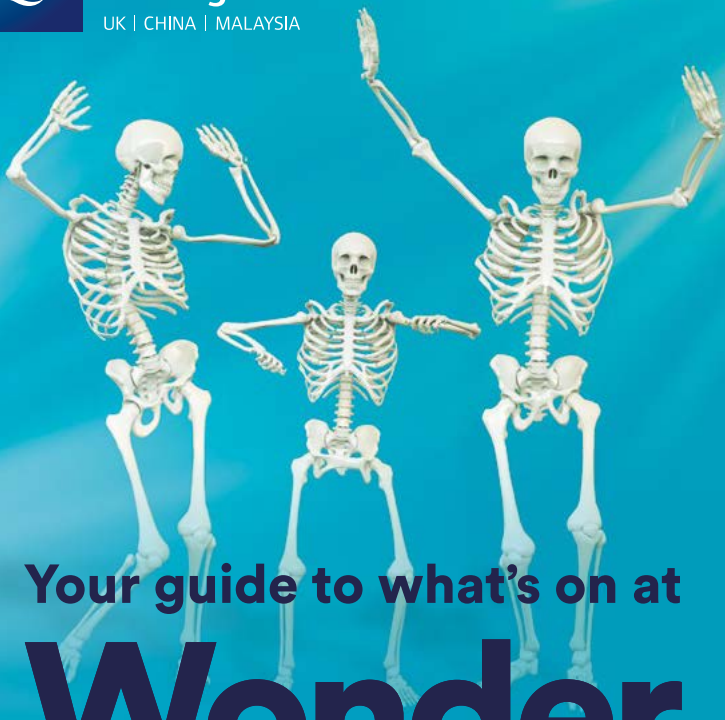




**University of
Nottingham**

UK | CHINA | MALAYSIA



Your guide to what's on at

Wonder

Saturday 15 June 2019, 11am–4.30pm
University Park, Free

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Things you need to know 40

Recommended ages

Some of the activities taking place are suitable for children and young people over a certain age. We've highlighted them in the programme with these symbols:

5⁺ 7⁺ 11⁺ 16⁺ 18⁺

1869

P
Periodic

Nottingham
celebrating
150 years

2019

Ta
Table

Welcome to Wonder

We can't wait for you to experience all of the amazing things that happen at the University of Nottingham.

As you make your way around the event you'll be able to experience our groundbreaking research and world-class teaching first-hand by taking part in a huge variety of exciting family-friendly activities.


This year we're celebrating the Year of the Periodic Table, with many of the Wonder activities featuring chemical elements. The University's very own Professor Sir Martyn Poliakoff, famous for his Periodic Table of Videos, suggested the commemoration which then sparked a global celebration of chemistry!



Children's activity trail

Take part in our periodic table activity trail and search for the elements hidden around the buildings to spell out wonderful words. Pick up an activity sheet from any Information Point and everyone who reveals the answers will win a prize!







Finding your way around

All activities are taking place within the science and engineering and Lakeside areas of University Park Campus. Take a look at the handy map on page 22 for details. There are Information Points  highlighted on the map which you can use to help find your way around.

We've arranged the events in this guide by building, with the room or area location and the activity timings. Some of the timed events are very popular, so it's a good idea to plan your day and arrive early for any specific events you wish to see.

Key to symbols

We have used symbols in this guide to highlight the following details:

-  Loud noises and bangs
-  Production of smoke
-  Bright lights
-  Time
-  Location
-  Featured element (see full list of chemical elements on page 43)



DH Lawrence Pavilion

Defying the elements: academic magic and the periodic table

Professor Todd Landman, the world's only academic magician, will explore the many and intriguing facets of the periodic table through the medium of magic. He will examine atomic structures, shell theory, gravity and mass, and the noble gases among other features of the table. Prepare to be amazed! **Spaces will be allocated on a first-come, first-served basis.**

 12.40–1.25pm and 2.30–3.15pm

 Djanogly Theatre

Make a banana spaceship

Join the team from the National Videogame Museum and learn how to build a spaceship control system. Please note, you will not be required to actually leave Earth... But you will get to make your very own custom videogame controller, learn all about creating circuits, and experiment with conducting electricity through a variety of materials to make your rocket launch. **Suitable for all ages.**

 11am–4.30pm, drop in anytime

 Performing Arts Studio

Alchemy in the archives

Friends and alloys, come and 'C' us at our table and steel yourself for some 'Fe'-iendish activities, based on our precious archives and rare books. Find the solution to our puzzles and you could get the alchemist's true prize: a gold coin. You'll be in your element! **This is a messy activity. Suitable for all ages.**

 11am–4.30pm, drop in anytime

 Meeting Room 1



Djanogly Art Gallery

Elemental installation with Elpida Hadzi-Vasileva 5+

Help Elpida create an art installation to fill the Djanogly Gallery with gold, silver and copper threads.

