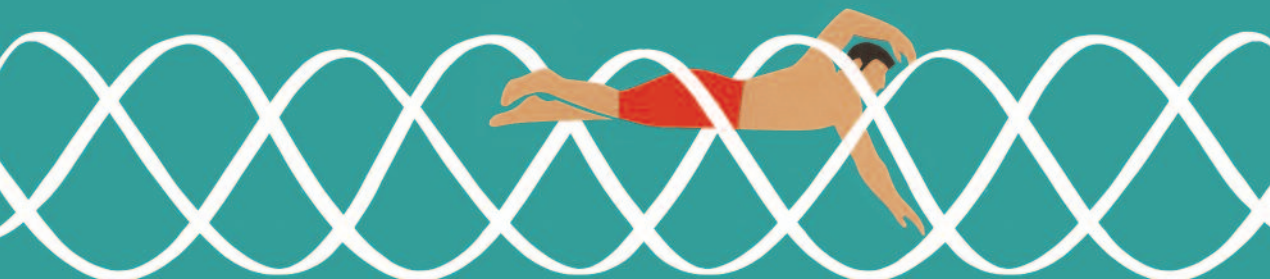
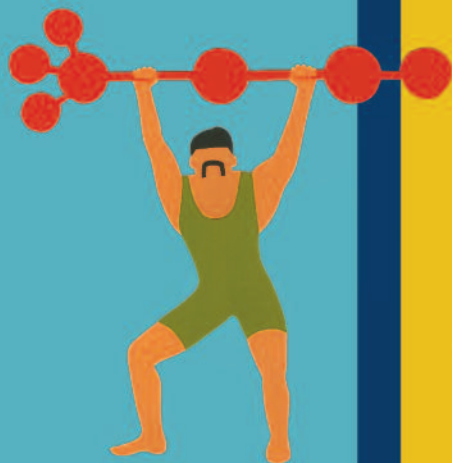




UNIVERSITY OF
CAMBRIDGE

Science Festival



12 – 25 March 2012

Breaking boundaries

For more information tel: 01223 766766
or visit: www.cam.ac.uk/sciencefestival



Welcome The Science Festival starts here!

Welcome to the Cambridge Science Festival 2012 which is themed 'Breaking boundaries' to celebrate the Olympic and Paralympic Games landing in London later in the year. Join us at over 180 mostly free events to celebrate the boundaries that are being broken in science, technology, engineering and mathematics. We'll have the usual mix of interactive fun for all ages at our open days on 17 and 24 March, along with plenty for adults at our evening lecture series.

We are pleased to say that through our events which demonstrate the science behind sport, both physically and psychologically, we have achieved the prestigious London 2012 Inspire award, making the Science Festival part of the UK-wide programme of activity that has been genuinely inspired by the 2012 Games.

We're also really excited to welcome our first ever Guest Director, comedian and science champion Robin Ince, to the Festival. He will be bringing lots of special guests: check out page 3 for more information.

We hope you enjoy the 2012 Festival and we look forward to seeing you there!

The Festival Team



STEVE ULLATHORNE



Robin Ince

A note from our Guest Director, Robin Ince

The last couple of years have seen a reinvigoration of public engagement with science that has been both hopeful and thrilling. I have looked at audiences at public science events and seen a broad mix of age, gender and hairstyles (for those young enough to still manage a hairstyle). It is a joy to have the opportunity to curate a few events at the Cambridge Science Festival which seems to have an even more hectic schedule than recent years. I look forward to being picked up on glaring scientific inaccuracies at my own shows by audiences far smarter than me and to being happily bamboozled at some of the events I watch. Self-consciousness has its ups and downs as any clever ape knows, but the joy of being able to ask the question why and then use what we have at our disposal to try and fashion an answer is one of the adventures of being human. I look forward to finding some new answers and leaving with even more questions.

Booking is only required where mentioned and unless otherwise stated can be done at www.cam.ac.uk/sciencefestival or by calling 01223 766766. Booking opens on 6 February and lines are open Monday – Friday, 10am – 4.30pm. Booking closes 24 hours before the event takes place.

Please note that children should be accompanied at all times and use the minimum age guide indicated under the event description. In some cases those under the minimum age may not be admitted due to the nature and content of the event. Please call ahead to check.

Please check our website for the latest updates on events and follow us on:



www.facebook.com/cambridgesciencefestival



www.twitter.com/camscience
#CSF2012

Illustrations by Anna Betts: www.annabetts.com

Guest Director's highlights

7.30pm – 9.30pm, 16 March

Robin Ince's bad science book club

The Pitt Building, Trumpington Street

Robin Ince, Alan Moore and guests read and talk about their favourite odd, arcane or frankly just bad pieces of science, pseudoscience or all out charlatan literature in a science specific resurrection of Robin Ince's Bad Book Club.

Map: 26, Performance, Ages 18+, Pre book tel: 01223 300085 or visit: www.adcticketing.com, £5 (includes a drink), unsold tickets available on the door for cash

2pm – 3.15pm, 17 March

Religion versus science. Can we live in a world of non-overlapping magisteria?

Mill Lane Lecture Rooms, Mill Lane

Robin Ince questions a panel of the religious and non-religious, including Mohammed Ansar, the Reverend Richard Coles and more, on whether there really is a battle between religion and science as portrayed in the mass media or if the two can survive happily side by side.

Map: 27, Talk, Ages 18+, Pre book*

4pm – 5pm, 17 March

In conversation with Alan Moore

Mill Lane Lecture Rooms, Mill Lane

One of the UK's finest and most imaginative writers, Alan Moore, discusses the meeting of science and fiction, his own inspirations from the world of scientific discovery and whether there is room for the mystical in a rational world. With Robin Ince.

Of course, a man of so many ideas may well go off on quite a different tangent and none of the above may be applicable.

Map: 27, Talk, Ages 18+, Pre book*

7.30pm – 10.30pm, 17 March

Festival of the spoken nerd: breaking boundaries

University Centre, Granta Place

Matt Parker, Helen Arney and Steve Mould are back at the Science Festival with a completely new show. Join three of London's best (and nerdiest) performers as they break down the boundaries between comedy and science with a mixture of stand-up maths, geeky songs, interactive experiments, special guests, and maybe some things that go bang...

Map: 28, Performance, Ages 18+, Pre book visit: www.wegottickets.com/event/151032, £6/£4

7.30pm – 10pm, 18 March

Happiness through science

Cambridge Union, Bridge Street

Robin asks can you be happy and rational at the same time? Join him in a world of Schrödinger cats, multiverses and evolutionary conundrums. Spend an entertaining evening in Robin's company as he orienteers through the craggy landscape of evolution whilst plumbing the depths of his own murky consciousness, all without the aid of a safety net.

Map: 41, Performance, Ages 18+, Pre book tel: 01223 300085 or visit: www.adcticketing.com, £6 unsold tickets available on the door for cash

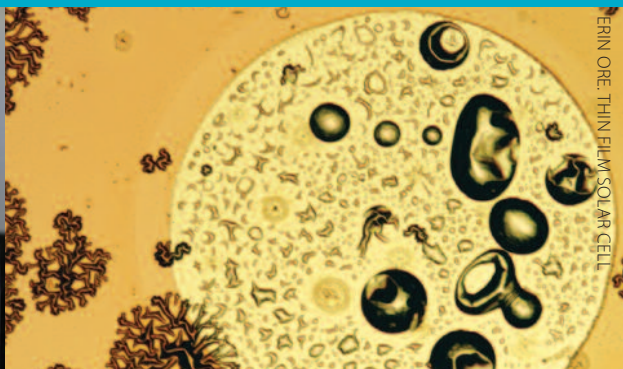
Please check the website for new events organised by Robin



Throughout the Festival



SIR CAM



ERIN ORE THIN FILM SOLAR CELL

7.15pm – 10pm, 9 March (7.15pm – 7.45pm, Talk, 8pm – 10pm, Concert)

Discover *The Planets*

West Road Concert Hall, West Road

Learn all about the planets in one evening!

Dr Carolin Crawford from the Institute of Astronomy and conductor Mark Austin will be in conversation during a free pre-concert talk.

Followed by the Cambridge Graduate Orchestra performing Holst's *The Planets* accompanied by eye-opening planetary projections.

Map: 50, Talk/Performance, Ages 12+, Pre book visit: www.cambridgegraduateorchestra.com, £10, £5 concessions. Special Festival offer: free ticket for each under 18 accompanied by a paying adult

7.30pm – 11pm, 9 March

BrightClub – breaking boundaries

The Portland Arms, Chesterton Road, CB4 3BA

Join academics from Cambridge and beyond for a lighthearted look at their research. It's a comedy night with a difference and has some special guests on the bill not to be missed.

Map: N/A, Performance, Ages 18+, Pre book tel: 07595 666459 or email: andy@thinkoutreach.org, £7

1pm – 5pm, 10 March

Science while you shop

The Grafton Shopping Centre, CB1 1PS

The Cambridgeshire branch of the British Science Association is holding an interactive science busking event as part of National Science and Engineering Week (9 – 18 March).

Map: N/A, Hands on, Drop in, All ages

8am – 5pm, 12 – 17, 19 – 24 March

Engineering as art

Michaelhouse Café, Trinity Street

From hidden engineering on the nano scale to origami designs for engineering structures, explore an exhibition of astounding photographs taken by staff and students from the Department of Engineering.

Map: 40, Exhibition, Drop in, All ages

9am – 5.30pm, 12 – 24 March

11am – 5pm, 18, 25 March

Charles Darwin Correspondence Project

Cambridge University Press Shop, Trinity Street

A very small table-top display about the work of the Darwin Correspondence Project, which has its main office at Cambridge University Library. The exhibit explains the scope of the Project and is accompanied by copies of the volumes published so far.

Map: 39, Exhibition, Drop in, Ages 8+

6pm – 7pm, 12 March

A mathematical look at the Olympics

Mill Lane Lecture Rooms, Mill Lane

To prepare competitors and spectators for London 2012, Professor John Barrow casts a mathematical eye over a wide range of Olympic sporting events. A little elementary maths can help us appreciate what is going on in a range of running, swimming, jumping, throwing, paddling, lifting, swinging and wheelchair racing events. We will also examine some of the strange scoring systems that sports employ.

Map: 27, Talk, Ages 14+



Gert-Jan de Haas



Clive Oppenheimer

7.45pm – 9.15pm, 12 March

Science and the truth of the Gospels: what really happened at Easter?

Wesley Methodist Church, Short Street, CB1 1LG

In this lecture astronomer Colin Humphreys will talk about apparent inconsistencies in the Gospel accounts of the last week of Jesus' life that have puzzled Bible scholars for centuries. Drawing on evidence from the *Dead Sea Scrolls* and Egyptian texts, and using astronomy to reconstruct ancient calendars, Humphreys will show that the supposedly contradictory Gospel accounts are, in fact, in remarkable agreement about Jesus' final days.

Map: N/A, Talk, Ages 14+

8pm – 9pm, 12 March

The musical brain

Mill Lane Lecture Rooms, Mill Lane

Gert-Jan de Haas, neuropsychologist and musician, takes us on a journey through the musical brain via dancing parrots, snails, a cup of tea and the important principle of 'not not'. He explains how what is known about general brain functions can be applied to learning and performing music and why it is that the musical brain really knows nothing!

Map: 27, Talk, Ages 14+

9am – 1pm, 13 March, 6pm – 8.10pm, 15 March, 2.30pm – 4.30pm, 18 March

PsyFi film festival

Arts Picturehouse, St Andrew's Street

A film festival of screenings and talks on compulsion organised by the Cambridgeshire branch of the British Science Association and PsyFi:

9am – 1pm, 13 March *Vertigo* (PG)

6pm – 8.10pm, 15 March *Black Swan* (15)

2.30pm – 4.30pm, 18 March *Croupier* (15)

Map: 37, Film, Ages 12+, Pre book tel: 0871 902 5720 or visit: www.picturehouses.co.uk, Admission charges apply

5pm – 6pm (Practical), 6.15pm – 7pm (Talks), 13 March

Hands on science

Cambridge Regional College, King's Hedges Road, CB4 2QT

Visitors are invited to book for practical biology and chemistry activities in laboratories at the College followed by talks from external speakers.

Map: N/A, Workshop/Talk, Ages 10+, Pre book for practical sessions tel: 01223 418580 or email: kedwards@camre.ac.uk

6pm – 7pm, 13 March

Eruptions that shook the world

Mill Lane Lecture Rooms, Mill Lane

Clive Oppenheimer explores geological, historical and archaeological records to ask how volcanic eruptions have shaped the trajectory of human society and considers how we can prepare ourselves for future catastrophes.

Map: 27, Talk, Ages 14+

Throughout the Festival



Kevin Dutton



Barbara Sahakian

7pm – 8pm, 13 March

Diffusion of the dead

The Maypole Pub, Portugal Place

Knowing how long we have before we interact with a zombie could mean the difference between life, death and zombification. Join Thomas Woolley as he applies the same mathematical models to zombies that you would use to describe flu or measles. This model is used to develop strategies which allow the human race to survive.

Map: 43, Talk, Ages 16+, Pre book tel: 07595 666459 or email: andy@thinkoutreach.org

8pm – 9pm, 13 March

Flipnosis – the art of split second persuasion

Mill Lane Lecture Rooms, Mill Lane

Why do some people always seem to get what they want? How do they influence, persuade and sometimes manipulate others? From the political genius of top world leaders to the malign influence of psychopaths and conmen, Kevin Dutton explores what psychology can teach us about the techniques of persuasion.

Map: 27, Talk, Ages 14+

7pm – 9pm, 13 March

Breaking habits – going for green!

Wesley Church, Short Street, CB1 1LG

This workshop will give you a free taste of the Carbon Conversations course, featured as one of *The Guardian's* top 20 climate change solutions. Calculate your carbon footprint, and try some sample activities. Come along to find out more!

Map: N/A, Workshop, Ages 18+, Pre book tel: 01223 659962 or email: info@cambridgecarbonfootprint.org

10am – 4.45pm, 13 – 15 March

Graduate School of Life Sciences poster and image exhibition

Museum of Zoology, Downing Street

An exhibition of posters and images from the research of Masters and PhD students, and postdoctoral researchers in the Graduate School of Life Sciences. All the exhibitors will be on hand to explain their work on the afternoon of Tuesday 13 March.

