



Photo by Will Chamberlain

Open Days

An Open Day at Royal Holloway offers a unique opportunity to come and meet our students and staff, and get a taste of what university life is really like.

Open Day dates for 2014 are:

* 15 March * 18 June * 21 June * 4 October * 25 October *

You are welcome to bring a parent or friend with you.

Find out more and register to attend at

royalholloway.ac.uk/opendays

T: +44 (0) 1784 414944

E: admissions@royalholloway.ac.uk



Royal Holloway Science Festival

24 February – 1 March 2014

Storytime Science

Discover and be inspired by Science at Royal Holloway, University of London



i Royal Holloway, University of London
Egham, Surrey, TW20 0EX
T: +44 (0)1784 434455

royalholloway.ac.uk/sciencefestival



ROYAL
HOLLOWAY
UNIVERSITY
OF LONDON

Principal's welcome



Welcome to Royal Holloway Science Festival. This event has evolved from our hugely popular annual Science Open Day, which has run for over 20 years, to a week-long celebration of science attracting large audiences each year.

We have a thriving science community here at Royal Holloway, with world-class pioneering research, so this is a great opportunity for everyone to come along and discover some of the exciting things that we are up to.

As early assessment for science is made more demanding, it's important that we continue to engage the next generation in these subjects and make it fun. Through the range of activities at Royal Holloway Science Festival, we can demonstrate the wide-ranging impact of science and explore the latest technological advances.

Professor Paul Layzell

Science at Royal Holloway

Royal Holloway is one of the UK's leading universities. We have a distinguished history of internationally excellent research in areas from particle physics and dark matter in space, to the communities that live in the Amazon rainforest.

Royal Holloway Science Festival invites you to be inspired by the wonder of science and experience some of our world-changing research first hand.

This year's theme, Storytime Science, provides an exciting opportunity to explore the science found in stories; from children's fairy tales to classic novels and films for big kids.

Royal Holloway co-ordinates a broad range of outreach activities for local primary and secondary schools, and sixth form and FE colleges as well as the wider public, presenting a varied programme of talks, demonstrations, visits, and hands-on workshops. We also provide a point of contact and resource for anyone working in education to support the teaching of science to all ages.



For details please visit our website:
royalholloway.ac.uk/discoverscience and
royalholloway.ac.uk/scienceoutreach

 Follow us on Twitter
[@RHULScience](https://twitter.com/RHULScience)

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All events are free to attend, unless otherwise stated. Please note that some activities on Super Science Saturday are free but require tickets for entry (see page 7)

STEM Box Challenges

STEM Box Challenges are science outreach projects inspired by departmental research at Royal Holloway for KS3 groups in schools. Challenges will be launched in festival week at a special event with workshops and lectures on each challenge theme with the kit and other resources to complete the challenge back at school.

STEM box challenges are designed to be completed over a period of several weeks and will teach core skills in research techniques, team work, communication, knowledge application and project management. Participating schools will be invited to Royal Holloway for a conference-style final to present their discoveries during the summer term.

Biological Sciences:

Biodiversity Boost Challenge

Computer Science and Information Security:

Build your own Internet Challenge

Earth Sciences:

Earthquake Challenge

Geography:

Supermapping: Geographical Information Systems Challenge

Mathematics:

Pascal's Triangle Challenge

Physics:

Wheeled and Levitating Vehicles Challenge

Contact scienceoutreach@rhul.ac.uk for more information

University Challenge

Be a university champion! During our festival we will be running our popular University Challenge for year 9 students. Schools bring a group of four to the heats on 27 February followed by the finals. Will your school be the winner?

Save the date!

Play 2014

Festival of culture at Royal Holloway,
3-5 June

Events and performances showcasing
the best creative and intellectual
work by staff and students.

Find out more at:

royalholloway.ac.uk/play

PLAY!

Coming soon

Schools and Colleges Learning and
Teaching Conference 1st July 2014 -
check website for details:

[royalholloway.ac.uk/
teachersconference](http://royalholloway.ac.uk/teachersconference)



Science Festival Week

Monday 24 February

6.15pm **W** Windsor Building Auditorium

Laughter, prejudice and unfamiliar faces

Science for Schools lecture from the
Department of Psychology

Dr Victoria Bourne will talk about the importance of being able to recognise faces, and what happens when a brain injury leads some to lose this ability. Dr Marco Cinnirella will discuss the psychology of prejudice, asking why Islamophobia has been one of the fastest growing prejudices in countries like the U.K. And Dr Carolyn McGettigan will talk about laughter – its universality, how we use it, and how our brains respond to it. To book a place please email nickola.webb@rhul.ac.uk

The lecture will be preceded by a reception and exhibition in the foyer

Monday 24 February

7pm venue **Students' Union**

Passenger Films

Geography inspired film night

Revisit and re-explore some of your favourite children's stories as Passenger Films invites you down the rabbit hole in their latest showing of geographically inspired film. The evening will go on a journey to explore how the worlds and places of children stories are created and how children imagine and make their own worlds.

