

if OXFORD SCIENCE
+ IDEAS FESTIVAL



**Ideas for
a wonderful world,
for everyone**



features / events / tell friends & family

6 Oct - 3 Nov 2024

if-oxford.com

Thank you

IF Oxford sends huge thanks to its hundreds of collaborators, supporters and talented individuals who volunteer to make the Festival possible. It could not happen without their time, creativity and enthusiasm.

IF Oxford 2024 is supported by



IF Oxford is an independent Oxford-based charity (Charity No. 1151361), with Trustees and a small team that work year-round on the Festival.

IF Oxford uses Pay What You Decide (PWYD) ticketing so everyone can choose to pay whatever they can afford, with all donations supporting next year's programme. If you would like to contribute, please visit www.if-oxford.com/donate

Festival Team: Dane Comerford, Lisa Brionne-Gray, Stephanie Organ

Trustees: Ian Thompson, Rory Campbell, Tim Hart, David Pyle, Sarah Macnaughton, Nia John, Samuel Mansall

Welcome to the 2024 Science and Ideas Festival

Technology, knowledge and artistic endeavours move forward together, but are nothing without you, the human at the centre of your world. The IF Oxford Programme cover design features an image of Earth created using a new optical illusion technique. Despite its significant distortion, the picture feels familiar, revealing landmasses of Greenland and Africa when viewed from a distance, emerging from simple lines (see page 25 to discover more).

IF Oxford returns this autumn as a social way for you, your family and your friends to connect with science and ideas up close. Events are created for you to meet and question experts and other enthusiasts, have fun and experiment. Meanwhile, magazine features present snapshots of conversations awaiting you this October. This science and ideas Festival is for you, please enjoy the season.

IF Oxford is run by an independent charity and its hundreds of volunteers want you to have a good time.

Most events need to be pre-booked and use Pay What You Decide (PWYD) ticketing, which means you choose to pay whatever you can afford. Donations during booking or after an event all support next year's Festival.

All events have age recommendations and are tagged as **WORKSHOP, TALK, TOUR, PERFORMANCE** and more.

Blue pages show interactive zones, where you can meet scientists and creative professionals in a safe and friendly place.

Orient yourself with the map and calendar of events (pages 42 and 43) and search, filter and book your events online.

Keep up-to-date and share your experience of #IFOX2024 on social platforms, and for information and tickets, visit: www.if-oxford.com



Dane Comerford, Festival Director





Wed 2 – Sat 19 October
Mon – Fri 10am – 4pm & Sat 12 – 4pm

📍 **The North Wall Arts Centre, OX2 7JN**

All ages **FREE**

Paul Kilsby: The Pensive Image

These photographs explore the intricate relationship between art and science. In "Unnatural Histories," **Kilsby** stages detailed tableaux using taxidermy to critique nature documentaries, questioning authenticity and familiarity. In "Geometria," he invites you to examine shape, order and fragility, highlighting consequences of the Anthropocene. Both series challenge perceptions and provoke thought on the co-existence of art and science.

EXHIBITION



Wed 9 October – Sat 2 November

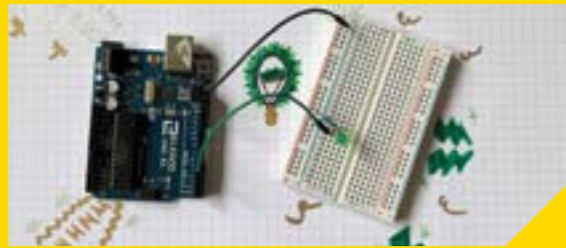
📍 **Various times and locations – see p43**

Teenage / Adult **FREE**

Uchiwa science: optical illusions

Experience visual illusions through artisanal craftsmanship with the first collaboration between IF Oxford, Komaruya Sumii and **Akiyoshi Kitaoka**. Komaruya, a 400-year-old Japanese artisanal hand-fan manufacturer, creates a perfect setting to experience and share perspectives on perception. Dynamic designs from Professor Kitaoka, known for his extensive research on perceptual motion and collaboration with Lady Gaga, offer a mesmerising insight in to vision and feeling; see p25.

EXHIBITION



Wed 9 October (every Wednesday)
5 – 6.30pm

📍 **Online event**

7 - 12 yrs / Teenage / Adult **PWYD**

Glow Your Own (1/6)

Get ready for the Oxford Light Festival by creating your very own moving lantern. This weekly workshop series will help you build your own creative circuit with sensors that control LEDs and motors. Receive an Arduino starter kit (sent to UK addresses by post) and use tools like Tinkercad to combine art and engineering. Six live video sessions on Wednesdays, recorded to watch again on **if-oxford.com**

WORKSHOP



Thu 10 October
4.30 – 5.15pm for 7+ / Family
7 – 8pm for Adult / Teenage

📍 **New Road Baptist Church**

7 - 12 yrs / Teenage / Adult **PWYD**

Designing Deceptions

Optical illusions share artistic and scientific appeal as they question our perception of reality. This fast-paced demonstration-packed talk explores how the mind can be deceived, and how optical principles, smart materials and even typographical word play can be exploited in magic effects. **Dr Matt Pritchard**, is two-time winner of the international "Best Illusion of the Year Contest".

PERFORMANCE



Fri 11 October | 5 – 6pm

📍 **Oxford Playhouse, OX1 2LW**

7-12 yrs / Teenage **Tickets £8**

Braintastic! Science: Am I Normal?

What do you think is normal? Does 'normal' exist? In this fun, interactive show, Braintastic! Science dive into statistics, genetics, evolution and brain plasticity to discover what makes you you, and why each of us is truly unique. Packed with demos and experiments, including creating our own brain art, this show explores the concept of neurodiversity and the strengths we can all bring to society.

INTERACTIVE PERFORMANCE



Fri 11 October | 8 – 9.30pm

📍 **Oxford Playhouse, OX1 2LW**

Teenage / Adult **Tickets £8**

The Immune Mind

For most of medical history, it was thought that the immune system had little to do with mental health. New science is now turning this assumption on its head. **Dr Monty Lyman**, Academic Clinical Fellow in Psychiatry at the University of Oxford, discusses the fascinating cases and exciting new research that inspired his new book and Radio 4 miniseries, *The Immune Mind*.

TALK



Fri 11 October | 8 – 9.30pm

📍 **The North Wall Arts Centre, OX2 7JN**

Teenage / Adult **Tickets £12**

Jericho Comedy: Stand-up Science

Love science x Love comedy = Laugh smart! Stand-up Science presents comedians talking about their favourite scientific topics. If you've followed Jericho Comedy's sell-out shows on nature, bacteria, evolution and insects in Oxford or Edinburgh, come back. If not, factor into your festival some Stand-up Science at The North Wall. Hosted by scientist **Matt Hobs** and Jericho Comedy founder **Alex Farrow**.

PERFORMANCE



Pay What You Decide (PWYD) donations help ideas take off



Explorazone

Saturday 12 October | 11am – 5pm

7-12 / Teenage / Adults

📍 Wesley Memorial Church, OX1 2DH

INTERACTIVE

Pre-book, PWYD

See some of the most exciting science and meet the best and friendliest inventors in town for free. Try out dozens of interactive activities and demonstrations suitable for all ages.

From 11am, for an hour, Explorazone will be open for the families of adults and children with autism spectrum or other neurodiverse conditions to explore and discuss science and ideas in a quieter and less crowded space.

Radiation all around us, every day

Learn about how we are all exposed to radiation, from a variety of sources, everyday. Find out how much exposure you are likely to get, what the risks are, and explore some everyday items to see which are radioactive.

UKHSA & Society for Radiological Protection

Surface matters

Try out interactive games while delving into the fascinating world of surface chemistry. Explore how HarwellXPS uses X-ray technology to reveal the secrets hidden within everyday objects, from kitchen gadgets to ancient fossils.

HarwellsXPS

Fusion Energy: Can you reach 100 million degrees?

Take our Tokamak simulator for a spin and see if you can meet the conditions needed for commercial fusion, six times hotter than the centre of the sun.

Tokamak Energy

How & why we edit genes

Explore gene editing with researchers to discover some of the techniques scientists use to edit DNA, and how these modified genes could be useful for treating different diseases.

University of Oxford - MRC Weatherall Inst. of Molecular Medicine & Radcliffe Dept. of Medicine

Science around the world

What challenges do researchers from different countries face? Explore the stories of different outbreak researchers and doctors from Europe, Africa, South America, South East Asia, and more! Try on personal protective equipment used in different outbreaks, challenge yourself in our games, and add your "researcher photo" to our photo wall!

University of Oxford - Nuffield Department of Medicine (NDM)

Diamond: more than just a gemstone

Diamond's properties stretch far beyond its appeal as a precious gemstone. Its extreme and diverse characteristics make it the perfect material for a range of industrial applications including the machining of smartphones, high-end audio systems and in quantum enabled sensing devices. Explore diamond structure with hands-on activities

Element Six (UK) Ltd

Cutting-edge research

Join in an interactive exploration of cutting-edge science. Become a trainee surgeon and try your hands at surgery to discover more about the exciting research from two global medical research groups on your doorstep.

University of Oxford - NDS & NDORMS

AI: can you spot the difference?

Join expert scientists and engineers who research novel AI techniques in imaging, as we explore the possibilities of AI and its potential applications. From AI in medical imaging, to song lyrics and photos, see if you can determine the difference between the work of human and machine.

Mirada Medical

Superconductivity and MRI

Explore the insides of the machines used in hospitals around the world to diagnose tumors, clots and tissue damage. Take a look at the curious and cool world of cryogenics, the low-temperature technology used in the design and manufacture of superconducting magnets in Oxfordshire.

Siemens Healthineers

Animal boudoirs

Try your hand (or beak) at making bird nests and get a feel for how and why animals behave the way they do. Get in the Zen zone and have a go at making a puffer fish sand nest with rakes and other fishy implements. No cheating though, opposable thumbs not allowed!

The Association for the Study of Animal Behaviour

Protecting your future

Discover what can help keep you well even when under threat from invisible forces! Take part in a series of games and movement activities that show how vaccines and exercise can keep different diseases away.

University of Oxford - Department of Paediatrics

Banana equivalent dose

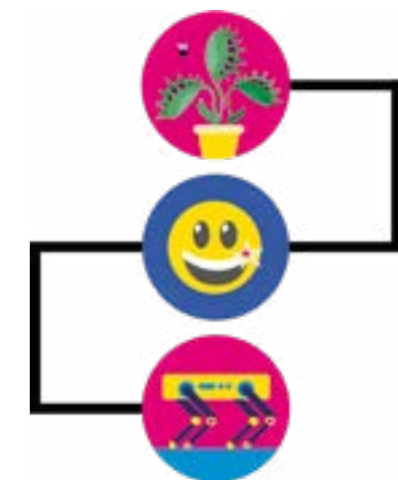
Radiation is used in medical imaging procedures like X-rays and CT scans. Learn about radioactive substances and behaviour through quizzes, games and videos, and find out what bananas have to do with measuring radioactivity.

Blue Earth Diagnostics Ltd

Harnessing the power of the immune system

Meet researchers at the forefront of next generation immunotherapy and find out how we can use the body's own immune system to develop new medicines to treat cancer, infectious and autoimmune diseases.

Immunocore



New ideas increase your options



Sat 12 October | 10am – 5pm

📍 Science Oxford Centre, OX3 8SB

All ages Tickets £8
Family Day with Live Lab

Join special-guest researchers at the Science Oxford Centre for interactive Live Labs. Have fun experimenting with 20+ hands-on exhibits in the Exploration Zone: create flying designs at the air table, build a giant magnetic ball run, or watch water freeze! Head outside to unleash your inner explorer in the 15 acres of woodland and make a splash at the Water Lab. Special activity: **Rivers and ponds with Cotswolds National Landscape. INTERACTIVE**



Sat 12 October | 11.30 – 12.30

📍 Wesley Memorial Church, OX1 2DH

All ages PWYD

Poetry of Science

Hear the freshest imagination from new poets and meet the 2024 Poetry of Science competition winners (ages 6-16.) Poetry styles including sonnets and free verse show ideas in science through the lens of youth, hosted by Tara Stubbs, Professor in Modern and Contemporary Literature, University of Oxford and Grace Copeland, Researcher and Poet, Somerville College. Pick up your free Poetry of Science anthology and consider creating your own entry for next year.

PERFORMANCE



Sat 12 October | 1.30-2.30pm & 3-4pm

📍 Wesley Memorial Church, OX1 2DH

7-12 yrs PWYD

Breakdance: introducing the Solar System

The Universe is vast and mysterious, containing all of space, matter, energy and time (including you!) This dance workshop gives a brief overview of our Solar System and what makes it special. Watch breakdancing and push against the Earth with your own hands and feet to explore the identity of home and our neighbour planets and understand why they all are so different! Part of Dancin' Oxford Family Festival.

WORKSHOP



Sat 12 October
 1.30 – 2.15pm & 3 – 3.45pm

📍 New Road Baptist Church, OX1 1LQ

All ages PWYD

Bubble superstars

Join Dr **Sarah Bearchell** to explore bubbles! We'll be testing different shapes, colours and sizes of bubbles and thinking about some experiments you can try at home. You'll also learn some Makaton signing along the way! This show is specially designed for young audiences and those with additional support needs.

INTERACTIVE



Sat 12 October | 3 – 4pm

📍 Oxford Playhouse, OX1 2LW

7-12 yrs £9

The Science of superheroes

Come take a look at the science behind the powers of some popular superheroes and how they relate to uses of radioactivity in real life. The show is presented to you by professional stunt actors and the dynamic team from the Society of Radiological Protection, a professional society for those working in the field of radiation safety. As well as learning and being entertained you will also get chance to see some real scientists and what a diverse bunch we can be.

