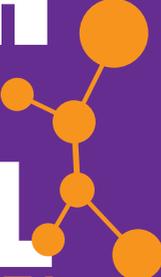


NORWICH SCIENCE FESTIVAL



23-30 OCTOBER 2021

Brought to you by:

the
forum

Headline sponsor:

Pensthorpe
Natural Park 



Intriguing Discoveries

Inspiring Talks

Science After Hours

Cutting-edge Research

Family Fun!



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HELLO FUTURE!

Welcome to the sixth Norwich Science Festival. We're back!

The pandemic has put science in the spotlight over the past eighteen months, with incredible scientists and health professionals being at the forefront of research, treatment and vaccination development. And as we lead up to COP 26 in Glasgow in November, another set of scientists will be working together to take urgent action on climate change. We face big challenges ahead but, this year, we want to celebrate and showcase the ground-breaking ways that scientists and innovators are tackling these challenges and helping us to embrace the future. We hope you will join us to celebrate science and those who are working so hard to make our futures bright – after the past year, we deserve it!

STAYING SAFE

To enjoy Norwich Science Festival to the full whilst remaining safe, we encourage visitors to check government guidelines before attending the Festival and to visit our website and social media channels for up to date information, as event details and venues may change to ensure we deliver a safe event.

BOOKING INFORMATION

Many events are bookable and have limited capacity, so early booking is recommended.

Please see p53 for more Festival information and details on how to book for ticketed events.

Join the conversation

- # NorwichSciFest
- Twitter NorwichSciFest
- f Norwich Science Festival
- Instagram Norwichsciencefestival

Brought to you by:

the
forum

PATRONS

We're delighted to welcome two new Festival patrons this year – Jon Chase and Dr Jess French. Both are firm Festival favourites and doing amazing work at inspiring others to enjoy science. Look out for their family events this year!

Jon Chase



Jon is a freelance science communicator, author and rapper. Jon is passionate about making science accessible to all. He has worked as a presenter for the BBC and Open University and is the UK's foremost proponent of Science Raps having performed at The Science Museum, The Royal Society and The Royal Institution.

Dr Jess French



Jess is a vet, zoologist, presenter and author best known for her CBeebies show *Minibeast Adventure with Jess* and her books on animals, conservation and protecting the natural world. Jess is also an explorer, adventurer and traveller and has worked at a gibbon sanctuary in Thailand, a monkey sanctuary in Bolivia and a dog shelter in India.

Mark Thompson



Prof Ben Garrod



Lizzie Daly



Jon and Jess join our existing patrons: broadcaster and astronomer, Mark Thompson, evolutionary biologist and broadcaster, Prof Ben Garrod and film-maker and biologist, Lizzie Daly.

THE EXPLORIUM!

During the Festival, The Forum's Atrium will be transformed into The Explorium – a place for all to explore the world through science. Drop in 10.30am – 4pm (23 – 30 Oct) for free, hands-on science fun for all ages!

Quiet Hour for those who require a calmer, less busy experience of the Festival between 9.30 – 10.30am each day – booking required.

HEADLINE EVENTS



RUTHERFORD & FRY'S COMPLETE GUIDE TO ABSOLUTELY EVERYTHING *ABRIDGED

SAT 30 OCT
7.30 – 8.30pm

We all rely on our gut feelings. But intuition is a terrible guide. If we believed what our minds tell us, we'd all think the world is flat (it's not even round), the sun orbits the Earth (nope), and that a day is made of twenty-four hours (close but also no).

Now, in their first ever live show, Drs Hannah Fry and Adam Rutherford will show you that reality is not what it seems, common sense is neither

common nor sensible, and our minds have evolved to lie to us all the time. They will take you on thrilling journey through time and space, from the beginnings of life on Earth to wondrous aliens elsewhere in the galaxies, from the darkest depths of infinity – via a hypnotised snail – to the brightest recesses of our minds.

Live on stage for the first time, Rutherford and Fry are your inimitable guides to the complete guide to absolutely everything*

**Abridged, and heavily edited, especially the boring bits*

VENUE: UEA, Lecture Theatre 1

COST: Ticket only £27.50,
Ticket and signed book £42.99

BOOK: norwichsciencefestival.co.uk



**FAMILY
EVENT**

ALL NORFOLK CREATURES GREAT AND SMALL

WITH DR JESS FRENCH
AND THEO BLOSSOM

SAT 23 OCT
10.30 – 11.30am

When Jess' Amazon expedition is cancelled she is distraught. Will she ever encounter an incredible animal again? When Theo learns of her plight, he uses his time-travelling tipi to take her on a wild adventure across the county. Join them as they discover the bounteous and bootiful wildlife that lives right here on our doorsteps!

VENUE: Norwich School,

Blake Studio

COST: £6

AGE: 5 – 10

BOOK:

norwichsciencefestival.co.uk



**FAMILY
EVENT**

STUFF! WITH MADDIE MOATE

SAT 23 OCT
11am, 1.30pm, 4pm

SUN 24 OCT
11am, 2pm

Show length approx.
60 minutes.

Join popular children's TV presenter and YouTuber Maddie Moate as she brings a selection of stories from her debut book *Stuff!* to life on stage!

Stuff! is packed with extraordinary tales of the ingenious ways people around the world, and across history, have made, used and re-used the stuff around them, inspiring a passion for sustainability in children and adults alike.

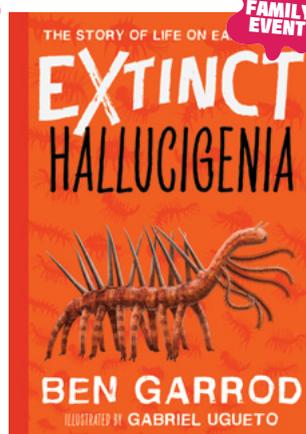
VENUE: Norwich Playhouse

COST: £10

AGE: 5+

BOOK: norwichtheatre.org

**NORWICH
PLAYHOUSE**



**FAMILY
EVENT**

EXTINCT WITH PROF BEN GARROD

SUN 24 OCT
1.30 – 2.30pm

For as long as there have been species, there has been extinction. What causes it? Why do some species go extinct and what can we do to save endangered species? Join Prof Ben Garrod as he explores how extinction is one of the most complex, interesting and evolving topics. With book signing.

VENUE: St Peter
Mancroft Church

COST: £6

AGE: 8+

BOOK:

norwichsciencefestival.co.uk



Credit: Ben Harris, Lizzie with camera

BEHIND THE ADVENTURE: STORIES FROM THE WILD WITH LIZZIE DALY AND DAN O'NEILL

SUN 24 OCT
3 – 4pm

From wild oceans to vast African plains and stories from the middle of the Amazon rainforest, Lizzie Daly and Dan O'Neill relive and discuss their greatest challenges and most daring adventures as biologists and wildlife filmmakers.

VENUE: Norwich Arts Centre

COST: £6

BOOK:

norwichsciencefestival.co.uk



CLIMATE ACTION: THE TIME IS NOW

WITH PROF BEN GARROD (CHAIR), INDY GREENE, PHOEBE HANSON, KATE STEPHENSON, DAWOOD QURESHI

MON 25 OCT
3 – 4pm

Join some of the UK's influential young voices fighting for climate action and conservation as they discuss the challenges, fears and motivations in the existential fight for the future. Followed by a Q&A and the opportunity to share your views.

VENUE: Norwich School,
Blake Studio

COST: Free, booking required

AGE: 11+

BOOK:

norwichsciencefestival.co.uk



CONNECTED BODIES – VIRTUAL PHYSICAL BLENDING IN FUTURE HYBRID WORLDS

WITH GHISLAINE
BODDINGTON

MON 25 OCT
5 – 6pm

Our bodies are extending and developing, our senses are enhanced, our social and work lives are changing through the use of digital tools and social media. At the base of this is the imperative issue of how we, our bodies and minds, affect and influence the various realities surrounding us.

In this talk, Ghislaine will delve into her thoughts on our lived experience to date, examining the issues emerging from the convergence of our bodies and our technologies.

VENUE: Norwich School,
Blake Studio

COST: £6

BOOK:

norwichsciencefestival.co.uk



SCIENCE SHAMBLES

TUE 26 OCT
8 – 9pm

Science Shambles is the podcast where world-leading scientists just chat about science. From cutting-edge research and big ideas to the everyday science of your backyard. This live event will be hosted by Dr Helen Czerski and look at the year in astrophysics with special guests including *The Sky at Night's* Prof Chris Lintott.

VENUE: Norwich School,
Blake Studio

COST: £5

BOOK:

norwichsciencefestival.co.uk

Presented by:



THE CLIMATE- BIODIVERSITY EMERGENCY WITH PROF SIR BOB WATSON

WED 27 OCT
7 – 8pm

Sir Bob Watson is a former Chair of the Intergovernmental Panel on Biodiversity Ecosystem Services and is one of the most influential environmental scientists worldwide, with former senior roles at the White House, DEFRA and NASA. Join Sir Bob for a live talk and Q&A, as he discusses the current biodiversity crisis caused by climate change and how Governments, business and society can limit climate change and preserve nature for future generations. Hosted by Prof Trevor Davies, UEA.

VENUE: Online

COST: Free, booking required

BOOK:

norwichsciencefestival.co.uk

Credit: Nottingham Trent University



HOW TO SOLVE A CRIME WITH PROF ANGELA GALLOP

THU 28 OCT
6.30 – 7.30pm

Prof Angela Gallop has been at the forefront of forensics for over 45 years. During her remarkable career, she has worked on hundreds of cases from the seemingly unsolvable to outright bizarre. In this talk, Prof Gallop will take you behind the police tape and into the heart of the crime scene. From being bemused by mediums to helping identify the man who stabbed George Harrison, you will gain a real insight into the mind of a forensic scientist. With book signing.

VENUE:

Norwich School, Blake Studio

COST: £8

AGE: 12+

BOOK:

norwichsciencefestival.co.uk



MARK THOMPSON'S SCIENCE SHOW

FRI 29 OCT
11am – 12pm, 2 – 3pm

You think science is boring, think again; this is science like you have never seen it before. Mark's spectacular Science Show explores the strange and magical properties of matter with exploding elephant's toothpaste, vortex-generating dustbins and even howling jelly babies!

VENUE: Norwich Playhouse

COST: £10

AGE: 6+

BOOK: norwichtheatre.org



BEING YOU: THE INSIDE STORY OF YOUR INNER UNIVERSE

WITH PROF ANIL SETH

SAT 30 OCT
11am – 12pm

Being you is not as simple as it sounds. Somehow, within each of our brains, billions of neurons work to create our conscious experience. How does this happen? Why do we experience life in the first person? Neuroscientist Prof Anil Seth puts forward a radical new theory of consciousness, turning what you thought you knew about yourself on its head. An accessible, inspiring and eye-opening exploration of the brain by one of the most remarkable pioneers working in science today. With book signing.

VENUE: Norwich School, Blake Studio

COST: £6

BOOK:

norwichsciencefestival.co.uk



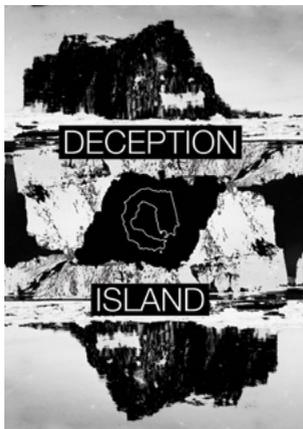
GAIA

MON - SAT,
10.30am – 4pm
THU EVENING,
6 – 8pm

Gaia is a touring artwork by UK artist Luke Jerram. Measuring six metres in diameter and created from 120dpi detailed NASA imagery of the Earth's surface, Gaia aims to create a sense of the *Overview Effect*, first described by Frank White in 1987.

