Join our scientists for fun-filled experiments, activities and more

25 – 26 May

Kew Science Festival at Wakehurst

Visit kew.org/wakehurst
Kew Science Festival 2019

Rare and Threatened
Kew's annual science festival returns to Wakehurst this year, exploring the theme of ‘Rare and Threatened’. With over 350 scientists working at Kew, our teams are focused on solving some of the major challenges facing our planet – climate change, food security, environmental sustainability and human health. Plants and fungi play a major role in all of these, yet loss of biodiversity means that some of the solutions they could provide may be lost forever.

Kew scientists are leading the way in discovering and describing new plant and fungal species, researching their uses for humanity, assessing their risk of extinction, and conserving them for the benefit of future generations. Around 38,000 different species of plants from around the world – and two billion seeds – are conserved right here at the Millennium Seed Bank, the setting for our Kew Science Festival at Wakehurst.

Explore our science
Our scientists are bringing their work out of the labs and back from expeditions to share with you today.

We hope you enjoy taking part in their activities and learning about the work they do.

Whatever you decide to do today, make sure you speak to some of our enthusiastic scientists, asking them about their work and why it’s so important.

Come curious, leave inspired.

#WakehurstSciFest
@wakehurst_place
@wakehurst_botanic_garden
@wakehurst.kew

Kew Science Festival overview
There's plenty for all budding scientists this weekend. Most activities are drop-in and run throughout the day. We've also scheduled demos, workshops, shows and tours – some of which are bookable. Use the map and timetable (pages 12–15) to help you plan your visit. Most things are suitable for all ages but we also give some age range suggestions, just as a guide.

Stop by the Information tent if you need any help. Have fun!

Your day at a glance:

Pop-up Science (page 4)
Unearth a wealth of fun and lively science, as Kew's science teams take you on a journey of plant and fungal discovery. Chat to our scientists and explore their pop-up science stations with games, experiments and hands-on activities for all ages.

Wild Science in the Field Lab (page 5)
Explore the wilder side of Wakehurst and uncover how we carry out science in the gardens and in the wild. Join a Pollinator Walk, chat to a giant glowing fungus and find out how some of our most important trees measure up for size.

Botanical Village (page 6)
The place for all ages to enjoy a perfect blend of plants and science, exploring the many ways we preserve plants for the knowledge they hold, as well as for their beauty.

Shows (page 7)
Talented performers will make sure science has you spellbound. Join TV's Gastronaut Stefan Gates for The Wildest Food Show on Earth. For the young (and not so young), enjoy some award-winning outdoor theatre.

Science Café (page 7)
Hang out with TV presenter Simon Watt for a series of family games, quizzes and Q&As to get you thinking. We also have a selection of unusual foods to whet your appetite and feed the discussion, plus a spot of scientific wit set to music.

Workshops and activities (page 8)
From sci-fi Botanical Science with Google Goggles, to insect encounters! Create your own Wild Adventure comic, fly off on a bee escapade or beat the odds on our giant Extinction Risk board game.

Tours and guided walks (page 9)
Exclusive behind the scenes access to the Millennium Seed Bank and glasshouses. Plus, a journey to Bloomers Valley to discover Lost Habitats.

Surviving or Thriving: An exhibition on plants and us (page 9)
Get a fascinating insight into the current state of the world’s plants. In a rapidly changing world, which plants are thriving, and which are only just surviving? What does this mean for us? And, most importantly, what can we do to protect our precious plant resources?

Festival Bites
A delicious selection of food and drink is available on the festival site, to help you keep up your energy throughout the day – from BBQ to botanical brews and brilliantly brainy ice cream! Drop by the Demo Kitchen to challenge your taste buds.
How Tall is that Tree?
Size up a tree with the help of our experts and discover some of its secrets. Once you’ve got the hang of this technique you’ll want to try it out at home.

Useful Plants and Seeds
From the every-day to the newly-discovered, valuable and extraordinary plants are under threat. These include plants that produce chocolate, coffee and cancer drugs. Can you play your part in protecting their future?

Hitch a Ride and The Seed Cannon
The transport network for seeds is under attack! As landscapes and habitats change, plants need to adapt to survive – but can they keep up? Explore some of the ingenious ways plants get their seeds out and about, from hitchhikers to cannon balls!

Seeds of the Sea
Seeds make incredible journeys to ensure their survival against the odds. Just how do they stay afloat? How do they cross vast distances? Join us for some aquatic adventures to find out more.

Extinction Risk Zone
Did you know that one in five plant species is threatened with extinction? Come and experience for yourself some of the challenges the plant kingdom faces and play our giant board game.