PERFORMANCE



Sat 12 October | 7.30 – 8.30pm

📍 Oxford Playhouse, OX1 2LW

Teenage / Adult £9

May the farce be with you

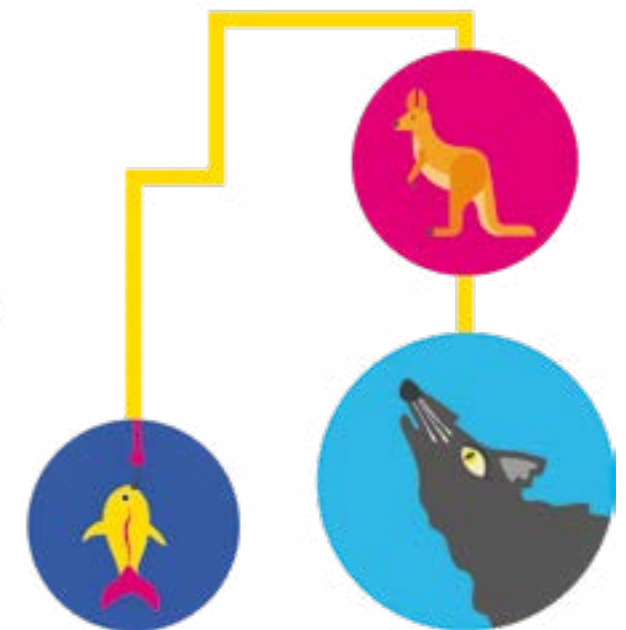
Comedian & cartoonist **Mike Capozzola's** multimedia show mocks and celebrates everything related to *Star Wars*. If you felt a great disturbance in the force, it means that you should expect: uncanny impressions, archival art from school notebooks, a merciless appraisal of *Star Wars* and the tale of an epic lightsaber battle that nearly derailed a New York parade.

PERFORMANCE

My Body is Amazing

*Stomach, heart, bones and toes,
 Bottom, blood, brain and nose,
 The science I love is biology,
 Because it's what makes me, me!*

by
Megan Wallington,
Poetry of Science winner 2019
 Age category: school years 1–2



IF Oxford uses Pay What You Decide (PWYD), see p3

Pre-book all events online ▶ www.if-oxford.com



Sun 13 October | 10am – 12pm, & 1 – 3pm

📍 **Headington Hill Hall, OX3 0BP**

Teenage - Adult **PWYD**

Disinformation 'war gaming'

What is influencing societal behaviour? Explore tactics and strategies for social resilience using Game Theory and enjoyable game play. This in-depth disinformation workshop is set in an alternate world of countries, highlighting real-world examples of foreign and domestic electoral interference and disinformation campaigns. *Snacks and refreshments available. Limited to 12 people per session.*

WORKSHOP



Mon 14, Wed 23 October & Fri 1 November | 11 – 11.30am

📍 **Oxford Westgate Library, OX1 1PE**

Under 7s **Free**

Rhymetime: Songs and Rhymes for Under 5s

Mon 14 Oct 11–11.30am
Weather and Seasons: From rain to sunshine, hot to cold, all year round.
Wed 23 Oct 11–11.30am
Animals and flight: Explore the animal kingdom
Fri 1 Nov 11–11.30am
Water and the sea: From rivers to oceans, fish to seashells, imagine a day at the seaside

STORYTELLING



Mon 14 October (every monday) 3 – 4.45pm

📍 **Oxford Westgate Library, OX1 1PE**

All ages **Free**

Lego Club

With thousands of individual pieces, the Oxford Westgate Library Lego collection is yours to browse and build with. Perfect for makers aged 5–12 with a grown up. Children must be accompanied by an adult.

WORKSHOP



Mon 14 October | 6.30 – 7.30pm

📍 **Wig and Pen, OX1 2AU**

Teenage / Adult **PWYD**

Ironclad: how liveable planets, beavers' teeth and vaccines are linked

This 4.6 billion-year whistle-stop tour of events covers the formation of our planetary home, the evolution of complex life, and iron's role in driving infections and illnesses. **Hal Drakesmith**, Professor of Iron Biology, and **Jon Wade**, Professor of Planetary Materials, dramatise the story of iron, a crucial element fundamental to your world.

TALK



Mon 14 October | 6.30 – 8pm

📍 **The North Wall Arts Centre, OX2 7JN**

Teenage / Adult **PWYD**

Paul Kilsby in conversation with James Attlee about "The Pensive Image"

Paul's series of images explore the intricate relationship between art and science. James is a widely-published non-fiction writer. His latest book, *Under the Rainbow: Voices from Lockdown* was published in May 2021. His work combines travel writing, history, art, urbanism and the anthropology of the everyday.

DISCUSSION



Tue 15 October | 6 – 7pm

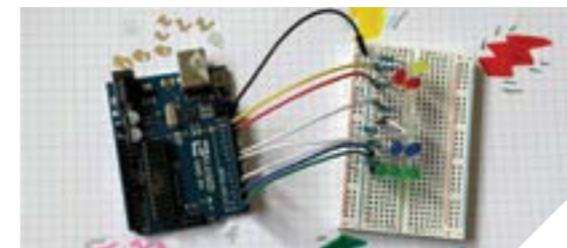
📍 **James Tavern, OX4 1EU**

Teenage / Adult **PWYD**

Unpacking contraception

Have you really never wondered what kind of research goes into developing modern contraceptives?! How reliable are fertility apps? And are we any closer to a "male pill"? Join a team of researchers to discuss all things contraception. From pills, to coils, to apps, come and ask your burning questions in this adult-only conversation. **Recommended age 16+ or with a parent**

DISCUSSION



Wed 16 October | 5 – 6.30pm

📺 **Online event**

7 - 12 yrs / Teenage / Adult **PWYD**

Glow Your Own (2/6)

Join in today (previous sessions on-demand) and get ready for the Oxford Light Festival, creating your very own moving lantern. This weekly workshop series will help you build your own creative circuit with sensors that control LEDs and motors. Receive an Arduino starter kit (sent to UK addresses by post) and use tools like Tinkercad to combine art and engineering. Six live video sessions on Wednesdays, recorded to watch again on if-oxford.com

WORKSHOP



Wed 16 October (every Wednesday) 6 – 7pm

📍 **Oxford Westgate Library, OX1 1PE**

Teenage / Adult **Free**

Language Café

Bonjour! Guten Tag! Merhaba! Share stories and swap languages from around the world. This session is friendly and informal, with most of the learning happening through speaking and listening. Everyone is welcome, whether you have a native language to share, are a professional linguist, or you are just starting to learn about a new language or culture.

INTERACTIVE



Thu 17 October (every Thurs evening)
4.30 – 7pm

📍 Oxford Westgate Library, OX1 1PE

Teenage / Adult Free

Board Game Club

Try out Oxford Westgate Library's weekly Board Game and Tabletop RPG (role-playing game) club. Explore a massive collection of board games, including Catan, Wingspan, Exploding Kittens, and Root. Aimed at ages 16 and up, it's the perfect opportunity to enjoy games and connect with fellow enthusiasts!

INTERACTIVE



Thu 17 October | 6 – 8pm

📍 Worcester College, OX1 2HB

Adult Tickets £10

Drawing At Dusk: Mindful Creativity Workshop

Starting with a guided walk through Worcester College gardens at dusk, this meditative drawing workshop will encourage you to engage with non-visual sensory elements and discover a new way of drawing. Artist **Julia Thaxton** will guide you through this outdoor all-weather workshop, using sounds, smells and sensations as drawing prompts.

WORKSHOP



Fri 18 October | 6.30 – 7.30pm
Followed by 30 minutes Q&A

📍 New Road Baptist Church, OX1 1LQ

Adult PWYD

Assisted dying: choice, changes and challenges

How might society balance the political, ethical, emotional and practical complexities surrounding the question of assisted dying? Share your views at this safe-space event, joining Kathy Sykes in conversation with **Dominick Wilkinson** and **Jamie Hale**. Uncover key issues and nuance across this tricky terrain.

TALK



Sat 19 October | 10am – 5pm

📍 Science Oxford Centre, OX3 8SB

All ages Tickets £8

Family Day with Live Lab

Join special-guest researchers at the Science Oxford Centre for interactive Live Labs. Have fun experimenting with 20+ hands-on exhibits in the Exploration Zone: create flying designs at the air table, build a giant magnetic ball run, or watch water freeze! Head outside to unleash your inner explorer in the 15 acres of woodland and make a splash at the Water Lab. Special activity: **Your health at home and away** with UKHSA

INTERACTIVE

Tech Works

Saturday 19 October | 11am – 5pm

📍 Oxford Works, ARC Oxford, OX4 2SU

Pre-book, PWYD

7-12 yrs / Teenage / Adult

INTERACTIVE

Free parking

The Festival is returning to Oxford's growing knowledge quarter with activities that take on the smallest, hottest, most detailed and carefully constructed science for you to see. Visit Oxford Works and meet the experts at the heart of science and innovation in the city.



66 impossible things

In Alice Through the Looking Glass, the White Queen declares she can "believe six impossible things before breakfast!" Why stop there? Richard Robinson demonstrates 66 simple magic tricks you can learn quickly, impress others with instantly - all science-based - so quick and easy to learn and IMPOSSIBLE? to understand.

Brighton Science Festival

Star power: energy for the future

What happens inside the sun? How can you contain a star? Why do scientists want to make a star anyway? Discover how magnets, robots and the fourth state of matter come together to make a star here on Earth and why fusion could be so important in our world of increasing energy demand.

UKAEA

Chemistry in the environment

Enter the world of environmental pollution and learn how climate change is linked with ocean acidification. Discover tools scientists use to test the health of rivers, how microplastics move through the environment and sources of air pollution.

Royal Society of Chemistry, Environmental Chemistry Group

Cutting-edge research

Join in an interactive exploration of cutting-edge science. Become a trainee surgeon and try your hands at surgery to discover more about the exciting research from two global medical research groups on your doorstep.

University of Oxford - NDS & NDORMS



Sat 19 October | 11am – 12pm

📍 St Sepulchre's Cemetery, OX1 2HD

Sat 19 October | 2 – 3pm

📍 Holywell Cemetery, OX1 3TU

Teenage / Adult

PWYD

Geology in a cemetery near you

For geologists – amateur, student, professional or casual – almost any cemetery provides opportunity for scientific fieldwork at leisure, right on the doorstep and at no cost. Join geologists **Nina Morgan** and **Philip Powell** on a guided geological walk through an Oxford cemetery. You'll never look at cemeteries in the same way again.

TOUR / INTERACTIVE



Sat 19 October | 11am – 12pm

📍 Oxford Westgate Library, OX1 1PE

Teenage / Adult

Free

Origami Club

Learn how to fold paper through the ancient art and simple pleasure of origami. Make birds, fish, dragons, stars, flowers and use your skills for endless creativity. Come with friends, bring family or join solo to work with and forge friendships among fellow folders.

WORKSHOP



Sat 19 October | 1.30 – 3.30pm

📍 The North Wall Arts Centre, OX2 7JN

All ages

PWYD

The Pensive Image: Workshop with Paul Kilsby

Make a Fibonacci spiral, drawing inspiration from sunflowers, or construct an infinite Moebius strip from paper. Play with geometry and other areas of mathematics to create your own captivating art to take home.

WORKSHOP



Sat 19 October | 2.30 – 3.30pm

📍 Oxford Westgate Library, OX1 1PE

Under 7s - 7-12yrs

Free

Storytime

Sat 19 Oct, 2.30-3.30pm
Watery tales with craft activities

Sat 26 Oct, 2.30-3.30pm
Seasonal stories with craft activities

Children must be accompanied by an adult.

STORYTELLING



Super Science Sunday

Sunday 20 October

Suitable for 7+ years old

10am – 1pm & 2pm – 5pm

INTERACTIVE

📍 Science Oxford Centre, OX3 8SB

Free parking

Pre-book, PWYD

Spend a special day at the Science Oxford Centre. Visit the Exploration Zone, woodland and outdoor Water Lab and meet researchers, scientists and presenters! See a magician demonstrate science-based magic tricks or join University of Oxford and Uncomfortable Oxford and discover some of Oxford's unusual medical stories!

Tickets include time in the Exploration Zone with its 20+ hands-on exhibits and outdoors where you can enjoy trails in the woodland or make a splash at the Water Lab.

66 Impossible Things

In Alice Through the Looking Glass, the White Queen declares she can "believe six impossible things before breakfast!" Why stop there? Richard Robinson demonstrates 66 simple magic tricks you can learn quickly, impress others with instantly - all science-based - so quick and easy to learn and IMPOSSIBLE? to understand.

Brighton Science Festival

Oxford Health Histories

Oxford has a long and captivating history of medicine and healthcare! Travel back in time to uncover surprising tales of medical discovery and intrigue such as the strange case of Anne Greene who was 'resurrected' on the dissecting table. Explore the more uncomfortable and lesser-known aspects of medical history, and take home worksheets to continue the journey at your own pace!

Oxford Health Histories (University of Oxford) & Uncomfortable Oxford



Mon 21 October | 6 – 7.30pm

📍 New Road Baptist Church, OX1 1LQ

Teenage / Adult

PWYD

Animal Communication: an exploration through poetry and practical example

Interacting and communicating with animals is a vital human activity. Join **Ilse Pedler** to investigate this through her work as a veterinary surgeon and poet. Medical Detection Dog participants will contribute their experiences of animal communication changing their lives. Expect a poetic and practical exploration of how animals and humans really 'talk' to each other.

TALK



Tue 22 October | 7 - 7.45pm

📍 Bullingdon, OX4 1UE

Teenage / Adult

PWYD

Whose IP Is It Anyway?

Inspired by the improv show *Whose Line Is It Anyway?*, this event unboxes the pivotal role of Intellectual Property (IP) in commerce and culture. Discover the fascinating intersections of IP with confectionery, pop music and toys, underlining how these everyday items exemplify the blend of culture and STEM. Join **Marks & Clerk** and comedic MC to explore why IP is crucial for innovation and cultural impact in these diverse fields.

Event sponsored by *Marks & Clerk*

TALK/PERFORMANCE

Science wonder discovery evening

Tue 22 October | 5 – 8pm

📍 The Farmhouse, Begbroke Science Park, OX5 1PF

Teenage / Adult

PWYD

Discover research and innovation from Begbroke Science Park and across Oxford University, helping to create a better world. Exciting changes are underway with emerging technologies and research spaces alongside new art and science collaborations. Meet scientists at spin-out labs and hear about different paths into careers in science.

Presented by *Oxford University Development*

INTERACTIVE



Tue 22 October | 8.30 – 9.45pm

📍 Bullingdon, OX4 1UE

Teenage / Adult

PWYD

More scientific answers to ridiculous questions

The Ig Nobel Prizes are awarded annually to celebrate unusual and seemingly trivial achievements in scientific research. Tonight, **Dr Tom Crawford** returns to share some more of his favourite improbable research – from postman's testicles to bored teachers – and delve deeper into the comedic world of 'award-winning' research.

TALK/PERFORMANCE

Spin-Out Companies

Join talks and activities from scientists highlighting their own career paths working, at start-up and spin-out companies, including **Dr Bryan Ng**, Founder and CEO of Repolywise, transforming unrecyclable waste plastic into new plastic. See a model waste reactor and find out how the process works.

Lab Tours

Find out about work in the Materials Characterisation Lab with tours from **Dr Colin Johnston**, and hear about research within the Physical Acoustic Laboratory with **Dr Davide Preso**, including a talk and option to visit the lab on a tour.

Spotlight on Engineering

Department of Engineering Science researchers are developing new ways to tackle diseases and health conditions, store energy, and explore new horizons. Speakers include **Jingyi Yang** on how we can use origami to redefine space exploration.



Exploring Nanoscience

Take part in activities that explore the properties of materials at the nanoscale, with **Dr Christiane Norenberg**.

Sustainable Fashion and Circular Economy Materials

See examples of sustainable fashion from **Cherwell Collective**, based in Kidlington, and look at some of this year's Sustainable Fashion Week collection shown at Blenheim Palace this September.



Wed 23 October | 4 – 5pm

📍 Online event

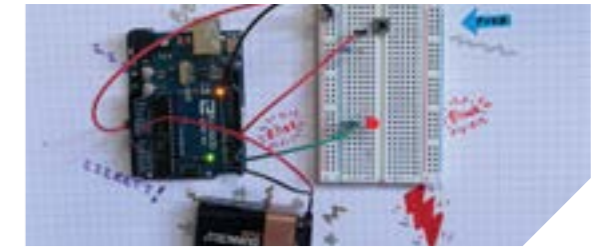
Teenage / Adult

Free

Have you thought of a career in medical research?

Join a conversation with three researchers from different University of Oxford medical departments. Ask your questions about what medical research is like today and how others started their medical journey. This session and others in the series aim to highlight the wide range of different careers available in medical research and some of the surprising ways that people have got there.

TALK



Wed 23 October (every Wednesday) | 5 – 6.30pm

📍 Online event

7 - 12 yrs / teenage / Adult

PWYD

Glow Your Own (3/6)

Join in today (previous sessions on-demand) and get ready for the Oxford Light Festival, creating your very own moving lantern. This weekly workshop series will help you build your own creative circuit with sensors that control LEDs and motors. Receive an Arduino starter kit (sent to UK addresses by post) and use tools like Tinkercad to combine art and engineering.

Six live video sessions on Wednesdays, recorded to watch again on if-oxford.com

WORKSHOP



Fri 25 October 6 – 8.30 pm

📍 New Road Baptist Church, OX1 1LQ

7 - 12 yrs Tickets £10

Could you run the world?

What would our world look like with you in charge? Explore the UN Sustainable Development Goals by playing the UN SDGs Simulation Game, balancing the demands of the economy, the environment and society into the future. Expect to be challenged and energised by this highly interactive experience where your team will run the world and discover the future you will choose.

Includes light snack and drinks

WORKSHOP



Sat 26 October | 10am – 1pm & 2 – 5pm

📍 Culham Campus, OX14 3DB

Teenage / Adult Free

Powering the Future: UKAEA Open Day

Come to the UK's biggest door and look around the world's most famous fusion machine. This open day is a rare chance to tour the facility and see equipment used for developing sustainable fusion energy. Start with the basics of fusion physics and power-up conversations with engineers, scientists and technicians before a tour of the record breaking Joint European Torus (JET).

GUIDED TOUR / TALK / OPEN DAY



Sat 26 October | 10am – 5pm

📍 Science Oxford Centre, OX3 8SB

All ages Tickets £8

Family Day with Live Lab

Join special-guest researchers at the Science Oxford Centre for interactive Live Labs. Have fun experimenting with 20+ hands-on exhibits in the Exploration Zone: create flying designs at the air table, build a giant magnetic ball run, or watch water freeze! Head outside to unleash your inner explorer in the 15 acres of woodland and make a splash at the Water Lab. Special activity:

Bloodsafe virtual reality with Nuffield Department of Medicine

INTERACTIVE



Sat 26 October | 10.30am – 12.30pm

📍 Oxford Museum of Natural History, OX1 3PW

Teenage / Adult Tickets £10

Discovering Dinosaurs: experimental drawing workshop

This workshop will trace a route back to the origins of geological science to celebrate 200th anniversary of the discovery of the first dinosaur. Taking the dinosaur exhibits in the main court as a starting point, artist **Julia Thaxton** will lead you on an imaginative journey of discovery and use playful drawing games to create new possibilities of artefacts yet to be found.

WORKSHOP



Sat 26 October | 11am – 12pm

📍 Oxfordshire County Library, OX1 1DJ

Teenage / Adult Free

Origami Club

Learn how to fold paper through the ancient art and simple pleasure of origami. Make birds, fish, dragons, stars, flowers and use your skills for endless creativity. Come with friends, bring family or join solo to work with and forge friendships among fellow folders.

WORKSHOP



Sat 26 October 11 – 11.45am & 2 – 2.45pm

📍 Pegasus, OX4 1RE

7 - 12 yrs £8-£15

The Horrible Science Show

Nick Arnold brings his books to life with activities and readings from his extensive collection of horrible books. Explore some of the gruesome stories connected with scientific discovery and imagine what you might dare to discover as a scientist yourself!

PERFORMANCE



Sat 26 October | 2 – 6pm

📍 Covered market

All ages PWYD

Twin Cities Postcard Project

Oxford has seven Twin Cities with cultural, academic and social links throughout the globe. Celebrate 250 years of the Covered Market by writing one of the exclusive 'Covered Market across the years' postcards and sending messages to one of Oxford's Twin Cities as a gesture of friendship and connection. The Handwritten Letter Appreciation Society will be helping encourage postcard and letter writing to each of the seven destinations and your postcards will be sent via the Twin Cities Postbox and display in the Covered Market.

WORKSHOP



Sun 27 October | 11am – 12pm

📍 Headington Cemetery, OX39BY

Sun 27 October | 3 – 4pm

📍 St Mary & St John, OX41UH

Teenage / Adult PWYD

Geology in a cemetery near you

For geologists – amateur, student, professional or casual – almost any cemetery provides opportunity for scientific fieldwork at leisure, right on the doorstep and at no cost. Join geologists **Nina Morgan** and **Philip Powell** on a guided geological walk through an Oxford cemetery. You'll never look at cemeteries in the same way again.

TOUR / INTERACTIVE

IF Oxford uses Pay What You Decide (PWYD), see p3

Pre-book all events online ▶ www.if-oxford.com



BLAST!

Monday 28 October | 11am – 5pm Suitable for 7+ years old
 📍 The Barn, Greater Leys, OX4 7BU Teenage / Adult
 Pre-book, PWYD **INTERACTIVE**

BLAST! is Blackbird Leys Awesome Science and Technology zone, where you can meet scientists who are finding solutions to our greatest challenges, on Earth and beyond!

Please help us keep track of venue capacity by booking your approximate arrival time. You can arrive at any time during your hour-long arrival slot, then stay for as long as you like. Last entry 4pm, event closes at 5pm.

Activities include:

Into the Universe

Explore the wonders of science and get close to outer space with telescopes and satellites that spot distant worlds amid our own solar wind. Try out experiments and demonstrations that probe the fascinating world of physics, astronomy, and engineering. Meet friendly experts and join a fascinating scientific adventure.

SFTC RAL

Your Cells and Sugar

The cells of your body rely on sugar to fuel all of the fantastic things they do. Come and learn about how you keep blood sugar in balance, thanks to our favourite organ the pancreas and the hormones that help it do its job. Discover how scientists study these processes and get hands-on with experiments.

Radcliffe Department of Medicine

How & Why We Edit Genes

All the cells in your body contain DNA, which provides the instructions for life. Individual stretches of code in our DNA are called genes. Join researchers to discover some of the techniques scientists can use to edit these genes and how this could be useful for treating different diseases.

MRC Weatherall Institute of Molecular Medicine

Creating Light

Take a moment and look around – notice you are surrounded by creations of engineering. Engineering plays a major part in the world we live in now, and in the future we want to build. If you enjoy solving puzzles, building or fixing things, have a go at building an electric circuit to make LED bulbs light up when there is an uninterrupted flow of electricity.

The Engineering Trust

Fusion Energy: Can you reach 100 million degrees?

Take our Tokamak simulator for a spin and see if you can meet the conditions needed for commercial fusion, six times hotter than the centre of the sun.

Tokamak Energy

Propulsion Power

Unlock the power of propulsion with expert engineers in Oxfordshire. Create your very own vehicle and then race to explore forces and trajectories. How fast, or slow, can you go?

Reaction Engines Ltd



Mon 28 oct | 6-7pm

📍 Jesus College, OX13EF

Teenagers / Adults

PWYD

The Universal History of Us

Join **Tim Coulson** for a 13.8 billion year tale from the Big Bang to you. Covering physics, astronomy, chemistry, and geology, and the emergence of life, evolution, consciousness and the rise of humankind, explore the science behind how we got here, as featured in Tim's new book.

TALK



Tue 29 October | 2.30 – 3.30pm

📍 Story Museum, OX1 1BP

7-12 yrs

Tickets £10

Discovering Dragon Brains

What would a dragon's brain look like? Let's explore! We'll start with a dragon story and then **Professor Rogier Mars** (from Oxford University) will explore how different animals' brains work and how they have adapted in special ways. You'll get the chance to design your own 3D dragon brain, combining science and imagination in a craft activity that families can enjoy together. In partnership with The Wellcome Centre for Integrative Neuroimaging.

INTERACTIVE WORKSHOP

IF Oxford uses Pay What You Decide (PWYD), see p3

Pre-book all events online ▶ www.if-oxford.com



Tue 29 October | 6.30-8pm

📍 Modern Art Oxford, OX1 1BP

Teenage / Adult

PWYD

What matters to me and why

What matters may change with circumstances, but long-term priorities and motivations can lay a clear pathway or take you into the unknown. Please add your thoughts to a discussion prompted by examples from science, economics, community work and dance by Parasol Project. In turbulent times why not share perspectives and explore what drives us collectively towards a better future?

DISCUSSION



Wed 30 October | 2.30 – 4pm

📍 Story Museum, OX1 1BP

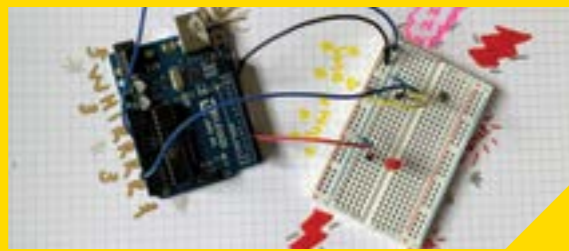
Under 7s / 7-12 yrs

Tickets £10

A Monstrous Discovery

Deep in the underground tunnels beneath the Story Museum, a monstrous discovery has been made. Hone your CSI skills to identify a series of strange objects as we solve this mystery together together with Dr **Rowena Fletcher**. Weave your way round an escape-room-style investigation, performing tasks like bone analysis and footprint measurements. Where will they lead?

INTERACTIVE WORKSHOP



Wed 30 October (every Wednesday)
5pm – 6.30pm

📺 ONLINE

7 - 12 yrs / Teenage / Adult

PWYD

Glow Your Own (4/6)

Join in today (previous sessions on-demand) and get ready for the Oxford Light Festival, creating your very own moving lantern. This weekly workshop series will help you build your own creative circuit with sensors that control LEDs and motors. Receive an Arduino starter kit (sent to UK addresses by post) and use tools like Tinkercad to combine art and engineering. Six live video sessions recorded to watch again on if-oxford.com

WORKSHOP



Wed 30 October | 7pm doors – 9.10pm

📍 Holywell Music Room, OX1 3SB

Adult

Tickets £11-£23

The Invention of Wonder

A world premiere of ten sonic experiments, creating a theatre of the unexplained by the master alchemist of sound, **Ray Lee**. Planet-like orbs float in mid-air, objects move of their own volition and hum with electronic noise. Invisible-forces and ethereal sounds collide as you question your perception – is that the sound of the universe laughing?

In partnership with Wadham College.

7.30-8.30pm show / Interval / 8.40-9.10pm Q&A

PERFORMANCE



Thu 31 October | 4:30pm – 7pm

📍 Oxford Westgate Library, OX1 1PE

Teenage / Adult

Free

Board Game Club

Try out Oxford Westgate Library's weekly Board Game and Tabletop RPG (role-playing game) club. Explore a massive collection of board games, including Catan, Wingspan, Exploding Kittens, and Root. Aimed at ages 16 and up, it's the perfect opportunity to enjoy games and connect with fellow enthusiasts!