🕒 11am–4.30pm, drop in anytime
📍 Djanogly Gallery



Museum of elemental wonder 5+

Come and watch as we turn basic elements into objects of wonder and fascination. This interactive video exhibition shows how we can take elements such as lead, iron and carbon and turn them into love, conflict and hope.

🕒 11am–4.30pm, drop in anytime
📍 Gallery 1A



Highfields Marquee

Life on the farm

Come and find out about the elements of farming, have a go at testing the pH of soil and learn what the ideal conditions are for growing crops.
Suitable for all ages.

🕒 11am–4.30pm, drop in anytime
📍 Highfields Marquee

Measuring the periodic table in cows 11+

Learn how blood, urine and liver samples can help determine whether we have enough essential elements (but not too much, they can be toxic too). We will explore what makes urine yellow and how we can use that when measuring elements in urine, as well as taking a 'blood' sample from a model cow.

🕒 11am–4.30pm, drop in anytime
📍 Highfields Marquee

A dog's life

How do dogs get their calcium? What does calcium do and how can we examine it? Come and learn calcium's journey from dog food to bones, with opportunities to see x-rays and scans, examine real dogs and handle real dog bones. We will also show you what happens when calcium goes wrong!
Suitable for all ages.

🕒 11am–4.30pm, drop in anytime
📍 Highfields Marquee



Marvellous maths

Try out our mathematical games and puzzles while chatting to some mathematicians. Try to beat the gridlock in rush hour, learn how to solve the Tower of Hanoi, and see gyroscopes balancing on strings.
Suitable for all ages.

🕒 11am–4.30pm, drop in anytime
📍 Highfields Marquee

Highfields Marquee continued

Secret letters

Nineteenth-century French novelists wrote a lot of letters. This activity introduces you to some of these letters, with the chance to have a go at scripting your own secret letter. **Suitable for all ages.**

🕒 11am–4.30pm, drop in anytime

📍 Highfields Marquee

A sweet discovery

We will take you on a journey of creating your own sugar chain and explore the different ways we as scientists can analyse the structure of these sweet molecules. You can also have a go at our 'guess the gel' game. **Suitable for all ages.**

🕒 11am–4.30pm, drop in anytime

📍 Highfields Marquee



Elemental innovation

Innovation is one way we can make the world a better place by doing things differently. Learn how to define a problem, discover multiple ideas and determine the most effective one using a process developed by the University of Nottingham. **Suitable for all ages.**

🕒 11am–4.30pm, drop in anytime

📍 Highfields Marquee

Lakeside outside space

H₂O art

Ever wondered how water is made? Curious artists Jessica and Sarah need your help to explain visually how this magic happens. **Suitable for all ages.**

🕒 11am–4.30pm, drop in anytime

📍 Close to Highfields Marquee



Beat the clock: Instagram periodic table challenge

Drop in and create your own symbol from the periodic table using only your bodies within a two-minute timeframe – one family or small group at a time. With your permission we'll upload the results to Instagram. **Suitable for all ages.**

🕒 12noon–3pm

📍 Close to Highfields Marquee



Museum of Archaeology

Curious coins 5+

Come along and learn about ancient coins – what they tell us about the people and societies from when they were made, as well as how they were discovered. You can also handle some of the coins in our collection and have a go at designing your own.

🕒 11am–4.30pm, drop in anytime

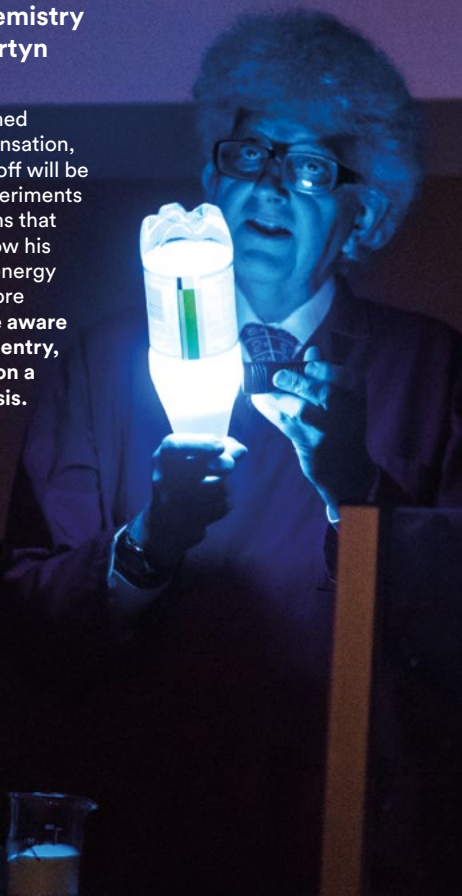
📍 Museum of Archaeology

Chemistry Building

The lighter side of chemistry with Professor Sir Martyn Poliakoff 7⁺

Nottingham's world-renowned science and social media sensation, Professor Sir Martyn Poliakoff will be performing live science experiments which demonstrate reactions that produce or use light, and how his research can harness light energy to carry out chemistry in more sustainable ways. **Please be aware you may have to queue for entry, and places will be offered on a first-come, first-served basis.**

🕒 11.30am–12.30pm
📍 Lecture theatre X1



Spotlight on chemistry

More sustainable methods for medicine and chemical production are needed to keep up with societal demands. Using bespoke reactors, we show how photons and electrons can replace toxic chemical reagents currently used. You'll learn the ways we develop reactors and be able to have a go at using them. **Suitable for all ages.**

🕒 11am–4.30pm, drop in anytime
📍 Foyer

Atoms, energy and impact

Play our card game to see if you can find a sustainable route to build molecules, jump on our bike to help us power Nottingham, and find out what you can do to reduce your impact on the planet. **Suitable for all ages.**

🕒 11am–4.30pm, drop in anytime
📍 Foyer

Coates Road Auditorium

Extreme materials lecture 7⁺

Watch our tame chemical engineer test how materials react to extreme cold, heat and pressure in an exciting series of live and loud experiments. See us push the ordinary to the extraordinary! **Places will be allocated on a first-come, first-served basis.**

🕒 2.30–3.10pm
📍 Coates Road Auditorium



N

Engineering and Science Learning Centre

Designing products of the future

Interested in designing and making things? Come and discover some weird and wonderful design ideas for products of the future. **Suitable for all ages.**

🕒 11am–4.30pm, drop in anytime
📍 Atrium

Water challenge

High concentrations of copper can contaminate water and make it deep blue. Your task is to design and construct a filter from everyday materials to remove the colour, so people can use the water. Are you up to the challenge? **Suitable for all ages.**

🕒 11am–4.30pm, drop in anytime
📍 Room A09

Cu

3D-printed fidget cubes

We'll show you how we can create and build fidget cubes using our 3D printers. You can also take part in a challenge to win your very own pre-printed fidget cube. **Suitable for all ages.**

🕒 11am–4.30pm, drop in anytime
📍 Room A09

C

Heavy metal microbes ⁵⁺

Come and explore how microbes form communities and why they stick and don't stick to different metals. Take part in our fun hands-on activities which include making your own microbes and seeing the rebellious and resistant sides to metal.

🕒 11am–4.30pm, drop in anytime
📍 Room A09

Ag

Cu

Fe

Mg

Healthy bones ⁵⁺

The skeleton contains 99.5% of the body's calcium. Take part in an experiment to show what happens when bones have no calcium and look at bone cells and calcium under a microscope. You can even test your skills as a surgeon and have a go at repairing broken bones, and understand the role of calcium in fractures.

🕒 11am–4.30pm, drop in anytime
📍 Room A09

Ca

Engineering and Science Learning Centre continued

Eco-friendly power

Learn about environmentally friendly power generation with experiments showing what CO₂ is and why we need to produce less of it. You can also find out how power is generated and what we can do to minimise our environmental impact.

Suitable for all ages.

🕒 11am–4.30pm, drop in anytime

📍 Room A09



Vision, attention and memory on the roads

Explore the psychology of drivers, cyclists and pedestrians and how this can help us prevent accidents on the roads. Come and discover research on road user's eye movements and find out what you need to be aware of when crossing the road or driving a vehicle.

🕒 11am–4.30pm, drop in anytime

📍 Room A09



Let us know what you think

We'd love to hear your feedback about Wonder.

It'll only take a few minutes to complete our short survey and you'll then be entered into a prize draw to be in with a chance of winning either four tickets to *The Snow Dragon* by Tall Stories (a family performance suitable for 3+) or two tickets to Guy Masterson's solo performance of *A Christmas Carol* at Lakeside Arts. See our website below for full terms and conditions.

Visit nottingham.ac.uk/wonder to fill out the survey by 30 June 2019.

Share your day

We'd love to see your smiley faces enjoying Wonder!

Don't forget to use **#WonderNotts** when you post your photos on social media. We'll be sharing the best from the day.



UniofNottingham



@UniofNottingham



@uniofnottingham



Engineering and Science Learning Centre continued

Health and wellbeing

Come and take part in a range of health and wellbeing activities

🕒 11am–4.30pm, drop in anytime

📍 Open space near Coates Café

Catching your breath 16+

Use the cycle ergometer to exercise, or try moving around with an empathy belly on and see how these activities affect your breathing and heart rate.



Oxygen therapy 16+

Use oscillation dummies and stethoscopes to measure breathing, and find out how oxygen therapy is administered.



Feeling the pressure? 16+

Come and have your blood pressure checked and find out what a sphygmomanometer does!

Ask the pharmacist 16+

A community pharmacist will be available to answer questions and promote healthy lifestyles.

Moving and grooving 16+

Come and learn how to sign songs using sign language.

Active birthing 16+

Ever wondered what it's like to use a birthing pool? Come along and find out, and even try a range of different breathing strategies.

Call the midwife 11+

Learn about the different aspects of pregnancy through quizzes and word searches, guess the weight of the baby, and find out what's in the midwife's bag.

The healthy eating game

How healthy do you think you are? Test your knowledge in our healthy eating quiz, and see if you can estimate the correct portion sizes for adults, pregnant women and children. **Suitable for all ages.**

Guess the...

Do you know how much sugar is in your drinks? Guess the sugar content of different drinks including protein shakes and energy drinks. You can also discover the number of units in a measure of different alcoholic drinks. **Activity includes discussion of alcohol and is suitable for all ages.**

Fruity face paints

Can you tell the difference between fruits and vegetables? Come and discover the differences between them and even get your face painted at the same time. **Suitable for all ages.**

Teddy bear hospital

Bring along your poorly teddy bear to see our teddy doctors. Through play, we'll help children learn about health and what to expect when visiting the doctor. **Suitable for all ages.**

Engineering and Science Learning Centre continued

How does asthma add up? 7+

Having asthma makes it hard to get oxygen into the lungs. Scientists still don't really know how to cure it. Do you know what happens in the lungs during an asthma attack? Come and see how we're using maths to help us understand asthma and how singing might help.

🕒 11am–4.30pm, drop in anytime
📍 Room B01



Can bacteria make plastic?

Discover how we use micro-organisms to create bio-based products such as plastics and fuel. Take part in a range of fun and hands-on activities which explore how enzymes in your spit can convert starch to sugar, and how this sugar can be used to grow bacteria and make new products. **Suitable for all ages.**

🕒 11am–4.30pm, drop in anytime
📍 Room B01



Can we make you impulsive? 11+

We like to think we make informed decisions, which leads to informed behaviour. Come and explore whether distraction can influence you to make riskier decisions.

🕒 11am–4.30pm, drop in anytime
📍 Room B01

Predatory bacteria

With Nottingham's new Fellow of the Royal Society, Liz Sockett, who will be available for any questions you have about what being a scientist is like. Come and explore why bacteria invade and kill, see microscopy of predators invading prey on a micro-scale and learn how this research may help combat antibiotic-resistant bacteria.

Suitable for all ages.

🕒 11am–4.30pm, drop in anytime
📍 Room B02



Regenerative medicine: from bench to bedside

Learn the basics of regenerative medicine by exploring cells and discover how they could be used to heal. **Suitable for all ages.**

🕒 11am–4.30pm, drop in anytime
📍 Room B02



China corner: arts and crafts

We're running a drop-in nature-themed arts and crafts session with special emphasis on China's national treasure, the panda. There will be origami, paper cutting, mask making, colouring and playdough.

Suitable for all ages.

🕒 11am–1pm
📍 Room B07



Engineering and Science Learning Centre continued

Traditional Chinese music workshop

Come and listen to our musicians play the Zeng and Pipa: two traditional Chinese instruments with a 2,000 year history. There'll be an opportunity to have a go at playing them too. **Suitable for all ages.**

🕒 1–2pm
📍 Room B07

Chinese brush painting 7+

A professional Chinese brush painting teacher will show you how to paint pandas and their favourite food, bamboo, using Chinese brushes and ink on traditional rice paper. **Spaces will be allocated on a first come, first served basis.**

🕒 2.15–3.15pm and 3.30–4.30pm
📍 Room B07

Inside our food

Do you know what elements can be found in our food? Discover the biological molecules in our food, and discover how hydrogen bonds can make a solution of wheat and corn flour bounce from a solid to a liquid. **Suitable for all ages.**

🕒 11am–4.30pm, drop in anytime
📍 Room B08

H

Making red blood cells 5+

Learn how your body makes red blood cells and how zinc plays a critical role in their development.

🕒 11am–4.30pm, drop in anytime
📍 Room B08



Zn

Wonder how your brain uses electricity?

Ever wondered how your brain works or how the brain uses electrical activity waves for communication? Come and explore this and other fun activities including a hands-on demo of the brain. **Suitable for all ages.**

🕒 11am–4.30pm, drop in anytime
📍 Room B08



Worms in space

Ever wondered if animals can survive in space? Using a microscope explore the size and movement patterns of normal worms compared to space worms. Discover the bespoke cassettes that the worms travel to and from space in and even handle the space-flight hardware that has returned from previous exciting missions. **Suitable for all ages.**

🕒 11am–4.30pm, drop in anytime
📍 Room B08



Smarter roads

Come and learn about roads that repair themselves. You'll have a chance to find out what asphalt is made of and how it's produced. **Suitable for all ages.**

🕒 11am–4.30pm, drop in anytime
📍 Room B12











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C

N

- A** Museum of Archaeology
- 28** Chemistry Building
- 51** Coates Road Auditorium
- 49** DH Lawrence Pavilion at Nottingham Lakeside Arts
- 50** Djanogly Art Gallery
- 54** Engineering and Science Learning Centre
- 24** George Green Library
- H** Highfields Marquee
- 18** Sir Peter Mansfield Imaging Centre (open for timed tours only)
- 26** Pharmacy Building
- 22** Physics Building
- 15** Portland Building – for Man's Gourmet, Mooch, Portland Coffee Co., Starbucks
- T** Architecture and garden tour departure point

P A Car parks: Visitors can park in any official space during Wonder. Parking is free.