Map: 4, Exhibition, Drop in, Ages 16+

6pm – 7.30pm, 14 March

Understanding excess

Mill Lane Lecture Rooms, Mill Lane

Compulsive acts or habits which are hard to stop occur in people with OCD and other disorders such as autism or substance abuse disorder. Sometimes these habits are distressing and cause difficulties in daily life, but how do these get started? What is the neurobiological basis for them and how can they best be treated?

Speakers include Professor Barbara Sahakian, Trevor Robbins and Naomi Fineberg.

Map: 27, Talk, Ages 14+, Pre book*



Anders Sandberg

7pm – 9pm, 14 March

Genomes in a jiffy!

Wellcome Trust Sanger Institute, Hinxton,
CB10 1SA

Find out how genome research helps us to understand the biology of infectious bacteria and the malaria parasite. Discover what contagious disease is pushing the Tasmanian devil to extinction and how sequencing thousands of genomes helps us to identify genes linked to common human diseases.

Map: N/A, Talk, Ages 16+, Pre book tel: 01223 496995 or email: pubengage@sanger.ac.uk

6pm – 8.30pm, 14 March

A window on the brain

MRC Cognition and Brain Sciences Unit,
Chaucer Road, CB2 7EF

Come for an hour of hands on practical demonstrations followed by a series of short talks. Light refreshments will be served.

Map: N/A, Hands on, Ages 14+

6pm – 7pm, 14 March

The rules of form: sonnets and slide rules

Whipple Museum of the History of Science,
Free School Lane

Drawing inspiration from the Hutchinson collection of mathematical instruments, Writer-in-Residence Kelley Swain and guest speakers will discuss constraints of creative form in literature and poetry: from Oulipo to Rondeaux to turning women into furniture.

Map: 7, Talk, Ages 12+, Pre book tel: 01223 330906 or email: hps-whipple-museum@lists.cam.ac.uk

7.30pm – 8.45pm, 14 March

Visions of future health care

Emmanuel College, St Andrew's Street

Sponsored by Science AAAS

Recent and forthcoming developments in the physical sciences, engineering and computing science are likely to impact health care powerfully over the next 10 – 20 years. With the rise of biomedical technologies in regenerative medicine and nanorobotics, how is the experience, benefit and risk of health care likely to change? And what role should patients and the public play in shaping the future of health care? Panel chair Tim Radford, former Sciences Editor at *The Guardian*, will be joined by a panel including Martin Roland, Chair of Health Services Research at the University of Cambridge, and Anders Sandberg of the Future of Humanity Institute at the University of Oxford.

Map: 36, Talk, Ages 16+, Pre book*

5pm – 6.15pm, 15 March (archive documents available for view from 4.45pm)

Airy, Challis and the Northumberland Telescope

Cambridge University Library, West Road

The Northumberland Telescope, erected at Cambridge University Observatory during the 1830s, and still in use, was one of the great engineering triumphs of 19th century science. Professor Simon Schaffer explores why the instrument was built and how it came into use in those troubled times.

Map: 51, Exhibition/Talk, Ages 14+, Pre book*

Throughout the Festival



Christl Donnelly



Stuart Clark



Carolin Crawford

6pm – 7pm, 15 March

Out of the box: objects, museums and Pacific Island communities

Museum of Archaeology and Anthropology, Downing Street

Talk by Dr Julie Adams, Research Fellow at the Museum, which considers the consequences of projects aimed at reconnecting museum collections with source communities in the Pacific. Includes a film shot in Vanuatu in 2007.

Map: 9, Talk, Ages 14+, Pre book tel: 01223

764769 or email: sarah-

jane.harknett@maa.cam.ac.uk

6pm – 7pm, 15 March

What can we learn from the early astronomers?

University Centre, Granta Place

Join Dr Stuart Clark to explore how from Kepler to Newton to Einstein, the greatest breakthroughs in our understanding of the Universe came by studying motion in the Universe. Once again, astronomers are seeing movements in the Universe they cannot explain. Is the next big breakthrough imminent?

Map: 28, Talk, Ages 14+

6pm – 7pm, 15 March

Outbreak: how epidemiologists work to protect you

Mill Lane Lecture Rooms, Mill Lane

Join Christl Donnelly, Professor of Statistical Epidemiology, in a race against the clock to limit the spread of a newly identified infectious disease. Learn why some outbreaks never take off and other infections spread across the world.

Map: 27, Talk, Ages 14+

6pm – 7pm, 15 March

The development of vaccines and immunotherapies against human papillomaviruses, the cause of cervical cancer

Lucy Cavendish College, Lady Margaret Road, CB3 0BU

A talk from Margaret Stanley OBE on the mechanisms of host defence and the development of vaccines and immunotherapies to combat cervical cancer.

Map: N/A, Talk, Ages 18+

7.30pm – 8.30pm, 15 March

Helen Keen: robot woman of the future!

University Centre, Granta Place

Award-winning comedian Helen Keen returns to Cambridge with her esoteric mix of stand-up comedy, science and shadow puppetry. This new hour features robots! The future! And a woman!

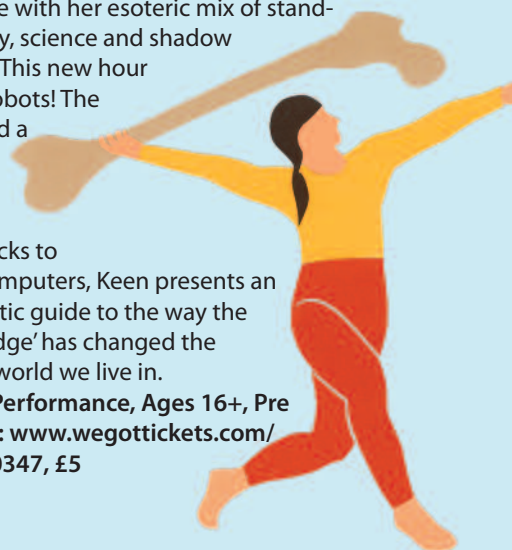
From

clockwork

French ducks to

human computers, Keen presents an idiosyncratic guide to the way the 'cutting-edge' has changed the everyday world we live in.

Map: 28, Performance, Ages 16+, Pre book visit: www.wegotickets.com/event/150347, £5





Helen Keen



Jim Al-Khalili

7pm – 9pm, 16 March

Christopher Columbus: The Discovery

La Dante in Cambridge, Hills Road, CB2 1LA
Genoan navigator Christopher Columbus has a dream to find an alternative route to sail to the Indies, by travelling west instead of east, across the uncharted ocean. He eventually gets the blessing from Queen Isabella and sets sail in three ships to travel into the unknown.

Map: N/A, Film, All ages, Pre book tel: 01223 315191 or email: info@ladante-in-cambridge.org, £3

5pm – 6pm, 16 March

On the shoulders of Eastern giants: the forgotten contribution of medieval physicists

Babbage Lecture Theatre, New Museums Site

We learn at school that Isaac Newton is the father of modern optics, that Copernicus heralded the birth of astronomy, and that it is Snell's law of refraction. But what is the debt these men owe to the physicists and astronomers of the medieval Islamic Empire? Men such as Ibn al-Haytham, Avicenna, Biruni, Ibn Sahl, al-Tusi and Ibn al-Shatir. In this lecture Jim Al-Khalili will tell the story of these fascinating characters.

Map: 2, Talk, Ages 14+, Pre book*

7.30pm – 8.30pm, 16 March

The sounds of the Universe

Babbage Lecture Theatre, New Museums Site

In space no-one can hear you scream... but it is still a noisy Universe. This lecture takes a new approach to appreciating the Universe, through the vehicle of sound. Join Dr Carolin Crawford as she explores how the sounds of space can be a useful way to illustrate processes in astronomy and how sound is ultimately responsible for the growth of all structure we see today in the cosmos.

Map: 2, Talk, Ages 14+

11am – 4pm, 17, 18, 24, 25 March

Breaking boundaries

Shepreth Wildlife Park, Station Road, SG8 6PZ

How fast do bats fly? What's the fastest animal on earth? Discover answers to these and loads more amazing 'animal athlete' questions. Plus: see snake strike speed, slimy snail strategy, rodent recall and 'itchy insects – to infinity and beyond!' Junior education team representatives will be on hand with more fun facts.

Map: N/A, Hands on/Talk, Drop in, All ages, Admission charges apply

At the Babbage Lecture Theatre

Map: 2, Talk, Ages 8+ (unless otherwise stated)

10am – 11am

Science Junkie – in the zone

This exciting new show by science junkies Huw James and Greg Foot uncovers the physiology and sports engineering that make an athlete a champion. Live on stage, we'll use sensors attached to exercise machines to see what happens as you start to sweat and struggle to get enough oxygen into your muscles.



11.30am – 12.30pm

The weird world of really really long molecules

What happens when you make molecules really really really long? They do crazy things and act in unexpected ways. The weird properties of polymers put them at the cutting edge of technology and make them a magician's best friend. Steve Mould explores the weird world of plastic and its cousins with the help of some eye popping experiments.

Pre book*



IDIL SUKAN/DRAW HQ

1pm – 2pm

Dark matters

No-one's ever seen dark matter. So why do astronomers insist that it's all around us? And why might LHC physicists be so excited about it? Tackle Dr Andrew Pontzen (astronomer) and Dr Tom Whyntie (particle physicist) as they attempt to convince you that they're not utterly bonkers.

2.30pm – 3.30pm

Crisp packet fireworks with the Naked Scientists

The Naked Scientists take you on a whistle-stop tour of the world of waves, gases and chemistry. They detonate bombs, electrocute vegetables, turn air into a liquid, reveal the secrets of sun-cream, use chemicals to produce bright lights, and launch hydrogen-powered rockets. Definitely not for the faint of heart!

All ages, Pre book*



JASON HUDSON

4pm – 5pm

Open your mind with the Naked Scientists

Join Hannah Critchlow from the Naked Scientists on an exploration of the brain with mind-boggling live experiments and demonstrations. A not to be missed science theatrical stage show for all the family. Definitely not for the faint of thought!

All ages, Pre book*

In the Arts School Room A

Map: 3, Talk, Ages 14+ (unless otherwise stated)

10.30am – 11.30am

Human life at the limits – the physiology of exploration

Human beings have conquered a more diverse range of environments than any other species. Dr Andrew Murray will explore the physiology behind the extraordinary feats of survival that took Scott to the South Pole, Hillary to the summit of Everest and Armstrong to the Moon, and ask if you could achieve the same.

Ages 12+

12noon – 1pm

Ever wanted to DJ?

Space plasma physicist and *Kiss FM* DJ Martin Archer takes you on a journey into sound with his virtual DJ booth, covering waves, frequency and other principles. Whilst spinning the latest tunes he explains the science behind the cueing, beat matching, blending and EQing that goes into his mixes in clubs. Along the way he'll make a speaker out of a styrofoam bowl and turn sound into fire.

Pre book*

1.30pm – 2.30pm

The science of electricity

With the electromagnetic dance and a game of 'watt costs what' (a new take on the *Price is Right*), Nij Lal explores the science of electricity and gets our brains ticking about the electrical future...

2.45pm – 3.45pm

The evolution of breathing

We all need to breathe constantly to stay alive – as little as three minutes without oxygen can kill a human. Yet some whales can hold their breath for over an hour whilst diving. Join Dr Phil Cox as he explains how and why we breathe, how other animals do it and how breathing air evolved in our fishy ancestors.

Ages 8+

4pm – 5pm

BioPunk

Featuring authors Katherine Orr and Dr Simon Stott. Chair: Ra Page (editor). Is research always fully aware of its consequences? Does science need to grow a conscience? Or are we in danger of being too distrustful of science? Of demonising it even? These will be discussed at the launch of Bio-Punk (Comma), a new collection of short stories exploring the human issues surrounding bio-med research.

Pre book*



12.30pm – 1.15pm, 2pm – 2.45pm, 3.30pm – 4.15pm

Science Junkie: extreme sports battle

Parker's Piece

In this totally unique and spectacular live show the Science Junkies – Greg Foot and Huw James – pit one of the world's best trials riders (Andrei Burton) against one of the UK's top freerunners. They'll build a 12ft high urban playground for the trials rider and freerunner to flip, spin and trick over. Just how does a bike seemingly defy gravity? How do freerunners jump so far and with such accuracy? Get top tips to nail the basics and uncover the science behind these awesome stunts.

Map: 53, Demonstration, All ages





10am – 5pm

Crash, Bang, Squelch!

Department of Zoology

Enthusiastic students from the CHaOS Science Roadshow help you get to grips with exciting, fascinating and just plain weird experiments that go 'crash', 'bang' and 'squelch'! During busy periods we'll be issuing timed tickets for later in the day. These ran out very early in 2011, so come early to avoid disappointment!

Map: 5, Hands on, Drop in, All ages

9.45am – 4.30pm

CHaOS talks: more from the makers of 'Crash, Bang, Squelch!'

Department of Zoology

Talk titles:

9.45am – 10.15am, 'High voltage science: sparks and more!' With Dave Ansell (also of the Naked Scientists)

10.45am – 11.15am, 'What happens if you cut off a blood supply?' With Alex Davies

11.45am – 12.15pm, 'Roses are red, violets are blue: a look at colour in the natural world.' With Sonja Dunbar

1pm – 1.30pm, 'The science of the atmosphere.' With David Bebb

2pm – 2.30pm, 'Sounds like science!' With Philip Garsed

3pm – 3.30pm, 'Living things: what's inside a cell?' With Lia Chappell

4pm – 4.30pm, 'Gases: just a load of hot air?' With Dave Ansell

For the latest details of what is in each talk visit:

www.chaossience.org.uk

Map: 5, Talk, Ages 8+

10am – 4pm

The objects of science

Whipple Museum of the History of Science

Explore the Museum's collections and investigate how some of our objects work using the handling trolleys. Come and see our Main Gallery with its newly refurbished display cases.

Map: 7, Hands on, Drop in, All ages

10am – 4pm

Cambridge Science Centre – science hunt

Information Marquee

The Cambridge Science Centre team has hidden some of our future hands on exhibits for you to discover and play with across the Cambridge Science Festival. Join us at the information marquee to start your hands on science trail – will you find them all?

