

# TECHFEST

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

# 2018



## Early Years *and* Primary Programme

**Monday 27th August – Friday 31st August**

Robert Gordon University, Garthdee Campus AB10 7GJ

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





# TECHFEST

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



[www.techfestsetpoint.org.uk/festival](http://www.techfestsetpoint.org.uk/festival)

TechFest is delighted to present its Early Years and Primary Schools Programme for 2018 - 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

Please note that each class will be allocated three workshops per visit. While we cannot guarantee that you will receive all of your choices of workshop, 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.

Please give as much information at time of booking as possible e.g. 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 request that all schools 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 onsite to support your school First Aiders and 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.



## Early Years, P1 – P3



### Our Body

Presented by : **Jon Davies**

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

As well as a Q and A session and discussion, we have an interactive and memorable activity for each sense.

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

### Grinning With Health SHOW

Presented by : **Live Wire Productions**

A cross curricular drama workshop presentation with larger than life props for infant and nursery classes. Featuring Big Mouth, Floss the Cleaner and Miss Paste.

The children are engaged with what happens in the mouth when we eat and grow.

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

### Who Says I'm A Windbag! NEW SHOW

Presented by : **Live Wire Productions**

Sponsored by : **Statoil**

A cross curricular, drama workshop presentation with larger than life props for infant and nursery classes.

Presented by personified lungs **Laura and Lucy**, the children are engaged with what happens in our **wind pipe and lungs** when we live and breathe in today's harsh environment.

Watch out for the **Lung Cloggers!**

- Running time : **45 Minutes**
- CfE Links : **Health and Wellbeing, 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, 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, Technology, Engineering**

## Early Years, P1 – P7

### An Introduction to Dinosaurs NEW

Presented by : **Dinostar**

Dinosaurs are a fascination and an inspiration for children. Dinostar's hands-on, interactive workshops feature genuine and replica fossils from their museum in Hull, Yorkshire. The artefacts include teeth, claws, even a genuine dinosaur egg! The highlight of the presentation is a full size replica Allosaur skull (sharp, scary teeth!) Children are told the exciting stories of the fossils then have the chance to touch and handle the artefacts.

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



## P1 – P3

### Fun with Forces

Presented and Supported by : **Aberdeen Science Centre**

Work in small groups to discover the forces all around us with interactive and engaging mini-investigations and demonstrations.

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



Freemove.com/Sharlene Jackson

## Fossils

**NEW**

Presented by : **Sustainable Communities Initiative**

What are fossils? How do they form? What tools do you need to hunt for fossils? Join us in this workshop where we will demonstrate extracting fossils from shale with real fossil plants and examine other fossils to find out about our prehistoric past. Did anyone mention dinosaurs? Take some real fossils home and make your own print.

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

## 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

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

Presented by : **TechFest**

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**

## The Wonderful Rainforest

Presented by : **The Critter Keeper**

Sponsored by : **Chevron**

Rainforests only cover 2 percent of our earth's surface, yet house over 50 percent of all living creatures and plant life on our planet.

Using real life animal demonstrations, we will travel to different countries meeting some amazing animals that live in Rainforests around the world. Get up close to real Rainforest animals in this workshop. You'll learn what makes our Rainforests so important to not only our planet, but to the animals who call the Rainforest home.

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

## Amazing Animals

Presented by : **Animates**

This workshop is split into two activities. The first features friendly tropical invertebrates and reptiles allowing the children to learn about their characteristics, what they eat 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**

## Operation Earth NEW SHOW

Presented by : **Dynamic Earth**

Supported by : **The Robertson Trust**

Take part in Operation Earth, an exciting new show exploring the amazing stories and science of the environment. Earthy is feeling a little under the weather and is going to the doctors for a check-up. Join us, along with expert scientists, as we investigate what is bothering Earthy. Become a trainee environmental scientist and help us investigate Earthy's land, air and oceans, and see if together we can find solutions with exciting demonstrations and activities

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

## Bizarre Bones

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 Institute and NHS Grampian introduce you to all things tooth-tastic.

Our interactive workshop will deliver some key oral health prevention messages as well as explaining the science behind how dentists help to treat dental disease. This workshop is suitable for all primary age groups and encourages hands-on participation and interaction from the pupils. 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**

## How To Save The Planet In 45 Mins SHOW

Presented by : **Dr Ken Farquhar**

A sustainability science show exploring what, why and how we reduce, reuse and recycle.

Join Dr Ken on his one wheel energy saving vehicle in his bid to save money and mankind. Find out how you too can affect climate change one tree at a time.

He may well be talking rubbish but it will make sense!

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

## Amazing Aberdeen

Presented by : **TechFest**

Sponsored by : **Statoil**

'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**

P4 - P7

## Great Scot!

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**

## The Litter Lab Show

**NEW SHOW**

Presented by : **Science2Life**

Sponsored by : **Chevron**

Come and join Scientific Sue and her Puppy Ché on their journey of discovery about litter. You may be asked to come up on stage and help them investigate the science behind many of the items just recklessly thrown away.

Where does this litter go? Which litter items dissolve? Float? Sink? Expand? Contain millions of bacteria, viruses and parasites? Attracts rats and insects? What effect does this litter have on the animals sharing our world with us? What impact does litter have on the environment both locally and globally? What is the link between chewing gum and slime?

These are just a few of the many questions explored in this highly interactive and entertaining educational show.

Join Scientific Sue and find out the answer to these questions and the ways in which you can help keep our towns and countryside beautiful.

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

## FITLAB: MAXED OUT

**NEW**

Presented by : **Glasgow Science Centre**

Investigate the limits of physical fitness in this laboratory workshop. Be guided through hands-on experiments that will reveal some of the ways in which sports scientists are working to optimise athletic performance.

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

## