

# TECHFEST

Aberdeen and North-East Scotland's Festival of  
Science, Technology, Engineering & Mathematics

# 2017

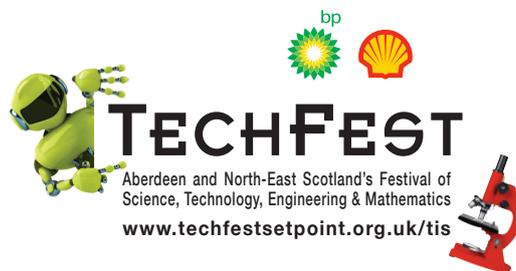
## Early Years *and* Primary Programme

**Monday 28th August – Friday 1st September**

**Robert Gordon University, Garthdee Campus AB10 7GJ**

[www.techfest.org.uk](http://www.techfest.org.uk)





TechFest is delighted to present its Early Years and Primary Schools Programme for 2017 - an exciting line-up of Science, Technology, Engineering and Mathematics (STEM) workshops and shows, all chosen with the capacities, principles, experiences and outcomes of Curriculum for Excellence in mind.

The cost per primary pupil will this year again be **£3.40 (£4.08 incl. VAT)**, which represents great value for money. Each pupil will participate in three sessions. Opportunities are available across the **P1-7 age range**, with a variety of topics. **Groups will be a maximum of 33 children.**

The cost per Nursery Early Years child this year will be **£3.40 (£4.08 incl. VAT)**, which also presents great value for money. Each Early Years setting is invited to attend up to **three sessions**, however, if you choose to come for just 1 or 2 sessions prices will be adjusted accordingly. **Children must be over 3 years. Groups will be a maximum of 20 children.**

Demand for festival places is always high and we reach capacity very quickly. Applications are dealt with on a strictly **'first come, first served'** basis, so please complete and return your application form without delay.

**If you have any questions or queries, please contact the TechFest team on:**

**01224 274194** or email: [jennytaylor@techfest.org.uk](mailto:jennytaylor@techfest.org.uk)

## Planning your visit

We are making some **alterations to the booking process this year** to hopefully ensure more schools can come for the date and time they have selected. Following feedback from previous years we are no longer asking for each class's workshop preferences. **We will solely be allocating workshops on time and date preferences.** Please note that each class will still be allocated three workshops per visit. Depending on your preference for dates and times we will put together the best programme ensuring you receive a variety of STEM workshops based on CfE Experience's and Outcome's tailored for the age and stage of your pupils.

Dates for your visit and the times for the sessions will still be allocated on a 'first come, first served' basis. We hope that the new system will minimise the disappointment caused in previous years of schools not being allocated their preferred workshops.

Ideally please give as much information at time of booking as possible eg class teacher, access requirements. This makes booking management a lot easier during your visit.

**If you would like to discuss any of this further please do not hesitate to contact us; Jenny Taylor: 01224 274194**

**Disclosure :** TechFest supports disclosure for all people who work with schools, however at no time should volunteers be alone with students. We have requested that all schools should make their own risk assessment and ensure that members of the teaching staff are present throughout all workshops and during your visit to TechFest.

**First Aid Provision :** TechFest have First Aiders on site to support your school First Aiders. Please note at time of booking confirmation we will ask you to confirm that you are happy for us to assist your school if the need arises.

**Photographs :** Photographers will be on hand to take photographs during the event and will ask you for Photographic Permission of your class in writing. We will also invite schools to send us their photographs for our website.

**Catering :** There are limited catering facilities at RGU so please make sure that you and your pupils bring a packed lunch with you. There will be tea/coffee/water available for teaching staff and adult helpers only. If you require a drink please use travel cups with lids or a water bottle with a lid. Please be aware that hot drinks are not allowed in the workshop areas.

## The Wasp Who Felt the Thunder SHOW

Presented by : **Live Wire Productions**  
Sponsored by : **Statoil**

A wasp awoke in the deep dark wood. A bird saw the wasp and the wasp looked good.

What happens when the wasp feels a thunderstorm coming and tries to warn the creatures that live in the great oak tree?