Google Goggles – Virtual Field Trip
Botanical science goes sci-fi on a journey to the far reaches of the Earth. You will ‘virtually’ join intrepid Kew explorers on their field missions to identify and conserve rare and threatened species.

The Seed Biology Lab Experience
Don a white coat and become a Millennium Seed Bank researcher. Head into the lab to make your own discoveries using real scientific tools and techniques.

Cryo Corner
Some species don’t survive in our traditional seed bank, so what can we do to conserve them? Watch ice cream being made with super-cool liquid nitrogen to get a glimpse of the answer!

DNA Factory
What is DNA and what does it look like? Come and find out for yourself and try your hand at extracting DNA from a strawberry.

Race Against Time
Join our scientists in the race against time to collect the world’s seeds in all their diversity, especially those threatened with extinction. Ready, steady, go!

More than a Mushroom
Do you want to be a part of the Wood Wide Web? Let our giant fungus introduce you to the wonders of Kingdom Fungi, help you communicate with each other and join the most extensive network ever imagined! A dynamic and interactive installation from Kew’s outreach project, Grow Wild.

Honey Detective
Become a honey detective and match the honey to the plant it comes from – just why do different bees seek out certain plants? The best tasting chemistry lesson you’ve ever had! Take a peak inside our live bumblebee colony too.

Fungi Quest
Take some time from your busy day to notice the nature all around – look up into the trees and down in the grass, as we take you on this journey into the magical kingdom of fungi. There’s much more than meets the eye!

Pollinator walks
Join our team on a gentle walk in the gardens and see plants and their pollinators up-close and in a whole new light.

Demos every hour from 10.30am – 3.30pm. Drop in.

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Race Against Time
Join our scientists in the race against time to collect the world’s seeds in all their diversity, especially those threatened with extinction. Ready, steady, go!
Botanical Studio
Visitors of all ages will enjoy a perfect blend of plants and science in our Botanical Studio, exploring the many ways to preserve the beauty of plants. Experience what painting in the field is like and find out why it’s still so relevant today.

Pop-up Herbarium
Botanists at Kew collect plants from all over the world for scientific research. Visit the hedgerow to collect and create your own specimen to take home with you. Put your detective skills to the test and try out the techniques our scientists use to identify, classify and name plants.

Plant Families workshop
Weave your part in our giant plant tapestry or get to grips with some plant genealogy as you dip into a plant dye workshop. The roots, leaves, berries and flowers of plants make a rainbow of rich and marvellous colours. Learn the secrets of plant dyeing and delve into this wonderful world of natural resources.

Shows

18. Gastronaut: The Wildest Food Show on Earth
12.30pm, 4pm
Venue: MSB, downstairs
TV presenter Stefan Gates uses rockets, infra-red cameras, robots, live insects and a huge vortex cannon to create an extraordinary live show about food and science. He’ll blend bizarre plant biology with explosive chemistry, sensory perception and phenomenal physics to reveal the shocking secrets behind the food we eat every day. Limited spaces. Early arrival recommended.

19. Grass
11.30am, 1.30pm
Venue: Meadow Theatre, rear of MSB
Look down. What are you standing on? Explore the ground and all of its wriggly inhabitants in this quirky dance show for young children. Featuring worms, slugs, snails, spontaneous outbreaks of ant dancing and plenty of obscure statistics. Grass uses performance and puppetry to inspire children to look closely at the world around them, to get mucky and play! Presented by Second Hand Dance. Drop in.

Science Café

From 11am
Venue: Rear of MSB
Talk science with TV presenter Simon Watt in a series of specially developed family games and quizzes. Choose which species you’d save, pit yourself against our extinction risk predictor and taste one of the world’s most unusual wonder-crops. We’ve also got a selection of unusual foods to whet your appetite and feed the discussion, plus a spot of scientific wit set to music. Check the Science Café blackboard for the daily programme.

Simon is a biologist, writer, science communicator, comedian, author and TV presenter. He is passionate about conservation and much of his time is spent running his science communication company Ready Steady Science, taking science and conservation into schools, museums, theatres and festivals.
Workshops and activities

20 Wannabe a Bee?
Storytelling and craft
11am, 12 noon, 2pm, 3pm, 4pm
Venue: Story Den, rear of MSB
Join our giant, friendly bee for bee-themed storytelling. Why exactly do they like flowers so much, and how do they talk to each other? Try the waggle dance for yourself and make a bee puppet to take home.
Drop in.