VENUE: St Peter
Mancroft Church
COST: Free, drop-in

SPM St Peter Mancroft
Norwich



DECEPTION ISLAND

SAT 23 - SAT 30 OCT
Various times, see website

Step inside this exact replica of an Antarctic hut and prepare to embark on an immersive expedition to the extreme edge of the earth. Poetry, sound and film will transport you to Deception Island, a tiny volcanic caldera in the Antarctic Ocean battered by the fiercest seas in the world.

VENUE: Outside The Forum,
Antarctic Hut
COST: £5
BOOK:
norwichsciencefestival.co.uk

Presented by:
**Story
Machine**

EDIBLE EAST ART TRAIL

The latest world-leading science from Norwich Research Park comes to the heart of our medieval city in the Edible East Art/Science trail. This outdoor trail presents thought-provoking artwork in unusual places to stimulate conversations about food, sustainability and health. Take a self-guided tour by downloading a map from the website or picking up a printed version at The Forum. A walking tour is available to book on Wed 27 Oct, led by artists and scientists. British Sign language available, wheelchair accessible.

INFO: edibleeast.org.uk/
VENUE: Trail – various locations
COST: Free, drop-in



WHEATFEN: LISTEN

Join the HomeSounds project for an exploration of the creative, educational and healing power of listening. Throughout the Festival, HomeSounds will be broadcasting live environmental sound from Wheatfen Nature Reserve in the heart of the Norfolk Broads. Accompanying this will be a series of online and in-person sound-walks around the acoustic habitat of Wheatfen, each focusing on a different aspect of environmental listening.

INFO:
norwichsciencefestival.co.uk



Credit: Matthew Usher

THE INCREDIBLE TALE OF ROBOT BOY

SAT 23 – SAT 30 OCT

In the most extraordinary high-tech laboratory, a team of the world's top scientists are attempting the impossible. Their mission is to create a robot with a real brain. They succeed, and Robot Boy is born. Mixing puppetry, interactive film and performance, this poetic story of humanity, responsibility and life takes the audience on a journey full of curiosity and wonder.

VENUE: Online, via norwichsciencefestival.co.uk

AGE: 7+

COST: Free



SHIFTING LINES

SAT 23 – SAT 30 OCT
10am – 4pm

Experience a multimedia poetry installation by Mona Arshi inspired by the coastal landscape of Norfolk Wildlife Trust's Cley Nature Reserve. The Trust's exhibition combines Arshi's poetry with beautiful imagery and cutting-edge audio techniques. This project is part of the UEA's flagship Future and Form project.

VENUE: The Forum

COST: Free, drop-in



WHERE DO STORIES COME FROM?

SAT 23 – SAT 30 OCT

Many of us dream of writing a novel but can't imagine where to start. Enter the mind of award-winning novelist Tash Aw and join him in writing a story. Using computer-generated imaging and responsive machine learning, this interactive tool

will transport you 6,000 miles away to Hong Kong where the story begins. You will take over the writing and decide what happens. Access from your own device, or via the Millennium Library by booking a PC.

VENUE: Online via wheredostoriescomefrom.net



LITERATURE, DRAMA AND CREATIVE WRITING

FUTURE - AND - FORM

EXHIBITION: HELLO FUTURE FASHION

SAT 23 – SAT 30 OCT
10am – 12pm, 1 – 4pm

How much do you think about the clothes you wear? This exhibition explores stories of our clothes: from the materials they're made from, to what happens to them when we stop wearing them, and the planet effect this has on people and the planet. Curated by We Wear The Trousers and supported by the University of East Anglia.

VENUE: Royal Arcade (check website listings for exact location)

COST: Free, drop-in



#ThinkingWithoutBorders



PAINTED PERSPECTIVES ON THE PAST AND PRESENT

SAT 23 - SAT 30 OCT

Artist Gennadiy Ivanov and scientists Profs Trevor Davies and John Pomeroy join forces to provide unique painted perspectives on the past and present. The exhibition combines imaginative art with science, bridging dinosaur and human time-scales to entertain, provoke, challenge and inspire.

VENUE: The Forum

COST: Free, drop-in

PLANETARIUM BROUGHT TO YOU BY STARLIGHT STEM



MON 25 - SAT 30 OCT
10am – 4.30pm

Step inside this amazing HD, wheelchair accessible planetarium for an incredible, immersive 40 minute guided tour of the Autumn night sky. Discover more about what we can see in the sky above us and how to use binoculars to explore the Universe.

VENUE: Chantry Place (formerly Chapelfield)

COST: £4

AGE: 4+

INFO:

norwichsciencefestival.co.uk



EXHIBITION: CELEBRATING PRIDE IN THE NORFOLK STEM COMMUNITY

SAT 23 - SAT 30 OCT
10am – 4pm

Engage with an exhibition celebrating local LGBTQ+ scientists, illustrated by Norwich artist and anatomist, Charlie James. On Friday 29 October (see p45), meet the LGBTQ+ scientists behind the illustrations.

VENUE: The Forum

COST: Free, drop-in

Supported by:



VERSE CONVERSE



SAT 23 - MON 25 OCT

Various times, see website

Verse Converse is a unique, immersive, sound and light, kinetic installation that generates music from body heat.

The installation will allow you to make musical conversation by simply being in the space. No music making experience will be needed. At a time when social distancing and polarised arguments have damaged mental health and divided society, this is an opportunity to create beautiful harmony and contemplate each other's input. Participants will experience the beauty and harmony that can be created by the warmth we all radiate.

VENUE: The Forum, Gallery

COST: Free, booking required

AGE: 8+

BOOK:

norwichsciencefestival.co.uk





★ SCIENCE AFTER SIX

Join us for a series of adult-only, after hours events. Expect humour, taboo topics and a Festival Bar! Pop-up festival bar courtesy of



OUR DISGUSTING PLANET

SAT 23 OCT
8.30 – 9.30pm

Our Disgusting Planet busts taboos and normalises the disgusting through frank, funny and filthy comedy. Your hosts - scientists Belle Taylor and Charlotte Mykura - take you on a journey through the human body, as they dive into the deliciously foul questions you've always wanted to ask!

VENUE: Norwich School, Blake Studio
COST: £5
BOOK:
norwichsciencefestival.co.uk

LOVE FACTUALLY: THE SCIENCE OF WHO, HOW AND WHY WE LOVE?

WITH LAURA MUCHA

SAT 23 OCT
6.30 – 7.30pm

Join poet and author Laura Mucha to explore the science of love. Laura's book, *Love Factually / We Need to Talk About Love* is the result of ten years of interviews with hundreds of strangers aged 8-95 across every continent, together with extensive academic research. Laura has appeared on BBC Radio 4's *Woman's Hour*, WNYC, ABC and Channel 4's *Sunday Brunch*. *The Guardian* describes her as "a fantastic nosy parker". With book signing.

VENUE: Norwich School, Blake Studio
COST: £6
BOOK:
norwichsciencefestival.co.uk

OUT THINKERS: CELEBRATING LGBTQ+ IN STEM

SAT 23 OCT
9.30pm

Whether you are LGBTQ+ or an ally, join us to celebrate our fantastic and diverse STEM community in Norfolk with a series of mini talks and the chance to network with local LGBTQ+ scientists, hosted by film-maker Dan O'Neill.

VENUE: The Forum, Gallery
COST: Free, booking required
BOOK:
norwichsciencefestival.co.uk

Supported by:





PINT OF SCIENCE

SUN 24 OCT
7.30 – 9pm

Pint of Science returns to Norwich Science Festival for an evening of talks on biodiversity, DNA and climate change. Join us to hear from local scientists as they share their work and discuss these important topics over a pint or two!

VENUE: The Forum, Gallery
COST: £4
BOOK:
norwichsciencefestival.co.uk

THIS IS A VAGINA

SUN 24 OCT
7.30 – 8.30pm

Do you know your vagina from your vulva? According to research carried out by The Eve Appeal, almost half of British women don't know the basic anatomy of their vagina. Despite half of the world's population having one, vaginas and female anatomy are still taboo topics, which can lead to worrying implications for women's health, body image and sexual pleasure. Join Hoda Ali (human rights



activist and FGM survivor) as she chats to vagina experts, Florence Schecter (Founder, The Vagina Museum), Elaine Miller (gynae physiotherapist and stand up comedian), Jules Howard (zoologist) and Charlotte Mykura (doctor) for a candid discussion about this wonderful organ! Illustrated live by Rebecca Osborne.

VENUE: Norwich Arts Centre
COST: £5
BOOK:
norwichsciencefestival.co.uk



SEX ROBOTS AND VEGAN MEAT

WITH JENNY KLEEMAN IN CONVERSATION WITH PROF BEN GARROD

MON 25 OCT
8 – 9pm

Imagine if it was possible to have the perfect sexual relationship without compromise, eat meat without killing animals, have babies without the need to bear them, and choose the time of our painless death. All over the globe, people are trying to make this a reality, using tech to solve the thorniest problems. But what if these 'problems' are the very things that make

us human? Join Jenny Kleeman in conversation with Prof Ben Garrod on an entertaining, thought-provoking adventure to a place where sex robots and vegan meat are no longer science fiction – right here, right now. With book signing.

VENUE: The Forum, Gallery
COST: £6
BOOK:
norwichsciencefestival.co.uk



PSYCHED! PRESENTS 'BLAH BLAH BLAH' THE ORIGINS OF HUMAN LANGUAGE

FRI 29 OCT
7.30 – 9.30pm

Why did human language take millions of years to emerge, yet babies are born 'language ready'? Join PSYCHED! hosts, Prof Gilly Forrester and Eric Drass, and guests for 'Blah Blah Blah' an interactive cabaret-style science evening exploring cutting-edge research into the origins of human language.

VENUE: The Forum, Gallery
COST: £5
BOOK:
norwichsciencefestival.co.uk

OUR WILD WORLD



FAMILY EVENT

NATURE & ZOOLOGY DAY

SAT 23 OCT

10.30am – 4pm, drop-in

QUIET HOUR: 9.30 – 10.30am, booking required

THE EXPLORIUM!

Sponsored by:



Explore the wonder of all things wild, from birds and beasts to our amazing oceans.

VENUE: The Forum's Explorium

COST: Free

AGE: All ages

ALL NORFOLK CREATURES GREAT AND SMALL

WITH JESS FRENCH AND THEO BLOSSOM

FAMILY EVENT

SAT 23 OCT

10.30 – 11.30am

See p5 (headline events)

WHAT HAPPENED TO THE DINOSAURS?

SAT 23 OCT

10 – 10.45am,
11.15am – 12pm,
2 – 2.45pm

WORK SHOP

Join Lucy Catto from Fossils & Fireworks to explore why dinosaurs became extinct! Make fossils and asteroid launchers for your budding palaeontologist to take home. Lots of hands-on fun for little ones including a volcanic eruption.

VENUE: Sir Isaac Newton

Sixth Form

COST: £5

AGE: 3 – 5

BOOK:

norwichsciencefestival.co.uk



MEND IN PROTEST

SAT 23 OCT
10am – 12pm

**WORK
SHOP**

In the current climate of Fast Fashion, wearing and repairing the clothes we already have, instead of buying new, is a political statement, as well as helping to protect our planet. Join us for this drop-in workshop where we'll be exploring different ways to extend the life of your clothing and wear your ideals on your sleeve – literally!

VENUE: Royal Arcade (see website for exact location)

COST: Drop-in, suggested donation £3



#ThinkingWithoutBorders

**WE WEAR
THE TROUSERS**



VISIT NORWICHSCIENCEFESTIVAL.CO.UK



ENVIRONMENTAL JOURNALISM WORKSHOP WITH KATE ON CONSERVATION



SAT 23 OCT
10.30am – 12.30pm

**WORK
SHOP**

Kate Stephenson has spent the last 10 years running an award-winning wildlife blog, *Kate on Conservation*. Formerly Education Editor at *National Geographic Kids*, Kate has worked on major projects including Discovery's *Racing Extinction* documentary and interviewed the likes of Dr Jane Goodall and Sir David Attenborough. Join Kate to learn how to write about wildlife and the environment for magazines and create a mini mag.

VENUE: Millennium Library,
Vernon Castle Room

COST: £8

AGE:: 8 – 12

BOOK:

norwichsciencefestival.co.uk



WILD CHILD: COMING HOME TO NATURE WITH PATRICK BARKHAM

SAT 23 OCT
11am – 12pm

We know that being outside makes us happy and keeps us well. And yet today's children spend less time outdoors than prisoners. Parent and forest school volunteer Patrick Barkham explores how we can fix this. No matter who we are, we can find joy and good health in local nature. With book signing.

VENUE: Norwich School

COST: £6

BOOK:

norwichsciencefestival.co.uk

STUFF! WITH MADDIE MOATE



SAT 23 - SUN 24 OCT

See p5



BIZARRE AND BRILLIANT BIRDS WITH DAN ROUSE

SAT 23 OCT
1 – 2pm

Ever wondered how birds get through life? They may seem like quiet creatures, but birds are brilliant! Travel around the world with BBC presenter and conservationist, Dan, and learn about the vomiting seabird, moonwalking birds and the birds who spend their lives living in caves.

VENUE: Norwich School, Blake Studio

COST: £5

AGE: 6+

BOOK:

norwichsciencefestival.co.uk



ANIMAL DISSECTION LIVE WITH PROF BEN GARROD AND DR JESS FRENCH

SAT 23 OCT
12.30 – 3.30pm

Join Prof Ben Garrod (evolutionary biologist) and Dr Jess French (zoologist) in this scientific dissection to reveal the inner workings of an animal. Please note that the animal died of natural causes and has been donated for the purpose of education and research.

VENUE: Outside The Forum & Online

COST: Free, drop-in

AGE: Parental advisory

PARKRUN: NORWICH SCIENCE FESTIVAL TAKEOVER

SAT 23 OCT
9am (meet at 8.45am)

Walk, jog, run, volunteer or spectate in your best science-themed fancy dress, with scientists from UEA and the Norwich Research Park cheering you on!

parkrun is a 5k community event where there is no time limit and no one finishes last. Just make sure you're a registered parkrunner before taking part.

VENUE: Colney Lane Playing Fields

BOOK: Drop-in



THE BRILLIANT ABYSS WITH DR HELEN SCALES

SAT 23 OCT
1 – 2pm

The deep ocean is a vast, vibrant living space full of extraordinary creatures that tell us so much about life on Earth, and perhaps elsewhere in the Universe too. Join Dr Helen Scales on a journey into this hidden realm, to explore the latest discoveries in the deep and hear why it urgently needs protecting. With book signing.

VENUE: Norwich School

COST: £6

BOOK:

norwichsciencefestival.co.uk

LISTEN, LISTEN, LISTEN AND WRITE!



SAT 23 OCT
1.30 – 2.30pm

**WORK
SHOP**

Join award-winning poet Laura Mucha to immerse yourself in the sounds of nature. Listen to earthquakes shuddering, monkeys muttering and birds chuntering – and turn everything you hear into your very own nature poem.

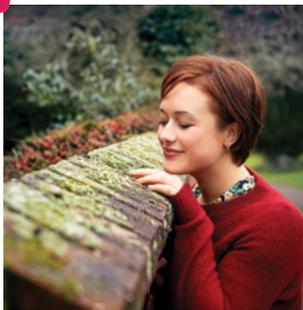
VENUE: Millennium Library,
Vernon Castle Room

COST: £6

AGE: 7 – 12

BOOK:

norwichsciencefestival.co.uk



RECONNECTING WITH NATURE

SAT 23 OCT
3 – 4pm

Throughout the pandemic, connecting with nature has been more important than ever for our wellbeing. But how do we maintain this engagement for the benefit of both the natural world and our health and wellbeing? Join Patrick Barkham (*The Guardian*) as he explores our connection with nature with Michael McCarthy (environment correspondent and author, *The Consolation of Nature – Spring in the Time of Coronavirus*), Lucy Jones (author, *Losing Eden*) and Tim Hill (Natural England). With book signing.

VENUE: Norwich School

COST: £6

BOOK:

norwichsciencefestival.co.uk



A BOLD VISION OF HOPE FOR A SUSTAINABLE FUTURE

SAT 23 OCT
4 – 5.30pm

We are destroying our oceans, driving species to extinction and dangerously heating our planet. We are using the Earth's resources far faster than they can replenish. Join Prof Tim O'Riordan (President, Campaign to Protect Rural England) as he discusses how we can learn to live sustainably with Dr Hayley Pinto (Greenpeace), Dr Nitya Rao (Norwich Institute for Sustainable Development, UEA), Connor Bryant (Co-founder of Rubbish Ideas and The Rubbish Project) and Jonathon Porritt CBE (environmental campaigner and author of *Hope in Hell*).

VENUE: Norwich School,
Blake Studio & Online

COST: Free

BOOK:

norwichsciencefestival.co.uk

UPCYCLED PLASTIC JEWELLERY WITH JESSICA MAE STUDIO

SAT 23 OCT
2 – 4pm

**WORK
SHOP**

Learn about plastics, their properties and how to work with them to create your own set of jewellery to take away with you. All materials will be provided, however, feel free to bring with you any interesting plastic materials that you might have collected!

VENUE: Royal Arcade (see website for exact location)

COST: £8

BOOK:

norwichsciencefestival.co.uk



RED SIXTY SEVEN THE ROLE OF ART AND CULTURE IN BIRD CONSERVATION

SAT 23 OCT
5 – 6pm

In an ideal world the UK Red List of vulnerable birds would not be needed, but the world is far from ideal and birds are in decline. Children's author Gill Lewis joins artist Ian Claxton, conservationist Kit Jewitt and scientist Mike Toms to discuss how the arts can support bird conservation.

VENUE: Norwich School

COST: £6

BOOK:

norwichsciencefestival.co.uk

LOVE FACTUALLY WITH LAURA MUCHA

SAT 23 OCT
6.30 – 7.30pm
See p12



DECEPTION ISLAND TALK

SAT 23 OCT
7.30 – 8.30pm

Meet the team behind Deception Island and get the inside scoop on our Antarctic exploration. Join poet Elizabeth Lewis Williams, restoration expert Geoff Cooper, filmmaker Mark Hannant, composer Jenni Pinnock, and producer Sam Ruddock for an in-depth discussion and Q&A about all things Antarctica.

VENUE: St Peter
Mancroft Church

COST: £5

BOOK:

norwichsciencefestival.co.uk

Presented by:

**Story
Machine**

OUR DISGUSTING PLANET

SAT 23 OCT
8.30 – 9.30pm
See p12

OUT THINKERS

SAT 23 OCT
8 – 9.30pm
See p12



CLIMATE CHANGE & SUSTAINABILITY DAY



SUN 24 OCT
10.30am – 4pm, drop-in

QUIET HOUR: 9.30 - 10.30am, booking required

THE EXPLORIUM!

Sponsored by:

VATTENFALL 

Ahead of COP26 in Glasgow, we are shining the spotlight on climate change at this year's Festival, with a series of talks and activities exploring climate change, what scientists are doing to tackle the problem and the action we can take – all sponsored by Vattenfall UK. Drop in to The Explorium to meet the scientists and organisations working to protect our planet.

VENUE: The Forum's Explorium

COST: Free, drop-in

AGE: All ages



VISIT NORWICHSCIENCEFESTIVAL.CO.UK

MEND WITH FRIENDS

SUN 24 OCT
10am – 12pm

WORK SHOP

Bring your mending projects from home or choose something from our 'rag-bag' to mend/upcycle and give a new lease of life. All menders welcome, whatever your experience levels.

VENUE: Royal Arcade (see website for exact location)

COST: Drop-in, suggested donation £3



WE WEAR THE TROUSERS



DARE TO SPEAK UP

SUN 24 OCT
10.30am – 12.30pm

WORK SHOP

Write and deliver a speech for the annual UN climate change summit at this special crash course in speechwriting. In this interactive workshop, you will work with political scientists and UEA students to learn about the ways that speeches can inspire change by giving people new ways to think and good reasons to act.

VENUE: Sir Isaac Newton Sixth Form

COST: Free, booking required

AGE: 12 – 18

BOOK:

norwichsciencefestival.co.uk



#ThinkingWithoutBorders



BREATHE. CIRCUS TO MAKE YOU GASP

SUN 24 OCT
11 – 11.30am,
1 – 1.30pm,
3 – 3.30pm



A lyrical, fast-paced exploration of the pathway from exhaustion to recovery – ours, our friends', and our planet's. Two friends become exhausted trying to do a circus trick too often, so fail. Only when they take a rest and recuperate, can they do their astonishing acts again. Tackling ecology and wellbeing, Breathe is an astounding and questioning circus show for all ages, filled with the hope of recovering together.

VENUE: Outside The Forum
COST: Free, drop-in

LISTEN, LISTEN, LISTEN AND WRITE!

SUN 24 OCT
10.30 – 11.30am
See p17

WORK SHOP



credit: Viv Cumming



EXPLORING ANTARCTICA WITH LIZZIE DALY

SUN 24 OCT
11am – 12pm

In 2020, Lizzie ventured to the frozen continent of Antarctica. Here she shares stories of her time there, the excitement of being in such close proximity with whales, penguins, albatross and leopard seals, as well as looking at some of the issues facing these species as climate change has more and more bearing on their ecosystem.

VENUE: Norwich Arts Centre
COST: £5
AGE: 8+
BOOK:
norwichsciencefestival.co.uk

STUFF! WITH MADDIE MOATE

SUN 24 OCT
11am, 2pm
See p5



THE IMPACT OF CLIMATE CHANGE ON NORFOLK'S BIODIVERSITY

SUN 24 OCT
11am – 12pm

The Earth is in the middle of both climate and biodiversity emergencies. With increasing temperatures, how might Norfolk's biodiversity cope? In this talk, Prof Jeff Price (JEA and The Tyndall Centre) will present information on how we might expect the biodiversity of Norfolk to change - from plants to animals (including insects) over various levels of warming.

VENUE: Norwich School
COST: Free, booking recommended
BOOK:
norwichsciencefestival.co.uk



#ThinkingWithoutBorders





F*RTOLOGY

THE MOST OUTRAGEOUS SCIENCE SHOW IN THE WORLD

SUN 24 OCT
11 – 11.45am

BBC Gastronomer Stefan Gates takes you on an unforgettable, explosive edible adventure exploring the bizarre science behind our food. Expect vortex cannons, explosions, glowing drinks, edible chemical reactions, colour-changing cocktails and loads of audience interaction in a hilarious and thoroughly educational show.

VENUE: Online only, available to view for 7 days
COST: Free, booking required
AGE: 5+ (and adults!)
BOOK: norwichsciencefestival.co.uk

**FAMILY
EVENT**

FARMING WITH NATURE

SUN 24 OCT
1 – 2pm

Join Jake Fiennes (Holkham Estate), Ed Pope (Watatunga Wildlife Reserve) and Bill Jordan (Pensthorpe) as they discuss the changing face of the landscape and the importance of conservation efforts to protect and preserve wildlife.

VENUE: Norwich Arts Centre
COST: Free, booking required
BOOK:
norwichsciencefestival.co.uk

Pensthorpe
Natural Park 

CLIMATE CHANGE AND GLOBAL FRESHWATER SUPPLY WITH PROF JOHN POMEROY

SUN 24 OCT
1 – 2pm

Climate change is proceeding faster over cold regions
Droughts and floods are displacing people and ruining ecosystems. Join Prof Pomeroy, Director of the Global Water Futures Programme led by the UN, as he explains the work being done to better understand and predict these changes.

VENUE: Norwich School
COST: Free, booking required
BOOK:
norwichsciencefestival.co.uk

EXPLORE THE SOUNDS ARCHIVES WORKSHOP

SUN 24 OCT
2 – 4.30pm

WORK
SHOP

Join poet Elizabeth Lewis Williams and sound experts from Norfolk Record Office to explore some of the treasures of the British Antarctic Survey archives. From penguin recordings to reminiscences of Antarctic scientists and explorers, you'll discover a rich mix of voices, and create a found poem from what you hear.

VENUE: Millennium Library,
Vernon Castle Room

COST: £10

BOOK:

norwichsciencefestival.co.uk

Presented by:

**Story
Machine**

BEHIND THE ADVENTURE WITH LIZZIE DALY AND DAN O'NEILL

SUN 24 OCT
3 – 4pm
See p6



FOOD AND CLIMATE CHANGE – WITHOUT THE HOT AIR WITH PROF SARAH BRIDLE

SUN 24 OCT
3 – 4pm

Food causes a quarter of all climate change, and this is increasing. However, different foods cause very different climate impacts. Sarah Bridle, author of *Food and Climate Change – Without the Hot Air*, talks about how different food choices contribute to climate change and what you can do about it. With book signing.

VENUE: Norwich School

COST: £5

BOOK:

norwichsciencefestival.co.uk



PLASTICS CHALLENGE

SUN 24 OCT
3 – 4pm

WORK
SHOP

Join Dr Jo Science and discover lots of fascinating facts about plastics; their properties, how they are made and how long they hang around for. Find out what can be recycled and reused as well as creating some plastic alternatives.

VENUE: Online

COST: Free, booking required

AGE: 5 – 10

BOOK:

norwichsciencefestival.co.uk





THE IMPORTANCE OF BEING INTERESTED

WITH ROBIN INCE

SUN 24 OCT
5 – 6pm

Comedian Robin Ince quickly abandoned science at school, bored by a fog of dull lessons and intimidated by the barrage of equations. But, twenty years later, he fell in love and he now presents one of the world's most popular science podcasts. Every year he meets hundreds of the world's greatest thinkers and in this talk, based on his latest erudite and witty book, he reveals why scientific wonder isn't just for the professionals. With book signing.

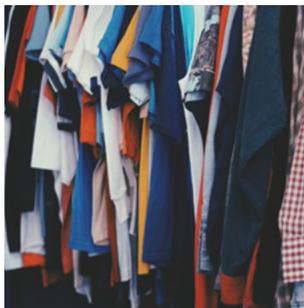
VENUE: Norwich Arts Centre

COST: £6

BOOK:

norwichsciencefestival.co.uk

Presented by:



HELLO FUTURE FASHION

SUN 24 OCT
5 – 6pm

Discover exciting, affordable, accessible ways to consume less but still enjoy fashion and help contribute towards the survival of the planet. Join some of Norfolk's researchers, businesses, makers and activists for an insight into inspiring solutions for the future of fashion processes and production, and how these contribute towards planetary health.

VENUE: Norwich School

COST: Free, booking required

BOOK:

norwichsciencefestival.co.uk



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PINT OF SCIENCE

SUN 24 OCT
7.30 – 9pm

See p13



Credit: Mark Hardy

WORLDS BEFORE US: REVEALING NEANDERTHALS, DENISOVANS AND EARLY HOMO SAPIENS

WITH DR REBECCA WRAGG-SYKES AND PROF TOM HIGHAM

SUN 24 OCT
7 – 8pm

Join two experts in conversation with Prof Rebecca Stott as they discuss the newest findings on the Neanderthals, Denisovans and early humans. Tom and Rebecca will explore how 21st century science and archaeology have produced stunning new discoveries and revolutionised thinking about our ancient relations. With book signing.

VENUE: Norwich School

COST: £7

BOOK:

norwichsciencefestival.co.uk

THIS IS A VAGINA

SUN 24 OCT
7.30 – 8.30pm

See p13



DIGITECH DAY

MON 25 OCT

10.30am – 4pm, drop-in

QUIET HOUR: 9.30 - 10.30am, booking required

THE EXPLORIUM!

Sponsored by



breakwater

Explore how technology is shaping our future, from robots and AI to computer games and cybersecurity.

VENUE: The Forum's Explorium

COST: Free, drop-in

AGE: All ages



Pumpkin Pi Jamwich RASPBERRY JAM

RASPBERRY PI JAMWICH

MON 25 OCT

11am – 12pm,
1 – 2pm, 3 – 4pm

Let's carve out some fun, learn new skills and have a scream with a Halloween-themed Raspberry Pi Jamwich! Raspberry Pis are tiny computers you can use to learn coding with fun, practical projects. In these workshops, we'll investigate squishy LED circuits, spooky Minecraft and mysterious music, with ghostly goings-on for all ages!

VENUE: Sir Isaac
Newton Sixth Form

COST: £3

AGE: 7 – 11 (11am – 12pm),
11 – 16 (1 – 2pm),
16+ (3 – 4pm)

BOOK:
norwichsciencefestival.co.uk



NANO WITH DR JESS WADE



MON 25 OCT
11am – 12pm

Everything is made from something – but the way we make things, from the materials we use to the science and technology involved, is changing fast. Join Jess – a highly skilled physicist and trailblazing campaigner for diversity in STEM fields – as she introduces budding scientists to the cutting-edge world of nanotechnology. With book signing.

VENUE: Bookbugs and Dragon Tales

COST: £5

AGE: 6 – 9

BOOK:

norwichsciencefestival.co.uk

THE AMAZING BUBBLE MAN



MON 25 OCT
11.30am – 12.40pm,
2 – 3.10pm

From square bubbles to rocket bubbles, tornado bubbles to flying saucer bubbles, The Amazing Bubble Man conjures shrieks of laughter and gasps of amazement from all ages.

VENUE: Norwich Playhouse

COST: £11.50

AGE: 3+

BOOK: norwichtheatre.org



EXPLORING FASHION FOOTPRINTS

**WORK
SHOP**

MON 25 OCT
10am – 12pm, 2 – 4pm

This workshop takes the form of an interactive card game to facilitate clothing conversations. Participants use playing cards as prompts to discuss the ecological footprint of different types of garment at different stages of life. We will consider geographies of fashion as well as production processes and end of life.

VENUE: Royal Arcade (see website for exact location)

COST: Free, booking required

BOOK:

norwichsciencefestival.co.uk



#ThinkingWithoutBorders



NATURE WITHIN NORFOLK

MON 25 OCT
12 – 1pm

Join Allan Archer (Pensthorpe), Nick Acheson (Norfolk Wildlife Trust) plus guest (Holkham Estate) to find out more and ask questions about the wildlife and habitats founded within Norfolk.

VENUE: Norwich School,
Blake Studio

COST: Free, booking required

BOOK:

norwichsciencefestival.co.uk



USING TECH IN HEALTHCARE

MON 25 OCT
11.45am – 12.45pm

From bloodsucking leeches to 3D printed robotic limbs, medicine has always been an innovative field. Find out about how local initiatives are changing the face and future of healthcare in this discussion featuring scientists from UEA and the Norwich Research Park.

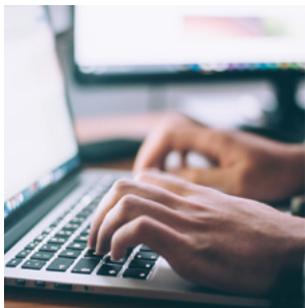
VENUE: Norwich School

COST: Free, booking recommended

BOOK:

norwichsciencefestival.co.uk





THE RISE OF THE (TALKING) MACHINES

MON 25 OCT
1.30 – 2.15pm

Chatbots are everywhere! From talking to Alexa or ordering something online, we're talking to a machine more than we might realise. In this talk, Dr Oli Buckley (UEA) will look at why chatbots have become so popular, how AI can go wrong and what the future might look like.

VENUE: Norwich School

COST: Free, booking recommended

BOOK:
norwichsciencefestival.co.uk



LOST IN A GOOD GAME WITH DR PETE ETCHELLS

MON 25 OCT
6 – 7pm

What do video games do to us? Stories about the negative side of video games are pervasive in the news, but the scientific research behind these issues is far more complex and contentious than the headlines make out. In this talk, psychologist Dr Pete Etchells will reveal what playing and studying video games can actually tell us about human behaviour.

VENUE: Online

COST: Free, booking required

BOOK:
norwichsciencefestival.co.uk

MONEY FOR NOTHING: GIVING YOUR DATA AWAY FOR FREE

MON 25 OCT
6 – 6.45pm

As data becomes increasingly important and valuable, so does the amount that we give away without realising it, every day! In this session, Dr Oli Buckley (UEA) will talk about the different ways that you could be unconsciously giving away personal information about yourself.

VENUE: Online, via

norwichsciencefestival.co.uk

COST: Free



THE NEW GOLDEN AGE OF SPACE EXPLORATION

WITH MARK THOMPSON

MON 25 OCT
7 – 8pm

Of all the great natural environments to explore, space really is the final frontier. Join broadcaster and astronomer, Mark Thompson as he looks back at the last sixty years of space exploration and ahead to the missions and technology of the future.

VENUE: Norwich School, Blake Studio

COST: £6

BOOK:
norwichsciencefestival.co.uk



BORN TO REWILD

MON 25 OCT
7 – 8pm

Rewilding and regenerative farming can help reverse species extinction, tackle climate change and improve our overall health and wellbeing. Join Patrick Barkham in conversation with Hugh Somerleyton (Wild East), Rebecca Mayhew (Old Hall Farm) and Dominic Buscall (Wild Ken Hill) to explore the importance of rewilding and innovative approaches they are introducing in Norfolk.

VENUE: Norwich School
COST: Free, booking required
BOOK:
norwichsciencefestival.co.uk



DELICIOUS: THE EVOLUTION OF FLAVOUR AND HOW IT MADE US HUMAN WITH PROF ROB DUNN

MON 25 OCT
7 – 8.30pm

The flavours of the species around us have shaped many parts of the human evolutionary story. Join Rob Dunn, Professor of Human Biodiversity at North Carolina State University, as he explains how the quest for more flavourful foods may have played a role in phenomena as diverse as the invention of tools, the first use of fire and even the origin of the very stinkiest French cheeses.

VENUE: Online
COST: Free, booking required
BOOK:
norwichsciencefestival.co.uk



CLIMATE AND CONFLICT: BRIDGING OUR DIVISIONS FOR THE SAKE OF THE EARTH WITH DR JUSTINE HUXLEY

MON 25 OCT
7.30 – 8.30pm

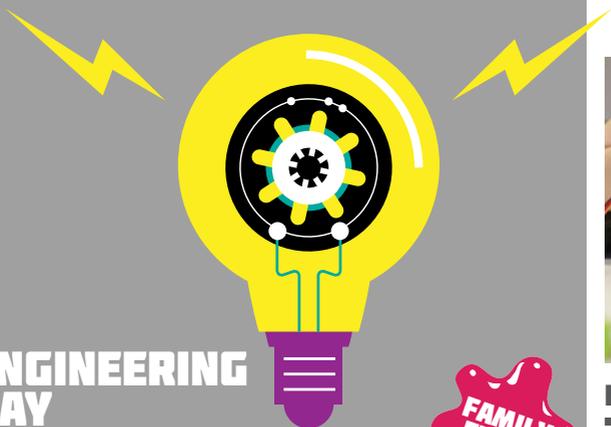
By aggravating social and economic inequalities, the climate crisis will increase the risk of instability and conflict in all parts of the world. As a global community, how can we reconcile our differences and take shared responsibility for our future?