- Running Time : **45 minutes**
- CfE Links : **Science**

## The Ball That Wanted to Float NEW SHOW

Presented by : **Live Wire Productions**

All the toys have such fun at bath time every day floating about in the warm water except one, the lonely red ball sitting on the bottom of the bath. It is too heavy and cannot float.

All the other toys, led by their leader, the plastic duck, decide one day to help the ball become like the others.

Why do some objects sink while others float?

- Running Time : **45 minutes**
- CfE Links : **Science**

## K'NEX Under the Sea with Subsea 7

Presented by : **TechFest**  
Sponsored by : **Subsea 7**

Discover the unique challenges of exploring under the sea and find out how we breathe, what we wear to keep warm and how to move around in the subsea world. What will you discover beneath the waves?

- Running Time : **45 minutes**
- CfE Links : **Science, Technologies, Engineering**



## Our Body

Presented by : **Jon Davies**

Investigate our 5 senses and find out how we explore the world around us.

As well as Q and A and discussion we have an interactive and memorable activity for each sense:

- Running time : **45 minutes**
- CfE Links : **Health and Wellbeing**



## The TechFest Dome – Day and Night

Presented by : **TechFest**

What makes day and night? Where does the Sun go at night? This show demonstrates how the Sun moves across the sky during the day in both summer and winter. Find the North Star, the Plough, Orion, Betelgeuse, and Sirius in the night sky and relate them to the Greek constellations.

- Running time : **45 minutes**
- CfE Links : **Science**

## From Plant to Plate NEW

Presented by : **Duthie Park Ranger Service**

Become a Junior Scientist and discover what plants need to grow. Get hands-on and plant a seedling to take away, and also explore the links between plants and some of our favourite foods.

- Running Time : **45 minutes**
- CfE Links : **Science**

## Wild About Maths NEW

Presented by : **TechFest**  
Sponsored by : **Chevron**

Take a walk on the wild side with TechFest as pupils undertake puzzles, challenges and problem solving activities inspired by the natural world. In this hands-on maths workshop small teams of pupils work through a series of tasks designed to challenge and build confidence.

- Running Time : **45 minutes**
- CfE Links : **Maths, Science**

## Amazing Animals

Presented by : **Animates**

Sponsored by : **Chevron**

This workshop is split into two activities. The first features friendly tropical invertebrates and reptiles allowing the children to learn about their characteristics and the habitat they live in. The second will look at seized animal artefacts belonging to HM Revenue & Customs, which have been brought back by holidaymakers and confiscated at Scottish airports. Through these artefacts the children can learn about endangered species. The children will experience both activities. This workshop supports the Biodiversity and Interdependence section of Planet Earth from the Curriculum for Excellence.

- Running time : **45 minutes, 60 minutes**
- CfE Links : **Science**



## Fantastic Mini Beasts

Presented by : **The Critter Keeper**

What are mini beasts? Learn about the largest & most important group of animals on our planet, the Arthropods. What they all have in common & why they're so important for the Eco system of planet earth. Using real life animal demonstrations, The Critter Keeper will discuss in detail the main groups of Arthropods, from Insects to Molluscs. By the end of the workshop you will know all about the Fantastic Mini Beasts lurking at the bottom of your garden.

- Running Time : **60 minutes**
- CfE Links : **Science**

## BodyVision Exhibits

**NEW**

Presented by : **Glasgow Science Centre**

Participants will get hands-on with a range of engaging anatomy themed exhibits. They will address topics like cardiovascular fitness, body composition and the effects of lifestyle choices like smoking.

- Running Time : **45 minutes**
- CfE Links : **Science**

## Bizarre Bones

**NEW**

Presented by : **TechFest**

Which part of your body is stronger than steel and harder than granite? Find out the answer to these questions and discover many more incredible facts about the skeleton as we investigate the hardest organ in the human body: bones. We'll take a closer look and investigate the structure and function of skeletons from across the animal kingdom with lots of experiments and practical activities for the whole class.

- Running time : **45 minutes**
- CfE Links : **Science, Health and Wellbeing**

## Dynamic Dentistry

Presented and Supported by : **University of Aberdeen Dental School and NHS Grampian**

The team from University of Aberdeen Dental School and NHS Grampian introduce you to all things tooth-tastic.

