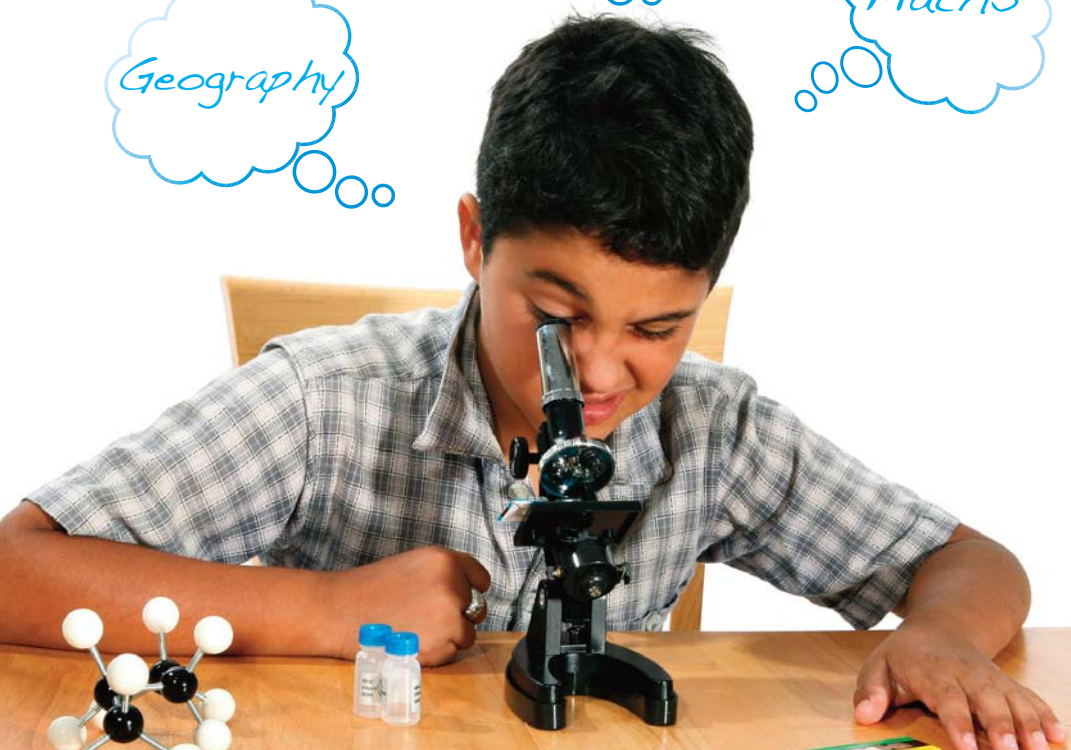
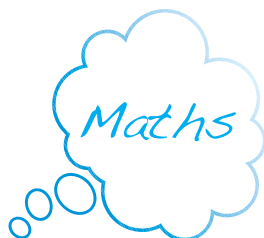




UNIVERSITY OF LEEDS



LEEDS FESTIVAL OF SCIENCE 2009

Celebrate National Science and Engineering Week with us

Leeds Festival of Science 2009

This year's programme is full of exciting events for Key Stage 2 to 5. On top of the usual broad range of science activities, there are lots of brand new maths events, plus sessions on geology and environmental science. Please share this programme with your colleagues in Science, Technology, Geography and Maths. There's something for everyone!

To book places for any of the events, simply complete the enclosed booking form and fax it to 0113 3436563. Extra booking forms can be downloaded from the website.

If you would rather book by email, please contact Sarah McCann at S.McCann@leeds.ac.uk ensuring that you include the following information:

- School name and LEA
- Teacher contact name and email address/phone number
- Name of event you wish to attend
- Date and time of event
- Number of pupils
- Age group of pupils

Emails that do not include all this information will not be considered a valid booking.

All bookings must be received by Monday 9th February 2009.

As usual, all events are free to schools but charges may be made for non-attendance.

Please Note: Photographs taken during these events may be used in future publicity. It is the responsibility of the school to inform the University of any pupil who does not have parental consent to be photographed.

For more information please contact Pre Carbo on 0113 343 38564 or visit our website at www.leeds.ac.uk/foe/scienceweek

Key Stage 2

Primary Science Carousels

Explore science at Leeds University with two workshops in different areas of the curriculum.

Carousel 1

• Snakes, Slugs and Spiders

Learn about different types of skeleton and make your own paper spider.

Helen Billington

• Marble Mazes

Use your knowledge of forces and friction to build the ultimate marble maze

Ruth Holland/ Hazel Kendrick

Carousel 2

• Panning for Gold

Get your hands dirty 'wild west' style, extracting gold dust from sand and gravel!