- B** Barrier access
-  Blue-badge parking
-  Building entrance/exist
-  Bus stop, route 34
-  Catering outlet
-  First Aid
-  Information point
-  Play park
-  Tram line
-  Tram stop
-  Water fountain

Toilets are available in all open buildings



**Wonder, Saturday 15 June 2019,
University Park Campus**

Engineering and Science Learning Centre continued

How do you control behaviour with light?

Nerves send electrical impulses from the brain to the muscles. Scientists have developed artificial methods to trigger impulses in nerve cells which are set off by pulses of blue light. These methods are being used to understand the functions of different nerve cells and ultimately how the brain is wired. We will demonstrate using the fruit fly how we can activate different nerve cells to produce different behaviours.

 11am–4.30pm, drop in anytime

 Room B12



Na

Wonder how your body moves?

Ever wondered what you're made up of? Come along and discover more about the calcium that makes up our bones, as well as how our bodies work and why we study them. After this interactive session you will be able to impress your friends and family with Latin terms such as *flexor hallucis longus*, understand how we make complex movements, play the flute, use chopsticks and write poetry. Spaces will be allocated on a first come, first served basis.

 12noon–12.30pm, 1–1.30pm,
2–2.30pm and 3–3.30pm

 Room B13



Ca

O

C

Working elements

Come and explore our interactive periodic table and match elements to the job roles and benefits of working at the University of Nottingham. **Suitable for all ages.**

 11am–4.30pm, drop in anytime

 Room B14

Balance, bones and being brilliant

Discover how we help to keep people moving and prevent broken bones in older people. Come and take part in a range of interactive and fun activities all about what happens to our bones as we get older and how we can protect them. **Suitable for all ages.**

 11am–4.30pm, drop in anytime

 Room B14

Ca

The gut club!

Ever wondered if the colon is more than punctuation? Discover the inside story by travelling with us through the gastrointestinal tract, and explore a range of diagnostic techniques like endoscopy and MRI imaging. **Suitable for all ages.**

 11am–4.30pm, drop in anytime

 Room B14

Holograms of nature

Come face-to-face with beautiful holograms of butterflies and birds, and learn about the technology of how holograms are created. **Suitable for all ages.**

 11am–4.30pm, drop in anytime

 Room B15

Mobilising the elements in WWI

From 1914–1918 the elements of the periodic table were fighting the First World War. Whether through helium inflating the barrage balloons, hydrogen in the zeppelins, chlorine as a weapon or iodine to treat the wounds of those who were injured, we explore how elements were mobilised for victory.

 11am–4.30pm, drop in anytime

 Room B16



H

He

I

Cl

Engineering and Science Learning Centre continued

Elemental immunity 5⁺

Learn how the immune system protects against infection by destroying microbes and producing antibodies. Use the same tools as real scientists to see reactive oxygen and discover which toy immune cells can beat the bugs to the iron.

🕒 11am–4.30pm, drop in anytime
📍 Room C01



Test your digital nerve

Ever wondered if you could play space invaders using only your eyes? Have a go at playing computer games without moving your hands, arms and head and even test your nerve with our virtual reality headsets! Suitable for all ages.

🕒 11am–4.30pm, drop in anytime
📍 Room C01

Frozen Ark project 7⁺

Frozen Ark, the biobanking charity, will be raising awareness about extinction and human activities through DNA extraction, DNA modelling and animal mapping. See DNA extracted from a strawberry using detergents; have a go at DNA modelling with pipe cleaners and beads; and try a variety of games including mapping species to their habitat and finding the path from a species to their biobank.

🕒 11am–4.30pm, drop in anytime
📍 Room C01

George Green Library

Periodic food chains

Did you know that a quarter of periodic elements are named after places? In this activity, we ask you to consider the places your food comes from. Do you know where your bananas are grown or how they get from the tree to your stomach? Come and join us to find out. Suitable for all ages.

🕒 11am–4.30pm, drop in anytime
📍 Open space on the ground floor

Viking treasures

Crafting activities are suitable for all ages

Poetry and handling artefacts 11⁺

Handle Ægir's fire (gold) and taste Odin's drink (poetry) at this session on the Vikings. Vikings treasured gold and wordplay, and we will show you why using reproduction Viking artefacts and real Viking Age poetry. There will also be the opportunity to compose poetry like a Viking and learn how to dye cloth the Viking way.

🕒 Crafting activities: 11am–4.30pm, drop in anytime.
Poetry and handling artefacts sessions: 11.30am–12.15pm,
1.30–2.15pm and 3.30–4.15pm
📍 Open space on the ground floor



Food tales

We all eat food every day but how can we use our food experiences to tell our stories? Have a go at writing a story in just one sentence and writing a small scene. We'll give you food-based prompts to inspire your writing. Suitable for all ages.