Map: 1, Hands on, Drop in, All ages

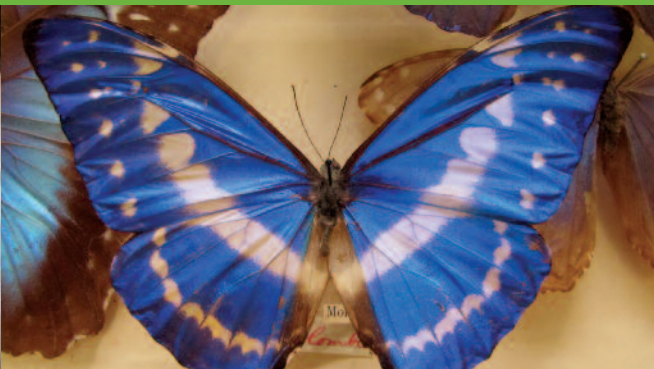
11am – 12noon, 2pm – 3pm

GetSET

Information Marquee

Find out what it is like to study science, engineering or technology at the University of Cambridge. Admissions and teaching staff will be available to help prospective applicants, parents and teachers 'Get SET' for the future. www.cam.ac.uk/admissions/undergraduate

Map: 1, Exhibition, Drop in, Ages 14+



11am – 4pm

Enter the animal arena

Museum of Zoology

Discover amazing animal adaptations for land, sea and air. Ask scientists from the Department questions, explore the wonders of the animal kingdom. See how natural selection works, and shape evolution of a population of make-believe beasts in our 'Animal Arena'.

Map: 4, Hands on, Drop in, All ages

Department of Materials Science and Metallurgy

Map: 6, Demonstration, Drop in, All ages (unless otherwise stated)

10am – 11am, 12noon – 1pm

Ten things you didn't know about ice-cream

In this talk we'll explore ten scientific reasons why ice-cream is the world's coolest dessert. We will also make two gallons of delicious ice-cream for the audience to try, using the ultra-fast cooling power of liquid nitrogen!

Ages 8+, Pre book email: sls55@cam.ac.uk

2pm – 3pm

Superconductors: the superheroes of science

What happens when you cool materials too close to absolute zero? We explore the weird behaviour of superconductors, the ultra-cold materials which drive the Large Hadron Collider and could be the future of electricity transport.

Talk, Ages 12+

2pm – 5pm

SeeK (Science and Engineering Experiments for Kids)

Come and join SeeK to investigate a range of materials with unique properties, create your own kaleidoscopes and make your own badges, plus a host of other fun and engaging activities.

2pm – 5pm

Explore the world through materials

Come and explore the exciting versatility of materials, from levitating trains to magnetic sand, from lemon-powered light bulbs to shape-shifting materials. With tons of hands on experiments you are sure to find something you'll enjoy.

4pm – 5pm

Learning from the best: mimicking nature's materials

This talk looks under the microscope at some of the amazing structures produced in the natural world, from ants' feet and spider silk to carnivorous pitcher plants. Can we mimic them to make high-performance man-made materials? Nature has had a two-billion year head start, but can we catch up?

Talk, Ages 12+

Biology Zone at the Arts School

10am – 4pm

Map: 3, Hands on, Drop in, All ages (unless otherwise stated)

Medicines under the microscope

Join the Department of Pharmacology to fish for water fleas (*Daphnia*) and use a microscope to see their heart, guts, eye and eggs.

Perform *Daphnia* heart-rate experiments with drugs such as caffeine (coffee and cola) alcohol, nicotine and cold medicines.



Stem cells 2012: racing into the future

Explore the world of stem cells with the MRC Centre for Stem Cell Biology. Along with many games and activities you'll also get to put on a labcoat and goggles and use a pipette in a 'wet lab' experiment to see how to feed and care for stem cells on a daily basis.

The Daphne Jackson Trust

Dedicated to returning talented scientists and technologists to research positions after a career break taken for family, caring or health reasons. The Trust provides fellowships which are designed to significantly increase employability and remove the disadvantages associated with a career break.

Cambridge AWiSE @ the Science Festival

Cambridge Association for Women in Science and Engineering will be helping to connect and inspire women in science, technology, engineering and maths and will entertain young and old alike with simple hands on experiments.

The race to beat cancer – it's a marathon, not a sprint!

Join scientists from the Hutchison/MRC Research Centre to see if you can solve the mysteries of how cancer cells first develop and then grow and spread. Find out about DNA mutations, build a cancer chromosome and see if you can take on the challenge of killing cancerous cells.

Journey through your blood vessels

Did you know that if you could lay all your blood vessels end-to-end they would stretch twice around the world! Find out more about what goes on inside your blood vessels and how you can keep them healthy, with scientists from the Division of Cardiovascular Medicine.

You don't have to be an athlete to be active!

How active are you? Find out how everyday activities compare to being an athlete. How many marathons could you do in a year? Find out how you can make your journeys more active with the MRC Epidemiology Unit.

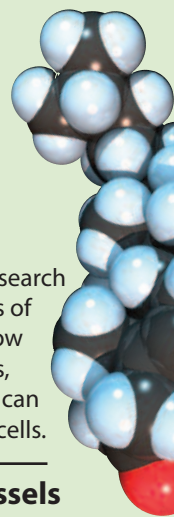
Getting to the heart of healthy ageing

Discover what makes your heart tick from scientists at the Babraham Institute. Meet the 'immuno-invisibles', the superheroes of our immune system, and hear how they defend us. Explore through epigenetics how your grandmother's diet can affect YOUR health.

10am – 2pm

Bottle your genes

Come and see your own DNA with help from students from Long Road Sixth Form College. You will isolate the DNA from your cheek cells, be able to see it and then take it home with you.



A journey to health

Join scientists from MRC Human Nutrition Research on a scientific journey that takes you from the identification of fats in a blood sample, through to how these fats are related to your diet and how they impact on your health.

Fascinating fat: it's not all bad news

Have you ever wondered what fat does? We all know that if we eat too much we get fat, but having too little fat is just as unhealthy. The Metabolic Research Laboratories show you some fabulous facts about fat and why it is so important for our health.

Ages 8+

The EPIC bone of contention: how to grow up healthily

Play your calcium cards right, balance the leaning tower of health, enjoy a 'trolley dash' through the EPIC supermarket AND tackle our frenetic fluency game, all whilst learning about the vital role that specific vitamins and minerals play in healthy development.

See your cells!

Use microscopes to see your own cells and to wonder at the hidden beauty of plants and insects with the help of scientists of the MRC Laboratory of Molecular Biology and the Microscopes4Schools project. Test your detective skills with our stereoscope challenge!

Ages 8+

Antibodies for sending signals through cell barriers

At the MedImmune stand you can build your own model of the cell surface and make a model therapeutic antibody that can bind to it. Also, dress up as a scientist and have your picture taken!

Society of Biology

Join the Society of Biology and come try a biology quiz, dissect owl pellets, have a go at mirror tracing, learn about primroses and much more.

The wonders of biostatistics

Come and explore with the MRC Biostatistics Unit how biostatistics can be used to improve health. Use your creativity and thinking abilities to help you solve the challenges we'll give you!

Dynamic DNA

Join staff from the European Bioinformatics Institute and Wellcome Trust Sanger Institute and make your own DNA sequence bracelet and fold your own origami DNA. Come along and see if you can help us make a giant origami DNA strand that is long enough to reach outside the building!

Can you pipette more accurately than our scientists?

Join the Cancer Research UK Cambridge Research Institute, and put on a lab coat and enter our mini science lab – come and run a DNA gel, compete in a pipetting challenge and examine some tissue down a microscope.

How do we get energy out of food?

The mighty mitochondrion is a special part of every cell where food is converted into fuel for your muscles and nerves. The MRC Mitochondrial Unit invite you to use LEGO® to understand the processes going on in your body and find out how electricity runs through proteins.

Protein art – in thread and ink

Come and see where the amazing structures of proteins have led the artist, Jenny Langley. Textiles and prints will be displayed along with sources of inspirations and sketchbooks.

Exhibition

Pick up a map at the Biology Zone welcome desk on the day to find your way around. Many of these events are also open on Sunday 18 March, to find out more see page 29.



10am – 3pm

The cosmos of your body

Department of Pathology

Did you know your body hosts millions of microbes? Did you know that millions of proteins make your body function? Come to see the miniature world that is your body.

Map: 15, Hands on, Drop in, All ages

10am – 4pm

Breaking into bloom: the flowering of modern plant sciences

Plant Sciences Marquee

See how modern science is providing new understanding of flower colours and iridescence, see a bumblebee arena, laser remote sensing for conservation, computer game models of plant adaptation and innovative breeding methods.

Map: 8, Hands on, Drop in, All ages

10.30am – 12.30pm, 2pm – 4pm

Hands on demonstrations

Department of Experimental Psychology

In a series of interactive demonstrations and posters, research groups from the Department will illustrate how their research crosses the boundaries between conventional disciplines. Topics include human memory, learning, addiction, awareness and development.

Map: 13, Hands on, Drop in, Ages 8+

10.30am – 3.30pm

Time Truck at the Sedgwick Museum

Department of Earth Sciences and Sedgwick Museum

Travel in time with Time Truck! Investigate rocks and minerals, discover dinosaurs and explore earthquake science with hands on activities and demonstrations.

Map: 11, Hands on, Drop in, All ages

10.30am – 4pm

The science of archaeology

McDonald Institute for Archaeological Research

Was the skeleton in your cupboard a man or a woman? What did Neanderthals have for dinner? Learn how, by enjoying displays and hands on activities, to discover the secrets revealed by pots, plants, soil, bones and even fossilized poo!

Map: 10, Hands on, Drop in, All ages

11am – 3pm

Don't shoot the messenger (RNA)

Department of Biochemistry

Go back in time to glimpse the start of life in the RNA world, then move forward to discover the central role of RNA in life today. Learn how RNAs translate the digital information in genes into the unimaginable complexity of proteins and how other small RNAs regulate the process. This interactive event will include experiments, demonstrations, games and fun.

Map: 12, Hands on, Drop in, Ages 8+



11am – 12noon

Gambling on the brain

Anatomy Building

Dr Luke Clark discusses recent advances in the science of gambling.

Map: 14, Talk, Ages 14+

1pm – 2pm, 2.30pm – 3.30pm

ROCKFLUID, the art and science of memory

Anatomy Building

Artist Elena Cologni and Scientist Lisa Saksida showcase a project which explores the 'materiality' and 'spatiality' of memory through psychological and artistic tools which aims at attempting an exchange between art and neuro-psychology based on the status of objects, time and space embodiment.

Map: 14, Workshop, Ages 8+, Pre book email: info@rockfluid.com

2pm – 3pm

Wiping memories to keep addicts clean: the science of addiction and memory

Anatomy Building

Ever wondered why smokers crave a cigarette after a meal? Or why you drink more in a pub than a restaurant? Drug memories, linking particular places, paraphernalia and even people with a drug of abuse, increases drug-seeking. Erasing or wiping these drug memories may provide a new form of treatment to prevent relapse in drug addiction, and keep addicts clean.

Map: 14, Talk, Ages 14+

2pm – 3pm

Physiology: shocking, exciting, stimulating

Physiological Laboratory

This exciting series of live experiments (using hammers, electric shocks, vibrations and spinning chairs!) examines some of the fundamental properties of the brain and body through demonstrating some surprising effects!

Map: 16, Demonstration, Ages 10+

4.30pm – 5.30pm

Physiology, the shocking truth

Physiological Laboratory

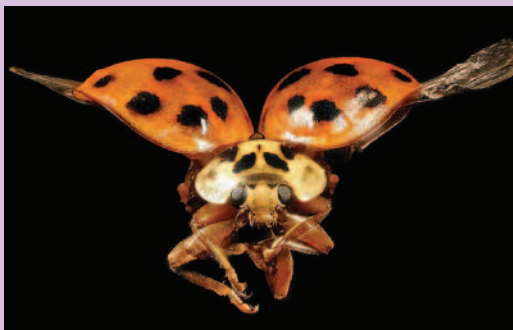
Following on from the demonstration lecture, we will take a journey along a nerve from formation of the electrical signal to its final output. On the way we will touch on the history of neuroscience, and some of the current research going on in Cambridge. This lecture is aimed at those with an interest in the function of nerves in a bit more detail. Attendance at the earlier demonstration lecture would be beneficial.

Map: 16, Talk, Ages 15+

10am – 4pm

Map: 32, Hands on, Drop in, All ages (unless otherwise stated)

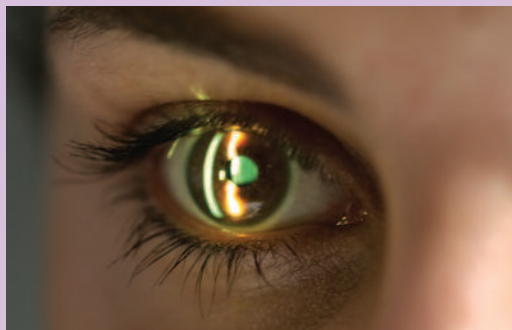
The Festival is delighted to partner once again with Anglia Ruskin University who have taken over the Guildhall to put on a whole host of interactive hands on activities for all ages. You can meet giant creepy crawlies or take part in your very own forensic science investigation. There's something for everyone at this exciting open day showcasing the brilliant array of subjects offered at Anglia Ruskin University. There are also many boundaries to be broken with their sports science events – find out if you have what it takes to be a future Olympian!



RICHARD NAYLOR

Is there an alien in your garden?

Learn about the ecology and identification of these fascinating beetles...and how to carry out a ladybird survey.



Journey to the centre of the eye and ear

Have a play with the latest computerised equipment used to see inside the eye in 3-D and take a journey into the ear.



Crime scene science

Learn all about the science vital in scenes of crime investigation and get your hands dirty trying forensic techniques.

Meet the creepy crawlies!

You can meet the giant African land snails, giant African millipedes as well as the Madagascan hissing cockroaches! They're safe and fun to handle for all ages.

Can we really believe what we see?

Visual illusions are not only fun to look at, but can also tell us a great deal about how the brain works.

Ages 8+



Have you got what it takes to be an Olympian?

Test your sporting abilities in a range of Olympic events. Have a go and compare your scores to athletes competing in the Olympic and Paralympic Games.