VENUE: St Peter Mancroft Church
COST: Free, booking required
BOOK:
norwichsciencefestival.co.uk

SPM St Peter Mancroft
Norwich

SEX ROBOTS AND VEGAN MEAT WITH JENNY KLEEMAN IN CONVERSATION WITH PROF BEN GARROD

MON 25 OCT
8 – 9pm
See p13



ENGINEERING DAY

TUE 26 OCT
10.30am – 4pm, drop-in

QUIET HOUR: 9.30 - 10.30am, booking required

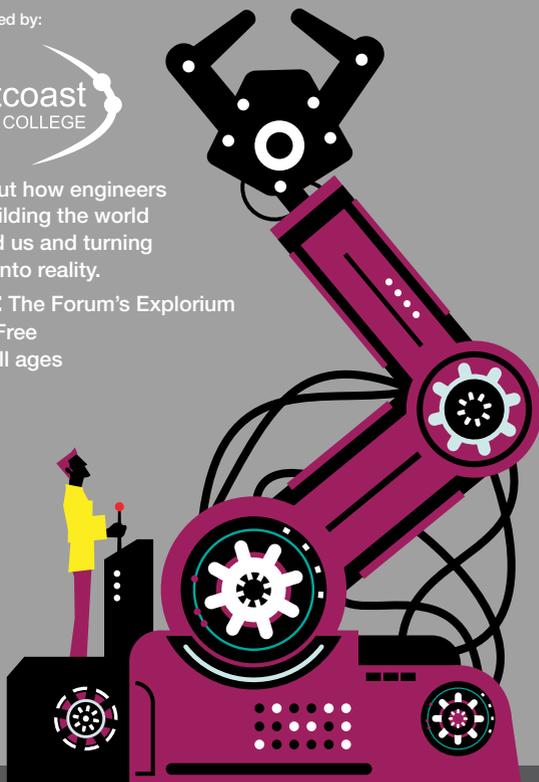
THE EXPLORIUM!

Sponsored by:



Find out how engineers are building the world around us and turning ideas into reality.

VENUE: The Forum's Explorium
COST: Free
AGE: All ages



ROBOT PROGRAMMING

TUE 26 OCT
10 – 11am (ASD friendly)
11.30am – 12.30pm,
1.30 – 2.30pm, 3 – 4pm

Create a robot or two or three! Programme bots to obey your commands. Code a robot's path through an assault course. Make jumping robots, cardboard robots, rolling robots and mini robots.

VENUE: Millennium Library, Vernon Castle Room

COST: £7

AGE: 7+

BOOK:

norwichsciencefestival.co.uk

BRICKOLOGISTS

TUE 26 OCT
10 - 11am, 12 - 1pm,
3 - 4pm

Build, play and learn with LEGO®. Have a go at making a motorised LEGO® model. Use your skills to add to the structure using your own imagination. Are you up to the Brickologists' challenge?!

VENUE: Sir Isaac Newton Sixth Form

COST: £6

AGE: 6+

BOOK:

norwichsciencefestival.co.uk



WORK SHOP

THE MAGIC OF MIGRATION

TUE 26 OCT
10am – 1pm

WALK

Bird migration has always been an enigma and confounded real understanding. How do birds find their way south in winter often with no parental intervention and why do they take such a risk in travelling so far? Carl Chapman, tour guide and ornithologist, will take you for a walk along the coast at Cley next the Sea showing visual migration as it happens and explaining the mystery behind it.

VENUE: NWT Cley Marshes Visitor Centre car park

COST: Adult £15, Child £10

AGE: 12+

BOOK:

www.wildlifetoursandeducation.co.uk/tours/special-day-tours/

EARTH'S INCREDIBLE OCEANS WITH DR JESS FRENCH AND ROSALIND BURT

TUE 26 OCT
10.30 – 11.15am

FAMILY EVENT

An immersive exploration of the incredible ocean world. Join Jess and Rozzy as they bring the ocean's most incredible creatures and habitats to life and journey through the water to discover why our oceans are so important. With book signing.

VENUE: Theatre Royal, Stage Two

COST: £5

AGE: 7 – 11

BOOK:

norwichsciencefestival.co.uk

LET'S BE CURIOUS!

TUE 26 OCT
10.30 – 11.30am

FAMILY EVENT

Join UEA's Dr Kelly Edmunds to explore curiosity. From thinking about what scientists do and how, you'll explore the use of scientific evidence to answer some big questions about different organisms from the huge down to some of the smallest organisms to have lived.

VENUE: Bookbugs and Dragon Tales

COST: £5

AGE: 5 – 10

BOOK:

norwichsciencefestival.co.uk



HANDS ON SCIENCE WITH THE FARADAY INSTITUTE FOR SCIENCE AND RELIGION

TUE 26 OCT
10.30am – 4pm

FAMILY EVENT

From fossils, DNA and identity to the wonder of our own back gardens, join the Faraday Youth and Schools team as we get hands-on, exploring and celebrating the natural world.

VENUE: St Peter Mancroft Church

COST: Free, drop-in

AGE: 7 – 11

BOOK:

norwichsciencefestival.co.uk



THE SCIENCE OF STAR WARS WITH JON CHASE

FAMILY EVENT

TUE 26 OCT
11am – 12pm, 1 – 2pm

Star Wars conjures up images of spaceships, super-weapons, and all sorts of visions of the future. Author, science presenter and Norwich Science Festival patron, Jon Chase, probes the fantastic frontier between movie magic and cutting-edge science in this event inspired by one of the most successful epics in entertainment history.

VENUE: Norwich School, Blake Studio

COST: £5

AGE: 7+

BOOK:

norwichsciencefestival.co.uk

MEND WITH FRIENDS

TUE 26 OCT
10am – 12pm
See p19



HOW WAS THAT BUILT? WITH ROMA AGRAWAL

TUE 26 OCT
11am – 12pm



Roma is an award-winning engineer, author and broadcaster. From footbridges and sculptures, to train stations and skyscrapers – including The Shard – she has left an indelible mark on London's landscape. Join Roma to learn about how our human-made world was built. She'll share stories from history about inspiring engineers, the science of materials, including demonstrations. With book signing.

VENUE: Norwich School
COST: £5
AGE: 10+
BOOK:
norwichsciencefestival.co.uk

THE AMAZING BUBBLE MAN

MON 25 – TUE 26 OCT
11.30am – 12.40pm
2 – 3.10pm
See p25



SCIENCE AND CREATIVITY FAMILY DAY

TUE 26 OCT
10am – 2pm



Join us at Norwich Theatre for a fun packed day with your little ones. Explore science through creativity at bookable workshops, including dance, music and crafts. Drop in to take part in our Theatre trail, Play Your Way and create your own stories with puppets.

VENUE: Theatre Royal,
Stage Two
AGE: 2 - 7
BOOK:
norwichtheatre.org



CONSERVATION AT PENSTHORPE

TUE 26 OCT
12.30 – 1.30pm

Pensthorpe is pioneering a new vision for conservation, experiential nature and wellbeing. Join, Head of Species Chrissie Kelley (Pensthorpe) & Nick Acheson (Norfolk Wildlife Trust) to find out more about the Natural Park's conservation projects.

VENUE: Theatre Royal,
Stage Two
AGE: Free, booking required
BOOK:
norwichsciencefestival.co.uk

Pensthorpe
Natural Park 

EXPLORING FASHION FOOTPRINTS

TUE 26 OCT
2 – 4pm
See p25



THE SCIENCE OF THRILL WITH PROF BRENDAN WALKER

TUE 26 OCT
1 – 2pm

Why did the world's earliest loop-the-loop coasters have nurses on permanent standby? Exactly how far do you need to be dropped in the pitch black for it to become terrifying? And why do you (maybe) enjoy it? This talk explores the art and science to creating thrilling adventures in real life, with examples from over the last fifteen years. Join thrill engineer Prof Brendan Walker as he explores everything from the psychophysiology to the theatrical set design needed to stage these intricate ride experiences.

VENUE: Norwich School
COST: £6
BOOK:
norwichsciencefestival.co.uk



TURTLES AND GOD

TUE 26 OCT
1.30 – 2.30pm

**WORK
SHOP**

Cara Parrett (Faraday Kids) studied marine biology and oceanography at the University of Cape Town and has travelled the world, learning more about how we can protect the environment, working with owls, turtles, seabirds and coral reefs. Join Cara for a workshop exploring how we can use science to learn more about taking care of our planet.

VENUE: St Peter Mancroft Church

COST: Free, booking required

AGE: 7 – 11

BOOK:

norwichsciencefestival.co.uk

SPM St Peter Mancroft
Norwich



AN ENGINEER LIKE ME WITH DR SHINI SOMARA

TUE 26 OCT
2 – 3pm

Zara is curious about everything! Travelling around the city with her gran, she sees all kinds of fascinating things. How do roller coasters do loop-the-loops? How do planes stay up? Explore the wonder and creativity of the world's most exciting inventions with engineer, TV presenter and author, Shini Somara. With book signing.

VENUE: Theatre Royal, Stage Two

COST: £4

AGE: 6 – 8

BOOK:

norwichsciencefestival.co.uk



FUNGUS FORAY

TUE 26 OCT
2 – 4pm

WALK

Autumn is the best time to see fungi, and woods are one of best places to find them as many associate with trees in all sorts of interesting ways. On this fascinating foray, led by Tony Leech, you will find, and hopefully identify, mushrooms, brackets, spindles, puffballs and other forms.

VENUE: Broadland Country Park

COST: Free, booking required

AGE: All ages (walk length max 2km)

BOOK:

norwichsciencefestival.co.uk



MATHS TRICKS TO BLOW YOUR MIND!

WITH KYLE EVANS

TUE 26 OCT
3 – 4pm

A frantic hour of mind-bending maths, interactive demos and wicked humour from award-winning science communicator and entertainer Kyle D Evans. Kyle spent lockdown studying viral maths puzzles, life-hacks and tricks, and has distilled his findings into an hour of head-scratching yet engaging and inclusive maths-based entertainment. Expect jokes, songs and mind-blowing maths galore. With book signing.

VENUE: Norwich School, Blake Studio

COST: £5

AGE: 11+

BOOK:

norwichsciencefestival.co.uk



PROTECTING OUR PLANET: WHAT CAN WE ACTUALLY DO?

TUE 26 OCT
3 – 4pm

WORK SHOP

After studying Natural Sciences at the University of Cambridge, Steph Bryant has studied wolves in Bulgaria, frogs and salmon in Canada and worked with people around the world to help them protect wildlife. Join Steph for a workshop to learn about some great ways to care for the planet and have fun at the same time!

VENUE: St Peter Mancroft Church

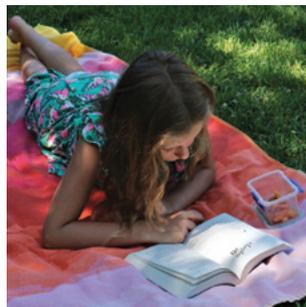
COST: Free, booking required

AGE: 7 – 11

BOOK:

norwichsciencefestival.co.uk

SPM St Peter Mancroft
Norwich



CLI-FI: EXPLORING THE FUTURE THROUGH CHILDREN'S FICTION

TUE 26 OCT
4 – 5pm

Join Mitch Johnson – author of *Kick and Pop!* – for an engaging talk about how children's literature is tackling the climate crisis. The event will feature an exploration of *The Living Book*, an immersive virtual reality experience that was created as part of UEA's flagship Future and Form project.

VENUE: The Forum, Gallery

COST: Free, booking recommended

BOOK:

norwichsciencefestival.co.uk

UEA
University of East Anglia



#ThinkingWithoutBorders

norwich
research
park

FUTURE
— AND —
FORM



THE BLUE HEART OF PLANET EARTH

WITH DR HELEN CZERSKI

TUE 26 OCT
5 – 6pm

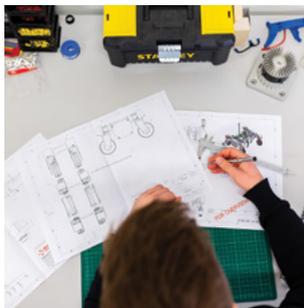
The ocean is not just the place where the fish live or giant puddle that happens to cover much of Earth's surface. It's a beautiful and dynamic engine that drives our world. Humans have been scooting about on the surface for centuries. It's time to dive into the real beauty of this blue engine and look properly at what's been carrying us for all of that time. With book signing.

VENUE: Norwich School,
Blake Studio

COST: £6

BOOK:

norwichsciencefestival.co.uk



ENGINEERS: HUMANKIND'S GREAT INVENTORS

TUE 26 OCT
6 – 7pm

From mobiles, to sustainable packaging, to electric cars, to vaccine storage and distribution, our changing lives depend on objects created by engineers. Join Prof Chris Atkin from UEA's School of Engineering as he talks about how ideas are developed and shared, to the point where they become part of our reality.