Becky Bartlett / Dave Bond

• Funky Fossil Feet

See fossils from our collection and find out about animals that lived millions of years ago.

Phil Murphy

Carousel 3

• A Slimy Feeling

Why is slime so slimy? Make your own gunge and discover why it has such interesting properties.

Louise Crabtree

• What's in my Kiwi?

Seeds? Juice? There's probably lots of stuff you've never seen before too. Is your science good enough to collect the DNA from your kiwi?

Stuart Kyle

Tuesday 10th March 9:45 - 11:45

30 pupils per school. Please make sure you indicate which carousel you wish to attend.

Discovery Zone

Ever wondered where DNA comes from? How many bacteria live on your skin? How a hovercraft works? The discovery zone will give pupils a chance to find out the answers to these, and many other questions, with a variety of short hands-on activities in a whistle stop session of science exploration. Travel grants may be available to participating schools

**KS2: Tuesday 24th March 10:00 – 12:00
or 13:30 – 15:30**

Up to 30 pupils per school



Key Stage 3

Pop Maths Quiz year (7 & 8)

Hazel Kendrick & Ruth Holland

Pupils compete in teams of up to six in this pub quiz style maths competition. For more information see www.moremathsgrads.org.uk/popmathsleeds.cfm. All schools welcome to apply (maximum of two teams per school).

Saturday 7th March 11:00 - 13:00 Followed by free public lecture (optional - see below)

Public Lecture (Suitable for all ages 11+)

'Taking Maths from the Classroom to the Real World' Dr Martyn Parker

Mathematics is often viewed as a subject that has little to do with the real world. In fact, the exact opposite is true; mathematics has more to say about our everyday lives than we could possibly imagine. In this talk we will explore how maths can help us understand a number of real-world problems and situations that would otherwise seem quite mysterious.

Saturday 7th March 13:30 - 14:30

Mystery at the University: A Maths Whodunnit

Only maths can solve the mystery as pupils work together in teams to find out whodunnit.

Hazel Kendrick & Ruth Holland

Monday 23rd March 10:00 - 12:00 or 13:00 - 15:00

Up to 30 pupils per school

Discovery Zone

Ever wondered where DNA comes from? How many bacteria live on your skin? How a hovercraft works? The discovery zone will give pupils a chance to find out the answers to these, and many other questions, with a variety of short hands-on activities in a whistle stop session of science exploration. Travel grants may be available to participating schools

KS3: Monday 23rd March 10:00 - 12:00 or 13:30 - 15:30

Up to 30 pupils per school

The image shows two handwritten mathematical equations on a whiteboard. The top equation is $3x^3 + 2x^2 - 6x + 2 =$ and the bottom equation is $x^3 + \frac{2}{3}x^2 - 2x + 1 = 0$.

KS3 Gifted and Talented Science Carousel

• Satellites and Census

Spy on your neighbourhood using sophisticated computer-based research tools!

Adam Dennett

• Grey Matter Matters

This workshop will give you a chance to look at how the brain works and what the different areas do, with opportunities to get your hands on a brain (model!), and to test out some of the main functions of your "grey matter".

Keren Bielby-Clark

• Body Tricks

Our body is amazing! From breaking wood painlessly with our bare hands to tricking our minds with colour and illusions, this interactive, demonstration lecture will combine physics, maths, psychology and much more to show us just what our body can do.

Hosted by Marty Jopson from BBC 1's 'The One Show'

Tuesday 24th March 9:30-12:00
30 pupils per school

KS3 Science Carousels

Carousel 1

• Muddy Boots

Which of our four suspects committed the crime? Use forensic science, CSI-style, to catch the villain!

Katy Roucoux



• Emergency Aid!

Work in teams to design an emergency water filtration system that can be easily and cheaply deployed to areas of crisis.

Gareth Vaughan

• Body Tricks

Our body is amazing! From breaking wood painlessly with our bare hands to tricking our minds with colour and illusions, this interactive, demonstration lecture will combine physics, maths, psychology and much more to show us just what our body can do.

Hosted by Marty Jopson from BBC 1's 'The One Show'

Carousel 2

• GPS Treasurehunt

'Geocaching' is an age-old treasure hunt with a modern-day twist. Use GPS technology to communicate with satellites in space and help you find your treasure!

Katherine Arrell

• CSI Leeds

There has been a terrible murder! Use a range of chemical experiments to solve the whodunnit.