INTERACTIVE



Thu 31 October | 7pm – 9pm

📍 Wig and Pen, OX1 2AU

Adult

PWYD

UniverSilly Challenged with Jonny Berliner and Simon Watt

Science troubadour, **Jonny Berliner** ("Seriously funny"- Scotsman) and Ugly Animal wrangler, **Simon Watt** ("All the wit and passion of the best comics"- Chortle) invite you to the only Anarchonerd pub quiz in UniverSilly Challenged Quiz. Niche prizes to be won and full marks for foolishness. Paxman would hate it.

QUIZ



Fri 1 November | 11am – 11:00am

📍 Oxford Westgate Library, OX1 1PE

Under 7s

Free

Rhymetime: Songs and Rhymes for Under 5s

Friday 1st November 11-11:30am - Water and the sea: From rivers to oceans, fish to seashells, imagine a day at the seaside

STORYTELLING



Fri 1 November | 11am – 12:30pm & 1pm – 2:30pm

📍 Pegasus, OX4 1RE

7 - 12 yrs

Tickets £8 – £15

Star Soup

What ingredients do you need to make a star? Find out with spectacular demonstrations and a chance to volunteer on stage with UK Atomic Energy Authority. UKAEA uses a fusion machine to make stars in the heart of the Oxfordshire countryside, and in this show, they'll share the recipe with you. Set the temperature to 150,000,000°C and let's get cooking... 45 minutes stage show, followed by 45 minutes hands-on workshop about fusion.

45 minutes stage show, followed by 45 minutes hands-on workshop about fusion.

PERFORMANCE



Fri 1 November | 6 – 7.30pm

📍 Museum of Natural History, OX1 3PW

Teenage / Adult **Tickets £10**

How To Be A Whale

Join writer and filmmaker **Tom Mustill**, and musician **Vahakn Matossian** as they take you into the bioacoustics world of a whale. Using scientific recordings and cetacean sounds, this immersive underwater sound journey will take you into a sonic landscape deep in the marine world.

30 minute talk + 30 minute sound-bath followed by optional tour of the museum
PERFORMANCE/WORKSHOP



Sat 2 November | 10am – 5pm

📍 Science Oxford Centre, OX3 8SB

Suitable for all ages **Tickets £8**

Family Day with Live Lab

Join special-guest researchers at the Science Oxford Centre for interactive Live Labs. Have fun experimenting with 20+ hands-on exhibits in the Exploration Zone: create flying designs at the air table, build a giant magnetic ball run, or watch water freeze! Head outside to unleash your inner explorer in the 15 acres of woodland and make a splash at the Water Lab. Special activity: **Diamond, more than just a gemstone** with *Element Six (UK)*.
INTERACTIVE



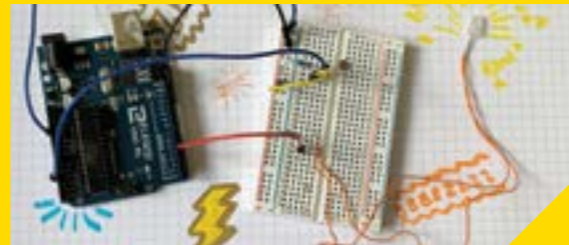
Sun 3 November | 11am – 3pm

📍 Iffley Road Sports Centre, OX4 1SR

7 - 12 yrs / Teenage / Adult **Free**

Robotic racing

A day at the races! Cheer for your favourite robotic dogs as they race along the historic Iffley Road Racetrack. Explore robotics, remote control, and automation with a menagerie of machines to try out for yourself. Discover how robots are used in science and industry, and how they help power the future with fusion energy
INTERACTIVE



Wed 6 & 13 November | 5pm – 6.30pm

📺 ONLINE

7 - 12 yrs / Teenage / Adult **PWYD**

Glow Your Own (5/6 & 6/6)

Join in today (previous sessions on-demand) and get ready for the Oxford Light Festival, creating your very own moving lantern. This weekly workshop series will help you build your own creative circuit with sensors that control LEDs and motors. Receive an Arduino starter kit (sent to UK addresses by post) and use tools like Tinkercad to combine art and engineering. Six live video sessions on Wednesdays, recorded to watch again on if-oxford.com
WORKSHOP

IF Oxford uses Pay What You Decide (PWYD), see p3



IF OXFORD 2024: Lines of Vision

The image of Earth on the programme cover uses an innovative optical illusion technique designed by Akiyoshi Kitaoka, a professor from Ritsumeikan University in Japan. He is renowned for making groundbreaking spinning, pulsating and bizarre images that confuse the mind. The artwork for Lady Gaga's 2013 album ARTPOP created by Jeff Koons, highlighted both Pop Art and the fascinating field of perceptual psychology by using one of Kitaoka's illusions.



IF Oxford has worked with Professor Kitaoka since the Covid-19 pandemic and was invited to collaborate with a 400-year-old Kyoto-based artisanal manufacturing company to create and present a captivating exhibition that blends culture, science and art.

Featuring 15 designs, the exhibition from Kyoto will be simultaneously displayed at various venues throughout the 2024 Oxford science and ideas Festival in October, with taster exhibitions in public libraries across Oxfordshire.

Try out these beautiful objects and experience these optical illusions at 15 local libraries, including Oxford Westgate, Summertown, Bicester, Wantage, Blackbird Leys and Didcot Libraries. While you're there, why not explore books on topics like Japanese culture, human biology, psychology, craft manufacturing and product design at your local library?



Exhibition Details
Grassroots, 46 Woodstock Rd,
Oxford OX2 6HT

Oxford Centre for Innovation,
New Road, Oxford OX1 1BY

Discover more:
if-oxford.com/uchiwa

The Pensive Image

Paul Kilsby



In The North Wall gallery, fine art photographer and Senior Lecturer, Paul Kilsby presents a compelling exhibition of photographs, as part of IF Oxford. Science and ideas are on display in Summertown evoking 17th Century posed paintings with a 21st Century twist, offering fresh way of looking at how connections are formed and represented in the world.

In the first collection, *Unnatural Histories*, Kilsby has constructed twelve meticulously-staged tableaux-style photographs using taxidermy specimens. These artificially posed night-time encounters use a high-contrast chiaroscuro effect to draw the eye to specific areas of an image, evoking the focus of a hunter. Predatory birds each have 'caught' a species of impossible prey in their clutches, insects that share no common habitat with the avian species. There is no pretence that these are authentic representations from the wild. Rather this series of images creates a critique of the 'nature-as-spectacle' genre of television documentaries made famous by David Attenborough.

"I have chosen the prey for aesthetic reasons and the photographs are not intended to be ornithologically factual," says Kilsby. "My tableaux are deliberately 'Unnatural Histories' and are gentle satires of the imagery we see all the time in TV nature documentaries. The natural history programmes we see on television today are truly extraordinary," he continues. "Their film footage is recorded with military grade lenses and saturated in colour. An animal's behaviour is often set to environmental soundscapes that are recorded with cutting edge technology but then mixed with fake Foley sounds [the reproduction of everyday sound effects that are added to films, videos, and other media in post-production to enhance audio quality]. Some of the imagery may also be staged or digitally enhanced. Seeing wildlife in this hyperreal way, where every shot is spectacular and dazzling, generates a sense of awe and wonder, yet I question how real this is when it has been constructed in a way that we could never actually experience? You could argue it's a falsified version of what nature's about."

Kilsby's fictitious scenes do indeed share the exaggerated aesthetic of the genre with larger-than-life detail: he highlights incredible textures, the patterning of a moth, the perfect reflection of iridescent plumage or the echo of the curves of whisker-thin antennae of a violin beetle in the tilt of a kingfisher's head.

The constructed images in Kilsby's second series, *Geometria*, take a broader look at the world. Most of these images show an assemblage that draws on age-old mathematical formulas and classic art in contemporary images that encourage us to explore space and time, to reflect upon concepts of solidity, fragility and jeopardy, and to question reality and illusion.

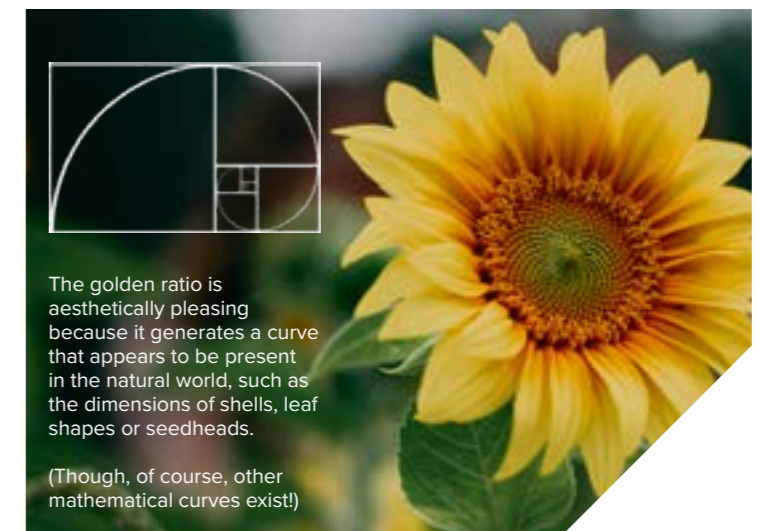
Originally trained as a sculptor, Kilsby has constructed these scenes for the camera with perfect placement and exquisite lighting, staging the contradictions in strength, scale and permanence perhaps as if he were designing a

film set in his quest to capture the definitive image.

For each of his novel compositions, he weaves together specimens from all facets of the natural world (flowers, insects, stone, water and air, feathers and fire) and human-crafted artefacts, often with implicit or explicit mathematical references. He incorporates other eclectic influences ranging from Plato and Archimedes to the Italian High Renaissance artists such as Piero della Francesca or Raphael, along with Dutch and Spanish Baroque still life and, closer to home, paintings that hang in Oxford's Ashmolean Museum.

With delicate charm and a dark aesthetic, akin to that of seventeenth century Dutch masters, Kilsby's photographs explore the patterns and shapes in the world that underly our visual culture, quietly alluding to the complex ways that art and science coexist. Geometry, after all, is a set of age-old rules, timeless mathematical shapes that underpin the structure of the world and the way we perceive the environment around us. It is also key to beauty we perceive.

The Golden Section, also known as the Divine Proportion, was first described by Euclid in the 4th century BCE. It is widely considered to be a universal rule of beauty because its proportions create a balanced relationship that our mind's eye loves.



The golden ratio is aesthetically pleasing because it generates a curve that appears to be present in the natural world, such as the dimensions of shells, leaf shapes or seedheads.

(Though, of course, other mathematical curves exist!)

As Kilsby draws truths and fiction together in unexpected and imagined ways, he explores this golden ratio and the Fibonacci sequence, a classic mathematical formula which is found in the shapes of various natural phenomena, including the arrangement of leaves on a stem and the structure of certain flowers. It is also seen in the spirals of shells and a fossilised Madagascan ammonite that Kilsby has incorporated into one of his images which dates back 160 million years.

One of Kilsby's works is inspired by Rembrandt's tiny etching with drypoint, *Shell or Conus Marmoreus* (1650). For this construction, Kilsby has balanced a very similar shell on a sandcast brass polyhedron made by the Japanese designer Oji Masanori which has an interesting texture. This polyhedron is in turn placed on an upturned red lacquer bowl dripping with honey, which pins his chosen objects in an instant of time.



Another image shows the exquisite Venus Comb Murex, a shell with an extraordinary skeletal form. Its central spine stands at a perfect vertical in his photograph, topped by a small flame burning from a wick inserted into the shell, an ephemeral instant that tops an assemblage very precariously balanced on a polygon made from stone that dates back millions of years. The apparent permanence of the stone – or is it simply a painted prop created by Kilsby, you might ask? – contrasts with the delicate gold of the flame, reflected through the shell's fine calcified spikes which might fall and break into shards at any moment.

The apparent simplicity of the works belies layers of calculation and science: with atmosphere and mystery, Kilsby uses the power of the images to encourage the viewer to look beyond the aesthetic elegance to layers of intrigue. As he sets the fleeting nature of animals and plants against the solidity of the elements, of form and time, the photographs play with concepts drawn from the fundamental mathematical order of the world, with the interplay of scale, structure and equilibrium, and with concepts of fragility and jeopardy.

They also suggest inherent questions and contradictions: Kilsby reminds us we should always consider carefully what we see and understand and ask whether it is real or fiction. In the photographs of *Geometria*, you might ask which elements of the composition



are drawn from nature, and which have been created purely for the staging of each photograph? Because many of the objects in his photographs are actually constructed models painted using *trompe l'oeil* techniques to simulate the look of marble or wood, for example.

Geometria also includes subtle references to the crises we are facing in the Anthropocene. Two further images present details of a landscape that might be apocalyptic for example: a lily and a magnolia bud are dusted in black ash and reek of destruction and death. And yet, are these photographs pessimistic or optimistic? The flowers, after all, continue to bloom, in one case attracting the attention of a Siberian moth.

As a finale, perhaps, visitors can also muse over a burning a burning South African Protea flower atop an Ionic stone column. "It's a very remarkable flower that has evolved over three hundred million years and can survive a bush fire because its roots go deep below the earth," comments Kilsby. "I discovered when I was in South Africa that it was chosen as their national flower because it symbolises strength, courage and resilience. Those are qualities I think we are going to need!"