VENUE: Online, via
norwichsciencefestival.co.uk

COST: Free



Credit: Steve Ullathorne

SLEEP TALKING

TUE 26 OCT
7 – 8pm

In September 2021, astronomer Mark Thompson will attempt to break the Guinness World Record for the longest marathon lecture, over 139 hours of almost continuous talking. This physical and mental challenge will push Mark to the limit of sleep deprivation. Join Mark as he talks to sleep scientists, Dr Joanne Bower (UEA) and Dr Tristan Beckinschtein (Uni of Cambridge) about the science of sleep and why it is so vital for our wellbeing, drawing on his experiences from his GWR attempt.

VENUE: The Forum, Gallery

COST: Free, booking required

BOOK:

norwichsciencefestival.co.uk



NORWICH RESEARCH PARK DAY



WED 27 OCT

10.30am – 4pm, drop-in

QUIET HOUR: 9.30 – 10.30, booking required

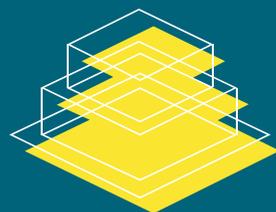
THE EXPLORIUM!

Discover more about the cutting-edge science happening right here on our doorstep at Norwich Research Park.

VENUE: The Forum's Explorium

COST: Free, drop-in

AGE: All ages



NORWICH RESEARCH PARK STAGE

Join us in The Forum's Gallery for a range of free, drop-in talks on a variety of engaging topics. First come, first served. More info on each talk at norwichsciencefestival.co.uk

Oh I do Like to Grow
Beside the Seaside
11.15 – 11.45am

What Does Your Phone Say
about You? (Without Your
Knowledge!)
12 – 12.30pm

Monster Hunter 2020:
Using DNA Sequencing
to Track Covid-19
12.45 – 1.15pm

A Hidden Microbial World at
Nature's Extremes
2.15 – 2.45pm

Growing Hot and Cold
3 – 3.30pm

A Tale of Ageing, Told
by an Old Blood Cell
3.45 – 4.15pm



SLOW DOWN MONKEY WITH DR JESS FRENCH

WED 27 OCT
10.30 – 11.15am

Sometimes you need to slow down to see what's right in front of your eyes. In this theatrical retelling of Jess' rhyming picture book, super speedy monkey rushes through the rainforest, meeting lots of incredible rainforest creatures, before a chance encounter with a super-chilled sloth helps her to see the whole world in a different way. Experience the excitement of the rainforest, dance and sing with the songbird band and learn to be mindful with the wise old sloth. With book signing.

VENUE: Norwich School,
Blake Studio

COST: £5

AGE: 3 – 5

BOOK:

norwichsciencefestival.co.uk

MEND IN PROTEST

WED 27 OCT
10am – 12pm

See p15



CHEMISTRY LAB **ESCAPE ROOM**

WED 27 OCT
10.30 – 11.30am, 12 – 1pm,
2.30 – 3.30pm, 4 – 5pm

A crazed lab assistant has locked the door to your lab and is gradually filling the room with CO₂ gas. You have approximately 45 minutes until CO₂ levels will render you unconscious. He has set three tasks which will provide the codes you need to solve a puzzle which will ultimately lead you to safety. Do you and your team have what it takes to escape?

VENUE: Sir Isaac
Newton Sixth Form

COST: Free, booking required

AGE: 14+

BOOK:

norwichsciencefestival.co.uk



HANDS ON SCIENCE

WED 27 OCT
10.30am – 4pm

FAMILY
EVENT

From fossils, DNA and identity to the wonder of our own back gardens, join the Faraday Youth and Schools team as we get hands-on, exploring and celebrating the natural world.

VENUE: St Peter
Mancroft Church

COST: Free, drop-in

AGE: 7 – 11

BOOK:

norwichsciencefestival.co.uk



THE CODEBREAKERS **OF CORONAVIRUS**

WED 27 OCT
11 – 11.45am

The Coronavirus pandemic has led to unprecedented amounts of genetic sequencing data being produced in Norwich, and elsewhere. The Quadram Institute is home to a number of staff making sense of this big data – including Dr Martin Lott, who will present some of the Institute's findings in this talk.

VENUE: Online via
norwichsciencefestival.co.uk

COST: Free



CREATING 4D IMAGES OF THE HEART

WED 27 OCT
11am – 12pm

Hear from Dr Pankaj Garg – a consultant cardiologist at the Norfolk and Norwich University Hospital and lecturer at UEA – who is using the latest imaging technology to create 4D flow images for the first time in the UK to diagnose heart valve disease and determine the best course of treatment for patients.

VENUE: Theatre Royal, Stage Two
COST: Free, booking recommended

BOOK:

norwichsciencefestival.co.uk



BLAKE'S SMALL ADVENTURE



WED 27 OCT
11am – 12pm

Blake is tiny and lives in a pool at Blakeney. There are no other creatures like him in his pool. One day, the tide comes along and takes Blake on an adventure! Find out about Blake's adventure with the authors, Dr Harriet Jones and Rachel Cladingbowl.

VENUE: Bookbugs and Dragon Tales

AGE: 3 – 5

COST: £5

BOOK:

norwichsciencefestival.co.uk



LEAN FALL STAND

WED 27 OCT – THU 28 OCT
12.40pm, 1.40pm,
5.40pm, 6.40pm

In 2004, Jon McGregor set out for a small field hut in the Antarctic. He never made it. Join Jon in an exact replica Antarctic hut to hear about his journey. He'll read fragments from his novel, *Lean Fall Stand*, share slides from his journey, and put on a brew. Presented by Story Machine, 4th Estate, and Jon McGregor.

VENUE: Outside the Forum, Antarctic Hut

COST: £5

BOOK:

norwichsciencefestival.co.uk

Presented by:

Story Machine

AGRIFICIAL INTELLIGENCE

WED 27 OCT
1 – 2pm

Artificial intelligence (AI) applications have made rapid advances over the last decade, bringing us instant language translation, smart homes and self-driving cars. But how does it work, and how could it assist scientific research? Join Dr Bethany Nichols (John Innes Centre) as she explains how AI is revolutionising the field of agricultural science.

VENUE: Theatre Royal, Stage Two

COST: Free, booking recommended

BOOK:

norwichsciencefestival.co.uk



THE BRAIN IN ACTION + REWIRING THE BRAIN AFTER INJURY

WED 27 OCT
1 – 2pm

Find out more about the amazing power of your own brain in this back-to-back pair of talks by the team from UEA NeuroLab; The Brain in Action and Rewiring the Brain After Brain Injury.

VENUE: Online via

norwichsciencefestival.co.uk

COST: Free





BOATS TO BUCKETS: INVESTIGATING ALGAE FROM ANTARCTICA TO CROMER PIER

WED 27 OCT
3 – 3.45pm

Which organisms produce more oxygen and remove more carbon from the atmosphere than the Amazon rainforest? In this talk by Emma Langan (Earlham Institute and UEA), find out about the algae living in the oceans from here to Antarctica, why they matter for climate change, and what we can learn from their DNA.

VENUE: Online via
norwichsciencefestival.co.uk

COST: Free



TURTLES AND GOD

WED 27 OCT
3 – 4pm
See p31



MEND WITH FRIENDS

WED 27 OCT
2 – 4pm
See p19



PROTECTING OUR PLANET: WHAT CAN WE ACTUALLY DO?

WED 27 OCT
1.30 – 2.30pm
See p32



GUT FEELING: THE ROLE OF THE MICROBIOME IN VACCINATION EFFICACY

WED 27 OCT
3 – 4pm

The ongoing pandemic has made us more aware of the importance of efficient vaccines. Many factors can impact the individual outcome of vaccines, and the gut microbiome emerges to play a key role. Join Anne Jordan (Quadram Institute) to explore how our gut microbiome drives vaccine immune responses, and how this might shape future vaccine manufacturing.

VENUE: Theatre Royal,
Stage Two

COST: Free, booking
recommended

BOOK:
norwichsciencefestival.co.uk



SAVING SPECIES: THE BATTLE TO SAVE THE BLACK-FOOTED FERRET

WED 27 OCT
5 – 5.30pm

Once the most endangered mammal in North America, the black-footed-ferret has had to battle against the plague, food shortages, and losing its natural habitat to survive. Join Rebecca Shaw (Earlham Institute) to hear the tale of the Black-footed ferret and how scientists are using genetics to try and save this species from extinction.

VENUE: Theatre Royal,
Stage Two

COST: Free, booking
recommended

BOOK:
norwichsciencefestival.co.uk



SCIENCE, CREATIVITY AND LEARNING

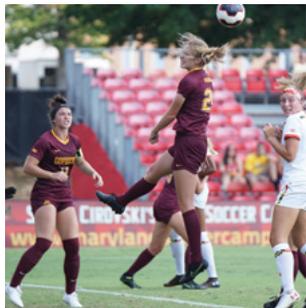
WED 27 OCT
5.30 – 6.30pm

Where does creativity occur in science education? How do teachers inspire students' creativity? What can it look like outside formal education? CreativeUEA explore creative learning in science, featuring scientists, teachers and education researchers.

VENUE: Online via
norwichsciencefestival.co.uk

COST: Free





FOOTBALL AND THE BRAIN

WED 27 OCT
6.30 – 8pm

Norwich City legend Jeremy Goss and former Crystal Palace Captain Freya Holdaway join UEA researchers Michael Grey and Ellen Boucher for a panel discussion on football and the brain. Learn about the short- and long-term benefits and risks associated with the game as they discuss the media, politics, gender data gaps and – of course – the science.

VENUE: Theatre Royal, Stage Two

COST: Free, booking required

BOOK:

norwichsciencefestival.co.uk



EXPLORE THE SOUNDS

WED 27 OCT
6.30 – 8pm
See p22

THE CLIMATE-BIODIVERSITY EMERGENCY

WITH PROF SIR
BOB WATSON

WED 27 OCT
7 – 8pm
See p7

OCEANS OF CHANGE: THE BIG QUESTIONS

WED 27 OCT
7 – 8.30pm

Celebrate the start of the UN Decade of Ocean Science for Sustainable Development by joining the E3i Club for an interactive discussion all about our changing oceans. A panel of scientists from the University of East Anglia and the University of Essex will discuss their research into some of the major challenges facing the oceans.

VENUE: The Forum, Gallery

COST: Free, booking required

BOOK:

norwichsciencefestival.co.uk



THE MIRROR TRAP

WED 27 OCT
7.30 – 8.15pm

A meditative experience about psychology and quantum physics. Previous audience members have described it as “weird”, “trippy”, “deeply unsettling” and “terribly sad”. After the show, its creator, Simon Watt, will be joined by special guests to discuss what you have experienced.

VENUE: Online

COST: Free, booking required

BOOK:

norwichsciencefestival.co.uk



ROB NEWMAN: THE PHILOSOPHY SHOW

WED 27 OCT
7.30pm

In this all-new show, multi-award winning stand-up comic Rob Newman weaves together Nietzsche’s sunglasses, James Bond in Toxteth, electric spiders and singing Neanderthals into a hilarious tour-de-force that offers new hopes for a changing world.

VENUE: Norwich Playhouse

COST: £12 – £15

BOOK: norwichtheatre.org





CHEMISTRY DAY



THU 28 OCT
10.30am – 4pm, drop-in

QUIET HOUR: 9.30 - 10.30am, booking required

THE EXPLORIUM!

Sponsored by



Discover how small molecules can have a big impact, and how chemistry shapes the world around us.

VENUE: The Forum's Explorium

COST: Free

AGE: All ages

VISIT NORWICHSCIENCEFESTIVAL.CO.UK

MAGICAL SCIENCE



WORK SHOP

THU 28 OCT
10 – 10.45am,
11.15am – 12pm,
2 – 2.45pm

Join Lucy Catto for some magical mayhem! Amazing tricks, colour-changing potions, magic flowers and so much more. Your budding scientist will be wide-eyed with wonder!