Louise Crabtree

• Body Tricks

Our body is amazing! From breaking wood painlessly with our bare hands to tricking our minds with colour and illusions, this interactive, demonstration lecture will combine physics, maths, psychology and much more to show us just what our body can do.

Hosted by Marty Jopson from BBC 1's 'The One Show'

Tuesday 24th March 9:30-12:00
30 pupils per school. Please make sure you indicate which carousel you wish to attend.



Key Stage 4

The Science of Sound

Have a go at producing your own record and in doing so learn the physics tricks behind the hits.

Jon Chippindall

Wednesday 11th March 9:30 - 11:00

Up to 30 pupils per school

Playing God?

This interactive ethics workshop will informally discuss the use and abuse of human genetic information.

Dave Lewis

Wednesday 11th March 10:00 – 12:00

Up to 50 pupils per school

Innovative Egg Drop

This workshop will challenge your skills as an engineer as you design a parachute which can save your egg's shell.

Joanne Tipper and Andy Weightman

Wednesday 11th March 10:00 - 12:00

15 pupils per school

Race like Dame Kelly

Success in sport depends on many factors including your fitness status, ability and competition experience. This session will explore how athletes use science to understand and develop their skills.

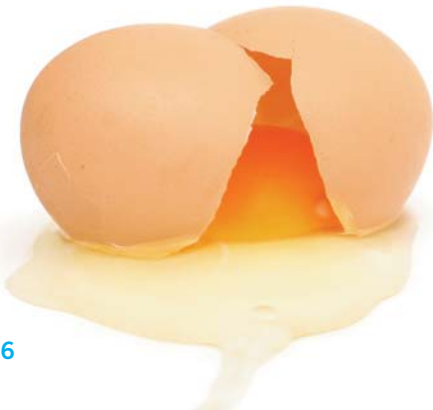
Tom Williams and Dani Strauss

Wednesday 11th March 13:00 - 15:00

or

Monday 23rd March 10:00 - 12:00

Up to 30 pupils per school



Getting Personal: A guide to STIs

This interactive, discussion-based workshop is led by a group of medical students. It covers the causes and symptoms of sexually transmitted diseases, how they are transmitted from one person to another, the way they are treated and how you can protect yourself against them.

'Sexpressions' Anne Melhuish and El King

Wednesday 11th March 10:00 - 12:00

15 pupils per school

Cryptic Challenge

Work in teams to crack the codes and discover how maths is right at the heart of cryptography.

Hazel Kendrick & Ruth Holland

Thursday 12th March 10:00 - 12:00

or 13:00 - 15:00

Up to 30 pupils per school

Dangerous Planet Earth

The inside of the Earth is constantly changing, causing earthquakes, volcanoes, and even shifting the position of continents. Find out what our researchers are doing in the African Rift Valley and learn about what drives plate tectonics. A well known brand of chocolate bar may be involved in the practical!

Derek Keir

Monday 23rd March 10:00 - 12:00

Up to 30 pupils per school

How to be a Rocket Scientist

Work in teams to build water-fuelled rockets and launch them to dizzying heights. Which rocket will go the farthest?

Johannes Knapp

Monday 23rd March 10:00 - 12:00

or 13:00 - 15:00

15 pupils per school

Toil in the Soil: Tropical ecosystem research

Learn about the most diverse ecosystem on earth and find out why plants need "dirt" to stay healthy. Apply hands-on soil characterization techniques and use your new skills to explore the ecology of a tropical forest and savanna.

Franziska Schrodt

Monday 23rd March 13:00 - 15:00

Up to 30 pupils per school

Earthquake!

Earthquakes are one of the most dangerous and spectacular of natural hazards. Explore the earthquake monitoring network and help us find the location of an earthquake.

Phil Murphy

Wednesday 25th March 10:00 - 12:00

Up to 30 pupils per school

Key Stage 4 continues overleaf



Key Stage 4 continued

Marvellous Molecules

Enzymes, protein and sweat - eugh!

Find out about measuring enzyme activity, isolating proteins and analysing amino acids.

Mitch Fry

Wednesday 25th March 10:00 - 12:00

Up to 30 pupils per school

Heart Attack!

How is lifestyle linked to heart disease?

Where do good and bad cholesterol and statins come in? This 2-hour workshop explores this GCSE science topic through discussion, a measuring activity, and practising what to do if you are with someone who has a heart attack.

Carreen Dew

Wednesday 25th March 9:30 - 11:30

Up to 30 pupils per school

Slime Time

Can slime really be an important aspect of physics? Explore the physics of polymers and their applications in everyday life.