The event will feature a host of guest speakers, children's authors and academics to entertain and spark your curiosity as we take another look at classic stories. The programme will feature the bizarre world of Alice in Wonderland (1951), the alternative dimensions of Chalk Zone and the idyllic rurality of Postman Pat. The screening is open to all ages; those young and those young at heart.



Tuesday 25 February

6pm **C** Crosslands Bar

Science Festival Pub Quiz

Are you up to the science festival pub challenge? Form a team from your department, favourite society, sports clubs or just your mates. There will be all your favourite topics of questions including general knowledge rounds, music, popular culture as well as the general science knowledge questions. Teams will compete for the coveted Science Festival Quiz Trophy. Register your team by emailing: rhsf@rhul.ac.uk



Wednesday 26 February

6pm **M** Moore Building Lecture Theatre

The Chronic Argonauts

Our popular science fiction duo, Dr Stewart Boogert, Reader in Accelerator Physics and Adam Roberts, Professor of Nineteenth-century Literature, will stage a dialogue between past and future, from the 19th-century world and 21st century astrophysics. What was it about the late 19th-century that meant that Wells dreamed-up his time machine then? Will time travel ever be possible? What is the secret of the Doctor Who's enduring appeal? Be sure to make time for this event!

Please register for this event by email –
rhsf@rhul.ac.uk



Thursday 27 February

7.30pm **F** Founder's Dining Hall

Royal Holloway Science Festival Dinner

Teachers and science industry partners only

Around the World in 80 Bites – an interactive evening of scientific discovery and gastronomical delights. Join the departments from our science faculty tasting the delights of the food from around the world – plus learn how to use mathematical formulas to get the most of a buffet, sample Liquid Nitrogen Ice Cream and make the ultimate decision: are you happy to share your food?



Friday 28 February

9.45am – 3pm, Main campus

Rare Disease Day

A day of exhibitions with patient societies and umbrella support organisations, with workshops, tours and talks hosted by the School of Biological Sciences. The aim of the day is to draw attention to rare diseases and the millions of people who are affected by them, and highlight the need for more research and funding to help sufferers and their families.

Super Science Saturday

1 March 2014, 10am – 4pm

Storytime Science

Exploring science found in stories; from childhood fairy tales to classic novels for big kids. A fun day out for all, book lovers and science fans alike. Super Science Saturday is the festival finale where a variety of hands-on activities, talks, performance and workshops are presented by Royal Holloway's science departments together with a host of external partners. Activities are suitable for all ages and admission is **free!**

Ticketed events

The following special events have limited numbers and require tickets for entry. Tickets are free and are only available on the day from the information desk in the Windsor Building Foyer. See below for details.

Real Life Sea Monsters

Deadly sea snails, colour-changing creatures and super-sized squid

Talk by Jon Ablett, the Natural History Museum

W Windsor Building Auditorium 11.30am

Tickets released at 10.30am

The Most Disgusting Story Ever Told

Why are disgusting themes in children's stories so popular?

Talk by Jon Milton, the Science Museum

W Windsor Building Auditorium 1.30pm

Tickets released at 10.30am and 12.30pm

Fire on Earth

An illustrated talk by Andrew Scott, Emeritus Professor, Department of Earth Sciences at Royal Holloway.

2.30pm **Q** Queen's Building (see p11)

Tickets released at 10.30am and 12.30pm

Storytelling Art

Explore 19th century technology and science depicted in our Victorian art collection

Various times, Picture Gallery,

F Founder's Building

Tickets released at 10.30am and 12.30pm

Unticketed events

The Railway Children

Come and learn how steam railways work, and see 1:32 scale live steam engines running on our new track.

10am – 4pm **J** Jane Holloway Hall

Presented by Gauge 1 Model Railway Association, Surrey Group

Owl Wise

Our Owl Wise display of live owls will let you experience their magic at close range, with expert Phil Eckett on hand to answer your questions.

