

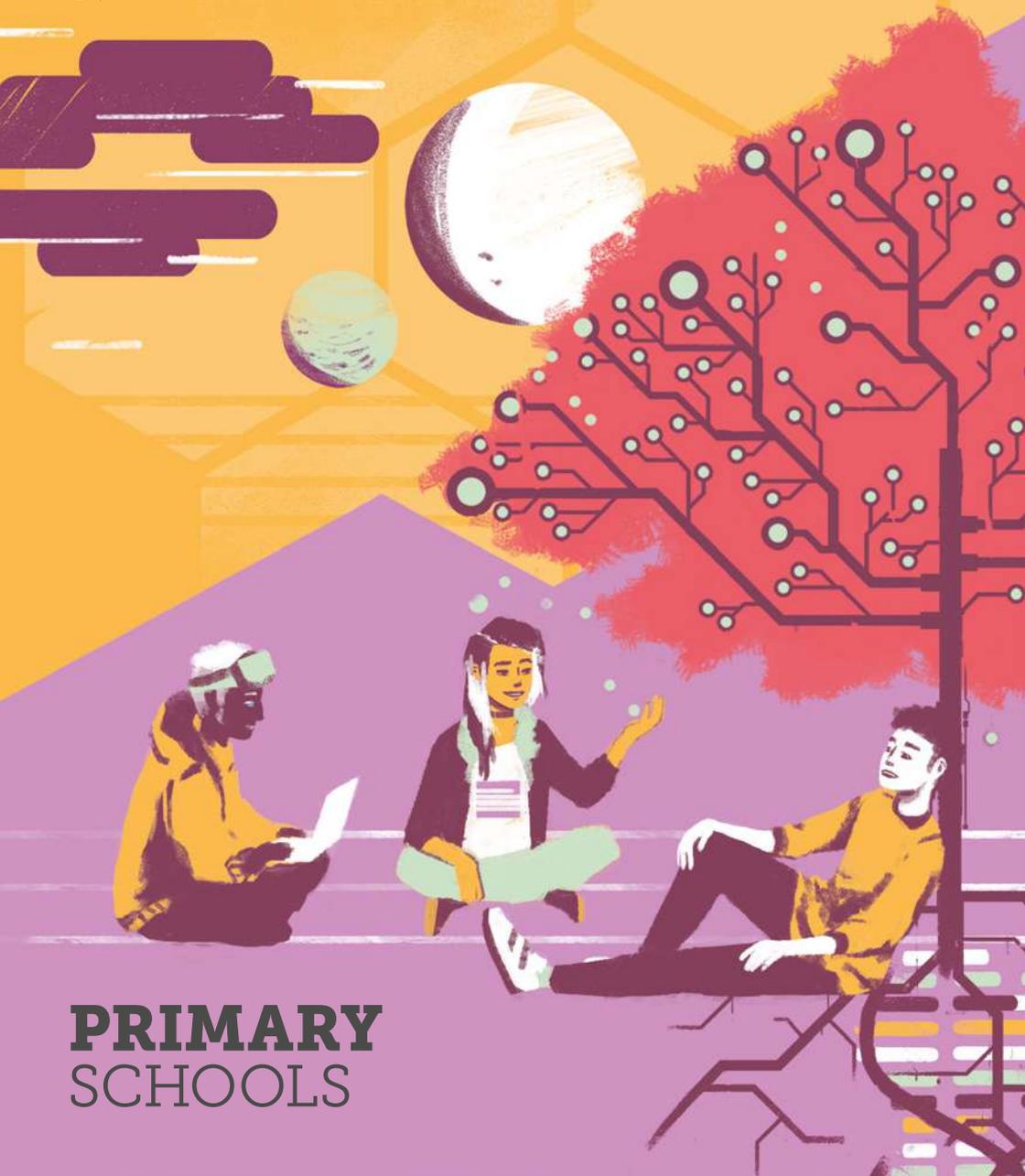
CHELTENHAM

Science Festival

5–10 June 2018

Book online:
[cheltenhamfestivals.com/
scienceforschools](http://cheltenhamfestivals.com/scienceforschools)

in association with



PRIMARY SCHOOLS

Planner

	10am	11am	12noon	1pm	2pm	3pm
TUESDAY						
The Arena				SS05 Our Wild World		
The Crucible	SS04 Mobile Materials					
Helix Theatre	SW01 Anatomy Art	SW02 Anatomy Art		SW03 Anatomy Art	SW04 Anatomy Art	
ExperiTent	SW05 Folding Viruses	SW06 Folding Viruses		SW07 Folding Viruses	SW08 Folding Viruses	
GE Pavilion						
Discover Zone						
MakerShack						
Cyber Zone						
WEDNESDAY						
The Crucible	SS01 Animal Facts And Fibs		SS02 Bubbly Maths			
Discover Zone						
MakerShack						
THURSDAY						
The Arena		SS06 Great Space Adventure		SS07 Everest Lab		
The Crucible	SS08 Uncovering The Invisible		SS09 Sea Soup			
The Pillar Room	SW09 Kinetic Moves	SW10 Kinetic Moves		SW11 Kinetic Moves		
Helix Theatre			SS03 Extraordinary Food			
The Cube	SW12 Adventures In Cyberland	SW13 Adventures In Cyberland		SW14 Adventures In Cyberland	SW15 Adventures In Cyberland	
ExperiTent	SW16 Criminal Chemistry	SW17 Criminal Chemistry		SW18 Criminal Chemistry	SW19 Criminal Chemistry	
GE Pavilion						
EDF Energy Zone						
Discover Zone						
MakerShack						
Cyber Zone						
FRIDAY						
The Arena	SS10 Gastronom Extreme			SS11 Thriving And Surviving		
The Pillar Room	MP01 Busy Bees		MP02 Busy Bees			
The Cube	SW20 Dancing Planets	SW21 Dancing Planets		SW22 Dancing Planets	SW23 Dancing Planets	
ExperiTent	SW24 Marine Machines	SW25 Marine Machines		SW26 Marine Machines	SW27 Marine Machines	
GE Pavilion						
EDF Energy Zone						
Discover Zone						
MakerShack		MP01 Mini Makers		MP02 Mini Makers		
Cyber Zone						

Welcome

A warm welcome to Science for Schools 2018, four action-packed days full of events for children and young people, which promise to excite and inspire in equal measure.

Discover new and exciting areas of science as we explore the material science of our phones, what it's like to do science in extreme environments, how origami can help us understand viruses and so much more. Enjoy live shows, hands-on workshops and our range of interactive zones including the Discover Zone, MakerShack and our brand new Cyber Zone.

Whether you are looking to bring a small number, or a whole year group, there is something for everyone.

We look forward to seeing you in June!

Sharron Pearson
Education Manager

Hana Ayoob
Science Festival Programme Manager

Overview of prices

Event (50 minute science shows)	£5.50 per pupil
Workshop	£6.50 per pupil
KS1 Mini Package	£5.50 per pupil
Young Scientist Day	£10 per pupil

A £5 booking fee will be added to the **total cost** of your booking

Discover Zone, MakerShack, GE Pavilion, EDF Energy Zone, Hartpury Science Hub, Cyber Zone, Science Trail: Free in conjunction with an event/workshop subject to availability.

You can also book a lunch space, subject to availability.

A word from our In Association Partner



EDF Energy is delighted to be partnering with Cheltenham Science Festival, and to continue supporting the Science for Schools programme.

We are passionate about engaging young minds through science in this extensive programme and Cheltenham Festivals' ambitious year-round activities for schools. We hope inspiring as many children and young people as possible will lead to many brilliant future careers in STEM.

Brian Cowell
Managing Director - Generation,
EDF Energy

Education Programme Partners



Free Activities

For each paid activity you can book one of our dedicated interactive zones. Please note these are only available with a paid activity and are subject to availability.



MakerShack

One-hour slots available every day.

Enter our carnival of creativity to explore curious materials such as air dough, ceramics and slime with makers, engineers and craftspeople. Discover traditional and futuristic technology and put your newfound knowledge to the test as you make your very own creations.

BACK BY
POPULAR
DEMAND



Cyber Zone

One-hour slots available every day.

Step into a digital world in our interactive Cyber Zone. Work together to crack puzzles, tackle fun challenges and get hands-on with new technology. Meet top experts and technologists as they guide you through this new and exciting zone on the Festival site.

NEW
FOR
2018!

GE Pavilion

One-hour slots available every day.

Transport yourself to GE's digital pavilion and connect with a world of science, technology, engineering and maths. Experience hands-on practical activities and meet engineers working to build, move, power and cure the world. Find out how GE brings hundreds of thousands of employees in 170 countries together. Discover how GE's diversity of ideas and connectivity are solving some of the world's biggest challenges.



UNIVERSITY OF
GLOUCESTERSHIRE
at Cheltenham and Gloucester



Cyber
Security
Challenge UK





Discover Zone

All ages

One-hour slots available every day.

Discover the world around you, explore the latest research and technology, get hands-on with science and find out more about the variety of STEM careers out there in our enormous interactive space. The Discover Zone is a real sight to behold, packed with fun activities for all ages led by enthusiastic scientists and engineers, ready to answer all your questions.



Also save time for...

Science Trail

Take part at a time which suits your group.

Collect your quiz sheet and follow this year's Science Trail around Imperial Gardens. It's the perfect activity to engage pupils in the world of STEM whilst exploring all that the site has to offer.

Hartpury Science Hub

Drop in at a time which suits your group.

Drop in to the Hartpury Science Hub to find out more about sport and exercise, equine performance, animal welfare and agriculture. Take part in exciting experiments and other intriguing activities as you explore pioneering research with the University Centre Hartpury team.



HARTPURY
UNIVERSITY CENTRE

EDF Energy Zone

All ages

One-hour slots available for Year 6 on Thursday. Drop in at a time which suits you on Friday.

If you could create a robot to improve your daily routine, what would it do? Work in groups to build a robot, try your hand at coding, create your own smart gadgets using LittleBits electronic kits and bring STEM roles to life through virtual reality.



KS1 Events

WEDNESDAY 6 JUNE 2018

KS1 – YRS 1–2

SS01

Animal Facts And Fibs

The Crucible

10.15–11.15am

£5.50 per pupil

How well do you know your wild animals? Do frogs really break their bones to use them as weapons? Biologist and CBeebies presenter **Lizzie Daly** puts you to the test as she explores the weird and wonderful adaptations and behaviours of our wildlife. Meet some creepy crawly visitors and take part in exciting demonstrations as we decide what's a fib and what's a fact.

@_LizzieDaly



KS1 – YRS 1–2

SS02

Bubbly Maths

The Crucible

12.15am–1.15pm

£5.50 per pupil

Explore size and shape with mathematical clown **Caroline Ainslie**. Enter a wonderful world of balloons and bubbles to learn about size and position words, and counting up and down. Meet a range of different 3D shapes and learn how to identify them. Giggle and gasp at square, triangular and cubic bubbles as they dance and bounce and watch as giant geometric balloon shapes form before your eyes.

bubblymaths.co.uk / @bubblymaths

THURSDAY 7 JUNE 2018



KS1 – YRS 1–2

SS03

Extraordinary Food

Helix Theatre

12–1pm

£5.50 per pupil

Get ready for an exciting food and science spectacle from BBC presenter **Stefan Gates** with killer robots, a flame thrower, live insects, vortex cannons, rockets and an awful lot of farting. Stefan throws nutrition, the KS1 science curriculum, and a lot of fun into a blender in this demo-packed, vomit-inducing (not really!) adventure.

thegastronaut.com / @stefangates

TAILORED
FOR KS1

KS1 Mini Packages

FRIDAY 8 JUNE 2018



Mini Packages

£5.50 per pupil

The KS1 Mini Packages comprise an event and a guaranteed opportunity to do some hands-on activities in our Mini Makers space. All the activities are designed for 5-7 year olds. The cost is £5.50 per pupil and tickets for accompanying adults are free.