Ages 10+



Animal and human locomotion: measuring stride length and range of motion

Measure your walk stride length or elbow joint range of motion by using a video camera and computer software.

Ages 14+

What's on in the city

St John's College

Map: 42, Pre book tel: 01223 339362 or email: rew35@cam.ac.uk (unless otherwise stated)

11am – 5pm

Evolution: the race to understanding

Old Library

This new exhibition charts the development of evolutionary thought through the 19th century. Discover the origins of Darwin's big idea in earlier works, and explore the alternative theories that led to some of science's most impassioned debates.

Exhibition, Drop in, All ages

12noon – 1pm

Evolution, philosophy and well-being: a beginners' guide

Fisher Building

Join philosopher, author, publisher and campaigner Dr Ben Irvine for a whistle-stop tour of some of the major objections to, and misreadings of, the theory of natural selection – and discover how understanding Darwinism better can help us all to achieve well-being.

Talk, Ages 12+

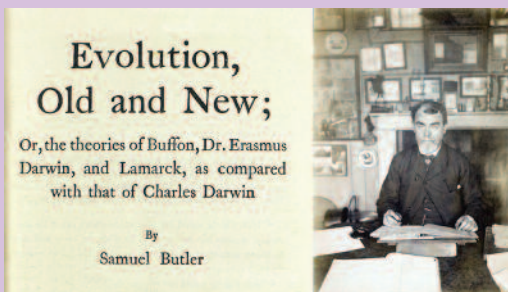
2pm – 3pm

Butler among the machines: evolutionary literature and science in Europe, 1859–1902

Fisher Building

Dr Elinor Shaffer, co-editor of the third of the three-volume *The Reception of Charles Darwin in Europe*, discusses how European responses to Darwin have shed new light on the works of Samuel Butler who wrote an appreciative early review of Darwin's *Origin of Species* entitled *Darwin Among the Machines*.

Talk, Ages 15+



3.30pm – 4.30pm

Falling foul of natural selection: Samuel Butler and the Darwins

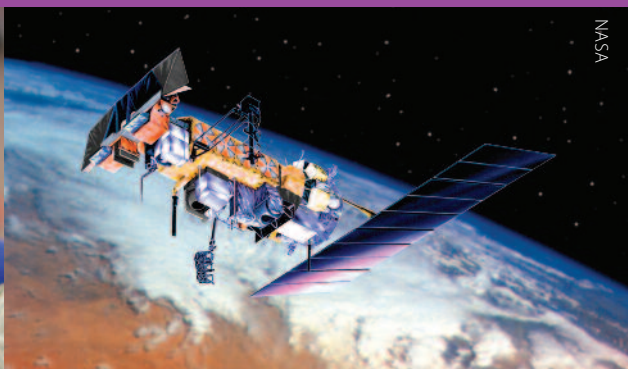
Fisher Building

Alison Pearn, Associate Director of the Darwin Correspondence Project, looks at the letters exchanged by Charles Darwin and Samuel Butler, and charts the disintegration of their relationship from a shared spirit of intellectual enquiry to a state of conflict.

Talk, Ages 15+



SIR CAM



NASA

9.30am – 10.45am, 11am – 12.15pm,
1pm – 2.15pm, 2.30pm – 3.45pm

STEM Team East present spinning makes the world go round!

St. Columba's Church Hall, Downing Street

Learn why yo-yos spin up and down, spinning tops precess, water vortex in a plug hole and what these have to do with MRI scans, black holes and satellite orbits around the Earth.

Map: 35, Hands on, Ages 5+, Pre book*

10am – 4pm

Qualcomm: augmented reality and applications of mobile devices

University Centre, Granta Place

Come and join technologists from Qualcomm and explore augmented reality applications on tablets and mobile devices. Augmented reality lets you see the world around you through a 'magic lens' that reveals surprising, fun and interesting content.

Map: 28, Hands on, Drop in, Ages 9+

10am – 4pm

Hovermagic

University Centre, Granta Place

The Department of Engineering invites you to learn how to make a hovercraft move by making a working model. Will it go? Will it travel in a straight line? How fast can you make it go?

Map: 28, Hands on, Drop in, All ages

11am – 1pm

Dancing to letters

Mill Lane Lecture Rooms, Mill Lane

Kate Mummery (Rambert Dance Company) and Professor Nicky Clayton (Company's Scientist in Residence) incorporate biology into dance.

Map: 27, Performance, Ages 8+

The Pitt Building

Map: 26, Hands on, Drop in, All ages (unless otherwise stated)

10am – 4pm (Drop in) 11am – 11.45am,
1pm – 1.45pm, 3pm – 3.45pm (Talks)

The What on Earth? Wallbook of Natural History

Join Christopher Lloyd on a whistle-stop tour through the history of life on Earth using a coat of many pockets and a giant wallbook with more than 1,000 species on a four billion year timeline!

10am – 4pm

The compute continuum

Join Intel for an exciting array of demos to show what computing technologies can really do. Get involved with augmented reality, learn about eco computing and have loads of fun with some of the most advanced technology!

12noon – 4pm

Hands on maths fair

Games and puzzles from the Millennium Mathematics Project. Pit your wits against the SOMA cube, tangrams, auntie's tea cups or giant dominoes, and sharpen your reasoning skills!

Ages 5+

Saturday 17 March pullout: events at a glance

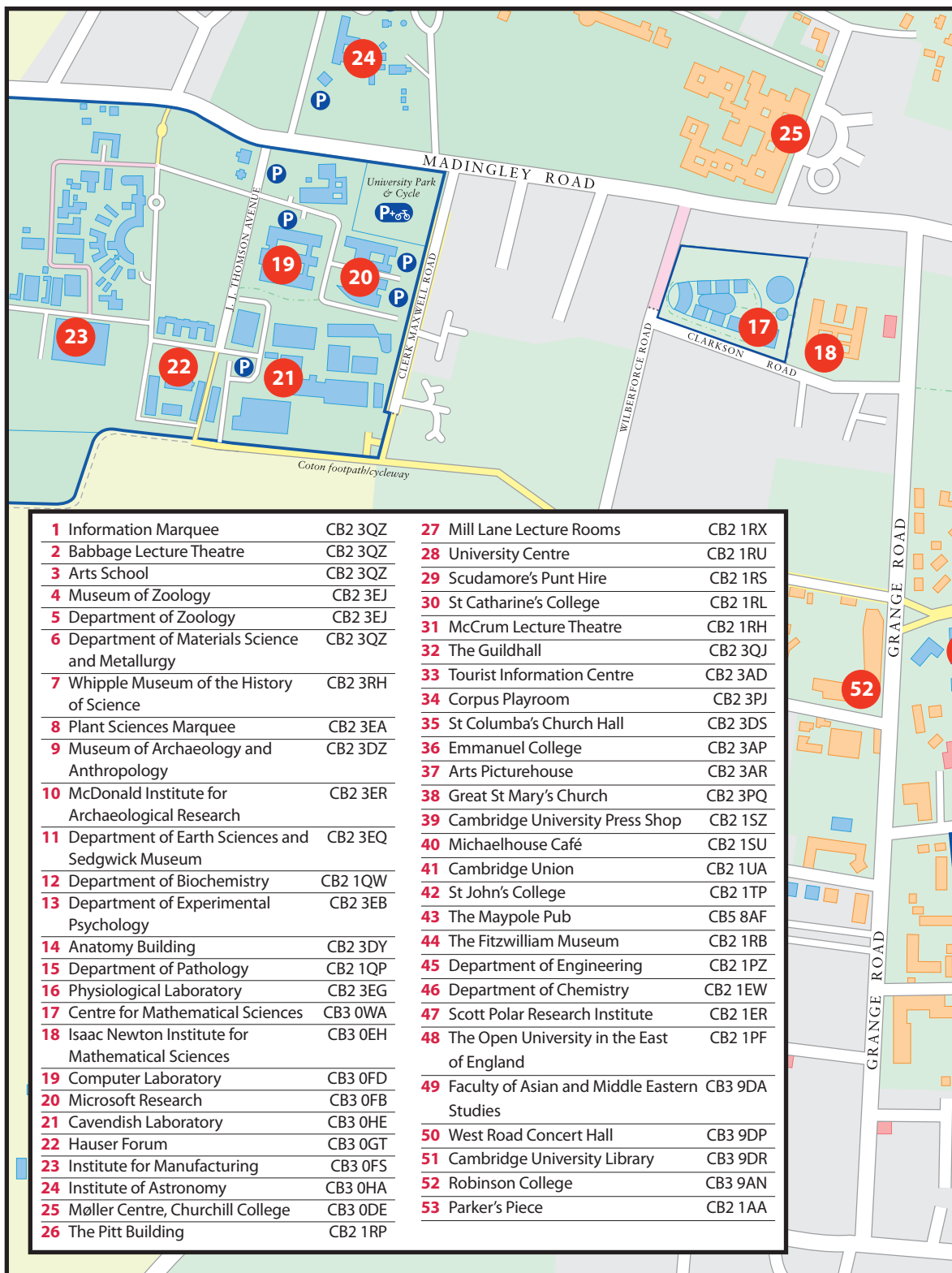
Events open throughout the day, drop in anytime

Time	Event	Type	Age	page
8am – 5pm	Engineering as art	Exhibition	All ages	4
9am – 5.30pm	Charles Darwin Correspondence Project	Exhibition	8+	4
10am – 3pm	The cosmos of your body	Hands on	All ages	16
10am – 3pm	Translational medicine and therapeutics	Hands on	All ages	25
10am – 4pm	Interactive exhibits: Anglia Ruskin University	Hands on	All ages	18-19
10am – 4pm	The objects of science	Hands on	All ages	12
10am – 4pm	Cambridge Science Centre – science hunt	Hands on	All ages	12
10am – 4pm	Biology Zone: multiple exhibitors	Hands on	All ages	14-15
10am – 4pm	Breaking into bloom: the flowering of modern plant sciences	Hands on	All ages	16
10am – 4pm	<i>The What on Earth? wallbook of natural history</i>	Hands on	All ages	20
10am – 4pm	The compute continuum	Hands on	All ages	20
10am – 4pm	Qualcomm: augmented reality and applications of mobile devices	Hands on	9+	20
10am – 4pm	Hovermagic	Hands on	All ages	20
10am – 4pm	Cambridge Buddhist Centre open day	Hands on	All ages	26
10am – 5pm	Crash, Bang, Squelch!	Hands on	All ages	12
10.30am – 12.30pm	Hands on demonstrations (Experimental Psychology)	Hands on	8+	16
10.30am – 3.30pm	Time Truck at the Sedgwick Museum	Hands on	All ages	16
10.30am – 4pm	The science of archaeology	Hands on	All ages	16
10.30am – 5pm	Chemistry Zone	Hands on	All ages	27
11am – 12noon	GetSET	Exhibition	14+	12
11am – 3pm	Don't shoot the messenger (RNA)	Hands on	8+	16
11am – 4pm	Breaking boundaries (Shepreth Wildlife Park)	Hands on/Talk	All ages	9
11am – 4pm	Enter the animal arena	Hands on	All ages	13
11am – 5pm	Evolution: the race to understanding	Exhibition	All ages	19
12noon – 4pm	Hands on maths fair	Hands on	5+	20
2pm – 3pm	GetSET	Exhibition	14+	12
2pm – 4pm	Hands on demonstrations (Experimental Psychology)	Hands on	8+	16
2pm – 4pm	Superconductors: the superheroes of science	Demonstration	12+	13
2pm – 5pm	Seek (Science and Engineering Experiments for Kids)	Demonstration	All ages	13
2pm – 5pm	Explore the world through materials	Demonstration	All ages	13

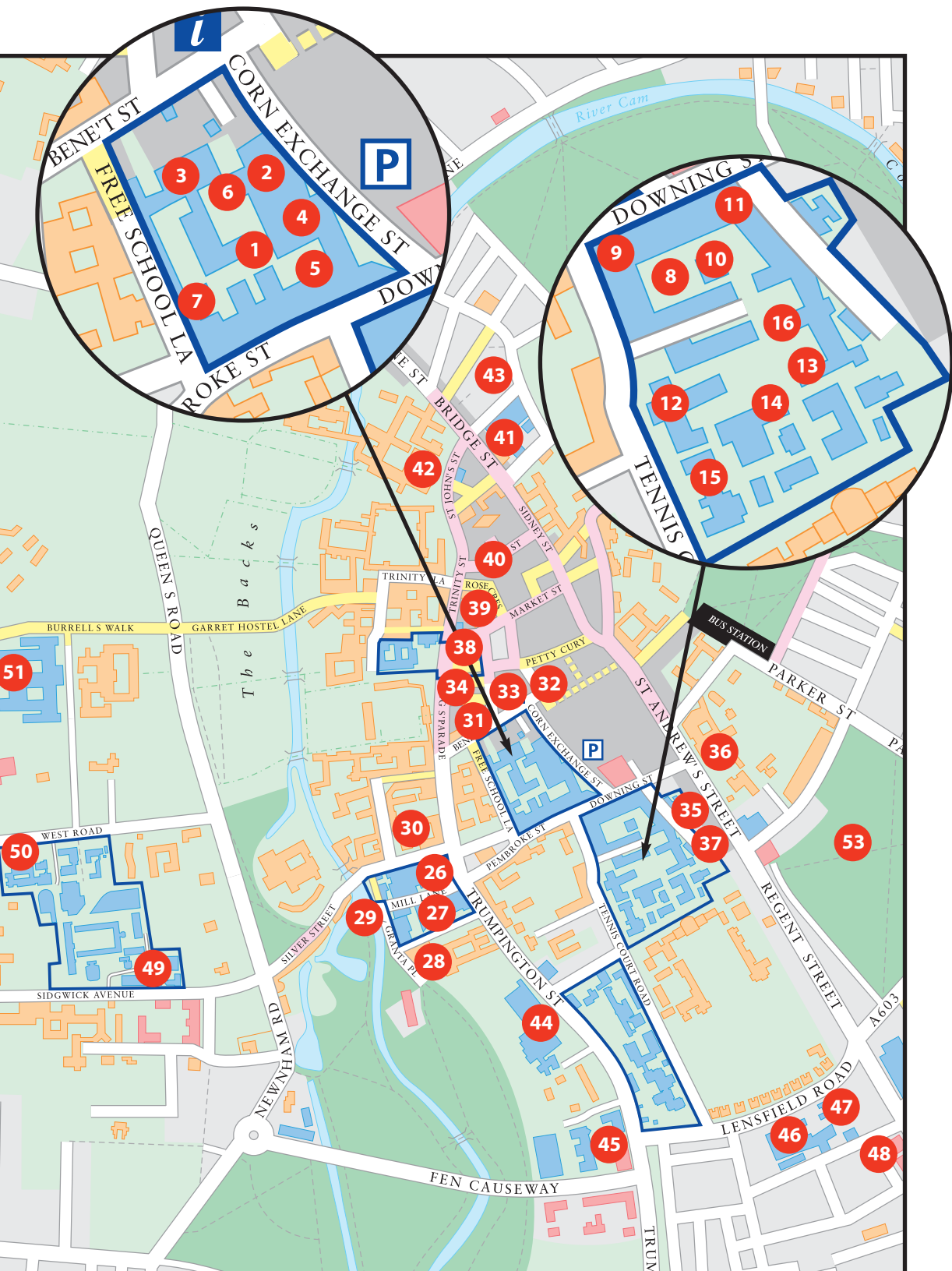
Events with specific start times, please arrive on time

Time	Event	Type	Age	page
9.30am – 10.45am	STEM Team East present spinning makes the world go round!*	Hands on	5+	20
9.45am – 10.15am	CHaOS talks: High voltage science: sparks and more!	Talk	8+	12
10am – 11am	Ten things you didn't know about ice-cream*	Demonstration	8+	13
10am – 11am	Science Junkie – in the zone	Talk	8+	10
10.30am – 11.30am	Human life at the limits – the physiology of exploration	Talk	12+	11
10.30am – 12.30pm	Reaching for gold – a walking tour*	Tour	All ages	25
10.30am – 3pm	Science on ice*	Hands on	5+	26
10.45am – 11.15am	CHaOS talks: What happens if you cut off a blood supply?	Talk	8+	12
11am – 11.45am	<i>The What on Earth? wallbook of natural history</i>	Talk	All ages	20
11am – 11.45am	ThinkCon: Astrobiology – the hunt for alien life*	Talk	12+	25
11am – 12noon	Gambling on the brain	Talk	14+	17
11am – 12noon	Free range chemistry – no added chemicals!*	Demonstration	8+	26
11am – 12.15pm	STEM Team East present spinning makes the world go round!	Hands on	5+	20
11am – 1pm	Dancing to letters	Performance	8+	20
11am – 8pm	ThinkCon (day pass)*	Talks	16+	25
11.30am – 12.30pm	The weird world of really really long molecules*	Talk	8+	10

*indicates events that require pre booking, please check event listing for booking details



1 Information Marquee	CB2 3QZ	27 Mill Lane Lecture Rooms	CB2 1RX
2 Babbage Lecture Theatre	CB2 3QZ	28 University Centre	CB2 1RU
3 Arts School	CB2 3QZ	29 Scudamore's Punt Hire	CB2 1RS
4 Museum of Zoology	CB2 3EJ	30 St Catharine's College	CB2 1RL
5 Department of Zoology	CB2 3EJ	31 McCrum Lecture Theatre	CB2 1RH
6 Department of Materials Science and Metallurgy	CB2 3QZ	32 The Guildhall	CB2 3QJ
7 Whipple Museum of the History of Science	CB2 3RH	33 Tourist Information Centre	CB2 3AD
8 Plant Sciences Marquee	CB2 3EA	34 Corpus Playroom	CB2 3PJ
9 Museum of Archaeology and Anthropology	CB2 3DZ	35 St Columba's Church Hall	CB2 3DS
10 McDonald Institute for Archaeological Research	CB2 3ER	36 Emmanuel College	CB2 3AP
11 Department of Earth Sciences and Sedgwick Museum	CB2 3EQ	37 Arts Picturehouse	CB2 3AR
12 Department of Biochemistry	CB2 1QW	38 Great St Mary's Church	CB2 3PQ
13 Department of Experimental Psychology	CB2 3EB	39 Cambridge University Press Shop	CB2 1SZ
14 Anatomy Building	CB2 3DY	40 Michaelhouse Café	CB2 1SU
15 Department of Pathology	CB2 1QP	41 Cambridge Union	CB2 1UA
16 Physiological Laboratory	CB2 3EG	42 St John's College	CB2 1TP
17 Centre for Mathematical Sciences	CB3 0WA	43 The Maypole Pub	CB5 8AF
18 Isaac Newton Institute for Mathematical Sciences	CB3 0EH	44 The Fitzwilliam Museum	CB2 1RB
19 Computer Laboratory	CB3 0FD	45 Department of Engineering	CB2 1PZ
20 Microsoft Research	CB3 0FB	46 Department of Chemistry	CB2 1EW
21 Cavendish Laboratory	CB3 0HE	47 Scott Polar Research Institute	CB2 1ER
22 Hauser Forum	CB3 0GT	48 The Open University in the East of England	CB2 1PF
23 Institute for Manufacturing	CB3 0FS	49 Faculty of Asian and Middle Eastern Studies	CB3 9DA
24 Institute of Astronomy	CB3 0HA	50 West Road Concert Hall	CB3 9DP
25 Møller Centre, Churchill College	CB3 0DE	51 Cambridge University Library	CB3 9DR
26 The Pitt Building	CB2 1RP	52 Robinson College	CB3 9AN
		53 Parker's Piece	CB2 1AA



Saturday 17 March **pullout: events at a glance**

Time	Event	Type	Age	page
11.45am – 12.15pm	CHaOS talks: Roses are red, violets are blue: a look at colour in the natural world	Talk	8+	12
12noon – 12.45pm	ThinkCon: Experiences of an awkward atheist*	Talk	16+	25
12noon – 1pm	Ten things you didn't know about ice-cream*	Demonstration	8+	13
12noon – 1pm	Ever wanted to DJ?*	Talk	14+	11
12noon – 1pm	Evolution, philosophy and wellbeing: a beginners' guide*	Talk	12+	19
12.30pm – 1.15pm	Science Junkie: extreme sports battle	Demonstration	All ages	11
12.30pm – 1.30pm	Who pulled out the plug?*	Talk	10+	26
1pm – 1.30pm	CHaOS talks: The science of the atmosphere	Talk	8+	12
1pm – 1.45pm	<i>The What on Earth? wallbook of natural history</i>	Talk	All ages	20
1pm – 2pm	ROCKFLUID, the art and science of memory*	Workshop	8+	17
1pm – 2pm	ThinkCon: Believing bull****t*	Talk	16+	25
1pm – 2pm	Dark matters	Talk	8+	10
1pm – 2.15pm	STEM Team East present spinning makes the world go round!*	Hands on	5+	20
1.30pm – 2.30pm	The science of electricity	Talk	14+	11
1.30pm – 2.30pm	Are trees invading the Arctic?*	Talk	10+	26
1.30pm – 2.30pm	Free range chemistry – no added chemicals!*	Demonstration	8+	26
2pm – 2.30pm	CHaOS talks: Sounds like science!	Talk	8+	12
2pm – 2.45pm	Science Junkie: extreme sports battle	Demonstration	All ages	11
2pm – 3pm	Wiping memories to keep addicts clean: the science of addiction and memory	Talk	14+	17
2pm – 3pm	Physiology: shocking, exciting, stimulating	Demonstration	10+	17
2pm – 3pm	Butler among the machines: evolutionary literature and science in Europe, 1859–1902*	Talk	15+	19
2pm – 3.15pm	Religion versus science? Can we live in a world of non-overlapping magisteria*	Talk	18+	3
2.30pm – 3.30pm	Crisp packet fireworks with the Naked Scientists*	Talk	All ages	10
2.30pm – 3.30pm	ROCKFLUID, the art and science of memory*	Workshop	8+	17
2.30pm – 3.45pm	STEM Team East present spinning makes the world go round!	Hands on	5+	20
2.30pm – 4pm	Brain, mind, neurons and free-will	Talk	18+	25
2.30pm – 4pm	Lake Ellsworth Mission*	Talk	10+	26
2.30pm – 4.30pm	Reaching for gold – a walking tour*	Tour	All ages	25
2.45pm – 3.45pm	The evolution of breathing	Talk	8+	11
3pm – 3.30pm	CHaOS talks: Living things: what's inside a cell?	Talk	8+	12
3pm – 3.45pm	<i>The What on Earth? wallbook of natural history</i>	Talk	All ages	20
3.30pm – 4.15pm	Science Junkie: extreme sports battle	Demonstration	All ages	11
3.30pm – 4.30pm	ThinkCon: From the newstands to Twitter: the future of science communication*	Talk	16+	25
3.30pm – 4.30pm	Falling foul of natural selection: Samuel Butler and the Darwins*	Talk	15+	19
4pm – 4.30pm	CHaOS talks: Gases: just a load of hot air?	Talk	8+	12
4pm – 5pm	BioPunk book launch*	Talk	14+	11
4pm – 5pm	Learning from the best: mimicking nature's materials	Talk	12+	13
4pm – 5pm	Free range chemistry – no added chemicals!*	Demonstration	8+	26
4pm – 5pm	In conversation with Alan Moore*	Talk	18+	3
4pm – 5pm	Open your mind with the Naked Scientists*	Talk	All ages	10
4.30pm – 5.30pm	Physiology, the shocking truth	Talk	15+	17
5pm – 5.45pm	ThinkCon: Free radicals – the secret anarchy of science*	Talk	16+	25
6pm – 6.30pm	ThinkCon: It is rocket science*	Talk	16+	25
6pm – 7.30pm	<i>Marconi: The Radio Wave Magician</i> (PG)*	Film	All ages	26
6.45pm – 7.45pm	ThinkCon: Paranormality*	Talk	16+	25
7.30pm – 11pm	Festival of the Spoken Nerd: breaking boundaries*	Performance	18+	3



ANNA BETTS



SIRCAM



ANDREW HOLDING

McCrum Lecture Theatre

St Bene't Street

Map: 31, Talk, Ages 16+, Pre book tel: 07595 666459, email: andy@thinkoutreach.org, £6

11am – 8pm

ThinkCon

Back for 2012, ThinkCon is a day of talks aimed at adults and older teens covering science and the arts. All the talks are free and open to anyone at the Cambridge Science Festival. Please feel free to pick and choose what interests you. If you do want to come for the day the ticket covers the cost of a light lunch and tea.

Talks are as follows:

11am – 11.45am, 'Astrobiology – the hunt for alien life.' With Dr Lewis Dartnell. Ages 12+

12noon – 12.45pm, 'Experiences of an awkward atheist.' With Iszi Lawrence. Ages 16+

1pm – 2pm, 'Believing bull***t.' With Stephen Law. Ages 16+

3.30pm – 4.30pm, 'From the newstands to Twitter: the future of science communication.' With Jane Gregory, Martin Robbins, and David Waterhouse. Ages 16+

5pm – 5.45pm, 'Free radicals – the secret anarchy of science.' With Michael Brookes. Ages 16+

6pm – 6.30pm, 'It is rocket science.' With Helen Keen. Ages 16+

6.45pm – 7.45pm, 'Paranormality.' With Richard Wiseman. Ages 16+

10am – 3pm

Translational medicine and therapeutics

St Catharine's College, Trumpington Street

MPhil students from the TMat course will demonstrate how new medicines are discovered and translated from the laboratory as well as providing informative informal discussion stations.

Map: 30, Hands on, Drop in, All ages

10.30am – 12.30pm, 2.30pm – 4.30pm

Reaching for gold – a walking tour

Tour will commence outside the Tourist Information Centre, Peas Hill

In this Olympic year come on a walk with the Science Guides and hear all about Cambridge's medal winning scientists, titanic struggles with the Americans, the sprinting lords who took on Great Court and the 100 year old mathematician who ran from Cambridge to Ely (and back) daily.

Map: 33, Tour, All ages, Pre book*

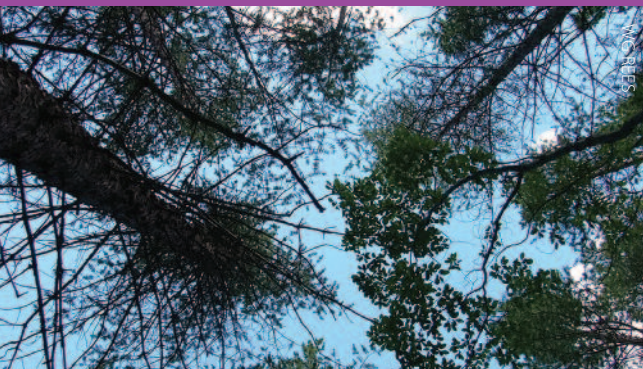
2.30pm – 4pm

Brain, mind, neurons and free-will

Emmanuel College, St Andrew's Street

A panel event chaired by Dr Denis Alexander, Director of The Faraday Institute for Science and Religion. Four distinguished neuroscientists, including Dr Alasdair Coles and Professor Raymond Tallis answer questions such as: do I have real free-will? What's the point of being conscious of things? Is there a God spot in my brain? How do brain and mind relate to each other?

Map: 36, Talk, Ages 18+



MOORES



BRITISH ANTARCTIC SURVEY

6pm – 7.30pm

Marconi: The Radio Wave Magician (PG)

La Dante in Cambridge, Hills Road, CB2 1LA
A film about the youth of Guglielmo Marconi, the discoverer of radio waves. This film documentary is a homage from the world of communication to the great scientist. Over 10 years the Academy of Lincei brought to light the papers the scientist preserved which had led to his discovery.

Map: N/A, Film, All ages, Pre book tel: 01223 315191 or email: info@ladante-in-cambridge.org, £3

10am – 4pm

Cambridge Buddhist Centre open day

Cambridge Buddhist Centre, Newmarket Road, CB5 8DT

The Cambridge Buddhist Centre open day includes opportunities to try meditation, find out more about Buddhism, take a tour of the Festival Theatre and listen to a talk on the boundaries between science and Buddhism from 10.30am to 11.30am for ages 18+.

Map: N/A, Hands on, Drop in, All ages

The Scott Polar Research Institute

Lensfield Road

Map: 47, Talk, Ages 10+, Pre book

tel: 01223 336540 or email:

enquiries@spri.cam.ac.uk (unless otherwise stated)

10.30am – 3pm

Science on ice

Meet polar scientists. Learn about research taking place in the polar regions – under water, under ground, on ice and in the air. Explore the British Antarctic Survey modern field camp display and find out what it's like living and working in Antarctica.

Hands on, Ages 5+

12.30pm – 1.30pm

Who pulled out the plug?

Something is causing dramatic drainage of surface lakes on the Greenland ice sheet – what's the secret? With Dr Ian Willis.

1.30pm – 2.30pm

Are trees invading the Arctic?

Beware – trees are on the move – find out how, where and why. With Dr Gareth Rees.

2.30pm – 4pm

Lake Ellsworth Mission

Will we find signs of life in a sub-glacial lake, buried beneath 3km of ice and untouched for up to half a million years? A member of the Lake Ellsworth Mission team gives an insider's view of the project.

Chemistry Zone

in the Department of Chemistry, Lensfield Road

Supported by the Walters Kundert Charitable Trust

10.30am – 5pm

Map: 46, Hands on, Drop in, All ages

For further information on all activities visit: www.openday.ch.cam.ac.uk

A map and guide to all the activities in the Department of Chemistry will be available on the day from the main reception area outside the BMS Lecture Theatre.

Entry to all of the lectures by Dr Wothers will be ticket only due to safety regulations. The tickets are free and can be booked in advance by telephone (01223 336300) Monday to Friday 9am – 5pm, fax (01223 336362) or email (openday@ch.cam.ac.uk). Ticket requests made after 4.30pm on Friday 16 March will not be processed. Unallocated tickets and those not collected 15 minutes before the lecture begins will be available on a first come, first served basis. In addition seats not taken 5 minutes before the lecture begins will also be filled so even if you have a ticket please make sure you arrive on time or you may not be allowed entry.

For further information on all activities visit: www.openday.ch.cam.ac.uk

Chemistry in action

Put on a lab coat, safety glasses and gloves and have fun with real chemistry in a real laboratory. Turn coins gold and discover how to make green slime, nylon and crystals. Learn how to isolate strawberry DNA or sequence proteins and experience the legendary slime pond. Students and researchers from all areas of chemistry will be on hand to help and inform.

Chemistry: designs for life – Royal Society of Chemistry

Prepared to get your hands dirty? Don your goggles and come along to the Royal Society of Chemistry stand to get involved in some weird and wonderful experiments and learn some chemistry whilst you are at it.

11am – 12noon, 1.30pm – 2.30pm, 4pm – 5pm

There will be additional shows on 18 March, 2pm – 3pm and 19 March, 7pm – 8pm

Free range chemistry – no added chemicals!

Many people associate the word ‘chemicals’ with evil, man-made substances. This action-packed demonstration lecture features flashes and bangs made only from the chemicals that can be found in nature, illustrating the fact that our whole world is made of chemicals. How can copper be extracted from a semiprecious stone? What acid can be made from fools’ gold? How can the scrapings from the walls of a cow shed cause an explosion? All these questions and more will be answered in this talk by Dr Peter Wothers.

Warning: loud bangs and explosions!

Demonstration, Ages 8+, Pre book tel: 01223 336300 or email: openday@ch.cam.ac.uk





Chris Bishop



JASON HUDSON

Dave Ansell



IDIL SUKAN/DRAW HQ

Helen Arney

10am – 4pm (Drop in)

11am – 11.45am, 1pm – 1.45pm, 3pm – 3.45pm (Talks)

The What on Earth? Wallbook of Natural History

The Arts School, New Museums Site

Join Christopher Lloyd on a whistle-stop tour through the entire history of life on Earth using a handful of everyday objects, a coat of many pockets and a giant wallbook with more than 1,000 species on a four billion year timeline!

Map: 3, Talk/Hands on, All ages

11am – 12.45pm, 1pm – 2.45pm, 3pm – 4.45pm

Heroes and villains of the high seas **Scudamore's Punt Hire, Mill Lane**

Join science-songstress-turned-mermaid Helen Arney and aquatic rabble-rouser and protest singer Olly the Octopus in an ocean adventure!

Meet the real heroes and villains of the seas, from super-cool arctic cod to stinging jellyfish. Sing along with sea shanties and other watery songs to find out about ocean life and the delicate ecosystems that thrive under the surface. Don't forget your fins!

Map: 29, Tour/Hands on, All ages, Pre book*

Join Scudamore's Punting Company each Friday evening between 18 May and 4 September for a 90 minute punting bat safari towards Grantchester Meadows. Tel: 01223 359750 or visit: www.scudamores.com for more information. Self-hire season tickets are also available.

The Babbage Lecture Theatre

New Museums Site

Map: 2, Talk, All ages (unless otherwise stated)

11am – 12noon

Great ideas of computer science

Using simple demonstrations, Professor Chris Bishop from Microsoft Research explores the fascinating world of computer science and uncovers some of the great ideas behind the digital revolution.

12.30pm – 1.30pm

The alien hunter's handbook

Join Mark Brake as he gives a fun, quirky, and playful guide to alien life which answers questions like: What is life? Where is life? When was life?! How would we talk to aliens? And have aliens ever visited planet Earth?

3pm – 4pm

Dave Ansell's lemonade laboratory

Have you ever wondered why science demonstrations always involve lemonade bottles? Join Dave Ansell (CHaOS and Naked Scientists) as he shows off his favourite experiments in a lemonade bottle.

Ages 12+

6pm – 7pm

Festival choral evensong

Great St Mary's Church, Senate House Hill

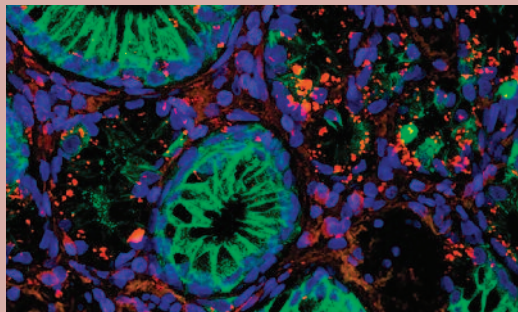
A traditional service of choral evensong according to *Book of Common Prayer* 1662; Preacher: Professor Adrian Dixon, Master of Peterhouse and Honorary Consultant Radiologist.

Map: 38, Service, All ages

Biology Zone at the Arts School

11am – 3pm

Map: 3, Hands on, Drop in, All ages (unless otherwise stated)



The race to beat cancer – it's a marathon, not a sprint!

Hutchison/MRC Research Centre

Journey through your blood vessels

Division of Cardiovascular Medicine

You don't have to be an athlete to be active!

MRC Epidemiology Unit

Getting to the heart of healthy ageing

Babraham Institute

See your cells!

MRC Laboratory of Molecular Biology and the Microscopes4Schools project
Ages 8+

Antibodies for sending signals through cell barriers

MedImmune

How do we get energy out of food?

MRC Mitochondrial Biology Unit

A journey to health

MRC Human Nutrition Research

Fascinating fat: it's not all bad news

Metabolic Research Laboratories

Ages 8+

The EPIC bone of contention: how to grow up healthily

European Prospective Investigation of Cancer

Society of Biology

Society of Biology

The wonders of biostatistics

MRC Biostatistics Unit

Dynamic DNA

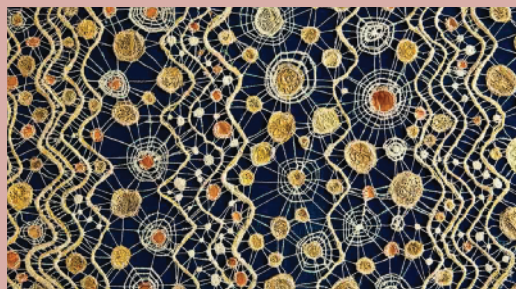
European Bioinformatics Institute and Wellcome Trust Sanger Institute

Can you pipette more accurately than our scientists?

Cancer Research UK Cambridge Research Institute

Protein art – in thread and ink

Jenny Langley



JENNY LANGLEY

Pick up a map at the Biology Zone welcome desk on the day to find your way around. For event descriptions see pages 14 – 15.

Throughout the Festival



11am – 3pm, 17 March, 6pm – 8pm, 24 March

Global health hack day

ideaSpace, Hauser Forum, Charles Babbage Road

On 17 March NGOs and social enterprises will present problems in international health and development, giving teams of students and researchers a week to find an innovative, viable solution. On 24 March teams will present their solutions to a panel of judges. Winners will have the chance to see their innovation adopted into practice by the participating NGOs.

Map: 22, Talk, Ages 16+, Pre book visit: globalhealthhackday.eventbrite.co.uk

10.30am – 12.30pm, 2.30pm – 4.30pm,
18, 24 March

10.30am – 12.30pm, 19, 21, 23 March

Reaching for gold – a walking tour

Tourist Information Centre, Peas Hill

In this Olympic year, walk with the Science Guides to hear about Cambridge's medal winning scientists. Full event description, see page 25.

Map: 33, Tour, All ages, Pre book*

9.45am – 12noon, 12.30pm – 2.45pm,
19 – 23 March

Primary rocket launchpad

Department of Engineering, Trumpington Street
Design and build a rocket launchpad. Can teams build a structure to support the rocket launcher? Who can build the cheapest, lightest structure to do the job? As a finale, we make rockets and launch them using compressed air. A well made rocket will go the height of our building!

Map: 45, Schools workshop only, Ages 8+,
Pre book visit: www.stemteameast.org.uk

5.15pm – 6.30pm, 19 March

John Gould's illustrated bird books

Cambridge University Library, West Road

John Gould (1804–1881), ornithologist, author and taxidermist was responsible for the production of some of the most lavishly illustrated books on birds ever produced. This is a rare opportunity to see and hear about a selection of these extraordinary and beautiful books from the Rare Books Department.

Map: 51, Talk/Exhibition, Ages 12+, Pre book*

7pm – 8pm, 19 March

Plants for the future

Sainsbury Laboratory, Bateman Street, CB2 1LR

Plants act as solar powered chemical factories. We depend on them for our food, and increasingly for many other products as we look to replace fossil fuels. In this lecture Professor Ottoline Leyser, Associate Director of the Sainsbury Laboratory explores how can we most effectively and sustainably harness the power of plants.

Map: N/A, Talk, Ages 16+, Pre book*

7.30pm – 8.30pm, 19 March

Resource constraints, economic growth and the future of society

Anglia Ruskin University, East Road, CB1 1PT

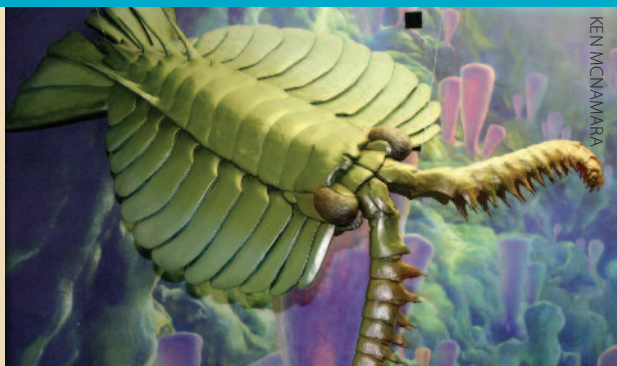
Join Aled Jones to explore: how do limits in the availability of certain resources impact on governments and business and what does this potentially mean for society, our pensions and our savings?

Map: N/A, Talk, Ages 14+

Throughout the Festival



SIR CAM



KEN MCNAMARA

7.30pm – 9pm, 19 March

Radio Stars: dramatising astronomy

Institute of Astronomy, Maddingley Road

Playwright Steve Waters talks about his new play written during his time as Associate Artist at the IOA. The play dramatises the clash between astronomer Fred Hoyle and radio astronomer Martin Ryle over the nature of the universe. The event will mix extracts from the play with Waters talking about his writing process. In association with Birmingham Repertory Theatre
Map: 24, Performance/Talk, Ages 14+, Pre book*

2pm – 3pm, 20 March

Space, time and philosophy

Whipple Museum of the History of Science, Free School Lane

What is space? What is time? Do they have the same properties? Could we imagine anything outside of space and time? We will explain how physics and philosophy can shed some light on these questions.

Map: 7, Talk, Ages 12+, Pre book tel: 01223 330906 or email: hps-whipple-museum@lists.cam.ac.uk

6pm – 7pm, 20 March

How to engineer intelligence

Mill Lane Lecture Rooms, Mill Lane

Imagine machines that can 'talk' to humans, 'understand' what we mean, and 'comprehend' the visual world around all of us. David Barber will discuss biological inspirations for the reverse engineering of intelligence and the fundamental challenges that lie ahead.

Map: 27, Talk, Ages 14+

6pm – 7pm, 20 March

Light, clocks and sleep: the discovery of a new photoreceptor within the eye

Babbage Lecture Theatre, New Museums Site

Professor Russell Foster looks at how new research into photoreceptive cells in the retina that regulate a broad range of behaviour and physiology has redefined our understanding of vision and the nature of blindness.

Map: 2, Talk, Ages 16+

6.30pm – 7.30pm, 20 March

The hitchhikers' guide to the last 3.5 billion years

Department of Earth Sciences and Sedgwick Museum, Downing Street

Join Dr Ken McNamara, Director of the Sedgwick Museum, for a roller-coaster ride through the whole history of life on Earth and find out how recent fossil discoveries have changed our understanding of the evolution of living things.

Map: 11, Talk, Ages 12+, Pre book*

7pm – 9pm, 20 – 24 March

The Observatory Pinafore

Corpus Playroom, St Edward's Passage

What happens when a sinister group of men from a rival institution plot to steal Harvard's star star observer? Travel back in time to meet squabbling scientists and malfunctioning instruments in this reworking of a classic operetta. www.observatorypinafore.co.uk

Map: 34, Performance, Ages 12+, Pre book visit: www.corpusplayroom.com/shows/show/1201, £6/£5

Throughout the Festival



GAETAN LEE



BIBLIOTHEQUE NATIONALE, PARIS

7.30pm – 10pm, 20 March

The late night lab

The Pitt Building, Trumpington Street

A little wine, a little cheese, and a whole lot of science. A hands on science event for adults. Brought to the Festival in partnership between the Cambridge Science Centre and the CHaOS Science Roadshow. More details at: www.cambridgesciencecentre.org

Map: 26, Hands on, Ages 18+, Pre book tel: 01223 300085 or visit: www.adcticketing.com, £5 (includes a drink), unsold tickets available on the door for cash

8pm – 9pm, 20 March

Designer athletes: fair play or foul?