Find out how tooth decay happens and how your dentist can help you. Put on your gloves and take out some (pretend) teeth. Make a good impression with our dental model making materials. Find out why Jamie Oliver is so worried about how much harm lurks in a can of fizzy juice? Our enthusiastic team of dynamic dentists and determined dental students will guide you through the cavities and past the pitfalls and onto your crowning glory!

- Running time : **45 minutes**
- CfE Links : **Health and Wellbeing, Science**

## Amazing Aberdeen

**NEW**

Presented by : **TechFest**

Supported by : **Institution of Engineering and Technology & Institution of Mechanical Engineers**

'Amazing Aberdeen' will look at the scientists and engineers who have made Aberdeen the incredible city it is. With focus on Charles Abercrombie and the work he did on building the Union Bridge and developing Union Street, the workshop will highlight to the pupils the interpersonal and transferable skills required to be an engineer. The core skills in engineering we will explore include communication, teamwork, designing, planning, problem solving, time management, project management and creativity.

- Running time : **45 minutes, 60 minutes**
- CfE Links : **Technologies, Other – Literature**

## Codes and Cyphers **NEW**

Presented by : **TechFest**

Explore the enigmatic history of codes and cyphers in this hands-on session. Students will learn how to send secret messages and how they can be broken, inspired by dastardly deeds and historical intrigue.

- Running Time : **45 minutes**
- CfE links : **Maths, Social Science**



## The Science of Bubbles NEW SHOW

Presented by : **Science2Life**

Have you ever wondered why bubbles float? Why bubbles are round? What the secret ingredient in bouncing bubbles is? To answer these questions and many more come and join Scientific Sue in her Bubble laboratory.

Volunteers will be required to help her investigate the properties of solids, liquids and gases. Diet cola and mentos, bath bombs and foam breathing monsters are just a few of the engaging demonstrations undertaken! A focus on forces and of course bubbles makes this show both educational and entertaining.

- Running Time : **60 minutes**
- CfE links : **Science**

## Extreme Environments: The Polar Regions NEW SHOW

Presented by : **Dynamic Earth**

Supported by : **The Robertson Trust**

The Polar Regions are places of spectacular extremes and amazing biodiversity. They are also the focus for important global research projects. Explore the Polar extremes with the Learning Team from Dynamic Earth!

In this exciting and interactive show, pupils will discover the Arctic and Antarctica and compare and contrast these two frozen worlds. They will learn about topical research relating to climate change and conservation, wonder at polar wildlife and think like a scientist in this dynamic science show!

- Running time : **45 minutes**
- CfE Links : **Science, Technologies, Social Studies**

## The Chemistry of Cooking NEW

Presented and Supported by : **Robert Gordon University School of Pharmacy and Life Sciences**

In cooking, everything is chemistry! Whether you knead bread, bake a pie, or roast meat, chemical reactions are taking place. Food is just a complex mixture of chemicals and cooking can be thought of as a series of chemical reactions. Cooking may be the oldest and most widespread application of chemistry, and recipes the oldest practical result of chemical research.

- Running time : **45 minutes**
- CfE Links : **Science**

## Great Scot! NEW

Presented by : **TechFest**

Sponsored by : **Marathon Oil**

'Great Scot!' celebrates engineering in Scotland. We will look at some of the colourful characters and their inventions to find out how they influenced the world. Through fun, interactive and hands on experiments and demonstrations, we'll find out about how engineering shapes our daily lives.

- Running time : **45 minutes**
- CfE Links : **Technologies, Social Studies, Health and Wellbeing**

## Underwater Exploration NEW

Presented and Supported by :

**Robert Gordon University School of Engineering**

The oceans are deeper than the highest mountains. Find out about the machines that explore the oceans and the science and engineering that makes them work. Can you complete the mission to "fly" an ROV (Remotely Operated Vehicle) underwater robot?

- Running Time : **60 minutes**
- CfE Links : **Technologies**

## TechKnow

Presented and Supported by :

**Aberdeen City Council Recycling Team**

TechKnow - (Technology for Knowledge) is an initiative aimed at improving re-use and recycling of electrical equipment. We have created fun and exciting workshops which will delve into the exciting world of electrical waste! The TechKnow project is a partnership project between Aberdeen City Council, Enscope and Re-Tek.