MP01	10am-11am 11am-12noon	Busy Bees Mini Makers
MP02	12noon-1pm 1pm-2pm	Busy Bees Mini Makers

KS1 – YRS 1–2

Busy Bees

Town Hall, The Pillar Room

This event is only available as part of a Mini Package.

Have you ever wondered how bees make honey? If you buzz loudly enough, CBeebies presenter **Maddie Moate** might just let you in on one of bees' best kept secrets. Find out more about foraging, honey production and just how important pollinators are. Taste some honey, play some silly games and be prepared for an epic waggle dance finale!

maddiemoate.com / @maddiemoate



Mini Makers

MakerShack

Squidge and squash different materials to learn more about them. Book one of our dedicated KS1 Mini Makers slots in the MakerShack to experiment with kinetic sand, sculpt with plastic, play with slime and so much more.

KS2 Young Scientists' Day

FRIDAY 8 JUNE 2018 9.15AM-3PM



KS2 – Year 5

YSD01

Young Scientists' Day

Cheltenham College Preparatory School

£10 per pupil

One of the unique things about us humans is the way we communicate and connect with each other. Find out more about communication and connection through specially curated workshops at the in-depth Young-Scientists' Day. All activities are delivered by **Cheltenham College Preparatory School's** Science and Design teams in their dedicated science labs and Design Technology rooms.

The Workshops

Animal Magic: What makes a glow worm glow, or a chameleon change colour? Discover the amazing chemistry involved in animal communication, and watch your very own exciting experiments light up before your eyes.

Code Breaking: Do you have what it takes to become a code breaker? Find out how light and sound can be used to send signals. Learn about microwaves and mobile phone signals, and design your own code using light. Can you crack the code of an opposing team?

Communicating With Machines: As technology advances, the ability of machines to communicate with us and each other has increased. Computers relay instructions and manufacture products for us much quicker and more accurately than humans could ever do by hand. Learn how to design on a computer and create your own product on a laser cutter.

About the day

The day is devised with both pupils and teachers in mind. We are inviting you to put forward five pupils from Year 5 and one teacher to take part in the Young Scientists' day. Lunch and refreshments will be provided.

KS2 Events

TUESDAY 5 JUNE 2018



KS2 – YRS 5–6

SS04

Mobile Materials

The Crucible

10–11am

£5.50 per pupil

Shrink down and enter the amazing world of handheld computers. Explore how a variety of materials work together to create our incredible mobile phones. Join material scientist **Jamie Gallagher** for exciting demonstrations and large scale audience participation to unlock the science and engineering lurking inside our digital devices. How are images formed on screens? How does a touchscreen work? And what surprising technology could save you from a volcano?

jamiebgall.co.uk / @JamieBGall

KS2 – YRS 3–6

SS05

Our Wild World

The Arena

12.30–1.30pm

£5.50 per pupil

Our world is full of amazing living creatures and fascinating changing landscapes. Uncover the mysteries of our incredible planet on a journey around the globe with **Huw James** and his team of adventure scientists. Discover the most venomous creatures on earth, how volcanoes work, the amazing environments of cloud forests, the threats facing our oceans and more through stunning visuals and exciting experiments.

anturus.org / @huwmjames

**Don't miss our
Teachers CPD
Opportunities**
See page 15 for
details

KS2 Events

TUESDAY 5 JUNE 2018

KS2 – YRS 5–6

Workshop: Anatomy Art

Helix Theatre

SW01 10–11am

SW02 11.15am–12.15pm

SW03 12.45–1.45pm

SW04 2–3pm

£6.50 per pupil

Explore the fascinating anatomy housed inside our chests and create your very own anatomy t-shirt to take home. Join anatomists from the **University of Bristol** to learn about the structure, function and location of your heart, lungs and ribs using real animal specimens and human models for inspiration.

bristol.ac.uk/anatomy



KS2 – YRS 5–6

Workshop: Folding Viruses

ExperiTent

SW05 10–11am

SW06 11.15am–12.15pm

SW07 12.45–1.45pm

SW08 2–3pm

£6.50 per pupil

Our bodies are made up of intricate structures and mini machines, composed of a variety of tiny materials. Find out how the folding of these structures helps our bodies to work with scientist-turned-artist **Lizzie Burns**. Be inspired by the beauty of the bugs we interact with all the time, as you create your own origami virus to take home.

sciencetolife.org

KS2 Events

THURSDAY 7 JUNE 2018



KS2 – YRS 3–6

SS06

The Great Space Adventure

The Arena

11am–12noon

£5.50 per pupil

How does the Moon move around the Earth, and the Earth around the Sun? Just how large are the planets in our Solar System and how vast are the distances between them? Embark on a great space adventure through our Solar System with astronomer **Dhara Patel** as she answers these questions and explores whether we could live elsewhere in the Universe in her 'Habitable or Horrible' game show.

rmg.co.uk/royal-observatory
[@ROGAstronomers](https://twitter.com/ROGAstronomers)



KS2 – YRS 3–6

SS08

Uncovering The Invisible

The Crucible

10–11am

£5.50 per pupil

How can we explore the invisible? What can colourful flames, screaming jelly and fireworks made from sugar tell us about the world around us? Join scientists **Marieke Navin** and **Martin Coath** in a fun-filled demo-driven adventure to understand the materials which make up everything and how they behave as they release energy.

[@mariekenavin](https://twitter.com/mariekenavin) [@mcoath](https://twitter.com/mcoath)