The Pensive Image Exhibition will be hosted from Wednesday 2 – Saturday 19 October as part of the Oxford science and ideas Festival, at The North Wall Arts Centre South Parade Summertown Oxford OX2 7JN

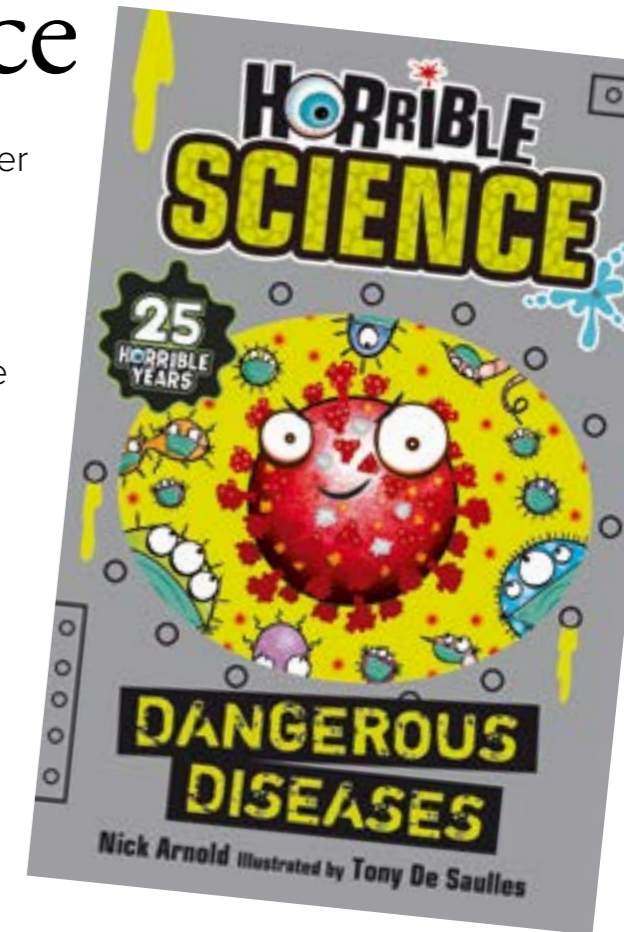
Free entry – Suitable to all ages

Nick Arnold's Horrible Science



Nick Arnold is a science writer who is bringing his *Horrible Science* to the stage for IF Oxford, the annual festival of science and ideas, again covering an enormous range of themes and topics. Nick's interactive one-man show

will be full of gruesome, gory and gross facts dug from the disgusting and creepy corners of science. It's enthusiastic entertainment for children from six to a hundred-and-six, because "what pleases adults is largely the same as what pleases children," laughs Nick. "Often, when it comes to fun, adults are just enlarged children!"



Nick takes everyday topics and explains the science behind in ways that make learning about science fun and interesting. "It's science with all the squishy bits left in, and the occasional scary story," he chuckles. "When people ask me if I am scientist, I reply that I'm a horrible scientist, but to be more accurate, I'm a horrible science author."

"I enjoyed science at school, especially biology. However, I always wanted to be a writer of stories and history, to share fascinating, funny, and exciting facts about the world, and some horrible stuff too, so it all came together with these books. There was nothing like them when I was at school so I wrote the books I would have loved to have read."

Nick's first books, *Ugly Bugs*, followed by *Bones and Body Bits*, and the many other *Horrible Science* titles, combine thrilling facts, and a focus on the weird and the wacky. They brought a joyful cheeky flavour of *The Beano*, and broke the mould for science books. *Horrible Science* quickly became a global success, translated into dozens of other languages.

"It's always such a pleasure to see children inspired by science, as science is fundamental to our world and to our future. If I can help

encourage youngsters to read, to understand and to investigate the world around them, that's fantastic. *Blood, Bones and Body Bits* was published nearly 30 years ago now, and so I hear regularly from scientists and PhD students around the globe who picked up one of my books when they were small and got sucked into science in a nice way. We're not talking about being sucked into cosmic black hole and turned into human spaghetti though!"

As Nick brings his slimy, squelchy version of the world and beyond to Oxford's Pegasus theatre, he promises questions, quizzes, and challenges that will see volunteers from the audience step into the unknown. It could get messy.

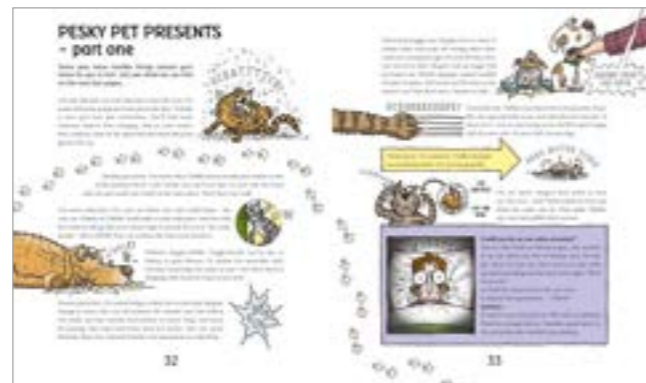
"From quarks to the Cosmos, from the Big Bang to the end of the Universe, science is about everything," he continues. "And that of course includes us, so it's also about who we are, how we're made, and what we do. Alongside our brain-boggling body, let's explore painful poisons, fatal forces, microscopic monsters, oh and aliens too. You never know what you might find in science!" ▶

“
I'm a horrible
science author

TWELVE HORRIBLE SCIENCE QUESTIONS

TRUE OR FALSE?

- 1 If you had the jumping powers of a flea you could jump higher than a giraffe's head.
- 2 An Italian scientist made himself sick – then ate it.
- 3 It's possible to have blue snot in your nose.
- 4 if you sit in the cold snow for too long your poo turns blue.
- 5 After a big banquet the Romans drank from a poison goblet.
- 6 Some fish communicate by farting bubbles.
- 7 Scientists have found proof that Tyrannosaurus rex could clean its teeth.
- 8 The Greek philosopher and early scientist Empedocles used to impress his followers by burping in time to music.
- 9 If a person gets hit on the head they can start talking a foreign accent.
- 10 An inventor came up with the idea of socks for cats.
- 11 Two Norwegian scientists gave bloodsucking leeches tea to drink.
- 12 When you flush the toilet some water from the pan goes up in the air.



HORRIBLE ANSWERS

/THE FACTS

Nick Arnold will bring his books to life with activities and readings from his books as part of IF Oxford, the science and ideas Festival, Sat 26 October
 11:00pm-11:45pm and 2:00pm-2:45pm (2 sessions)
 Pegasus Magdalen Rd, Oxford OX4 1RE
 6-12 years old
 Tickets sale available via Pegasus Theatre box office.

- 1 **FALSE** – if you had the jumping powers of a flea you could jump over a 90-metre office block and do it HUNDREDS of times a day. **(UGLY BUGS)**
- 2 **TRUE** – Lazzaro Spallanzani, the Italian scientist, studied digestion. He made himself sick then ate it ... and then he made himself sick and ate it again! In all he did that three times! **(BLOOD, BONES AND BODY BITS)**
- 3 **TRUE** – Disgusting but true – the colour snot can be due to the colour of the bacteria in the snot. Since it's possible to have blue bacteria it's also possible to have blue snot (no need to check your nose right now). **(BLOOD, BONES AND BODY BITS)**
- 4 **FALSE** – You can get blue poo by eating blue colouring or eating certain foods such as blackberries. **(DISGUSTING DIGESTION)**
- 5 **TRUE** – After a banquet the Romans would drink from an antimony cup. Antimony is a poison that makes people throw up. The Romans wanted to make room for more food. They called it the vomit goblet – fancy a slurp? **(PAINFUL POISON)**
- 6 **TRUE** – scientists have found that herring communicate by farting underwater. Just imagine humans did that? School swimming lessons just wouldn't be the same! **(ANGRY ANIMALS)**
- 7 **FALSE** – Tyrannosaurus rex had disgusting eating habits. Some meat fell out the sides of its mouth or got stuck in its teeth and rotted. Scientists think T. rex had really bad breath. This is yet another good reason never to have tea with a T. rex. **(THE AWFULLY BIG QUIZ BOOK)**
- 8 **FALSE** – The ancient Greek philosopher and early scientist Empedocles tried to impress his followers by jumping into a volcano. He wanted to turn into a god – but he actually turned into toast. **(SUFFERING SCIENTISTS)**
- 9 **TRUE** – If a person gets hit on the head they can start talking in a foreign accent. Believe or not – the foreign accent syndrome is a real medical condition. (Health Warning – hitting yourself on the head in a French test isn't very clever.) **(THE AWFULLY BIG QUIZ BOOK)**
- 10 **TRUE** – An inventor came up with the idea of kitty socks that did the dusting when your cat walked on the mantelpiece. This did not end well (think priceless ornaments). **(EVIL INVENTIONS)**
- 11 **FALSE** – Two Norwegian scientists gave leeches beer to drink to make them suck blood faster. It didn't work because the leeches got drunk. The scientists also tried sour cream, which sort of worked, and garlic, which killed the leeches (and gave them garlic breath). **(REALLY ROTTEN EXPERIMENTS)**
- 12 **TRUE** - When you flush the toilet some of what's in the toilet flies into the air in tiny droplets too small to see. And it goes all over you! What's more some of it probably lands on your toothbrush. (Don't panic – it's never done you any harm!) **(MICROSCOPIC MONSTERS)**

DISGUSTING DUST

Are you gagging at those beastly body bacteria? If you're running around screaming – STOP IT RIGHT NOW! You'll give the cat a heart attack and in any case there's no point. You can't get rid of bacteria. Oh well, most of them are harmless – or 'armless anyway. And what's more they're doing you a favour. By taking up skin space they stop more harmful bugs from moving in.

Bet you never knew!
 New Zealand artist Dane Mitchell grew germs from skin flakes to create a work of art. Mind you, that's not too strange – in 2004, Uruguayan artist Carlos Capelan made his toenail clippings into artwork. Would you make an exhibition of yourself?

And your body has a clever way to get rid of unwanted guests. You shed your skin. During your life, you'll shed about 47.6 kg of skin – that's equal to 1,000 layers of birthday suit – and every falling flaky fragment takes hundreds of bacteria with it.

So where does all your skin go (assuming you're not saving it for your art homework)? Well, you might see skin flakes dancing in a sunbeam or come across them lurking in a pair of pants that you've been wearing for a month – but most end up scattered around your home. You call it "dust".

Now back to their usual size, the shrinking scientists are using their specially invented micro-thermal scanner to track the family's skin flakes ... much to Mrs Noemal's annoyance.

Warmth makes dust rise at the centre of the room

I COULD HAVE SWORN I DUSTED THERE YESTERDAY.

IT'S EATEN BY MICROSCOPIC MITES RELATED TO YOUR EYELASH PAL.

COOL!

THERE'S A HUGE SKIN FLAKE HERE!

THAT'S A ...

But, there's more to dust than dead skin and bacteria. There might be tiny bits of dirt brought in from the outside, and if you're very lucky you might find some crusty dried earwax. Like your skin, earwax is a defence against germs, and scientists have actually found out what it's made of...

Body cookbook

Here's lovely crunchy homemade earwax – delicious with toast!

Ingredients:

- Cerumen (oily milky stuff produced in the outer part of your earlobe)
- Dried skin cells
- Bits of hair
- Dead bacteria and fungi

Method:

Mix all the ingredients and leave in a warm earlobe for a few weeks until dry and crusty. The earwax should then drop out.

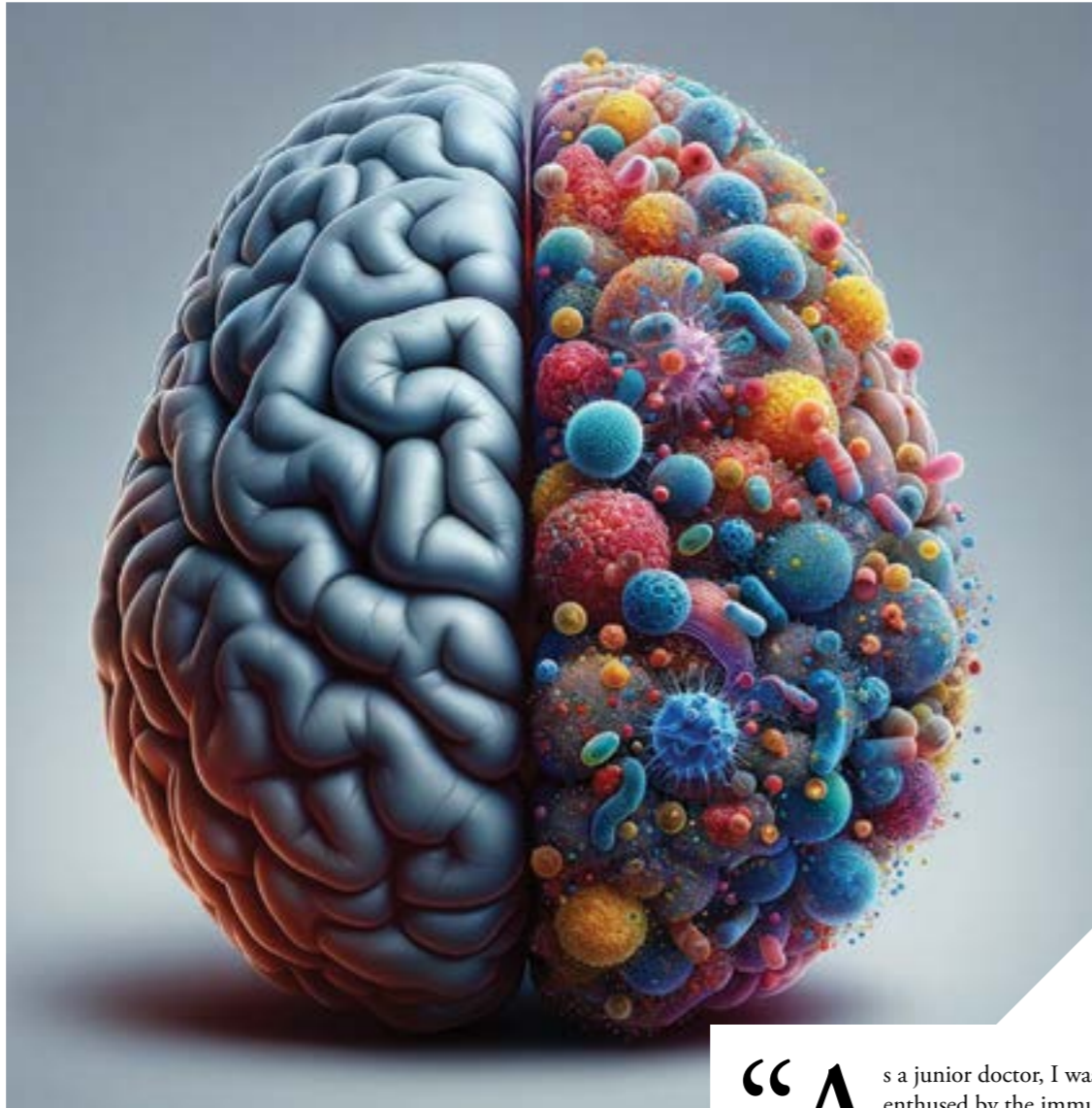


Cerumen stops your earlobe getting dry and sore and it traps dirt, germs and fungi. That lovely crispy light-brown colour darkens in the air – so it's best to store your earwax in an airtight jar if you want to share it with your friends.