Mill Lane Lecture Rooms, Mill Lane

The Physiological Society invites you to discuss this controversial question and the science behind it with Steve Ingham, English Institute of Sport; Steve Haake, Sheffield Hallam University; and other panellists from the world of sports. Tell us what shape you think our future sporting champions should be in.

Map: 27, Talk, All ages, Pre book email: lcrane@physoc.org

1.05pm – 1.55pm, 21 March

The 'science' of Taoism

Faculty of Asian and Middle Eastern Studies, Sidgwick Avenue

Part of an ongoing series entitled 'Face to Faith' in which we seek to present something of the cultural identity of the many belief systems in the world, and so celebrate our diversity.

Map: 49, Talk, Ages 10+, Pre book tel: 01223 741718 or email: chaplain@gsm.cam.ac.uk

6pm – 7pm, 21 March

Great discoveries in medicine

Mill Lane Lecture Room, Mill Lane

Join Helen and William Bynum as they explore the great discoveries which have helped and healed. Each is a powerful story. From dissection to DNA, understanding health and disease in diverse cultures, devising the tools of the trade, developing drugs, vaccines and successful surgery all make up medicine's past and comment on its present.

Map: 27, Talk, Ages 14+

7.30pm – 8.30pm, 21 March

The final push: preparing an athlete for an Olympic or Paralympic Games

Anglia Ruskin University, East Road, CB1 1PT

Dan Gordon explores the preparation strategies employed by athletes in the final months leading up to the Olympic and Paralympic Games in order to optimise performance. We will consider physiological and psychological athlete preparation and the role of 'Secret Squirrels'.

Map: N/A, Talk, Ages 14+

8pm – 9pm, 21 March

The seven deadly sings

CB2 Café, Norfolk Street, CB1 2LD

Musical comedian Ashley Frieze presents his grand unified theory of song. Taking ideas from neuroscience, evolutionary psychology and Elton John, this comic presentation claims there are only seven songs.

Map: N/A, Performance, Ages 16+, Pre book tel: 07889 176050 or visit: www.wegottickets.com/event/144112

Throughout the Festival



SIR CAM



BRITISH ANTARCTIC SURVEY

5pm – 6pm, 22 March

WiSETI annual lecture 2012

Robinson College, Grange Road

The 2012 speaker is Professor Carol Robinson FRS, a distinguished British chemist whose research looks at the development of mass spectrometry as a tool used for investigating the structure and dynamics of protein complexes. She is also a mentor for women pursuing careers in science.

Map: 52, Talk, All ages, **Pre book email:** equality@admin.cam.ac.uk

6pm – 7pm, 22 March

Illicit antiquities, immoral antiquities: what they are and why they matter

Museum of Archaeology and Anthropology, Downing Street

Some of the most thrilling new discoveries have not come from excavations. Instead they have just 'surfaced', appearing in museums, auction houses, or antique dealers' stock without any account of where in the world they were found. Explore what has been happening and why it matters to Dr Christopher Chippindale and Christos Tsirogiannis.

Map: 9, Talk, Ages 14+, **Pre book tel:** 01223 764769 or email: sarah-jane.harknett@maa.cam.ac.uk

6pm – 7pm, 22 March

Successful science communication

Mill Lane Lecture Rooms, Mill Lane

Why do so many scientists still find it difficult to communicate what they do? Dr David Bennett gives an insight into why, while some become media celebrities, others are still hesitant and the many successful ways they can do it.

Map: 27, Talk, Ages 14+

5.30pm – 6.45pm, 22 March

Big picture polar principles: putting the science into the BBC hit series

Frozen Planet

The Open University in the East of England, Hills Road

The Open University was a production partner on the hit series *Frozen Planet*. Here, Dr Mark Brandon of The Open University will talk about his work over the last four years getting the science behind the ice, penguins and bears into the front line of nature programming and science outreach.

Map: 48, Talk, Ages 16+, **Pre book tel:** 01223 364721 x 66147 or email: R06-Outreach@open.ac.uk

The Open University talk will finish in plenty of time for those attending to make the 5 minute walk to the Scott Polar Research Institute to listen to the talk below.

7pm – 8.30pm, 22 March

Extreme science: Scott's British Antarctic Expedition

Scott Polar Research Institute, Lensfield Road

Would you take a journey to the coldest place on earth, camp on the ice, walk through blizzards and climb volcanoes for science? Find out more about the science of Scott's last expedition to Antarctica.

Map: 47, Talk, Ages 14+, **Pre book tel:** 01223 336562 or email: enquiries@spri.cam.ac.uk

Throughout the Festival



Simon Singh



SIR CAM

7pm – 9pm, 22 March

Look what chemistry has done for me

The Royal Society of Chemistry, Milton Road, CB4 0WF

Talks from a range of people working in the chemical industry with opportunities for networking with both speakers and representatives from the RSC Local Section. Buffet provided. Event supported by RSC ChemNet: www.rsc.org/chemnet

Map: N/A, Talk, Ages 16+, Pre book tel: 01223 420066 or email: events@rsc.org

8pm – 9pm, 22 March

Alan Turing and the Enigma cipher

Babbage Lecture Theatre, New Museums Site

In the centenary year of Alan Turing's birth, Simon Singh discusses the German Enigma cipher machine and how it was cracked by Alan Turing and the other codebreakers at Bletchley Park during the Second World War. The lecture will include a demonstration of a genuine working Enigma machine.

Map: 2, Talk, Ages 14+, Pre book*

2pm – 4pm, 23 March

Conservation and care: behind the scenes at The Fitzwilliam Museum

The Fitzwilliam Museum, Trumpington Street
Join collection staff for a unique behind the scenes insight into how the museum undertakes the day to day care of its valuable collection, discovering how the museum tackles such problems such as pest attacks.

Map: 44, Tour, Ages 18+, Pre book tel: 01223 332904 or email: fitzmuseum-education@lists.cam.ac.uk

4pm – 5pm, 23 March

Finding the right balance: from rare gases to rotary motors

Department of Chemistry, Lensfield Road

In this lecture, in memory of Alex Hopkins, Professor Carol V Robinson will chart the history of this mass spectrometry from the earliest mass spectrometers designed in Cambridge to measure rare gases through to their modern day counterparts used in the lab.

Map: 46, Talk, Ages 10+, Pre book tel: 01223 336339 or email: slb61@cam.ac.uk

5pm – 7pm, 23 March

(Exhibition opens on 22 March)

Understanding the Earth – archival evidence

Sedgwick Museum of Earth Sciences, Downing Street

The Museum archive holds over 800 boxes of materials relating to the history of earth science dating back to the 17th century. View this new exhibition of documents and images and talk to Sandra Marsh, the archivist responsible for this fascinating collection.

Map: 11, Exhibition, Ages 12+

6pm – 7pm, 23 March

Music at the Whipple

Whipple Museum of the History of Science, Free School lane

Come to the Museum to enjoy a theremin concert performed by Charlie Draper, one of the UK's few classically-trained thereminists.

Map: 7, Talk, Ages 12+, Pre book tel: 01223 330906 or email: hps-whipple-museum@lists.cam.ac.uk

Throughout the Festival



Alastair Fothergill



Andrew Holding

6pm – 7.30pm, 23 March

Frozen Planet: the making of a landmark wildlife documentary

Department of Chemistry, Lensfield Road
In this highly-illustrated lecture, Alastair Fothergill, Honorary President of South Georgia Heritage Trust and Executive Producer at the BBC, will tell the epic story behind the making of the series *Frozen Planet*. Proceeds will support the Trust's conservation work on South Georgia.

Map: 46, Talk, All ages, Pre book visit: www.sght.org. Early bird offer – until 29 February £10, £8 concessions, £5 children, £20 family ticket. From 1 March £12.50, £9 concessions, £6 children, £25 family ticket

7.30pm – 11pm, 23 March

Science showoff

The Portland Arms, Chesterton Road, CB4 3BA
Science Showoff is a new idea from the people who brought you *Bright Club* and *The Geek Calendar*. Join them for an evening of performance and relaxed discussion. Email: info@scienceshowoff.org to chat about it.
Map: N/A, Demonstration, Ages 16+

7.30pm – 9.30pm, 23 March

Chemistry in competition – what makes a medal-winning wine?

Department of Chemistry, Lensfield Road
Event organised and sponsored by the Royal Society of Chemistry and the Society of Chemical Industry. Luke Webster will describe the science behind prize-winning wines using experience he gained judging at International Wine Challenge (IWC) events. He will describe different approaches and developments in wine making, with special reference to the underlying scientific principles of chemistry and perception.
Map: 46, Talk, Ages 18+, Pre book email: john.otoole9@btopenworld.com, £10

10am – 11am, 25 March

Evolution revolution

Madingley Hall, Madingley, CB23 8AQ
Learn how natural selection explains the origin of adaptation in living organisms and discover the roles that sexual and kin selection play in the evolutionary process. Dr Ed Turner will explore the recent revolution in thinking about evolutionary biology.
Map: N/A, Talk, Ages 14+, Pre book tel: 01223 746212 or visit: www.ice.cam.ac.uk/sciencefestival

4.30pm – 5.30pm, 23 March

Gastronaut Live – the wildest food show in the world

Babbage Lecture Theatre, New Museums Site

Stefan Gates (BBC1's *Food Factory*, CBBC's *Gastronuts*) blows your mind with the world's wildest, most explosive food stunt show. Mixing science and cooking, Stefan performs food-flame throwing, fire extinguisher cheese-freezing and conducts a vegetable orchestra. If you're lucky you'll try roasted insects, jellyfish salad and bum sandwiches.
Map: 2, Talk, Ages 8+, Pre book*



Throughout the Festival



11am – 3.30pm, 25 March

Explore boundaries in the natural world at Wandlebury

Wandlebury Country Park, Wandlebury, CB22 3AE

Explore how plants and animals break boundaries and try breaking some boundaries yourself! See how fast you can run the orienteering string course, and find out more about the plants and animals in Wandlebury's habitats. Meet amphibians, look at aquatic life under the microscope, and dissect owl pellets. **Map: N/A, Hands on, Drop in, All ages**

11.15am – 12.15pm, 25 March

Schrödinger's cat repackaged

Madingley Hall, Madingley, CB23 8AQ

Can a cat hidden in a box be simultaneously alive and dead? Emily Caddick suggests a new account of how to understand Schrödinger's infamous thought-experiment, used to illustrate the paradoxes of quantum mechanics.

Map: N/A, Talk, Ages 14+, Pre book tel: 01223 746212 or visit: www.ice.cam.ac.uk/sciencefestival

12.30pm – 1.30pm, 25 March

Deconstructing structures

Madingley Hall, Madingley, CB23 8AQ

From steel and concrete to silicon chips and liquid crystals, materials science has given us the building blocks of technology. Dr Erica Bithell will take a look at the extraordinary microscopic structures inside some everyday materials.

Map: N/A, Talk, Ages 14+, Pre book tel: 01223 746212 or visit: www.ice.cam.ac.uk/sciencefestival

1pm – 3pm, 25 March

Twisters and spirals

Kettle's Yard, Castle Hill, CB3 0AQ

Join artist Lara Jones for an introduction to kinetic sculpture in the permanent collection at Kettle's Yard, followed by an opportunity to make your own mobile.

Map: N/A, Workshop, All ages, Pre book tel: 01223 748100 or email: mail@kettlesyard.cam.ac.uk

2pm – 5pm, 25 March

What shall we do with the rubbish?

Cambridge Museum of Technology, Riverside, CB5 8LD

Follow our family trail and activities to discover how 19th century engineers employed technology to overcome the perennial problem of mounting piles of rubbish and in the process made Cambridge safer and more pleasant.

Map: N/A, Hands on, Drop in, Ages 5+, Admission charges apply

7.30pm – 11pm, 25 March

Ping, plunk, twang – why do musical instruments make different sounds?

CB2 Café, Norfolk Street, CB1 2LD

Portland Folk Club presents a talk and concert exploring the acoustic properties of stringed instruments. Professor Jim Woodhouse will discuss how instrument makers control the tone and loudness of their products. Cellist Anna Bull and guitarist/banjoist/fiddler/singer Robin Gillan will play traditional English and American songs.

Map: N/A, Performance, Ages 18+, Pre book: www.wegottickets.com/event/144286, unsold tickets £5 on the door

Mathematics Zone at the Centre for Mathematical Sciences

12noon – 4pm (unless otherwise stated)

Map: 17, Hands on, Drop in

Hands on maths fair

Hands on mathematical activities, games, puzzles and problem-solving challenges. From teddies to teacups, giant dominoes, the SOMA cube, prime hopscotch and calculus countdown: this is maths but not as you know it... Organised by the University's Millennium Mathematics Project and Cambridge Maths Circle.

Ages 5+



SIR CAM

Maths of sport pentathlon

Explore some of the maths hidden in the Olympic and Paralympic Games! Challenge yourself to complete the maths of sport pentathlon, a series of hands on mathematical activities focusing on Olympic and Paralympic sports and infrastructure. Plus you can find our free online resources on Maths and Sport at <http://sport.maths.org>

Ages 12+

12.30pm – 1.30pm

How fast can Usain Bolt run?

How could Usain Bolt improve his world 100 metres sprint record significantly without improving his speed? How fast should he be able to run? Professor John Barrow FRS answers these and other questions in this talk, which also looks at the mechanics of sprinting and the effects of wind assistance, timing accuracy and altitude on sprint times.

Ages 15+

at the Isaac Newton Institute for Mathematical Sciences

2pm – 3pm

Map: 18, Talk, Ages 8+

Pre book tel: 01223 335983 or email: s.wilkinson@newton.ac.uk

Murderous Maths with Kjartan Poskitt

Ever wondered how to make your birthday twice as long or how to cut something in half but keep it in one piece? Join Kjartan Poskitt, author of the acclaimed *Murderous Maths* series, for an hour of hilarious mathematical fun with flexagons, magic squares, strange number facts, knots, tricks, codes, amazing number predictions and much more. Lots of audience participation required!