Mike Ries

Wednesday 25th March 13:00 - 15:00

Up to 30 pupils per school

Amazing Maths

Work in teams to create and solve the most difficult mazes. Discover how the maths behind mazes can help you to plan your holiday trip, find distant relatives and organise the perfect party.

Thomas Wagenknecht

Wednesday 25th March 13:00 - 15:00

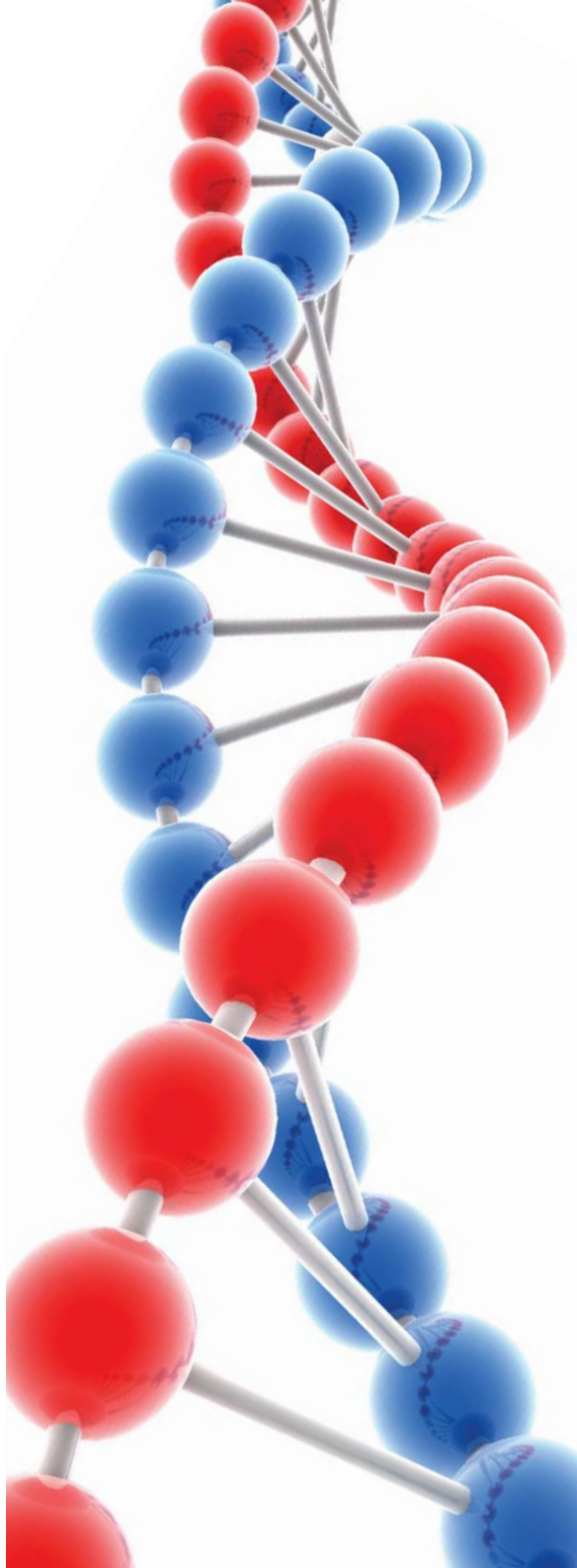
Up to 30 pupils per school

Maths at Work Day

A day of workshops with employer-led activities to investigate a range of mathematics applications for Year 10 students.

Hazel Kendrick & Ruth Holland

Thursday 26th March 9:30 - 14:30



Key Stage 5

HIV - Are we winning the battle?

Explore the nature of HIV and discover how science is helping the fight to control the disease. This discussion session is suitable for pupils who are taking three A-levels including Biology.

Dick Killington

Followed by

The Science of Chocolate

Find out how chocolate is made. Why might chocolate make us feel good? It's all a matter of taste.(Chocolate tasting is involved).

Stevie McBurney

Wednesday 25th March 10:00-12:00

30 pupils per school

Animal Experiments: Cruel or necessary?

This interactive workshop will informally discuss the use of animals in research. Is it really necessary, what are the alternatives, should we be allowed to create genetically modified animals so we can improve human health?