10am – 4pm, between the Windsor Building and Founder's Building. Presented by the School of Biological Sciences

Science Festival Passport

A treasure trail for younger visitors

Hunt for a letter as you visit today's activities to complete your science passport, then find the hidden word. Bring your completed passport to the Windsor Building information desk to collect a prize.



Fossil trail

Follow the Fossil Trail from the Windsor Building to Queen's Building (see p11)

Our Science Festival Partners



W Activities in the Windsor Building Foyer

Animal Kingdom

Eton Natural History Museum

Real specimens from the museum collection for close-up viewing, and find out what's wise about owls, do elephants ever forget and why are caterpillars so hungry?

Natural World

Chelsea Physic Garden

How well-known children's books link to the natural world.

Swallows and Amazons

Weald and Downland Open Air Museum

Exploring the woodland and the charcoal burner's camp.

London Metropolitan Archives

Explore the great ideas of and designs of Tower Bridge and have a go at building your own strong tower

Rollercoaster ride

Hold on to your (virtual) seats as the School of Management invite you help design a roller coaster experience. Draw a poster that communicates the thrill of the ride. Consider what to offer customers whilst waiting in the new virtual queuing system. Build your own model layout using bricks. Can you blend the optimal thrill seeker experience?

10am-4pm

Around and about

The X-men, the Institute of Cancer Research

The power and curse of mutations and an introduction to DNA

B Bourne Building

Juniper Hall Field Centre

Meet animals and insects from favourite nursery rhymes.

B Bourne Building

Institute of Biomedical Science

Vampires and what blood does for you.

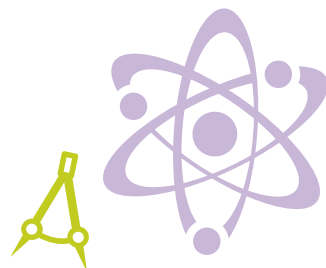
B Bourne Building

National Physical Laboratory

Exploring the wonder of optical technology.

T Tolansky Laboratory

We would like to thank all our Science Festival partners for their generous support.



Science Alternative Village Fete

10am – 4pm **F Founder's Dining Hall**

At first glance, our Science Alternative Village Fete will look pretty much like an ordinary everyday Fete with colourful stalls, friendly faces and lashings of bunting. However a small scratch of the surface reveals a serious twist on the great British tradition. No fewer than 10 artists from Live Art and experimental performance backgrounds will address the theme of Storytime Science through an innovative programme of interactive performances, installations and fun workshops. Visitors will be invited to examine the nature of science, its impact and its perception, with playful, irreverent and gently subversive ideas that are underscored by genuine scientific understanding and exploration.

Programme includes:

At Home in the Future

by Eleanor Shipman

Schmug

by Brian Lobel

Animated Space

by Janey Moffatt / Craftimation Factory

Matilda and Psycho-Kineses

by Jenny Edbrooke

Order of Things

by Made in China

To Squish or Not Too Squish

by Dr Tim Cockerill and Lucia Chmurova

Royal Holloway's science departments have also been getting involved in the creative process, and the following artists have made their stalls based on our research:

Space Agency - From Invisible to Visible

by Helen Schell

Responding to the Department of Physics

The Pinnochion

by L H Trevail

Responding to the Department of Computer Science

Megapixel

by Richard Dedominici

Responding to the Information Security Group

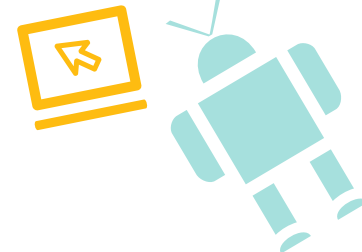
Where the Wild Bits Are

by Rachel Mars

Responding to the Department of Psychology and School of Biological Sciences

To read more about each artist stall, please visit the Home Live Art website.

www.homeliveart.com



Faculty of Science

Alice's World of Wonder: Beautiful shapes, odd puzzles, codes & cyphers

10am – 4pm **W Windsor Building**

• Shapes and patterns

Learn how to make complex and colourful 2D patterns and 3D shapes using simple maths and a single piece of paper; take home a souvenir of the Maths Day!

Find out how to make soap bubbles in 'weird' shapes.

• Games and Puzzles?

Work out the winning strategies in a wide variety of old and new hands-on games and puzzling problems!

• Codes and ciphers:

Science fiction and historical fact

Come along, and try to break a selection of codes and ciphers from science fiction books and movies.

Explore a collection of amazing twentieth century code machines, and learn how the real-life technology has changed over the years.