- Running time : **45 minutes**
- CfE Links : **Health and Wellbeing**

## Light Lab

Presented by : **Kenny Bean**

Discover how to split white light to reveal the full colour spectrum using prisms then use torches to mix red, green and blue light to make white light. Draw pictures using ultra violet light and see your own energy transferred into colours on a polarised light box. Learn how to bend light using convex lenses and assemble your own amazing upside down box. Put your head inside it and see the world upside down!

- Running Time : **45 minutes**
- CfE links : **Science**



## Plastics “R” Fantastic

Presented by : **Sustainable Communities Initiative**

Hold on to those empty plastic bottles! Did you know they can be easily transformed into flowers, windmills, spiders and rockets? Why buy expensive toys when you can make your own out of waste? Bring your own clean and empty 500ml bottle to transform or we can provide one.

- Running Time : **60 minutes**
- CfE links : **Technologies, Other – Art & Design**

## Wild about Scotland

Presented and Supported by :  
**Royal Zoological Society of Scotland**

Come on-board our specially designed double-decker bus to discover Scotland’s amazing native wildlife and find out how the Royal Zoological Society of Scotland (RZSS), and you, can help to protect it.

- Running Time : **60 minutes**
- CfE links : **Science**

## The TechFest Dome – Night Sky

Presented by : **TechFest**

A tour of the night sky includes the North Star, the Plough and Orion. Watch how the stars move at night and discover how we get different constellations with the changing seasons. Listen to the amazing story of Perseus and Andromeda and find out which planets you can see in the sky tonight.

- Running time : **45 minutes**
- CfE Links : **Science**

## K’NEX Solar Challenge

Presented by : **K’NEX Generation**

Following a brief introduction to solar power and its uses, pupils will work in small teams to take part in a solar powered K’NEX challenge that will test their team working, problem solving, communication and critical thinking skills. This hands-on, science and engineering workshop, provided by Scotland’s K’NEX Training Consultant, is guaranteed to engage and challenge your pupils.

- Running Time : **60 Minutes**
- CfE Links : **Science, Technologies, Social Studies**



## Investigating Fingerprints

Presented and Supported by :  
**Robert Gordon University School of Pharmacy and Life Sciences**

Have you ever looked at your fingerprints and wondered what are they for? You probably know fingerprints can be used to help solve crimes, but how is that done? Is it true that everyone’s fingerprints are different?

We’ll answer these questions and more in our Investigating Fingerprints workshop where you will get the chance to take and examine real fingerprints, and see how forensic scientists can make even invisible fingerprints easy to see. If this sounds interesting, come along and test your detective skills with one of our magnifying glasses.

- Running Time : **45 minutes**
- CfE Links : **Science**

P5 – P7

## Microbiology

Presented by : **TechFest**

Discover the hidden world of the microbe in TechFest’s introduction to microbiology. Through observation and practical investigation explore the impact of microorganisms (or germs) on health. Experiment with the roles of microorganisms in breaking down materials with yeast.

- Running time : **60 minutes**
- CfE Links : **Science, Health and Wellbeing**

## Floating and Sinking

**NEW**

Presented by : **TechFest**

Experiment with buoyancy and density to work out why things float and sink. We explore the physics (forces that pull and push) with a fun and practical approach. Pupils will discover Archimedes’ principle, they can have their own “Eureka” moment and use it to solve a buoyancy challenge. This workshop contains an optional section about the Titanic and can be linked to science and history classwork.

- Running time : **45 minutes**
- CfE Links : **Science**

## Dissolving and Solubility

**NEW**

Presented by : **TechFest**

Use team work and apply the principles of scientific testing to investigate solubility. Learn about making a hypothesis and designing a fair test with hands on investigations and experiments as we consider how solubility affects our every-day lives.

- Running time : **45 minutes**
- CfE Links : **Science**

### Disclaimer

All details in this programme are correct at the time of going to print. TechFest reserves the right to alter the programme information and events without prior notice if required. Apologies for any inconvenience.