Dave Lewis

Wednesday 11th March 13:00 - 15:00

Up to 50 pupils per school

Life's a Headache

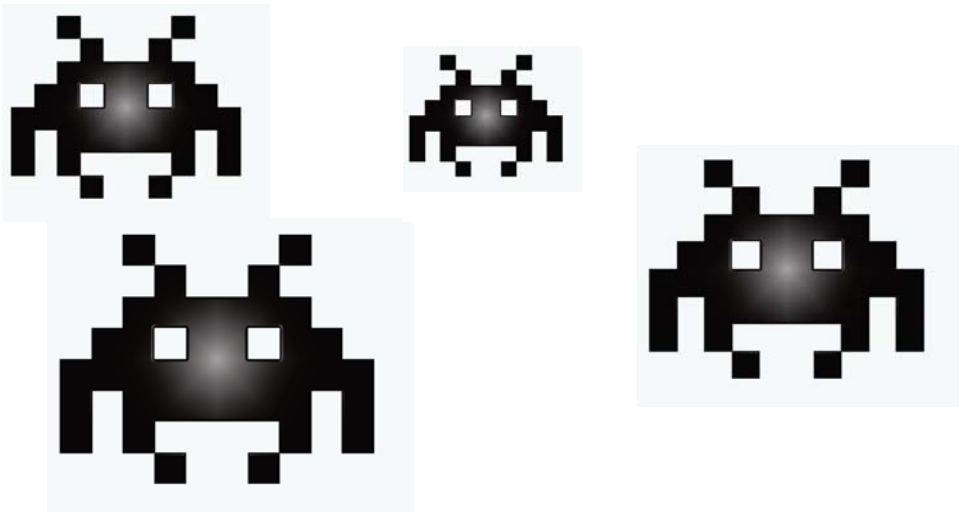
A hands-on laboratory workshop using analytical techniques, including IR, to identify commonly used painkillers. Suitable for pupils taking A-level Chemistry.

Annette Taylor

Wednesday 11th March 14:00 - 16:00

Up to 30 pupils per school

Key Stage 5 continues overleaf



Key Stage 5 continued

The Maths of Search Engines and Video Games (WP Milne Lecture for Sixth Formers)

Did you know that making video games fun means doing thousands of calculations involving triangles, angles and vectors and that the original idea for Google was based on simultaneous equations? Find out how the maths that you know already is being used extensively in both of these multi-billion pound industries.

Richard Lissaman Deputy Director of the Further Maths Network, University of Warwick

Wednesday 11th March 14:30 – 15:30

The Colours of Hydrogen

Explore the structure of the atom and use spectrometers to investigate the electrons in hydrogen. Suitable for pupils taking either Physics or Chemistry A-level.

Dave Fogarty

Wednesday 25th March 13:00 - 15:00
15 pupils per school

The Fossil's Story

How do we know what the world was like millions of years ago? Studying environmental and evolutionary change over Earth's history helps us understand how modern systems have developed. Work with fossils from our extensive collection and glimpse the strange world of the palaeontologist!

Jonathan Poulter

Wednesday 25th March 13:00 - 15:00
Up to 30 pupils per school

Different Degrees

From archaeology to zoology, this workshop will explore the wide range of different science degrees that are available across the country and the best way to find a degree that matches your interests, no matter how diverse they are.

Brigid O'Donnell

Wednesday 25th March 13:00 - 15:00
Up to 30 pupils per school

Blood Relative

Use modern day scientific techniques to discover what the levels of blood components tell us about health and disease.

Stevie McBurney

Thursday 26th March 10:00 – 12:00 or 13:00 - 15:00
Up to 30 pupils per school

The Eco-Apprentice: How to make money saving the planet

A look at the range of technologies being developed to tackle climate change, and the science and technology behind both the problems and solutions. How could a degree in science, engineering or technology help you get started in an exciting career and be part of the environmental revolution?

Frin Bales

Thursday 26th March 10:00 - 12:00
Up to 30 pupils per school



Beautiful Minds or Broken Brains?

An interactive and discussion based workshop on mental health issues, looking at mental illness in the media and its reflection of reality and stigma. We will explore the relationship between "normal" behaviour and mental experiences and disordered or abnormal ones, and try to link these concepts to modern psychology, mind-body dualism and conditions that the students may come across.

Simon Budd

Thursday 26th March 10:00 - 12:00

Up to 30 pupils per school

Untangling Knot Theory

Knots appear in lots of places throughout science: in physics, in biology, and most of all in maths. But even telling one knot from another is surprisingly difficult. We'll ask what knots mean to mathematicians, and try out some techniques for telling knots apart.

Richard Elwes and Matthew Daws

Friday 27th March 10:00 - 12:00

Up to 30 pupils per school

Whilst the University endeavours to ensure that the information contained in this brochure is accurate at the date of publication it does not accept liability for any inaccuracies. The University reserves the right to change or cancel its courses or services at any time without liability even after students have registered at the University. The University's contract with its students does not confer third party benefits for the purpose of Contracts (Right of Third Parties) Act 1999.

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