Department of Mathematics and Information Security

The Incredibles: Test your Superhero skills!

10am-4pm **W Windsor Building**

Come and find out about your amazing brain on our Superhero training course! Put your senses to the test with our vision and hearing challenges. Can you stay cool under pressure to help others in need? Find out about our research into relationships and working together – who is your super side-kick? You can experience the latest eye-tracking technology, look at the brain in action with our live brain scanner demos, and much more.

Department of Psychology



I, Robot: ideas towards intelligent robots

10am – 4pm **W Windsor Building**

Intelligent robots are not yet among us, but they are not far away! Massive data, networked computers and clever algorithms make their creation more and more likely. Come explore the world of robots and computers. Learn some algorithms or how to program. Have fun with the robots designed and built by students and staff.

Activities include:

- self-balancing robots on 2 wheels
- Connect Four robot
- Obstacle race with remotely controlled robots
- Self-locating robot using probabilities.
- Rubik's cube solver robot
- Robot programming in a virtual labyrinth

Department of Computer Sciences



Harry Potter: Wizardry and Adventures

10am – 4pm **B Bourne Building/Laboratories**

Biological Sciences will be showcasing the science of Harry Potter: a hands-on Wizard Lab, mythical plants and beasts, herbology and potions, and the inheritance of magical and muggle powers, a live owl show – see Owl Wise event on p 7

School of Biological Sciences

'Back to the Future'

10am – 4pm **T Tolansky Laboratory**

Come and experience Physics in action with hands-on activities including the creation of a levitating model DeLorean and a Lego Universe.

Meet researchers working at the National Physical Laboratory exploring the wonder of optical technology, a live demo of Brownian Motion and holographic examples

Department of Physics



Welcome to the Real Ice Age

10am – 4pm **Q Queen's Building**

Activities include:

- what causes an ice age
- make your own cave art
- world of maps
- mapping the world of children's stories
- exploring the geography of famous fictional British spy, James Bond

Department of Geography



Dynamic planet! Follow the fossil trail

10am – 4pm **Across campus**

Explore the inner workings of our Dynamic Planet! Follow the geological 'fossil trail' from the northside of the Windsor Building to the Queen's Building, to the Department of Earth Sciences and discover the powerful natural forces that shape Earth, Life and our Natural Resources.

Six fossils are hidden around campus. Can you find them?

Fire on Earth

An illustrated talk and meet the author, Andrew Scott, Emeritus Professor, Department of Earth Sciences

Earth is the only planet known to have fire. The reason is both simple and profound: fire exists because Earth is the only planet to possess life as we know it. Fire is an expression of life on Earth and an index of life's history.

Talk at 2.15pm in the **Q Queen's Building Auditorium** (for tickets see p7)

Department of Earth Sciences



Look out for...

Sci Fi heroes:

L The Library

Meet some of your favourite Science-Fiction characters, and get creative yourself! In the exciting social learning space of Bedford Library, there will be short story writing sessions all day guided by creative writing students who will help you turn some of your new knowledge into Science-Fiction. Or, if you prefer, there will be fun drawing activities too! With a café on hand, Bedford Library is the perfect place to stop off for a sit down and a cup of tea or sandwich.



Art Alive at Royal Holloway

F Picture Gallery

Royal Holloway has a fantastic collection of Victorian paintings many of which explore 19th century technology and science. Come to the Picture Gallery to meet a formidable 19th century lady and take part in art workshops based on our paintings and books such as Philip Pullman's *Northern Lights* and E Nesbit's *The Railway Children*.



Ingenious Busking

A series of short street theatre shows themed around STEM subjects and the thrilling work of engineers.

Across Campus



General information

Windsor Building

W Windsor Building

An information desk is located in the foyer of the Windsor Building, including the following:

- Campus guides to assist you
- Lost property
- Lost children meeting point
- St John Ambulance, qualified first aiders

Toilets (and baby changing facilities) are located in each building



Follow us on Twitter @RHULScience #RHSF14

royalholloway.ac.uk/sciencefestival

Free WiFi is available throughout campus.

Network name: **ScienceSaturdayWiFi**

Refreshments

A wide range of food and drink will be available throughout the day



H Hub

Open 11.30am – 1.30pm

Sandwiches, snacks, hot and cold drinks. Seating is available for visitors who bring their own lunch.

C Crosslands

Open 10am – 4pm

Sandwiches, snacks, hot and cold drinks.