VENUE: Sir Isaac
Newton Sixth Form

COST: £5

AGE: 3-5

BOOK:

norwichsciencefestival.co.uk



ACIDS AND ALKALIS

WORK SHOP

THU 28 OCT
10.30 – 11.30am
(ASD friendly),
12 - 1pm, 2-3pm



Could this be the best potion lesson in the world? Come and have a go at making some colour changing potions and learn all about acids and alkalis with scientist Dr Mandy Hartley from The Little Storytelling Company.

VENUE: Millennium Library,
Vernon Castle Room

COST: £5

AGE: 7 – 12

BOOK:

norwichsciencefestival.co.uk



PLAYING WITH SCIENCE!

THU 28 OCT
10am – 3pm

Games are excellent for giving us the chance to escape into different stories and learn new perspectives so we might understand new things. Come and see how board games give you the chance to act, make a change and play with science!

VENUE: The Forum, Gallery
COST: Free, drop in
BOOK:
norwichsciencefestival.co.uk



#ThinkingWithoutBorders



MEND IN PROTEST

THU 28 OCT
10am – 12pm
See p15

KENMYSTERY! WITH DR KEN FARQUHAR

THU 28 OCT
11am – 12pm



A magical science show inspired by the ancient Greeks' belief that everything could be explained by the four elements of earth, water, air, and fire. Dr Ken explores weird water, attempts an 'airmazing' levitation and discovers how to make fire appear and disappear.

VENUE: Norwich School, Blake Studio
COST: £5
AGE: 7+
BOOK:
norwichsciencefestival.co.uk

KITCHEN SCIENCE



THU 28 OCT
10.30 – 11.30am,
12.15 – 1pm, 2:15 – 3pm

Come and Stir It Up! with some hands on Kitchen Science. We'll be looking at some fun and simple experiments which can be done in your kitchens at home.

VENUE: Sir Isaac Newton Sixth Form
COST: £5
AGE: 6 – 12
BOOK:
norwichsciencefestival.co.uk



IMAGINE THAT!

THU 28 OCT
11 – 11.30am,
12.15 – 12.45pm

Join Dr Dee Enay and Mad Science Norfolk for an interactive show all about our superpower... imagination! Celebrate the achievements of great scientists and inventors that have sparked their imagination and curiosity into action. Sponsored by Briar Chemicals.

VENUE: The Forum
COST: Free, drop-in
AGE: 4 – 10
BOOK:
norwichsciencefestival.co.uk

Sponsored by:



LEAN FALL STAND WITH JON MCGREGOR

WED 27 OCT – THU 28 OCT
12.40pm, 1.40pm, 5.40pm,
6.40pm
See p36

AI-ENABLED CYBER DEFENCE WITH ALEX HEALING

THU 28 OCT
2 – 3pm

Cybersecurity is an arms race in which defences need to constantly evolve to meet the growing capabilities of adversaries. Artificial Intelligence is a crucial component of any cyber security operation today. This talk with Alex Healing will explore innovation at BT combining the power of people and machines to help protect a global network and customers, and what you can do to protect yourself online.

VENUE: Online, via
norwichsciencefestival.co.uk

COST: Free

THE DRUG DISCOVERY PIPELINE: WHAT COULD THE FUTURE HOLD?

THU 28 OCT
2 – 3pm

In this talk, Dr Anastasia Sobolewski (UEA) will explain the key stages of how drugs and vaccines are developed – from the laboratory bench to use in the clinic – by following the journey of the interdisciplinary research within UEA's School of Pharmacy and on the Norwich Research Park.

VENUE: Norwich School

COST: Free, booking
recommended

BOOK:

norwichsciencefestival.co.uk



FASCINATING FINGERPRINTS

THU 28 OCT
3 – 4pm

Discover the uniqueness of you with Dr Jo Science! Take a closer look at fingerprints and patterns, learn crime scene techniques, explore patent, latent and plastic prints and create some fingerprint art too.

VENUE: Online

COST: Free, booking required

AGE: 5 – 10

BOOK:

norwichsciencefestival.co.uk



**WORK
SHOP**

HARRIET MARTINEAU: THE BIRTH OF EVOLUTION WITH STUART HOBDDAY

THU 28 OCT
4 – 5pm

Harriet Martineau grew up in Norwich as a shy deaf girl, but went on to become a radical writer, campaigner and journalist. She is known for influencing the social sciences, but also had a unique relationship and influence on the great naturalist Charles Darwin in the 1830s. This talk will explore that crucial period.

VENUE: The Forum, Gallery

COST: £5

BOOK:

norwichsciencefestival.co.uk



Credit: Steve Cross

HANDMADE: A SCIENTIST'S SEARCH FOR MEANING THROUGH MAKING WITH DR ANNA PLOSZAJSKI

THU 28 OCT
6 – 7pm

Join author and materials scientist Dr Anna Ploszajski as she journeys into the domain of makers and craftspeople to paint the fullest picture of everyday materials. Through a mixture of memoir, storytelling, stand-up and science, this talk will take you on a journey through the material world. With book signing.

VENUE: Norwich School

COST: £6

BOOK:

norwichsciencefestival.co.uk

RETURNING TO STEMM EDUCATION WITH GEMMA STANDEN

THU 28 OCT
6 – 6.30pm

Have you been thinking about returning to education or a change in career? Join UEA to find out more about going back to university to study for a degree in a science or health subject. From entry requirements to funding, get your questions answered!

VENUE: The Forum, Gallery

COST: Free, booking recommended

COST:

norwichsciencefestival.co.uk



FESTIVAL OF NATURE BOOK CLUB – THE OVERSTORY WITH JOS SMITH

THU 28 OCT
7 – 9pm

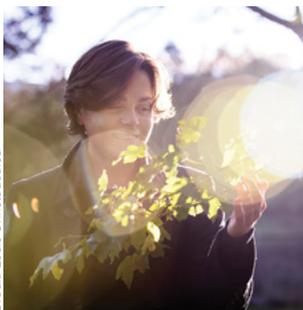
How far would you go to protect the trees you love? Join UEA lecturer in contemporary literature Jos Smith to discuss Richard Powers' epic contemporary novel *The Overstory* (2018). This event will be an informal open discussion. All welcome!

VENUE: Bookbugs and Dragon Tales

COST: Free, booking required

BOOK:

norwichsciencefestival.co.uk



Credit: Louis Christodoulou

DEATH BY SHAKESPEARE SNAKEBITES, STABBINGS AND BROKEN HEARTS WITH DR KATHRYN HARKUP

THU 28 OCT
8.30 – 9.30pm

Death by Shakespeare takes a scientific look at the varied and creative methods the Bard used to kill off his characters. Was death by snakebite as serene as Shakespeare makes out? Could lack of sleep have killed Lady Macbeth? Can you really murder someone by pouring poison in their ear?

VENUE: Norwich School Blake Studio

COST: £6

BOOK:

norwichsciencefestival.co.uk

HOW TO SOLVE A CRIME WITH PROF ANGELA GALLOP

THU 28 OCT
6.30 – 7.30pm

See p8



STARGAZING WITH MARK THOMPSON

THU 28 OCT
7 – 9pm

WALK

Beginning in Burnham Deepdale, we will walk a short 1¼ miles out along a section of the Norfolk Coast Path to meet astronomer, Mark Thompson, for some stargazing and a fascinating talk. In association with Norfolk Trails.

VENUE: Meet at Burnham Deepdale Backpackers

COST: Free, booking required

BOOK:

norwichsciencefestival.co.uk



PHYSICS & SPACE DAY

FRI 29 OCT

10.30am – 4pm, drop-in

QUIET HOUR: 9.30 –

10.30am, booking required

THE EXPLORIUM!

Blast off to a world of physics and astronomy and discover everything from the structure of atoms to the vastness of the Universe.

VENUE: The Forum's Explorium

COST: Free

AGE: All ages



ROCKET BUILDING WORKSHOP

FRI 29 OCT

10 – 11am,

11.30am – 12.30pm,

1.30 – 2.30pm, 3 – 4pm

WORK SHOP

Build, design and launch an air rocket. Learn about the forces involved and discover that rocket science isn't that hard after all!

VENUE: Sir Isaac Newton Sixth Form

COST: £5

AGE: 5+

BOOK:

norwichsciencefestival.co.uk



THE AMATEUR TIME-TRAVELLER'S GUIDE TO REALITY

FRI 29 OCT

10.30 – 11.30am

Ever wondered what it would be like to travel in time? Join Tim Wayland (UEA) for a whistle-stop tour through the wild side of physics, from black holes and paradoxes to infinitely long, infinitely dense, spinning cylinders, as we try to create our very own time machine! What could possibly go wrong?

VENUE: Norwich School, Blake Studio

COST: Free, booking required

AGE: 10+

BOOK:

norwichsciencefestival.co.uk





UPCYCLE AND CREATE FASHION TEXTILES

FRI 29 OCT
10am – 1pm,
2.30 – 5.30pm

**WORK
SHOP**

Fast fashion comes with a colossal carbon footprint – but recycling your old clothes can give you new outfits without the environmental impact! In this workshop you'll be reinventing old clothes, using new fashion and textile techniques to sew and reconstruct a new fashion creation from your preloved piece.

VENUE: Royal Arcade (check website for exact location)

COST: £17

BOOK:

norwichsciencefestival.co.uk



#ThinkingWithoutBorders



HOW DOES POVERTY IMPACT THE DEVELOPING BRAIN?

FRI 29 OCT
11am – 12pm

There is a growing need to understand the global impact of poverty on early brain and behavioural development. In this talk, Prof John Spencer (UEA) will present findings from two large-scale studies tracking the impact of adversity on cognitive and brain development from as early as six months of age.

VENUE: Online, via norwichsciencefestival.co.uk

COST: Free



MARK THOMPSON'S SCIENCE SHOW

FRI 29 OCT
11am – 12pm,
2 – 3pm
See p8



THE SCIENCE OF SOUND WITH DR STEPHEN ASHWORTH

FRI 29 OCT
12 – 1pm

What allows us to hear sound? What makes musical notes different from noise? And why are musical instruments built the way they are? Join Festival favourite, Dr Stephen Ashworth for a sound-tastic show exploring the physics behind sound and music.

VENUE: Norwich School, Blake Studio

COST: £5

AGE: 7+

BOOK:

norwichsciencefestival.co.uk

BENEATH THE NIGHT WITH DR STUART CLARK

FRI 29 OCT
2 – 3pm

From Stone Age to space age, people have looked up at the stars and been inspired by their beauty, their patterns, and their majesty. Join Dr Stuart Clark, as he explores the history of humanity, told through our relationship with the night sky. This is the awe-inspiring story of the Universe, and our place within it. With book signing.

VENUE: Norwich School,
Blake Studio

COST: £6

AGE: 10+

BOOK:

norwichsciencefestival.co.uk

CELEBRATING PRIDE IN THE NORFOLK STEM COMMUNITY

FRI 29 OCT
2 – 3pm

Drop in to meet and chat to the scientists featured in the Celebrating LGBTQ+ Exhibition.

VENUE: The Forum, Gallery

COST: Free, drop-in

BOOK:

norwichsciencefestival.co.uk



ROVERS ROVING ALIEN WORLDS WITH EZZY PEARSON

FRI 29 OCT
4 – 5pm

From Soviet lunar explorers to NASA's Martian armada, roving robots have helped humanity explore our neighbouring worlds. Take a tour through the last 50 years of rover history, seeing how they have evolved over time and look forward to the rover explosion due to head out over the next decade.

VENUE: Norwich School,
Blake Studio

COST: £6

BOOK:

norwichsciencefestival.co.uk



FIRE AND ICE: THE VOLCANOES OF THE SOLAR SYSTEM WITH DR NATALIE STARKEY

FRI 29 OCT
6 – 7pm

Join geologist and cosmochemist Dr Natalie Starkey to journey across the Solar System and explore the tallest, coldest, hottest and weirdest volcanoes out there. With book signing.