Toast

YEAH CRUNCHY PEANUT BUTTER!

The Immune Mind



Dr Monty Lyman, author of *The Immune Mind*, is a Clinical Fellow in the University of Oxford Department of Psychiatry, which would come as a surprise to anyone who knew him earlier in his career. While at medical school, Dr Lyman focused on immunology, and it seemed clear that he would follow a career in immunology or become an infectious disease specialist.

“As a junior doctor, I was most enthused by the immune system,” explains Dr Lyman. “I envisaged it as an invisible army, a complex network across the body that could recognise threats. It could differentiate threats from what was ‘self’ and what was safe, like foods, and remember them too. I was fascinated that the immune system seemed to have this memory and a life of its own.”

Dr Lyman’s switch to psychiatry in 2020 was inspired by new research being undertaken at the University of Oxford where pioneering studies in the Department of Psychiatry were linking the immune system to the mind.

“Professor Belinda Lennox and her team had found that in a small but significant population living with psychosis, some delusions and hallucinations were caused by the patients’ own immune systems,” said Dr Lyman. “This really made me think whether, sometimes, we’ve been

giving some people with the wrong medicines! There is a category of patients known as treatment-resistant, because tried and tested medicines have made no difference. But if the immune system is the cause of their illnesses, then we could use different kinds of treatments to bring about a complete cure. I also wondered what other difficult-to-treat conditions that might have immune-related causes too. How many more people might we be able to help with immunotherapy if the body is causing these disorders itself?”

“Throughout the history of medicine and until only ten years ago, scientists assumed that the immune system and the mind had little to do with each other. It was believed that there were no immune cells in the brain. Then, in 2014 a group of US researchers accidentally stumbled upon a previously unknown structure in the brain, full of lymphatic vessels (the immune system’s ‘transport network’). It was a pivotal moment, like discovering the first exoplanet, in our understanding of the relationship between brain, blood, and immunology.”

“This breaking down of the barrier between the mind and the immune system allows us to explain why, for example, a subgroup of people suffering with the symptoms of depression find them worsened by inflammation elsewhere in the body,” he continues.

“In a case study in *The Immune Mind*, a Californian woman began, aged 29, to develop delusions and hallucinations. She was convinced that a Mexican drug cartel was killing her family members one by one. She was diagnosed with schizophrenia and would likely have been kept in a secure hospital for her own safety in the past. However, doctors in the US discovered that it was antibodies attacking her brain causing her condition. After receiving immunotherapy, she made a complete recovery.”

“It makes you wonder,” continues Dr Lyman, “how many people have been misdiagnosed in the past, and whether some people who struggled with psychiatric conditions and were thought to be treatment-resistant, spent their lives in institutions because we had given them the wrong treatment. It’s thought that the real-life individual who inspired the 1970s film *The Exorcist* may have had the same condition as this American patient. And Dr Michael Zandi at University College London has even suggested that an auto-immune disease, anti-NMDAR encephalitis, could have caused the symptoms and behaviours which led to accusations of twenty women in



the 1692 Salem Witch Trials. Anti-NMDAR encephalitis is a condition in which the body forms antibodies against receptors in the brain that play important roles in how we perceive the world. Were these women sentenced to death due to rogue antibodies?

“These speculations remind us that it’s always important to have diagnostic humility,” says Dr Lyman. “After all, modern medicine is only ever as good as our understanding, techniques and curiosity allows it to be. It’s exciting that the human body continues to surprise us and we always need to be open to fresh ideas like the connections between the mind and the immune system, i.e. *The Immune Mind*, is a whole new angle on of human health.”

Dr Lyman describes how it was during the pandemic, when he was treating a middle-aged woman with depression using Cognitive Behavioural Therapy – a treatment offered to those suffering with anxiety and depression, that uses talking to manage the condition by changing the way they think and behave. A seemingly throwaway comment from her then set Dr Lyman thinking. Each week her scores were improving and then one session they dropped dramatically; the patient put this down to her having suffered with Covid that week. If a virus can cause the same symptoms as moderate depression, he mused, is the immune system actively ‘recruiting’ the mind? ▶

“I was fascinated that the immune system seemed to have this memory and a life of its own

“Also, when we are ill with everyday infections, we suffer symptoms that are psychological in nature. If the brain and the immune system are working together, it would make sense for someone fighting an infection to save energy (through lethargy, for example) and to have evolved behaviours that keep them from infecting those around us.”

Conversely, new techniques have also shown how the brain pro-actively triggers anti-bacterial cells in the body to prepare the immune system for a ‘genuine’ attack from the external world. A fake flower can trigger sneezing in a hay fever sufferer, for example,” smiles Dr Lyman, “and it is becoming increasingly clear that communication between the mind and the body is a two-way street.”

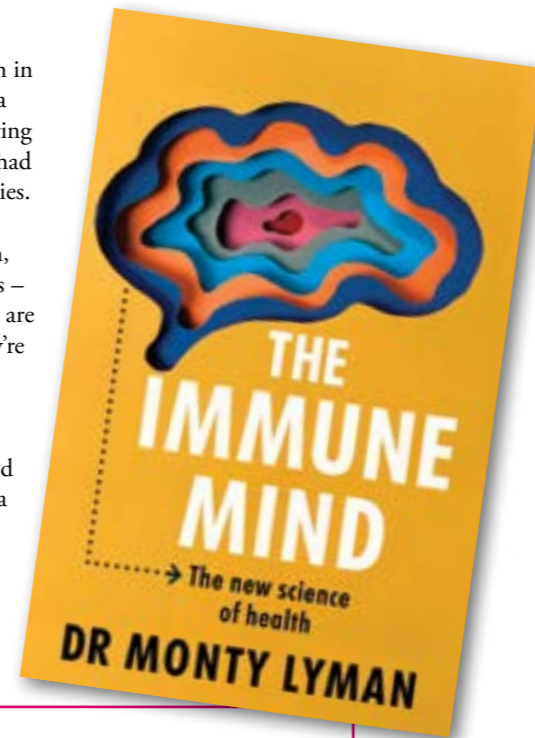
“If you imagine our ancestors, who might, for example, come across a sharp-toothed lion on the savanna,” he explains, “it makes sense for the immune system to be ready for a break in the skin. However, we live in a world very different from the world our predecessors inhabited, and it’s often a very stressful one.”

“We have long had a gut-feeling that our minds and our immune systems are linked – the idea that a positive outlook can influence health – and it’s proving to be true. When today we have a crisis of both chronic immunological diseases and mental health conditions, it seems unlikely to be a coincidence.

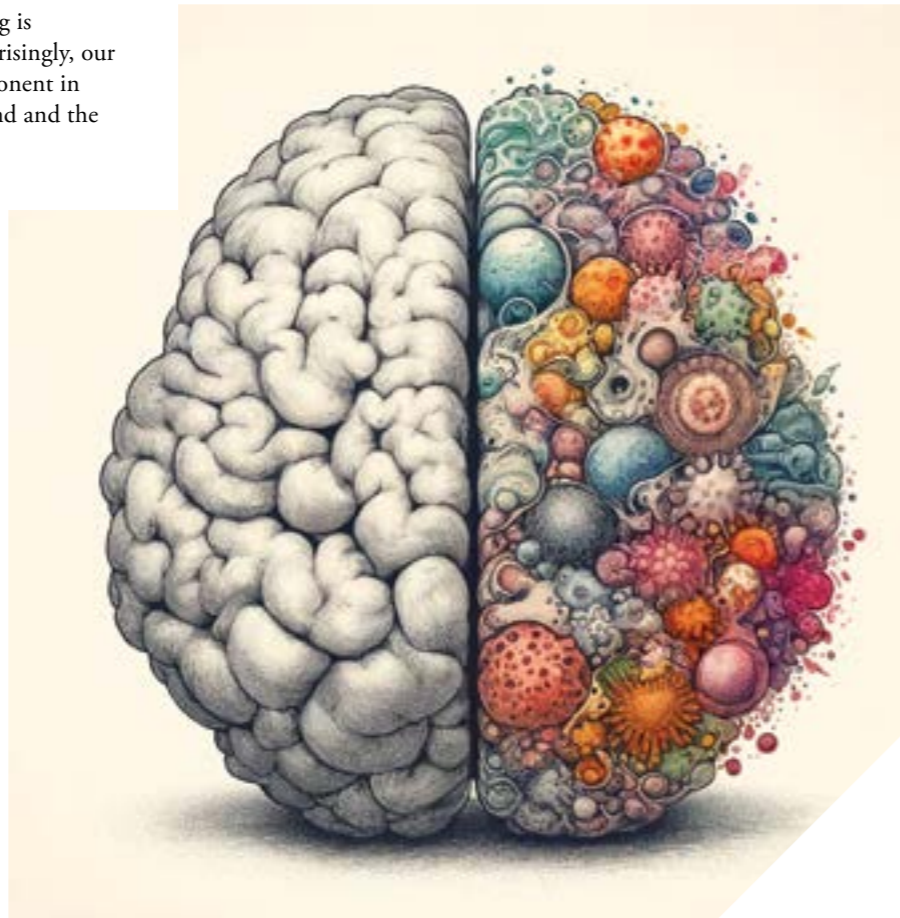
The use of the phrase gut-feeling is interesting because, perhaps surprisingly, our body’s metabolism is a key component in this relationship between the mind and the immune system.

“we have long had a gut-feeling that our minds and our immune systems are linked

“Interestingly doctors have recently discovered that germ-free mice grown in sanitised surroundings not only had a weaker immune system that those living in a normal environment. They also had reduced mental and emotional facilities. We’ve known for a while that some bacteria are detrimental to our health, and cause sickness and disease, others – particularly in our gut microbiome – are vital to well-being. It now seems they’re important to our mental health too,” he adds. Dr Lyman’s current research is an exploration of the relationship between diet, the gut microbiome and the mental health benefits of having a medical ketogenic diet in individuals suffering with psychosis.



To hear Dr Lyman talk about on *The Immune Mind* as part of the Oxford science and ideas Festival, Thu 24 October, 8.00pm–9.30pm, Oxford Playhouse, Beaumont St, Oxford, OX1 2LW. Teenage /Adult



Meet Ilse Pedler, poet and veterinary surgeon



In both her everyday veterinary practice and her verse, Ilse Pedler explores the relationship between humans and animals, and how we communicate with them. During IF Oxford, she draws on science, literature, legends and her own experience, sharing these insights on the relationships between humans and animals, both domestic and wild, through poetry.

“I was always attracted to animal stories, from Aslan in Narnia to shape-shifters such as selkies who transform between human and seal. I also loved *All Creatures Great and Small*, watching James Herriot and Siegfried problem-solving in the Dales in all weathers; and the way Dr Doolittle could talk to animals. Even then, I wanted to know what an animal was thinking, and to understand why it behaves as it does,” she explains.

As a young child, Ilse was horse-mad and spent as much time as she could at the local stables. One day, a mare ran through a barbed wire fence; her foal followed. They were badly hurt and frightened but when the vet arrived, he was completely calm and was able to reassure and soothe them within minutes. “In that instant I realised I wanted to be able to do that, to be that person who could communicate with animals in that way and heal them.” she continues.

Ilse has been a practising vet for 35 years, first in a mixed semi-rural practice working with domestic and farm animals, then with companion animals only. Now living in the Lake District, she has her own holistic practice treating domestic animals with acupuncture, laser therapy and other contemporary techniques. “Animals respond brilliantly to acupuncture, often becoming sleepy and relaxed” she explains.

Using a holistic approach, Ilse takes the time to consider an animal’s history and their wider family relationships as well as physical symptoms. “I’m not just prescribing medicine to relieve an itchy patch of skin,” she says. “I’m trying to understand the root cause of a problem in order to produce a longer lasting cure. Family dynamics are hugely important in my work, animals can pick up on the stress around them. I’ve known animals develop physical symptoms when their owners are going through a divorce for example!”

Ilse’s poems, however, are mostly about healthy animals in the moment, from birds of prey to a cow giving birth in the middle of the night or how we have used horses over the years in peace and war. They offer an exploration of veterinary medicine and animals, from

the funny to the heartbreaking and include emotional, tear-jerkers and visceral verse with a raw focus on the animal's experience.

One of Ilse's poems describes the moment she frees a deer trapped by its antlers in the net of a garden football goal, it goes from thrashing around to a quiet calm as it is freed and runs away immediately. "It would be fanciful to think that it would stop and look back at you with thanks in its eyes," she smiles, "but the real world isn't like that."