S The Store on Campus

Open 10am – 4pm

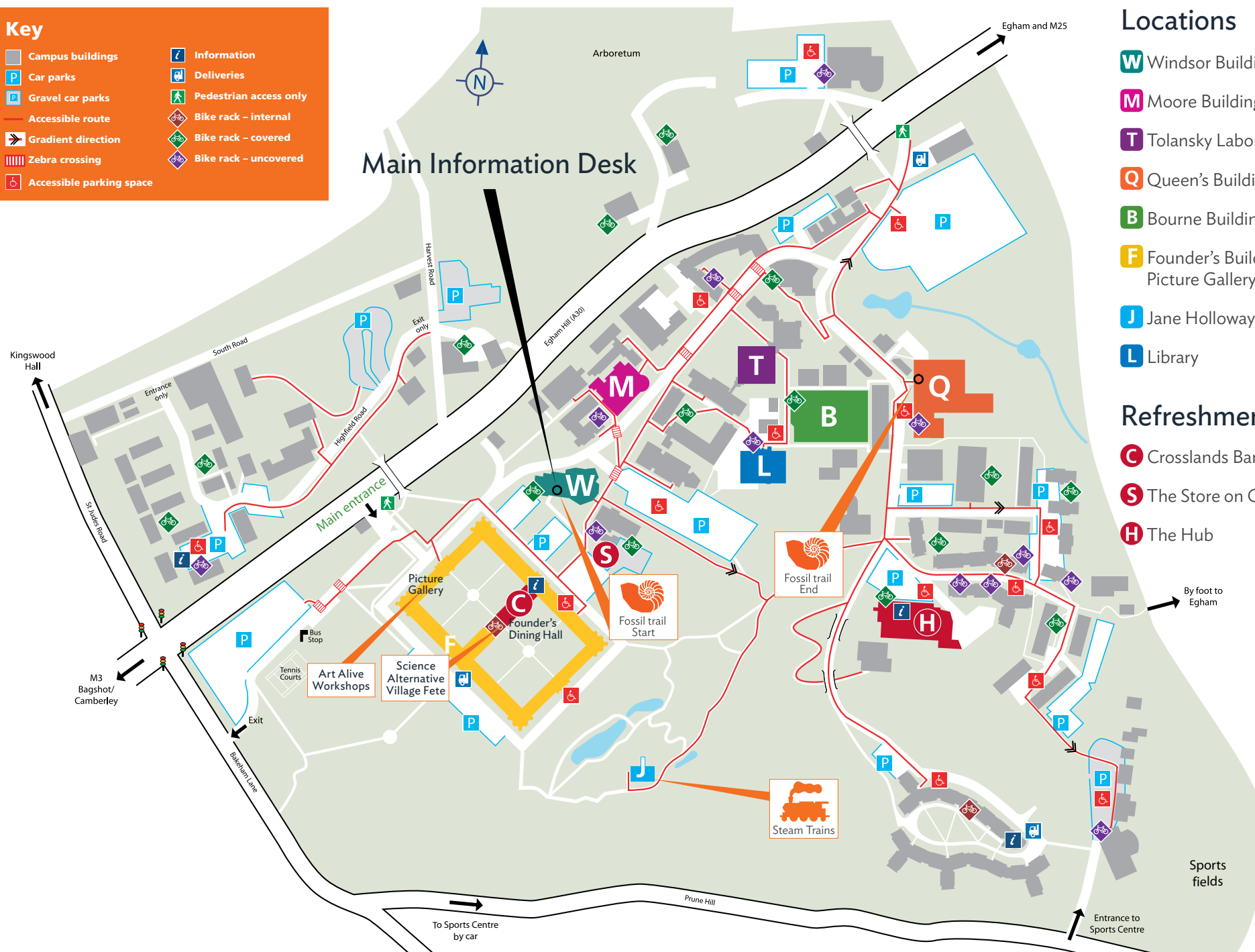


Please note that professional filming and photography will be taking place throughout the day on Saturday 1 March. Footage and images will be used as part of Royal Holloway promotional materials including our website and social media channels. For children under 16, we endeavour to seek permission from parents or guardians wherever possible.

Science Festival Programme created by Royal Holloway, University of London, correct at time of going to print 02/2014.

Key

Main Information Desk



Locations

- W** Windsor Building
- M** Moore Building
- T** Tolansky Laboratory
- Q** Queen's Building
- B** Bourne Building/Laboratories
- F** Founder's Building
Picture Gallery and Dining Hall
- J** Jane Holloway Hall
- L** Library

Refreshments

- C** Crosslands Bar
- S** The Store on Campus
- H** The Hub