🕒 11am–4.30pm, drop in anytime
📍 Open space on the ground floor



George Green Library continued

Mind benders

Take part in a range of fun activities where you can test your memory as you try to escape a maze, find your balance on the wobble cushions, use your mood to control a pair of cat ears and try to throw accurately as we distort your vision with goggles. **Suitable for all ages.**

🕒 11am–4.30pm, drop in anytime

📍 Open space on the ground floor

Volcanic adventures 5+

Build a volcano and create your own lava flow in the augmented reality sandbox. Learn how volcanoes, and the mineral elements contained within lava, helped to shape the modern landscape.

🕒 11am–4.30pm, drop in anytime

📍 Café space

Hand shadow puppets

Modern imaging techniques are used to look inside the body, but prior to these technologies people used normal light to create fun images. Come and have a go at creating your own hand shadow puppets. **Suitable for all ages.**

🕒 11am–4.30pm, drop in anytime

📍 Rooms A03/A04

Bare bones 5+

Use virtual reality to see inside the body and take a closer look at the bones in a skeleton.

🕒 11am–4.30pm, drop in anytime

📍 Rooms A03/A04

LEGO MRI machines

Think you're a LEGO whiz? Come and see if you can replicate our LEGO model of an MRI scanner. We have plenty of bricks for you to put your skills to the test. **Suitable for all ages.**

🕒 11am–4.30pm, drop in anytime

📍 Rooms A03/A04



Inside your insides with MRI 11+

Ever wondered what it looks like inside your body? Have a go at manipulating real MRI images, and see a 3D-printed brain in real life.

🕒 11am–4.30pm, drop in anytime

📍 Rooms A03/A04

George Green Library continued

Tours of Sir Peter Mansfield Imaging Centre ¹¹⁺

Take a tour of our medical imaging equipment. We will scan a range of different fruits to show you how the machines use strong magnetic fields and radio waves to produce detailed images. Spaces will be allocated on a first-come, first-served basis.

🕒 11.30am, 1.30pm, 3.30pm, each tour lasts 45 minutes
📍 Meet at A03/A04

Exploring religious stories in pop culture ⁷⁺

How do ancient tales become games? What happens when myths become movies? In this session, we check out the latest attempts to translate religious stories into pop culture. Come and talk to us about storytelling, play some biblical videogames, watch some film clips and have a go at drawing your own comics.

🕒 11am–4.30pm, drop in anytime
📍 B06

Si

Little linguists ⁵⁺

Fun language taster sessions for children to have a go at learning Arabic, French, Italian, Spanish and Japanese.

🕒 2.30–4.30pm
📍 Room B07

Pharmacy Building

Beat the neurosurgeon ⁷⁺

This simple hand-eye-coordination puzzle is not only used to test trainee neurosurgeons, but also to check the functions of hands and eyes in people with brain tumours. See if you can beat your friends, or even our own neurosurgeon.

🕒 11am–4.30pm, drop in anytime
📍 Foyer

Meet our researchers

Researchers from the Nottingham Breast Cancer Research Centre will be on hand to guide you through some educational hands-on activities to explain breast cancer and the research we do at the University of Nottingham. **Suitable for all ages.**

🕒 11am–4.30pm, drop in anytime
📍 Foyer

Si

Can you support our life-changing research?

Wonder is free but if you have enjoyed the day you may wish to donate to our pioneering research into breast cancer research. 140 women are told they have breast cancer every day.

You can help by giving at any of the collection points around campus.



Pharmacy Building continued

Brain cancer research

Come and take a look at the brain close up. You can also take part in challenges to see how quickly you can fill a Petri dish with a pipette, guess the volumes in flasks and examine cells through a microscope.

 11am–4.30pm, drop in anytime

 Foyer

Hollywood and #MeToo: a conversation on creativity

It's in the news almost daily, a key figure in the American entertainment industry is accused of abusing his power and harassing unwilling women. As #MeToo takes Hollywood by storm, in this talk we'll look at the conversations around art and artists, power and equality that society is now forced to have. We'll ask the question: is something broken in the way our culture thinks about creative geniuses? **Spaces will be allocated on a first come, first served basis.**

 1–2pm

 Room A05

Tracing your past

We'll show you how and why archaeologists use teeth to tell us where people and animals come from – because it's not just what you eat, it's also where you eat that's important. **Suitable for all ages.**

 11am–4.30pm, drop in anytime

 Room A06

Physics Building

Physics Buskers: physics tricks

The Physics Buskers perform tricks to amaze and entertain the whole family. Come and explore physics tricks that can be made with everyday household items. Push a straw through a potato, make a balloon kebab or a tornado in a bottle and even see a Cartesian diver.

Suitable for all ages.

