubble Universe" by Shivanshi

Shivanshi will talk about Non-Euclidian Geometry, which is looking at what we would see if space itself had either positive or negative curvature. This will be very visual and interactive should be accessible to everyone as Shivanshi will go through the basic physics and build everything up from intuition rather than previous physics knowledge. It will be a great talk for anyone interested in astrophysics, space in general or Maths!

KS4/Sixth Form

FRIDAY 12th MARCH

1:05-1:35pm Co-curricular Team – Moventis Scientiam channel

"Sustainability and Science: Our greener lab" – a talk by Dr Bethan Grist, Coventry University

A recorded talk by Dr Bethan Grist, on how science labs need to be sustainable

KS4/Sixth Form

FRIDAY 12th MARCH

1:35-2:05pm, Co-curricular Team – KS3 Science Club channel

KS3 Science Club practical with Dr Yates

Build your own water wheel and see how design changes can lead to innovation. Dr Yates will lead a practical engineering challenge.

You will need:

- Thick card (enough to cut two plate-sized circles)
- A plate (for template)
- A piece of wooden dowelling or a round pencil
- 4-12 paper or plastic cups
- Scissors
- Split pins or adhesive (double sided tape or a glue gun is ideal)
- Large bottle or watering can
- Bucket or washing up bowl (probably best to test this outside!)

KS3

FRIDAY 12th MARCH

2-4pm, SIA groups on Friday Afternoon Team

"Drug development as told through the eyes of neutrons" talk by Rutherford Appleton Lab

A recorded tour of RAL and talk about their innovative work in drug discovery, with discussion.

SIA groups at KHS and WS

ANY DAY THIS WEEK

Form time – Science Quiz

Test your Science Knowledge with the Science Week Form Time Quiz

Rewards for your House for the Winner and runners up in each form.

Whole school – separate KS3, KS4 and Sixth Form quizzes

ALL WEEK

KHS Lockdown Science Week Elements quiz – to be sent via email

Match the element to the teacher!

Can you guess each teacher's favourite element? Winners from each Key Stage will get a Science-based prize!

Whole School – separate email quizzes to KS3/KS4/Sixth Form

ONGOING – DEADLINE 30/04/21

British Science Week Poster Competition

National poster competition on the theme "Innovating for the Future"

Key rules:

- Entrants can be teams or individuals
 - teams will be judged in the age category of its oldest member
 - any prize awarded will be split across the team.
- Each school/youth group can enter a maximum of five entries so entries should be sent to Mrs Sims, who will select the best 5 to enter the competition.
- Entries must be one page of A4 or A3 paper only and you will need to take a photo or scan of it to send electronically.
- Work must be original and created by the student(s) – please do not use any templates.

How will entries be judged?

Posters are judged on the following criteria:

- Creativity in approach – innovative angle on the content or creative interpretation of the theme
- Content – clear, accurate and informative about the STEM topic
- Effective communication – presented and communicated in an engaging way

See <https://www.britishscienceweek.org/plan-your-activities/poster-competition/> for details

KS3

ONGOING – DEADLINE 31/05/21

NFU Science Week competition

Farmvention Challenge: Create an invention, innovation or idea to help British farmers continue to care for the environment and become Climate Super Heroes

You can enter the competition individually or as part of a team or class and there is a host of amazing prizes for the winning schools. Winners will present their ideas at a prestigious event at the Houses of Parliament and win £1000 for their school to spend on STEM or Outdoor Learning equipment! All entrants will become certified 'farmventors' and receive a reward pack including a certificate and mini prize.

It's up to you what your submission looks like. Some ideas we might expect to see are:

- A video showing an explanation of the design, any research that has been done and any specific problems the design solves
- Pictures – either hand drawn or digital
- An advertisement or pitch of the final design
- A PowerPoint or Prezi Presentation
- Photographs of models/prototypes made using recycled materials, construction toys or robotics kits

See <https://www.farmvention.com/> for details

KS3