KS2 – YRS 3–6

SS09

Sea Soup

The Crucible

12–1pm

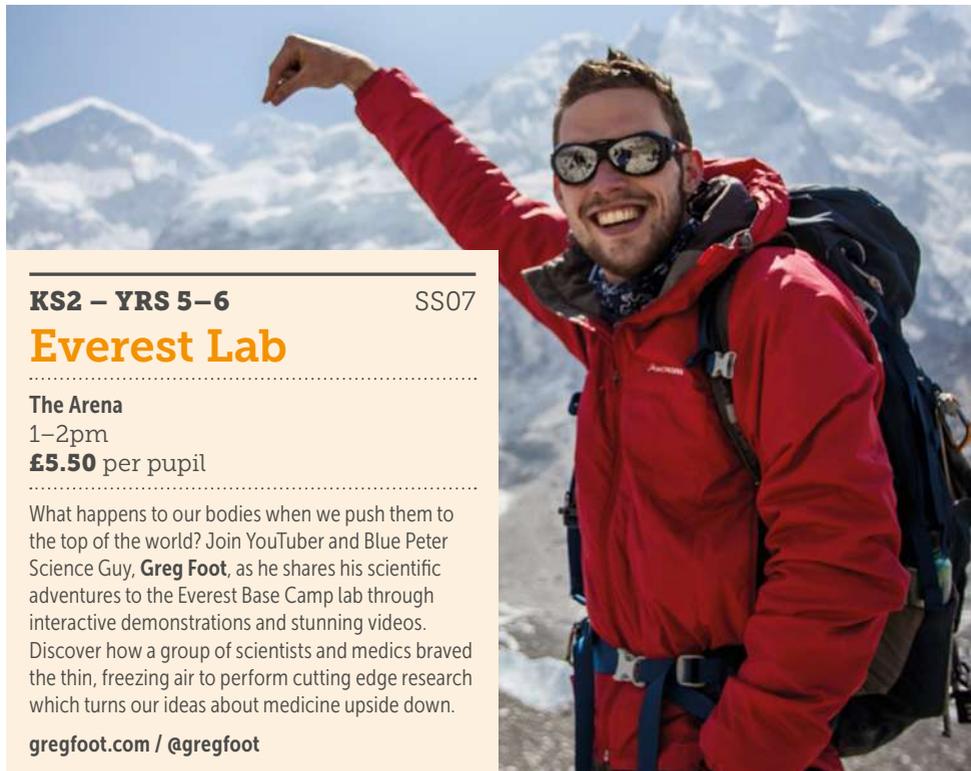
£5.50 per pupil

Every time you go swimming in the sea, you are surrounded by thousands of tiny creatures you can't see! This fascinating microscopic menagerie of mini-beasts help to provide the food we eat and the air we breathe. Let marine microbiologist **Russell Arnott** guide you through this incredible world as we find out just how important plankton are to life in the oceans and on land.

incredibleoceans.org / [@Russell_Arnott](https://twitter.com/Russell_Arnott)

KS2 Events

THURSDAY 7 JUNE 2018



KS2 – YRS 5–6 SS07

Everest Lab

The Arena
1–2pm
£5.50 per pupil

What happens to our bodies when we push them to the top of the world? Join YouTuber and Blue Peter Science Guy, **Greg Foot**, as he shares his scientific adventures to the Everest Base Camp lab through interactive demonstrations and stunning videos. Discover how a group of scientists and medics braved the thin, freezing air to perform cutting edge research which turns our ideas about medicine upside down.

gregfoot.com / [@gregfoot](https://twitter.com/gregfoot)



KS2 – YRS 3–6

Workshop: Kinetic Moves

Town Hall, The Pillar Room

SW09 10–11am

SW10 11.15am–12.15pm

SW11 12.45–1.45pm

£6.50 per pupil

Look around you. What can you hear, see or feel? Is anything moving? All around us, energy enables change and makes things happen. It even allows us to move! Join **Flux Dance** as they explore the different types of energy around and within us through movement, games and lots of fun.

fluxdancetheatre.com / [@FluxDance](https://twitter.com/FluxDance)

KS2 Events

THURSDAY 7 JUNE 2018



KS2 – YRS 5–6

Workshop: Adventures in Cyberland

The Cube

SW12 10–11am

SW13 11.15am–12.15pm

SW14 12.45–1.45pm

SW15 2–3pm

£6.50 per pupil

The wonderful world of cyber technology goes far beyond computers. Discover how science, technology, engineering, arts and maths play their part in computer science. Join the **Lockheed Martin Team** for a series of fun challenges involving decoding hidden messages and computer signals, writing basic software and gathering information through logical reasoning.



lockheedmartin.co.uk / [@lockheedmartin](https://www.lockheedmartin.com)

KS2 – YRS 3–6

Workshop: Criminal Chemistry

ExperiTent

SW16 10–11am

SW17 11.15am–12.15pm

SW18 12.45–1.45pm

SW19 2–3pm

£6.50 per pupil

The Bear-Eye Diamond has been stolen from a safe in the Duchess of Goldthorn's bedroom, someone is missing and a ransom note has been found. Can you help forensic scientists from the **University of Wolverhampton** to solve the crime? Explore blood patterns, chemical analysis and other forensic techniques as you try to crack the case.