While many people consider their pets to be family members, for farmers, animals inevitably have a monetary value and a small number of Ilse's poems include an implicit commentary on what we do to animals in an endless cycle of production. In contrast, another raises a smile as it describes piglets having blood tests. "Piglets are so funny," says Ilse. "As soon as one is picked up, it screams like a toddler having a tantrum but the moment you put it down, it's all forgotten and it runs away for a moment and then creeps back curiously, as if it were playing the playground game Mr Wolf."

"As a vet I had a rich variety of experiences and emotions to draw on. I've seen cases of cruelty and neglect but also moments of extreme tenderness and dedication. I've known people go without food so they can afford medication for their pets and I've known people whose only reason for getting up in the morning is their animals. The consulting room is a privileged place, and consulting effectively is an art as well as a science. The ability to draw out the back story and to get to the heart of the matter is a skill that is learnt over time. Farms are also unique; they are places of rough practicality and particular language; there is a bluntness there but also a gentleness.

For IF Oxford, Ilse will read a selection of poems that explore the human-animal bond and animal communication to trigger a conversation on animals - our relationship to them, how we understand one another and how that has changed from early neolithic times, to the medical detection assistance dogs that support families today. "I'm interested to know how they choose their dogs, what they're looking for, the training they give them and how they communicate with the humans they have been partnered with" she says.

The poems are drawn from Ilse's collection, *Auscultation*, which means listening and, specifically in medicine, listening to sounds that come from the body's internal organs. Themes of listening and being heard are central to Pedler's poetry, which not only includes poems about daily life as a veterinary surgeon or the emergencies that can occur in the consulting room and on a farm, but also wider themes of scientific knowledge, family and belonging.

Ilse will both read a selection of her poems and discuss communication from the point of a vet with Claire Baker from the Medical Detection Dogs. *The Animal Communication* event is on Mon 21 October | 6:00pm-7:30pm

New Road Baptist Church, 14 Bonn Square, Oxford OX1 1LQ

PWYD | 16+ years old

The science and ideas Festival will be hosting the **2024 Poetry of Science** event on Saturday 12 October between 12pm-1pm at Wesley Memorial Church, OX1 2DH. Where you will hear the freshest imagination from new poets and meet the winners from this year. You also can discover the fascinating world of animal communication by joining writer and filmmaker Tom Mustill, along with musician Vahakn Matossian, as they guide you through the captivating world of whale bioacoustics. Don't miss this unforgettable experience on Friday, 1 November, from 6.00pm to 7.30pm at the Museum of History, Museum Parks Rd, Oxford OX1 3PW. Suitable for ages 14 and up. Tickets are £10.

All this accumulation of knowledge

how to duck under barbed wire without breaking stride
which end of a gate to climb over
a familiarity with latches

when to use a gypsy twitch to calm a fractious mare
the safest place to stand behind a cow
the knots farmers tie in baler twine

which calf needs to curl its rough tongue
around your fingers to drink from a bucket
the ferocity of mothers

where to find the sweet spot behind an old boar's ear
and by scratching it – bring him to his knees
the gauges of needles

the voice to use to soothe a fearful dog
an acquaintance with the silences of cats
the irregularities of heartbeats

whether skin can be coaxed and anchored over gaps
the balance of a scalpel between fingers
the different colours of blood

why looking away is sometimes the best option
how life leaves through the backs of eyes
when to tighten a grip – when to let go.

Published *Auscultation* June 2021



How To Be A Whale

In September 2015, biologist, nature filmmaker and writer, Tom Mustill was paddling in a two-person kayak with a friend just off the coast of California. In a life-changing moment, a 30-tonne humpback whale breached over them – leaping out of the water, landing on top of the kayak and dragging them underwater. They survived unharmed. Afterwards, scientists used AI to identify the whale, dubbed 'Prime Suspect' and tell Tom about its friendships, mother and movements.



This extraordinary encounter led Mustill to turn his attention to human-whale interactions around the world and how new technologies are changing our understanding of animal lives. He embarked on a journey into animal eavesdropping technologies, exploring where big data meets big beasts in a vast underwater universe. At IF Oxford, you can hear Tom, now an ambassador for Whale and Dolphin Conservation, talk about the latest developments in the field, and then experience what it is to be a whale, via an exquisite soundscape recorded deep beneath the waves. "In a fraction of the lifetime of a single whale, we have seen such extraordinary changes in the technology available to us to study whales. Whales have faced and survived the crisis of whale-hunting, and we're only now understanding their role in keeping our oceans healthy. A large whale is a 'forest-worth' of carbon, and ecosystems sprout in their wake," says Tom.

"We've seen the development of shared libraries, machine AI, pattern-finding software and underwater recording devices," he continues. "New technology has given us great opportunities for translating animal communication systems. AI that was originally designed to translate human languages is allowing scientists to discover patterns in the conversations of animals and decode them. Get prepared for the 'interspecies age!'"

"In the spring, we heard that scientists had held a simple 2-way conversation with a humpback whale, and then researchers from Project

“
In the spring, we heard that scientists had held a simple 2-way conversation with a humpback whale

CETI (Cetacean Translation Initiative) identified complex structures in sperm whale communication, comparable to a sperm whale phonetic alphabet,” he exclaims. “It was previously thought that their clicks were a kind of morse code but AI tools applied to the biggest ever animal communication recording project drew our attention to sounds between the clicks that humans can’t discern amongst the clicks that are audible to people. We also now know that whales use these like vowels to make a whole variety of sounds, and they do this intentionally, combining these building blocks into more complicated sound structures in different situations in a communication system like language.”

After an overview of the challenges of studying these giant mammals, of the new frontiers in whale language research, and an exciting update on ‘Prime Suspect’ himself, Tom will then take visitors on an extraordinary underwater sound adventure.

Beneath the whale skeletons suspended from the ceiling of the Oxford University Museum of Natural History, close your eyes and settle in to enjoy a guided listening journey and imagine what it might be like to be seven different whales and dolphins through interwoven bioacoustic recordings. In this dance between the deep and the surface, you’ll hear the high-pitched clicks of dolphins and pilot whales, and sense as a vibration the deepest sound in nature, the voice of the blue whale, a species that for many years we thought was silent, because its low is too deep for human ears to hear. This artwork will create sounds for audiences to hear and feel moods, and experience rising excitement, fear and fun as these voices evoke your human emotions. The variety of underwater sounds is breathtaking



and mind-blowing, ranging from the rush and crash of huge volumes of water and the long bleat of a cetacean foghorn, to the jostling squeal of a piglets and the chirrup of songbirds, and unexpected sounds that evoke the crackling of a bonfire and the chug of a train.

“We went through 1000s and 1000s of recordings of whales from the very earliest to those fresh-out-of-the-water and used 350 sequences to show the lives of 7 whales and dolphins to enable the audience to imagine the evolutionary story of whales moving from land to the sea, and what it would be like to be them,” adds Tom.

With Vahakn Mattossian on the mixing decks as a ‘Whale DJ’ (surely the coolest job description on the planet), Tom narrates the stories that accompany these unusual and evocative marine recordings of whales and dolphins and their lives among fish, coral,



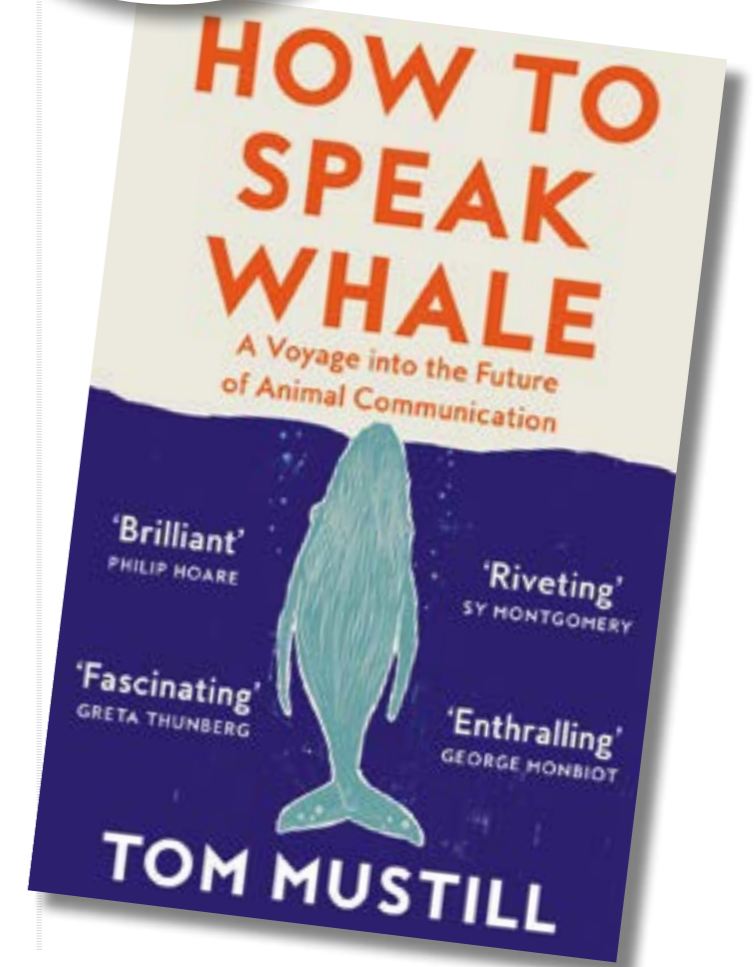
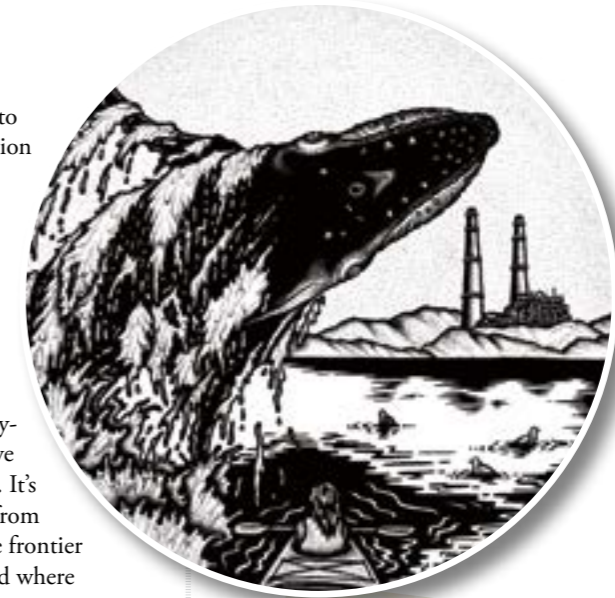
crabs, sea urchins and seals, from the tropics to the poles to the deep sea. One moment you’re hunting pilot whales “the cheetahs of the sea” with the sound of an erupting underwater volcano, the next a sperm whale is born into an extended family, or you’re joining a dolphin stampede!

BOOK REVIEW

How to Speak Whale: a Voyage into the Future of Animal Communication follows Mustill on a captivating personal journey to discover the inner lives of whales and cetacean communication, a field where a revolution is taking place as we – and whales – speak. With wave after wave of fresh thinking, and laced with hope and humour of a modern memoir, this lively and easy-to-read science book is an immersive dive deep below the ocean’s surface. It’s an adventure that takes the reader from seventeenth century Holland to the frontier where big data meets big beasts, and where silicon-based intelligences are finding patterns in carbon-based life, via a spectacular and unexpected collision between a little-understood leviathan and two tiny humans in a kayak.

A humpback whale is three times bigger than the biggest T. rex and when it is born it already weighs as much as a white rhino which makes them a challenge to study. However, Mustill meets many experts who have dedicated their lives to furthering our understanding of these giant mammals. Weaving together many strands of science, he conveys our best understanding of how these remarkable animals think and feel, in a world where the richness and mystery of complex communications and whale song is key. And if we can unravel their meaning, using something like ‘Google Translate’ for animals, can we, as a species, begin to converse with whales using their own sonic ‘language’ and find out what they have to say? Is the proliferation of AI and machine learning a trigger for a ‘Cambrian explosion’ in eco-acoustics [the interacting and overlapping sounds of an entire living ecosystem] and our understanding of the world around us, asks Mustill.

It’s a tantalising tale of whales, dolphins and other cetaceans, with cameo roles for birds and other beasts, from the horse to the honeybird. And with these glimpses of a new era of inter-species communication, it’s a pleasure to think that perhaps the post-anthropocene world can be revolutionised if we hear what other species have to say?



To take part in the sound experience with Tom Mustill and Vahakn Matossian on *How To Be A Whale* as part of IF Oxford on Fri 1 November | 6:00pm-7:30pm

Museum of History Museum Parks Rd, Oxford OX1 3PW

Tickets £10 | 14+ years old

“Fascinating”
Greta Thunberg





Assisted dying: choice, changes and challenges

Earlier this year, more than 100,000 people signed a petition, fronted by Esther Rantzen, asking the government to debate and vote upon the issue of assisted dying, arguing that terminally ill people who are mentally sound and near the end of their lives should not suffer unbearably against their will.

“Would you really be better off dead?”

The Isle of Man could become the first part of the British Isles to pass assisted-dying legislation with its first assisted death taking place as soon as 2027. Earlier this year, politicians in Jersey voted to approve plans to allow assisted dying for those with an unbearable terminal illness, and a similar bill was proposed in Scotland. Surely, rather than making arrangements to head to Dignitas in Switzerland, an expensive trip which isn't feasible for most people, it is good if we can choose a dignified death here in our own country.

Or is it?

“I was happy to see the UK edge towards legalising the right to die for those with terminal illness,” says Kathy Sykes, Science Communicator, Funeral Celebrant, and chair

of the forthcoming IF Oxford event, *Assisted Dying*. “I was sure that I wouldn't want to suffer for months, knowing the pain was only going to get worse and then I would die. Helping people to die seemed to be rational and kind: we've all heard the argument that we seem to have more compassion for suffering animals – who are given an easy, painless end.”