 11am–4.30pm, drop in anytime

 Foyer



Marvellous magnets

From magnetic levitation to electricity generation, learn about magnetism from the people who work in the lab where MRI was invented. **Suitable for all ages.**

 11am–4.30pm, drop in anytime

 Mezzanine

Primo Levi and his collection of stories, *The Periodic Table*

Primo Levi is most famous as the author of *If This is a Man*, an autobiographical work on his survival of Auschwitz. But besides being one of the most famous twentieth-century Italian writers, he was also a research chemist. This talk will focus on how he used the elements to explore narratives both fictional and autobiographical. This talk will involve discussion of Shoah and suicide so is for those aged 18 and above only. **Spaces will be allocated on a first-come, first-served basis.**

 12.40–1.25pm and 3.30–4.15pm

 Room A1

Physics Building continued

The brain room ¹¹⁺

See a giant model of the brain in our 'brain room', and watch as it lights up when connected to a person to show which parts of the brain are in use when undertaking certain tasks. Take part in our brain games and play purely by thinking, controlling the game using your brain waves!

🕒 11am–4.30pm, drop in anytime
📍 Room A32b

Under pressure: the physics live show ⁷⁺

Come and see physics in action! See a ping-pong ball shoot through a metal can, discover how a banana can bang in a nail and find out how to make a real cloud using liquid nitrogen. **This 45-minute show is available on a first come, first served basis. It isn't suitable for those with a heart condition or sensitive hearing, due to loud bangs and smoke.**

🕒 1.30–2.15pm
📍 Lecture theatre, B1



Lessons from lead ¹¹⁺

Discover how lead can be used as an environmental marker of human history in Western Europe. This talk will explore results from an ice-core in the Swiss Alps, and go back over 2,000 years to show the impact of pandemics like the Black Death, economic revolutions and even climate change. **Spaces will be allocated on a first-come, first-served basis.**

🕒 12.40–1pm, 2.25–2.45pm
Professor Christopher Loveluck will be available outside of these times to chat to visitors about his talk.
📍 Room B21



Spread the message, not the germs

See how much bacteria could be on your hands with our glowing lotion, and track how everything you touch becomes 'infected'. Also learn how washing your hands can protect people! **Suitable for all ages.**

🕒 11am–4.30pm, drop in anytime
📍 Room B23

Superbug sluice

Find out how bacteria stick to surfaces where they lurk, ready to infect. Use your target shooting skills to destroy their communities and discover how antibiotics protect us. **Suitable for all ages.**

🕒 11am–4.30pm, drop in anytime
📍 Room B23

Bacteria busters

Can you stop the bacteria from sticking? Experiment with different materials and discover how new biomaterials can help stop bacteria building slime cities. You can also see real medical devices like catheters and hip implants. **Suitable for all ages.**

🕒 11am–4.30pm, drop in anytime
📍 Room B23

Tongue-sten

Chinese activities are suitable for all ages; German activities ⁷⁺

Have you ever heard German rap music? Did you know Mandarin Chinese has four different tones? Take part in our interactive language games and try and distinguish tones, translate rap music, and think about what your own language says about you.

🕒 11am–4.30pm, drop in anytime
📍 Room B23



Physics Building continued

(He)lium is for (He)aring

Find out about the nature of sound and your hearing. There will be hands-on (and ears-on) interactive demos for everyone, young and old. Drawing and craft activities will also be available, including the popular 'brain cap'. **Suitable for all ages.**

🕒 11am–4.30pm, drop in anytime

📍 Room B23

He

Calcium and magnesium: the power of 2+

Come and discover how calcium and magnesium are both essential for life processes and how these elements can be harnessed to help diagnose cancer. **Suitable for all ages.**

🕒 11am–4.30pm, drop in anytime

📍 Room C29

Ca

Mg

Game of fuels 11+

A fun interactive board game to explain how waste carbon gases (greenhouse gases) can be recycled into useful products including fuels, chemicals and medicines. **Spaces will be allocated on a first come, first served basis.**

🕒 11.15am, 12noon, 12.45pm, 1.30pm, 2.15pm, 3pm, 3.45pm, each session lasts 30 minutes

📍 Room C30

C

Science outside space

The air we breathe

Find out how your lungs work and what impact lung disease has on the human body.

🕒 11am–4.30pm, drop in anytime

📍 Physics Quad, on the grass outside the Physics Building

All activities 5+

Wonder what makes you, you?

This simple fun practical activity allows you to extract DNA from your own cheek cells and get a taste of what it's like to be a scientist using day-to-day tools in a lab setting.

Virtuali-Tee

Come and try out the Virtuali-Tee, a t-shirt that will transport you inside the body to see a healthy set of lungs at work.

Barmy ball pit biomarkers

Take on our ball pit challenge and learn about the role of biomarkers in tackling lung disease.

Respiratory relay

Climb inside the breathing system and explore the differences between healthy and diseased lungs with pop-up tents and activity tunnels.