21 Plant Games Plot
Venue: Rear of MSB
There’s a lot more to plants than meets the eye. Step inside to explore the tricks and secrets of the plant world – from the weirdest weeds to vital veg.
Drop in.

22 The Great Gastronaut Insect Adventure with Stefan Gates
2.30pm
Venue: MSB, downstairs
Lunch will never be the same again after this hands-on encounter for adventurous foodies, with live locusts, worms and crickets.
Limited spaces. Early arrival recommended.

23 Wild Adventures in Graphic Art
11am, 12 noon, 2pm, 3pm
Venue: Inside the MSB
Join graphic novelist and science communicator, Daniel Locke, for a creative workshop about the natural world. Explore the biodiversity of the distant past and learn ways to restore our countryside’s health. All these ideas will help you create your own wild adventure comic.
Drop in.

Tours and guided walks

24 Millennium Seed Bank tours
Every 30 minutes, 10.30am – 3.30pm
The Millennium Seed Bank houses over 2 billion seeds, and among them are some of the world’s rarest, most threatened and most useful species. Go deep underground on an exclusive tour of the Seed Bank’s majestic vaults and lay your hands on some of the world’s rare and threatened seeds.
Book at the Info tent.

25 Glasshouse tours
11.15am, 12.15pm, 2.15pm, 3.15pm
Have a rare glimpse inside our glasshouses where the conservation of some of the world’s rarest plants begins, and get up close to some intriguing plants with a story to tell.
Book at the Info tent.

26 Lost Habitats guided walks
11am, 12 noon, 2pm, 3pm
Explore Wakehurst’s extraordinary Woodlands of the World, focusing on iconic trees now under threat in the wild. Climate change, new pests and diseases, and changing land use are rapidly fragmenting these trees’ forests and threatening the biodiversity they support.
Book at the Info tent.

Exhibition

27 Surviving or Thriving
Venue: MSB Atrium and outdoor trail
This interactive exhibition highlights five trees that are facing different threats – use our touch screens to find out more, then head out into the fresh air to track them down in our landscape. At each tree you’ll find a kaleidoscope taking you on a magical seasonal journey.
Pick up a leaflet for the kaleidoscope trail at the Info tent.
Sharing the wonder

The Science Festival is a rare chance to find out what it’s really like to be a Kew scientist. If you’ve enjoyed your day with us here today, why not visit the Festival again on 20 – 21 July at Kew Gardens?

Check out kew.org/science where Kew’s scientists tell you more about the projects they’re working on around the world. You can also discover our amazing collections and access our huge databases of plants and fungi.

Adopt a seed

One in five plant species is threatened with extinction. Kew’s Millennium Seed Bank is a growing collection of seeds from around the world, providing a safety net for species at risk of extinction. Be part of the world’s most important conservation project by adopting a seed for yourself or as a gift. Visit adoptaseed.kew.org.

Bring learning to life at Wakehurst

Would you like to bring some of what you’ve experienced today to the students in your life? Why not consider a school visit to Wakehurst, run by our enthusiastic and experienced teachers. Our exceptional plant collections, beautiful grounds and vital scientific research provides an exciting learning environment for all year groups and abilities. Find out more at kew.org/wakehurst

Become a Wakehurst member

We rely on your support to maintain our beautiful gardens and pursue our vital science and conservation work. By becoming a Wakehurst member, you will be helping one of the world’s most important scientific organisations.

Whether you want to explore the stunning gardens and magnificent woodlands or marvel at the Millennium Seed Bank, enjoy unlimited entry to Wakehurst and a range of events all year round. Benefits include 10% discount in the Visitor Centre shop, one free entry to Kew Gardens, exclusive member only events, free car parking, priority booking on selected events and much more.

Speak to a member of staff at the Visitor Centre to become a Wakehurst member from as little as £29.50 per year, or find out more about other ways of supporting the work of Kew and Wakehurst.

Coming to Wakehurst soon

May half-term
27 – 31 May
There’s plenty to keep children entertained this May half-term – discover fungi, pests and pathogens with fun games and activities. Included with garden entry, additional charges may apply for some activities.
Alternatively, find out more about bugs in our fun two-and-a-half-hour workshop, Lilly the Pesky Caterpillar. £15 per child, booking required.

Wild Wood
27 – 28 July
Fun activities for all the family in Wakehurst’s beautiful woodlands. Weekend includes crafts, storytelling, tree climbing and bush craft. Included with garden entry, additional charges may apply for some activities.