## 2017 Early Years & Primary Programme Booking Form

- The cost is £3.40 per attending child (£4.08 inc VAT). (One accompanying adult per 10 Primary Pupils or 4 Early Years Children goes free of charge. Any additional adults over this will be charged £4.08 each)
- Please complete a separate Booking Form (photocopied from this programme) for each class or download from our website [www.techfest.org.uk](http://www.techfest.org.uk)
- Please send a deposit cheque (made payable to 'TechFest-SetPoint') of £25.00 per class, to secure each booking. Schools will be sent an invoice for the balance of the cost of their visit after the Festival.

### School Information

School / Nursery : \_\_\_\_\_  
 Address : \_\_\_\_\_  
 \_\_\_\_\_ Postcode : \_\_\_\_\_  
 Staff Name : \_\_\_\_\_ Telephone : \_\_\_\_\_  
 Staff Email : \_\_\_\_\_  
 Class Name at September 2017 : \_\_\_\_\_  
 Class teacher if known at September 2017 : \_\_\_\_\_

### Size of Group :

Number of Pupils : \_\_\_\_\_ Number of Adults (school staff) : \_\_\_\_\_ Number of Adults (non-School staff) : \_\_\_\_\_

Please note due to the workshops within our programme the maximum group size: 33 Primary Pupils, 20 Early Year Settings Children

### Date :

Preferred date of visit (please indicate 1st, 2nd & 3rd choices and mark clearly with an **X** any days you **CANNOT** attend).

Mon 28/08/17  Tues 29/08/17  Wed 30/08/17  Thurs 31/08/17  Fri 01/09/16

### Times of Visit :

Doors are open from 8.30am to 4pm.

Earliest possible arrival time: \_\_\_\_\_ Latest possible departure time: \_\_\_\_\_

### Access Requirements :

Do you have any pupils with any access requirements? Yes/No  Details :

Do you have any pupils with special educational needs? Yes/No  Details :

Please tick this box to acknowledge that you have noted the change of venue for TechFest 2017.

**Mail to:** TechFest, Foresterhill Health Centre, Westburn Road, Aberdeen, AB25 2AY

**Confirmation:** Please note that submitting a booking form does not confirm your place at the festival. You will be sent confirmation of your timetable for your TechFest visit or notification that all festival places are full (at which point your deposit cheque will be returned to you). Please contact us if you have not received this within 28 days of posting your booking to us or if you are unsure at any point.

**Any questions? Call us on 01224 274194 or email: [jennytaylor@techfest.org.uk](mailto:jennytaylor@techfest.org.uk)**

All information is correct at the time of going to press. In the event of unforeseen circumstances, activities may be subject to change or alteration without prior notice.

Before posting your booking please ensure you have:

- Sected your date and time preference
- Taken a photocopy of the booking form for your own records
- Attached a deposit of £25 per class booking (*payable to TechFest-SetPoint*)

Official Use Only \_\_\_\_\_  
 Date Received: \_\_\_\_\_  
 Ref No: \_\_\_\_\_



## Primary Schools Programme 2017

As Joint Principal Sponsors of TechFest 2017, Shell and BP are delighted to once again pledge our support to Aberdeen and the North-East of Scotland's premier annual festival of Science, Technology, Engineering and Maths (STEM). Now in its 24th year, TechFest aims to inform young people in these key subjects and inspire them to become the next generation of engineers, scientists, technologists and mathematicians.

This year, TechFest has developed a diverse and entertaining programme to complement the classroom work delivered through the Curriculum for Excellence and we are confident the young people attending will find the festival experience both educational and fun.

We look forward to another successful festival which, we hope, will encourage pupil's interest in these important subjects from an early age.

**Steve Phimister**

*Upstream Director U.K. & Ireland*  
Shell U.K. Limited

**Mark Thomas**

*Regional President*  
BP North Sea

### We would like to thank our sponsors and supporters\*

#### Joint Principal Sponsors



#### Sponsors



#### Supported by



TechFest is kindly hosted by the University of Aberdeen

\*This page acknowledges the generous contributions of all our sponsors and supporters at the time of the primary programme going to print.