KS2 Events

FRIDAY 8 JUNE 2018



KS2 – YRS 3–6

SS10

Gastronaut Extreme

The Arena

10–11am

£5.50 per pupil

TAILORED
FOR KS2

Join BBC presenter **Stefan Gates** in this outrageous food and science spectacle! With killer robots, a flame thrower, live insects, vortex cannons, rockets and an awful lot of flatulence, Stefan takes you on an adventurous ride through nutrition and the KS2 curriculum in this demopacked, vomit-inducing (not really!) escapade.

thegastronaut.com / [@stefangates](https://twitter.com/stefangates)

KS2 – YRS 3–6

SS11

Thriving and Surviving

The Arena

1–2pm

£5.50 per pupil

Discover how Stone Age hunters tamed dogs and cattle and how Bronze Age nomads domesticated horses. Anatomist and broadcaster **Alice Roberts** takes you on a journey through human history to explore how we teamed up with animals and how this helped us survive and thrive. Find out how we changed our animal allies' behaviour and physical adaptations, and how they changed us.

alice-roberts.co.uk / [@thealiceroberts](https://twitter.com/thealiceroberts)



KS2 Events

FRIDAY 8 JUNE 2018



KS2 – YRS 3–6

Workshop: Dancing Planets

The Cube

SW20 10–11am

SW21 11.15am–12.15pm

SW22 12.45–1.45pm

SW23 2–3pm

£6.50 per pupil

What would it be like to move on Mars? Could you dance rings around Saturn? Join **Flux Dance** for a dynamic workshop exploring the planets in our solar system and how they move. Future space travellers should prepare themselves for fun, games and dancing that are out of this world.

fluxdancetheatre.com / @FluxDance



KS2 – YRS 3–6

Workshop: Marine Machines

ExperiTent

SW24 10–11am

SW25 11.15am–12.15pm

SW26 12.45–1.45pm

SW27 2–3pm

£6.50 per pupil

Discover how to make some of the coolest water vehicles using surprisingly familiar objects and materials with oceanographer **Russell Arnott**. Learn about the science and engineering involved, and get creative as you make your own paddle-boats, submarines and hovercrafts!

incredibleoceans.org / @Russell_Arnott

Wednesday 6 June, 4.30–6.30pm

CPD01

Primary Teacher CPD Workshop: Science Through Stories

ExperiTent

£25

Join award winning primary science teacher and literacy consultant **Jules Pottle** to find out how you can enrich science lessons through storytelling. Enter a wonderful world of science and discovery, learn how to embed science in the context of a story and how to teach these tales to your class as we make science truly cross curricular.

sciencethroughstory.com / @MrSpottle

**BOOK
EARLY**
LIMITED
AVAILABILITY

FAQs

How do I book tickets?

It's simple! Once you've decided which activities you want to book just go to cheltenhamfestivals.com/scienceforschools and fill in and submit the booking form. **Booking opens 8am on Thursday 1 February 2018. Please be aware there will be a £5 administrative booking fee applied to each booking.**

Is there a bookable lunch space?

We understand the challenge of finding a sheltered spot for pupils to have snacks or lunch if the weather is bad and we are able to offer a covered picnic area. The space has a maximum limit so please make sure you request a reservation on your booking form if you know you are having lunch on-site, and we will accommodate as many groups as we can.

What happens next?

1. Once received, we will review your booking form. If any of your choices are not available, we will be in touch to discuss alternative options. You will receive a formal booking confirmation via email once everything is booked.
2. Tuesday 8 May is the deadline for notifying us of changes to your numbers as a result of fluctuations in class size. We will do our best to accommodate such changes, but please understand that we may be unable to do so.
3. After this date an invoice will be sent to your school finance office. It is important that this invoice is paid promptly.
4. You will also receive the following documents at this point – please bring them with you:
 - A ticket document
 - A site map and venue list
 - An information document with important details about your visit

It is helpful for every accompanying adult in your party to have a copy of these documents with them.

Getting to the Festival

For full details about arriving, parking, getting to venues and more, please refer to the FAQs at cheltenhamfestivals.com/education/planning-your-visit where you will also find our cancellation policy and advice for preparing a risk assessment.

Science for Schools contacts

If you would like to contact a member of the Education Team, email us at: education@cheltenhamfestivals.com

Or give us a call:

Sharron Pearson 01242 537 250

Philippa Claridge 01242 537 267

Rose Wood 01242 537 268

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Teachers CPD
Opportunities**
See page 15 for
details