Summer theatre
31 August – 1 September
Chapterhouse Theatre Company presents Shakespeare’s best-loved romantic comedy – A Midsummer Night’s Dream. Let yourself be whisked away on a thrilling journey to the most magical of forests and meet star-crossed lovers, playful fairies and hilarious travelling players.
Adults £16, children aged 5+ £11 (under 5s free), family £46 (2 adults and 2 children), booking essential.

Glow Wild winter lantern trail
21 November – 22 December
Thursday, Friday, Saturday and Sunday evenings
Glow Wild is a spellbinding night-time experience that all ages will adore. It returns for its sixth year, lighting the beautiful Wakehurst grounds with handmade lanterns and torches of fire.
Booking essential. Tickets go on sale in August.

For more information about upcoming events at Wakehurst visit kew.org/wakehurst

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Kew Science Festival Information tent
Feedback Station – tell us what you think

Pop-up Science
1. How Tall is that Tree?
2. Useful Plants and Seeds
3. Hitch a Ride and the Seed Cannon
4. Seeds of the Sea
5. Extinction Risk Zone
6. Google Goggles – Virtual Field Trip
7. The Seed Biology Lab Experience
8. Cyro Corner
9. DNA Factory
10. Race Against Time

Wild Science in the Field Lab
11. More than a Mushroom
12. Fungi Quest
13. Honey Detective
14. Pollinator walks

Botanical Village
15. Botanical Studio
16. Pop-up Herbarium
17. Plant Families workshop

Shows
18. Gastronaut: The Wildest Food Show on Earth
19. Grass

Workshops and activities
20. Wannabe a Bee?
21. Plant Games Plot
22. The Great Gastronaut Insect Adventure
23. Wild Adventures in Graphic Art

Tours
24. Millennium Seed Bank tours – meeting point
25. Glasshouse tours – meeting point
26. Lost Habitats guided walks – meeting point
27. Exhibition: Surviving or Thriving?

Food & Drink
28. Festival Bites – hot food and snacks
29. Demo Kitchen
30. Whipsmiths – liquid nitrogen ice cream
31. The Old Tree Brewery – botanical bar
32. Barista coffee pop-up

Fix Kew Science Festival map
### At a glance timetable

<table>
<thead>
<tr>
<th>Activity no.</th>
<th>Pop-up Science</th>
<th>Field Lab</th>
<th>Botanical Village</th>
<th>Shows</th>
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<td>Science stations</td>
<td>Google Goggles</td>
<td>Cryo Corner</td>
<td>Pollinator walks</td>
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<td>11 – 13</td>
<td>Field Lab stations</td>
<td>Pollinator walks</td>
<td>Botanical stations</td>
<td>Grass</td>
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<td>14</td>
<td>15 – 17</td>
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**Activity**
- Science stations
- Google Goggles
- Cryo Corner
- Pollinator walks
- Botanical stations
- Grass:
  - Gastronaut: The Wildest Food Show on Earth

**Age guide**
- All
- 10+
- All
- All
- All
- 8+
- 4+

**Duration**
- 20 mins
- 20 mins
- 30 mins
- 40 mins
- 45 mins

**Location**
- In and around the MSB
- Front of MSB
- Meadow, front of MSB
- MSB, downstairs
- Rear of MSB

**Where to book?**
- Drop in.
- Drop in. Runs all day
- Info tent
- Drop in. Runs all day
- Drop in. Arrive early
- Drop in.

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<th>Activity no.</th>
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**Where to book?**
- Drop in.
- Drop in. Runs all day
- Info tent
- Info tent
- Info tent
- Info tent
- Info tent

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**Workshops**
- Wannabe a Bee?
- Plant Games Plot
- The Great Gastronaut Adventure
- Insect Adventure
- Wild Adventures in Graphic Art
- Millennium Seed Bank tours
- Glasshouse tours
- Lost Habitats guided walks
- Games and science chat

**Tours and guided walks**
- Under 5s
- 4+
- 8+
- All
- 10+ and adults
- 7+ and adults
- 7+ and adults
- All

**Suitable for**
- Under 5s
- 4+
- 8+
- All
- 10+ and adults
- 7+ and adults
- 7+ and adults
- All

**Duration**
- 40 mins
- 30 mins
- 45 mins
- 45 mins
- 45 mins

**Location**
- Rear of MSB
- Rear of MSB
- MSB, downstairs
- Inside MSB
- Front of MSB
- Front of MSB
- Rear of MSB

**Where to book?**
- Drop in.
- Drop in.
- Info tent
- Info tent
- Info tent
- Drop in.
Exploring the State of the World’s Plants

SURVIVING OR THRIVING

AN EXHIBITION ON PLANTS & US

Wakehurst

Visit the Millennium Seed Bank atrium to find out more