“Then in May, I saw a BBC One documentary which made me rethink. Presented by Liz Carr who is an actress, best known for her role as forensic examiner Clarissa Mullery in the BBC's long running drama, *Silent Witness*, it was a blistering riposte to the legalisation of assisted dying. It rocked my soul.”

“Carr pointed out that, while in theory, assisted dying will be carefully regulated for the terminally ill who have six months or less left to ▶

live, for example, in every country which has so far allowed assisted dying this rule has lapsed. In many countries, people can choose to die when they don't have a terminal illness. This might include long-term sufferers of depression and other conditions from which they could they could possibly recover from, with the correct support.”

“In Canada, there's even a 'fast-track' stream in which, if you know the right things to say, you can die within 24 hours of making your choice. That is horrifying,” continues Kathy. “Imagine if you had a troubling diagnosis and were in shock. You could kill yourself before you've even had a chance to process it. Would you really be better off dead?”

The name of Carr's documentary, *Better off Dead*, is drawn from the experiences of many disabled people who are, apparently, approached by strangers or friends and told “You'd be better off dead.”

“Liz makes the interesting point that during the COVID pandemic, when choices were being made about whom to prioritise for care, it was considered acceptable to let disabled people die before others,” Kathy explains, “and she asks: ‘How can anyone trust assisted dying legislation to a society who took that approach?’ People who are very disabled, for example, may feel pressured to make the choice so they are no longer a ‘burden’ their families.”

“And there's a thought-provoking scene in the documentary, in which Liz spoke to a disabled man in Canada who'd had his housing benefits stopped and was going to become homeless: he said that he'd rather die comfortably than die in pain and poverty on the street. If a journalist hadn't picked up on his case, he'd have died, not because of his disability, but because of a lack of financial support and a lack of hope. What does that say about humanity? We're happy for someone to die rather than help them to live? It was a real eye-opener.”

During the Festival, this event will be a safe forum for the audience to voice and explore the topic of assisted dying, led by two speakers exploring rational and emotional issues and consider questions of how we can prepare robust legislation, and whether we should.

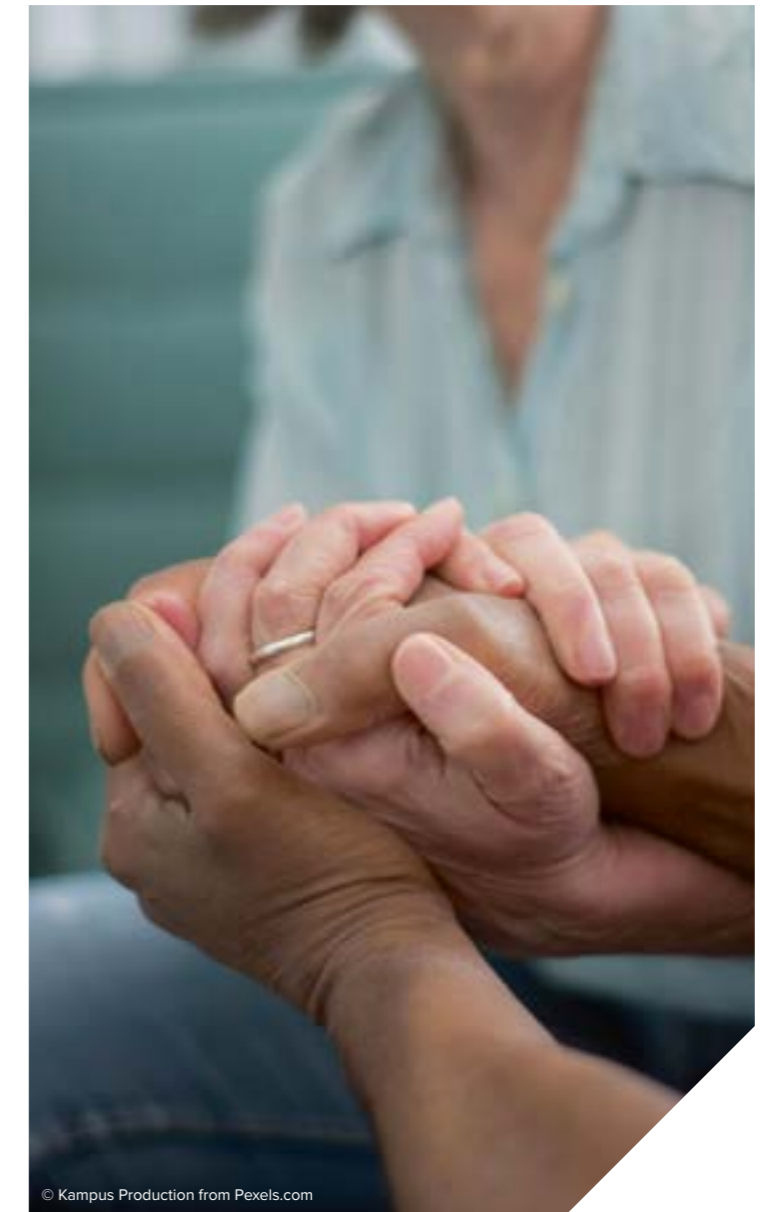
Joining Kathy Sykes will be Professor Dominic Wilkinson, the Director of Medical Ethics at The Oxford Uehiro Centre for Practical Ethics, who specialises in neonatal ethics such as when it's right to let a foetus or a baby die. He believes that we should all have a choice to end our own lives.

We might also ask whether it is it ethical to keep people alive as their health fades in old age now that we have treatments and medicines that enable us to do that. What are the costs and benefits to our ageing population, and to all of society?

In contrast, Jamie Hale is an impassioned theatre maker, writer and founder of CRIPticArts, an organisation which advances world-class arts work with disabled creatives. Disabled people deserve a fair treatment which includes not only equality, diversity and inclusion but autonomy, justice and equity, he argues, and should have, like the rest of the population, enough money to live their best lives.

And that doesn't include a one-way ticket to Zurich.

Join the discussion on **Assisted Dying** with IF Oxford, Fri 18 October, 6.30-7.30pm followed by 30 minutes Q&A
New Road Baptist Church, Bonn Square, Oxford OX11LQ.
Teenage / Adult



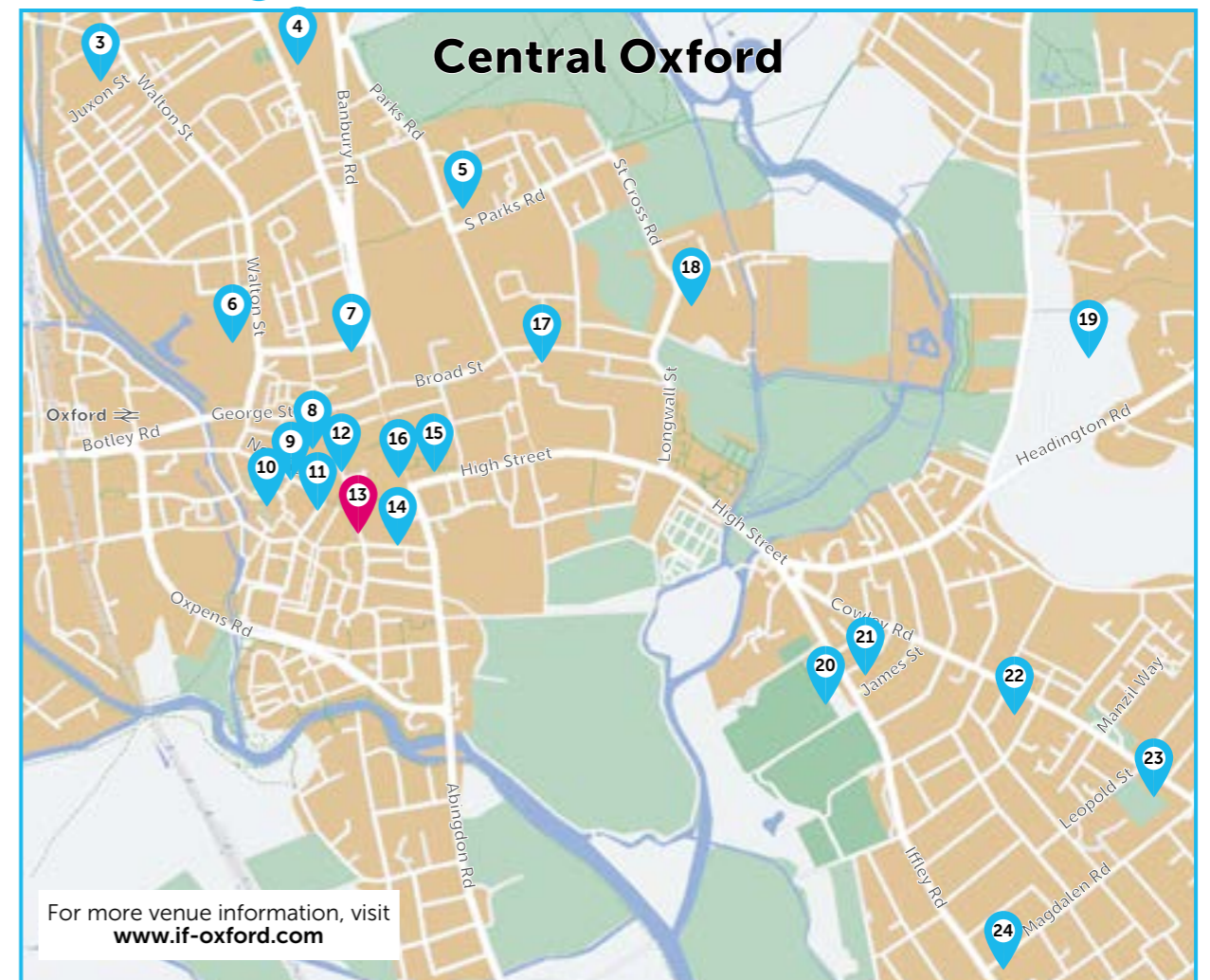
Date	Event	Map ref.	Page	Event	Map ref.	Page
2 – 19 Oct	The Pensive Image with Paul Kilsby	2	4			
9 Oct – 2 Nov	Uchiwa science	4, 10, 11, 30	4			
Wed 9 Oct	Glow Your Own	digital	4			
Thu 10 Oct	Designing Deceptions	12	4			
Fri 11 Oct	Braintastic! Science: Am I Normal?	7	5	The Immune Mind	7	5
	Jericho Comedy	2	5			
Sat 12 Oct	Explorazone	9	6, 7	Family Day with Live Lab	26	8
	Poetry of Science	9	8	Breakdance: Solar System	9	8
	Bubble superstars	12	8	The Science of Superheroes	7	9
	May the farce be with you	7	9			
Sun 13 Oct	Disinformation 'war gaming'	19	10			
Mon 14 Oct	Rhymetime	11	10	Lego Club	11	10
	Ironclad	8	10	Paul Kilsby in Conversation	2	11
Tue 15 Oct	Unpacking contraception	21	11			
Wed 16 Oct	Glow Your Own	digital	11	Language Cafe	11	11
Thu 17 Oct	Board Game Club	11	12	Drawing At Dusk	6	12
Fri 18 Oct	Assisted dying	12	12			
Sat 19 Oct	Family Day with Live Lab	26	12	Tech Works	27	13
	Geology in a cemetery	3, 18	14	Origami Club	11	14
	The Pensive Image Workshop	2	14	Storytime	11	14
Sun 20 Oct	Super Science Sunday	26	15			
Mon 21 Oct	Animal Communication	12	16			
Tue 22 Oct	Science wonder Discovery	1	16	Whose IP Is It Anyway?	22	16
	More scientific answers to ridiculous questions	22	16			
Wed 23 Oct	Glow Your Own	digital	17	Have you thought of a career in medical research?	digital	17
Fri 25 Oct	Could you run the world?	12	18			
Sat 26 Oct	Powering the Future (Culham)	29	18	Family Day with Live Lab	26	18
	Discovering Dinosaurs	5	18	The Horrible Science show	24	19
	Origami Club	11	19	Oxford Twin Cities Postcard Project	15	19
Sun 27 Oct	Geology in a cemetery	25, 23	19			
Mon 28 Oct	BLAST!	28	20, 21	The Universal History of Us	16	21
Tue 29 Oct	Discovering Dragon Brains	14	21	What matters to me and why	13	22
Wed 30 Oct	A Monstrous Discovery	14	22	Glow Your Own	digital	22
	The Invention of Wonder	17	22			
Thu 31 Oct	Board game club	11	23	UniverSilly Challenged (quiz)	8	23
Fri 1 Nov	Rhymetime	11	23	Star Soup	24	23
	How to be a whale	5	24			
Sat 2 Nov	Family Day with Live Lab	26	24			
Sun 3 Nov	Robotic racing	20	24			

Venue Map



- 1 Begbroke Science Park
- 29 Culham Campus
- 4 Grassroots
- 25 Headington Cemetery
- 19 Headington Hill Hall
- 18 Holywell Cemetery
- 17 Holywell Music Room
- 20 Iffley Road Sports Centre
- 21 James Tavern
- 16 Jesus College
- 13 Modern Art Oxford
- 5 Museum of Natural History
- 12 New Road Baptist Church
- 2 North Wall Arts Centre
- 10 Oxford Centre for Innovation
- 7 Oxford Playhouse
- 11 Oxford Westgate Library
- 27 Oxford Works
- 24 Pegasus Theatre
- 26 Science Oxford Centre
- 23 St Mary & St John Churchyard
- 3 St Sepulchre's Cemetery
- 28 The Barn, Greater Leys
- 22 The Bullingdon
- 15 The Covered Market
- 14 The Story Museum
- 30 Various Oxfordshire libraries – see Map QR; if-oxford.com/uchiwa
- 9 Wesley Memorial Church
- 8 Wig and Pen
- 6 Worcester College

29 Culham Campus



For more venue information, visit www.if-oxford.com



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