Science outside space continued

LED light sabre martial art experience

Can you learn the skills to defend Earth from the Shadow side? Learn mindfulness, how to fight with an LED sabre, and how to use a medieval knight's skills with a sci-fi weapon. **Suitable for all ages. Spaces will be allocated on a first come, first served basis.**

🕒 11am, 12pm, 1pm, 2pm, 3pm and 4pm,
each session lasts 15 minutes

📍 Physics Quad

Si

The MOMENT ¹¹⁺

The MOMENT is a brain controlled dystopian sci-fi film following three interlinking stories. Directed by artist and researcher Richard Ramchurn, it uses a Neurosky headset to detect EEG brain waves which will affect the edit, sound mix and narrative of a specially created movie. **Booking is essential** - visit *The MOMENT* caravan at the start of the day to book your place. The film contains mild threat.

🕒 11am, 11.35am, 12.10pm, 1.30pm, 2.05pm, 2.40pm,
3.15pm and 3.50pm, show time is 35 minutes

📍 On the grass outside the Chemistry Building

Mo

Hydrogen power

See the power of hydrogen in action, from model hydrogen cars powered by solar or wind power and batteries in water producing hydrogen bubbles. You'll also be able to take a look at a real hydrogen fuel cell car. **Suitable for all ages.**

🕒 11am–4.30pm, drop in anytime

📍 On the grass outside the Chemistry Building

H

Tours

Discover the architecture and landscaped gardens of University Park

Join the Friends of University Park for short garden tours around some of the University's gardens and historic houses. Discover more of the rich history of the properties and their inhabitants and gain an insight into one of the prominent and colourful individuals with a strong connection to the estate. **Spaces will be allocated on a first come, first served basis. Please note, these tours last between 1-1.5 hours and involve walking some distance so may not be suitable for all.**

🕒 Garden tour 11.30am–12.30pm

Historic house tour 12.45–1.45pm

Heritage encounters tour 2–3.30pm

📍 Tours will leave from opposite the Maths Building
(see T symbol on the map) T



Things you need to know

Places to eat 🍴

All of the following cafés and food outlets are open during Wonder:

- Café in George Green Library
- Café in Coates Building
- Pavilion Café at Nottingham Lakeside Arts
- Gallery Café at Nottingham Lakeside Arts
- Man's Gourmet in the Portland Building
- Starbucks in the Portland Building
- Mooch in the Portland Building
- Portland Coffee Co in the Portland Building



Portland Coffee Co in the Portland Building

Accessibility bus

If you have mobility issues a bus will be available to transport you around the campus should you need it. Please speak to a steward helper on the day who will be able to call the bus for you.

Parking

Parking is free throughout the day and visitors can park in any of the car parks on campus (with the exception of the car park outside Trent Building). See the event map in this guide for the nearest car park locations.

Shops and cashpoints

There is a Boots and the Students' Union shop in the Portland Building on B floor. A cashpoint is available at the back of Portland Building and in the Coates Building reception area.

Lost property

If you discover any lost property at Wonder or if you lose something, please speak to the nearest steward or staff member. If you realise you have lost something at Wonder after the event, please contact us and we will try and help. Contact details are on page 42.

Lost children

If you come across a child who says they are lost or if you lose your child please notify the nearest steward or staff member who will alert security.

Fire alarms

All buildings have fire alarms and fire detection systems. If you hear a continuous siren/bell, evacuate by the nearest exit. University staff will take control and call the emergency services if necessary.

First aid

Paramedics will be patrolling the campus throughout the day and East Midlands Ambulance Service will be based behind DH Lawrence Pavilion, see the first aid cross on the map. If you need to seek first aid speak to a member of staff who will be able to assist or call for help.

Photography and video on the day

Wonder is a public event and by taking part you give permission to being photographed/filmed for live broadcast and recorded for commercial use by the University in print and online. If you do not wish to give permission, please make yourself known to staff at an Information Point or the photographers directly.

Contact us



0115 951 3296



wonder@nottingham.ac.uk



nottingham.ac.uk/wonder

All information in this programme is correct at the time of print, May 2019. Activity details may be subject to change, so please refer to this as a reference guide. Our Wonder website will host the most up to date listings: nottingham.ac.uk/wonder

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Key to periodic table symbols:

Ag Silver	Au Gold	C Carbon	Ca Calcium	Cl Chlorine
Cu Copper	Fe Iron	H Hydrogen	He Helium	I Iodine
Mg Magnesium	Mo Molybdenum	N Nitrogen	Na Sodium	O Oxygen
Pb Lead	Si Silicon	W Tungsten	Zn Zinc	

1869
P
Periodic

Nottingham
celebrating
150 years

2019
Ta
Table



Nottingham
Breast Cancer
Research Centre
at the University of Nottingham

Be part of the next breast cancer research breakthrough

One in seven women in the UK will be diagnosed with breast cancer in their lifetime. Your support will help our dedicated researchers transform lives and find the next breast cancer breakthrough faster.



Run the Robin Hood Half Marathon

Last year, 45 people raised over £8,000 taking on the Robin Hood Half Marathon for the Nottingham Breast Cancer Research Centre. We want to make this year bigger than ever!

Could you join our team? Register or find out more at nott.ac.uk/robinhoodhalf