Physics Zone in the Cavendish Laboratory

1pm – 5pm (unless otherwise stated)

Map: 21, Hands on, Drop in, All ages (unless otherwise stated)

Breaking habits – going for green!

Join Cambridge Carbon Footprint for hands on activities for all the family including calculating your carbon footprint, colouring your carbon footprint, and upcycling some tetrapacks into fun wallets. From 3pm to 4pm there will also be a pre bookable workshop for ages 18+ to help you to make large carbon reductions, to book, tel: 01223659962, email: info@cambridgecarbonfootprint.org

Experiments, demonstrations and CHaOS

Experience physics in action by making your own physics related toy. Past Festival favourites return including giant bubbles, cars and hovercraft. To avoid overcrowding tickets for specific times will be allocated, if necessary, on arrival.

1.15pm, 2pm, 2.30pm, 3.15pm, 3.45pm and 4.30pm

Astronomy roadshow planetarium

Sponsored by the East Anglia Branch of the Institute of Physics

Explore the beauty of the night sky. Learn about space, stars and the Solar System through these interactive and lively shows.

Pre book visit: <http://tinyurl.com/cavendish-sw>

1pm – 1.45pm

Measuring goo – and why it matters

We all recognize goo when we see it. It turns up in many places and guises from food to playthings, from glues to medical ointments. But what makes a good 'goo' and can we control the 'gooeyness'?

Talk given by Professor Dame Athene Donald, FRS of the Biological and Soft Systems Group.

Talk, Ages 12+



SIR CAM

Physics IS fun talks

Pippard Lecture Theatre

2.30pm – 3pm 'Physics you meet everyday (especially in toys!)'. With Dr Lisa Jardine-Wright. Ages 12+

3.45pm – 4.15pm 'Tripping the light fantastic'. With Dave Ansell. Ages 8+

4.30pm – 5pm 'Tripping the light fantastic'. With Dave Ansell. Ages 8+

Small Lecture Theatre

1.45pm – 2.15pm 'Vacuum bazookas and custard fireballs'. With Dave Ansell. Ages 8+

2.45pm – 3.15pm 'Vacuum bazookas and custard fireballs'. With Dave Ansell. Ages 8+

3.45pm – 4.15pm 'The most famous Cavendish experiments'. With Dr Lisa Jardine-Wright. Ages 12+

Pre book visit: <http://tinyurl.com/cavendish-sw>

To guarantee a seat at these lectures you can pre-book for a maximum of three lectures online at <http://tinyurl.com/cavendish-sw>. Some seats will be available on the day but you will have to queue and they cannot be guaranteed unless booked in advance.

Computer Laboratory

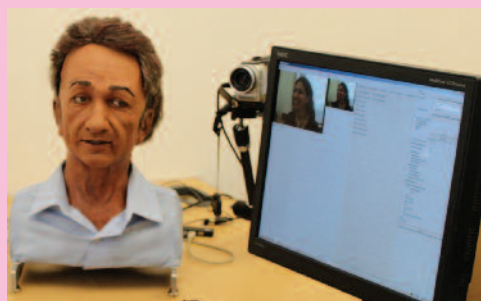
1pm – 5pm (unless otherwise stated)

Map: 19, Hands on, Drop in, All ages (unless otherwise stated)

Overtone: Aphex Twin meets Jimi Hendrix

Learn how expressive programming interfaces can unleash your capacity for musical performance over a range of musical styles from piano sonatas to dubstep. Press buttons, make music, have fun!

Ages 10+



Robot head

Meet Charles, a realistic robotic head that we are using to research the expression of emotions through facial expressions. Watch Charles act out the facial expressions of more than 400 different emotions. Sit in front of a camera to see Charles imitate the expressions on their own faces in real-time.

Ages 12+

EmotionSense: a mobile phone application for automatic emotion detection

EmotionSense is an android application that infers a user's emotions and speech patterns. It also shows the emotions of the user's friends. Navigate through the EmotionSense application and speak into the phone to see the automatic conversation and emotion detection.

Ages 12+

The compute competition

Learn how to use a 1960s era mechanical calculator and compete for prizes by using the machine to calculate the correct answers to some simple mathematical puzzles.

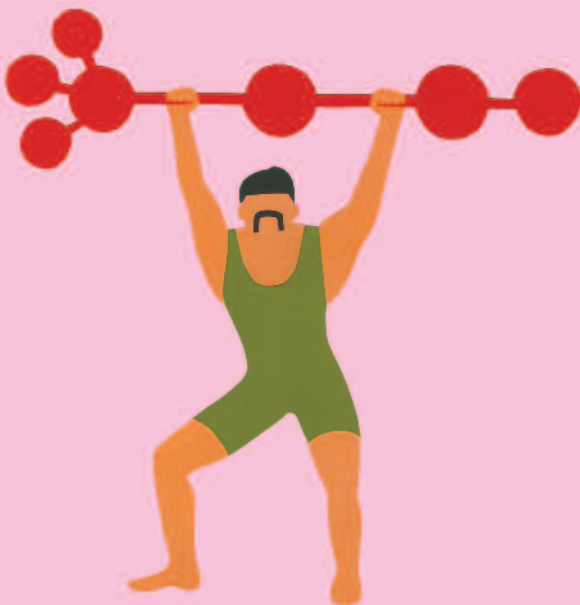
Ages 12+

2pm – 3pm

Making gold: computer science and technology at the Olympics

Over a century after they began, the modern Olympic Games have been transformed by technology. No longer do we rely on crumpled measuring tapes or mechanical stopwatches. Now we detect false starts that the eye can't see, split gold and silver by a millisecond, and measure distances within a millimetre. Dr Robert Harle explores the wonder of these systems that will decide who takes gold and who goes home empty-handed in London this year.

Talk, Ages 10+



Institute for Manufacturing

1pm – 5pm (unless otherwise stated)

Map: 23, Hands on, Drop in, All ages (unless otherwise stated)

Preview our exhibits!

Help us design your science centre. The Cambridge Science Centre is working towards getting a permanent public hands on science exhibit space set up in Cambridge, and we want your feedback. Come by, get hands on with some cool science phenomena, and tell us what you think! Check out our plans at: www.cambridgesciencecentre.org

Meet the robots

Find out what our anthropomorphic robots get up to in the labs when they are left to their own devices!

What would you use THAT for?

Come and try out a variety of real products from Cambridge start-ups and learn about the technologies that make them work. The most original idea wins a prize!

Ages 5+

Laser bunny hop

Hop, skip and jump as best you can to avoid setting off the alarm on the criss cross track of lasers. Complete the course to win a prize!

Ages 5+



Laser fest

Get a glimpse of the latest laser technologies and find out how they are used in industry. Watch high speed lasers etch the smallest ever Olympic logo. Witness lasers cutting through metals up to 30mm thick.

Ages 8+

FantasTech!

Enjoy a host of activities including creating your very own laser etched metal ID card. See your hot spots with a thermal imaging camera. Our Inkjet experts will be showing you how they 'freeze' water at room temperature, and 'slow down the world' with their ultra high-speed technology.

Ages 5+

Laser rocket racing

Fire lasers at mini rockets and make them speed along a wire track. Race your friends and family and see who has the best aim!

Ages 8+

1.30pm – 2.15pm

Freaky science: the wacky world of lasers

Our resident laser scientist Dr Bill O'Neill introduces you to his wacky world of lasers.

Talk, Ages 10+, Pre book*

2.30pm – 3.15pm,

3.30pm – 4.15pm

The importance of making mistakes

Penicillin, pacemakers and post-its – Dr Tim Minshall explains how blunders can lead to brilliant inventions.

Talk, Ages 10+, Pre book*



SIR CAM



MICROSOFT



SIR CAM

2.30pm – 6.30pm

Open afternoon at the Institute of Astronomy

Institute of Astronomy, Madingley Road

The Institute of Astronomy opens its doors for the annual open afternoon. We will have talks, displays, demonstrations and hands on activities for everyone to learn more about Astronomy and the kind of research we do. There will also be an exhibition from the historical archives from the Library.

Map: 24, Hands on, Drop in, Ages 5+

7pm – 9pm

Public observing at the Institute of Astronomy

Institute of Astronomy, Madingley Road

If the weather is clear, we will run public observing using both modern and historical telescopes from the Observatory lawns. If it is cloudy the event will not go ahead.

Map: 24, Hands on, Drop in, Ages 8+

4pm – 5pm

Leonardo da Vinci: the case for lifelong self-education

Møller Centre, Churchill College, Madingley Road

Who was Leonardo da Vinci? An artist? Engineer? Scientist? Mathematician? Anatomist? Mr Francis Wells takes his audience on a whirlwind tour of Leonardo's work describing his incredible talent in all these disciplines. Hosted by The Prince's Teaching Institute.

Map: 25, Talk, Ages 16+, Pre book*

11am – 3pm

School Zone

Hauser Form, Charles Babbage Road

Teams of students from secondary schools and sixth form colleges are the experts, showing what is happening in schools either as part of their curriculum or in after-school clubs. Last year's School Zone attracted hundreds of visitors. Don't miss these exciting demonstrations from the next generation of scientists, technologists, engineers and mathematicians as they bring interactive fun to the Festival.

Map: 22, Hands on, Drop in, All ages

2pm – 4pm

What goes on inside a computer science lab?

Microsoft Research, JJ Thompson Avenue

Prepare to be surprised! Computing is not just about spreadsheets and presentation slides; it's used to do many more amazing things that you might not expect. Come and see some exciting Microsoft Research projects, meet our researchers and get hands on with computer science.

Map: 20, Hands on, Drop in, Ages 10+



Accessibility guide

For further information about accessibility, please contact the Information Centre on: 01223 766766 or email: csf@admin.cam.ac.uk Monday – Friday: 9am – 5pm until 23 March, also from 9.30am – 4pm on Saturdays 17 and 24 March.

T Toilet, wheelchair accessible
L Level, ramped access
PA Partial access, ring for details

Li Lift to all floors
I Induction loop

Anatomy Building	T, L	Lucy Cavendish College	T, PA
Anglia Ruskin University	L, Li	Madingley Hall	T, L
Arts Picturehouse	T, L, PA, I	McCrum Lecture Theatre	T, Li, I
Arts School	T, L, Li	McDonald Institute for Archaeological Research	L
Babbage Lecture Theatre	L, Li, I	Michaelhouse Cafe	T, L, Li
Cambridge Buddhist Centre	T, PA	Microsoft Research	T, L, PA
Cambridge Museum of Technology	T, L	Mill Lane Lecture Rooms	T, L, Li
Cambridge Regional College	T, L, Li	Møller Centre, Churchill College	PA
Cambridge Union	L	MRC Cognition and Brain Sciences Unit	T, L, Li, I
Cambridge University Library	T, L, I, PA	Museum of Archaeology and Anthropology	T, L, Li, I
Cambridge University Press Shop	L	Museum of Zoology	T, L, Li
Cavendish Laboratory	T, L, Li	Physiological Laboratory	T, L, Li, I
CB2 Café	No access	Plant Sciences Marquee	L
Centre for Mathematical Sciences	T, L, Li, I	Robinson College	T, L, I
Computer Laboratory	L, Li, T	Royal Society of Chemistry	L, Li, T
Corpus Playroom	PA	Sainsbury Laboratory	T, L, Li, I
Department of Biochemistry	T, Li	Scott Polar Research Institute	T, L
Department of Chemistry	T, PA	Scudamore's Punt Hire	PA
Department of Earth Sciences and Sedgwick Museum	T, PA, Li	Shepreth Wildlife Park	T, L
Department of Engineering	L, Li	St Catharine's College	PA
Department of Experimental Psychology	L, Li	St Columba's Church Hall	T, L, Li, I
Department of Materials Science and Metallurgy	T, L, Li	St John's College	PA
Department of Pathology	T, L, Li, PA	The Fitzwilliam Museum	T, L, Li, I
Department of Zoology	L	The Guildhall	T, L, Li
Emmanuel College	L, Li, I	The Maypole Pub	PA
Faculty of Asian and Middle Eastern Studies	T, L, I	The Open University in the East of England	T, L, Li
Grafton Centre	L, Li, T	The Pitt Building	T, L, Li, I
Great St Mary's Church	T, L, I	The Portland Arms	PA
Hauser Forum	T, Li	Tourist Information Centre	PA
Information Marquee	L	University Centre	T, L, Li
Institute of Astronomy	T, PA	Wandlebury Country Park	T, PA
Institute for Manufacturing	PA	Wellcome Trust Sanger Institute	PA
Isaac Newton Institute for Mathematical Sciences	T, L, I	Wesley Methodist Church	L, I
Kettle's Yard House and Gallery	T, PA	West Road Concert Hall	T, L, I
La Dante in Cambridge	No access	Whipple Museum of the History of Science	L, Li

Public Engagement

The Cambridge Science Festival is co-ordinated by the Public Engagement team at the University of Cambridge.

The Public Engagement team acts as a central information point for members of the public. We also work across the University and Colleges to support community and outreach activities. The programmes we support include annual festivals, one day events that raise funds for charities, student run schemes and educational programmes. Every year, the Public Engagement team co-ordinates the Open Cambridge weekend in September, the Cambridge Festival of Ideas in October and the Cambridge Science Festival in March.



7 – 9 September 2012

Open Cambridge

Cambridge is home to some spectacular architecture, fantastic art collections and beautiful gardens. Open Cambridge is a weekend of tours, talks and open access, in which buildings, grounds and collections go on display for families, local residents and community groups. The full programme will be available from July 2012.

24 October – 4 November 2012

Festival of Ideas

Join us at the fifth Cambridge Festival of ideas, which celebrates the arts, humanities and social sciences through talks, performances, film screenings, hands on activities and workshops to suit all ages. Further details and a programme will be available from September 2012.

Outreach Directory

The Outreach Directory is a useful tool for you to find out more about the activities run by the University of Cambridge and the University museums. Schools, colleges, community organisations and the public can browse through the ongoing initiatives.
<http://webservices.admin.cam.ac.uk/outreach>

What's On at the University of Cambridge

The best way to find out about future events at the University is to visit the What's On website which lists all of the up-and-coming activities, from family events to adult lectures.

To subscribe to our monthly email newsletter: www.cam.ac.uk/whatson

For more information on any of the above visit: www.cam.ac.uk/publicengagement



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