VENUE: Norwich School,
Blake Studio

COST: £6

BOOK:

norwichsciencefestival.co.uk

PSYCHED! PRESENTS 'BLAH BLAH BLAH' THE ORIGINS OF HUMAN LANGUAGE

FRI 29 OCT
7.30 – 9.30pm

See p13

ME HUMAN



HUMAN BODY, HEALTH & WELLBEING DAY



SAT 30 OCT

10.30am – 4pm, drop-in

QUIET HOUR 9.30 – 10.30am, booking required

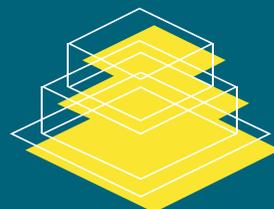
THE EXPLORIUM!

Discover how amazing our bodies and minds really are and how to keep them healthy, in this special day dedicated to health and wellbeing.

VENUE: The Forum's Explorium

COST: Free

AGE: All ages



THE GALLERY STAGE

Join us in The Forum's Gallery for a range of free, drop-in talks on a variety of engaging topics. First come, first served. More info on each talk at norwichsciencefestival.co.uk

Mindfulness and Compassion in Sport: How Wellbeing can Support Performance
11 – 11.30am

Sport and Physical Activity: Before, During and After the Pandemic
11.45am – 12.15pm

The Miracle of Movement: Physical Activity and Exercise
12.30 – 1.15pm

Microbial Safari
2 - 2.45pm

SP

Sportspark



PLAYDOUGH POO DETECTIVES WITH DR JO SCIENCE

SAT 30 OCT
10am, 11.30am,
1.30pm and 3pm

**WORK
SHOP**

Become a poo detective to investigate the size, shape, colour and contents of different animals' poo. Can you tell if an animal is an omnivore, carnivore or herbivore by dissecting their (pretend) playdough poo?

VENUE: Millennium Library,
Vernon Castle Room

COST: £5

AGE: 5 – 10

BOOK:

norwichsciencefestival.co.uk



SHOULD WE BRING BACK THE WOOLLY MAMMOTH?

SAT 30 OCT
10.30 – 11.30am

Have you ever wondered what life was like for Woolly Mammoths during the Ice Age? Or how scientists can get DNA from Mammoths that are thousands/millions of years old? Have you ever thought how incredible it would be to bring one back to life? Join Dr Mandy Hartley as she reveals the answers!

VENUE: Sir Isaac
Newton Sixth Form

COST: £5

AGE: 7+

BOOK:

norwichsciencefestival.co.uk



UPCYCLED PLASTIC JEWELLERY WITH JESSICA MAE STUDIO

SAT 30 OCT
10am – 12pm
See p17



OVERLOADED: HOW EVERY ASPECT OF YOUR LIFE IS INFLUENCED BY YOUR BRAIN CHEMICALS WITH GINNY SMITH

SAT 30 OCT
11am – 12pm

From adrenaline to dopamine, most of us are familiar with the chemicals that control us. They are the hormones and neurotransmitters that our brains run on. Join author and neuroscientist, Ginny Smith as she explores the role they play in every aspect of our lives, from what we remember, how we make decisions and who we love to basic survival drives such as hunger, fear and sleep.

VENUE: Online

COST: Free, booking required

BOOK:

norwichsciencefestival.co.uk

BEING YOU: THE INSIDE STORY OF YOUR INNER UNIVERSE WITH PROF ANIL SETH

SAT 30 OCT
11am – 12pm
See p8



AGELESS WITH DR ANDREW STEELE

SAT 30 OCT
12.30 – 1.30pm

Ageing is responsible for the world's biggest killers, from cancer to dementia. But what if this seemingly universal process wasn't inevitable? Breakthroughs in the lab show that we can slow down or even reverse ageing. Could we one day cure ageing? And what would society look like if we did? With book signing.

VENUE: Norwich School, Blake Studio

COST: £6

BOOK:

norwichsciencefestival.co.uk

EXPLORE THE SOUNDS ARCHIVES WORKSHOP

SAT 30 OCT
1 – 3.30pm

See p22



Credit: Natalie Shaw

PSYCHO-LOGICAL WITH DR DEAN BURNET

SAT 30 OCT
2 – 3pm

One in four people experience a mental health problem each year, with depression and anxiety alone afflicting over 500 million people. Why are these conditions so widespread? What is it about modern life that has such an impact on our mental health? Drawing on nearly 20 years of working in the areas of neuroscience, psychology and psychiatry, Dr Dean Burnet, author of the international bestseller *Idiot Brain*, explores why these problems arise and what we can do to tackle them. With book signing.

VENUE: Norwich School, Blake Studio

COST: £6

BOOK:

norwichsciencefestival.co.uk

Presented by:



SCARY STITCH: A MEND IN PROTEST HALLOWEEN SPECIAL

SAT 30 OCT
2 – 4pm

**WORK
SHOP**

The reality of Halloween waste is much more terrifying than any costume could be! During this workshop we'll draw, patch, stencil or stitch some super-spooky Halloween stats onto our garments as a protest against fashion waste. Bring a garment or choose one from our rail of unloved clothing.

VENUE: Royal Arcade (see [website](#) for exact location)

COST: Drop-in, suggested donation £3

BOOK:

norwichsciencefestival.co.uk



#ThinkingWithoutBorders



NORWICH NOOKS AND CRANNIES WELLBEING WALK

SAT 30 OCT
11am – 12.30pm,
1 – 2.30pm

WALK

Nurture your mental health and see parts of Norwich in a new light by joining The Wellbeing Service's Social Team on one of Norwich City Council's Nooks and Crannies walks, suitable for all levels.

VENUE: Meet outside The Forum
COST: Free, drop-in



BREATHLESSNESS

SAT 30 OCT
2 – 3pm

Breathlessness is common in chronic lung conditions and some cancers. Prof Morag Farquhar (UEA) and her team have developed an evidence-based resource for family carers supporting people living with breathlessness, and will tell the story of how it was developed and its key features.

VENUE: Online, via norwichsciencefestival.co.uk

COST: Free



THE SCIENCE OF POO

SAT 30 OCT
3 – 4pm

WORK SHOP

Make an edible model of poo, discover how what we eat changes our poo, explore different animals' poo, make fake wee and investigate the speed of your digestive system!

VENUE: Online, via norwichsciencefestival.co.uk

COST: Free, booking required

AGE: 7+

BOOK:

norwichsciencefestival.co.uk



HOW TO BUILD A HUMAN WITH DR EMMA BYRNE

SAT 30 OCT
3.30 – 4.30pm

Children are gloriously perplexing. Why don't toddlers sleep? Or teenagers get out of bed? Why is broccoli a hit at lunch and hated by dinner? Why do they remember every embarrassing thing you've ever said, but forget to put their socks in the laundry? Find out in this fascinating and entertaining talk on the science of childhood.

VENUE: Norwich School, Blake Studio

COST: £6

BOOK:

norwichsciencefestival.co.uk

MICROBIAL SAFARI

SAT 30 OCT
2 – 2.45pm

Have you ever wondered what it would be like to go on safari? Not on the African plains with the lions and the antelopes, but with the tiniest creatures, under water. Come on an adventure with Dr Harriet Jones (Paramecium Press) and Prof Ben Garrod (UEA) and see what you can find as we explore this exciting, but very tiny, world.

VENUE: The Forum's Gallery

AGE: 5+

COST: Free, drop-in

BOOK:

norwichsciencefestival.co.uk



RETURNING TO STEMM EDUCATION

SAT 30 OCT
3.30 – 4pm

See p42

RUTHERFORD & FRY'S COMPLETE GUIDE TO ABSOLUTELY EVERYTHING *ABRIDGED

SAT 30 OCT
7.30 – 8.30pm

See p4

WED 27 OCT
10am – 4pm



NORWICH SCIENCE FESTIVAL AT GRESHAM'S



For one day only, join us at the brand new Dyson Building at Gresham's School for a day of fascinating and fun science talks and workshops, including:

SHOWS

- How to Be a Vet with Dr Jess French
- Maths Tricks to Blow Your Mind

WORKSHOPS

- Robot programming with the RAF
- Raspberry Pi Coding
- Solar System Rapping
- Rocket Building
- Crime Scene Investigation

AND MORE...

VENUE: Gresham's School, Dyson Building

COST: Various, booking required

BOOK: norwichsciencefestival.co.uk



Supported by:


GRESHAM'S
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SAT 30 OCT

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Microbial Safari	49
The Science of Poo	49

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PRIMARY SCHOOL CLIMATE CHANGE CONFERENCE

Tue 19 Oct

We are inviting primary schools to join us for an interactive online climate change conference. The event will provide a mixture of short videos and demos by real life scientists, artists and writers and hands on activities to try, all from the comfort of your own classroom! The conference is free to join and suitable for upper Key Stage 2.

SECONDARY SCHOOL ONLINE EVENTS

Mon 11 – Fri 15 Oct

Norwich Science Festival has teamed up with BT Adastral Park this year to deliver a special week of free online activities for secondary schools, supported by experts from across BT, industry and academia including UEA. These engaging and educational activities can all be accessed from 11 October at adastral.co.uk/nsf

YOUNG COMMUNICATIONS TEAM

We're teaming up with the Young Norfolk Arts Trust to offer training in science communication and recording and evaluation of NSF events. The Young Comms Team will report on talks and shows, through blogs, interviews, filming and photography.

YOUTH STEM AWARD

The skills award for young people aged 13-19, designed to inspire and support the next generation into Science, Technology, Engineering, Maths and Medicine. Take part in STEM-based activities outside normal lessons, log the hours and complete the strands to build a personalised e-portfolio, great for applications and interviews. Register independently or through your school and complete enough hours to achieve a Bronze, Silver or Gold Medal and certificate. All festival events could count towards an Award. Visit ysawards.co.uk to find out more.



SECONDARY SCHOOL STEM SHOWDOWN

In collaboration with Youth STEM Award

Tue 19 Oct 1.30 – 3pm

Do you think your class has got what it takes to be the best at our Secondary School STEM Showdown? Join our host, Mark Thompson (BBC *Stargazing Live*, *Spectacular Science Show*) as we put your classroom's STEM knowledge to the test! You will be (virtually) pitted against secondary schools across the country for the chance to win the title!

CONSCIOUS CONSUMERS COMPETITION

Enter the Youth STEM Award competition for ages 13-19!

The Youth STEM Award are teaming up with the Food and Farming Discovery Trust's Conscious Consumers project to find the next generation of science communicators! Visit the Norwich Science Festival website to find out more about opportunities to get involved and enter our competition.

For more information on all the above, see norwichsciencefestival.co.uk



BOOKING TICKETS

Some Festival events are drop-in and booking is not required. For bookable events, please book at norwichsciencefestival.co.uk unless otherwise specified in the event listing. Refunds are not offered unless an event is cancelled or if you supply proof of a positive Coronavirus result. Registered carers are eligible for a free ticket to all events. Please see website for more information.

AGE GUIDANCE

We've included an age recommendation for our family events as a guide based on the content and level. Events without age guidance are not aimed at a family audience, but children are welcome to attend. Children under 12 must be accompanied in talks and workshops with a responsible adult. For talks, accompanying adults will require a ticket.

ABOUT THE FORUM

The iconic Forum building is managed by The Forum Trust, an independent, self-financing charitable organisation. The Forum's project purpose encompasses lifelong learning, and includes celebrating the region's history, heritage and culture. In addition to Norwich Science Festival, it also delivers and supports Norfolk Makers' Festival, Heritage Open Days and more. Find out more about our venue and how to find us at theforumnorwich.co.uk.



Brochure
designed by:

designPOD

The NSF team:

Natalie Bailey, Rachel Watkins, Anna Stevenson, Jan Robertson, Ro Procter, Zuzana Hlaskova, Richard Smith, Jayne Evans, Sophie Conroy, plus support from additional Forum staff and events team.



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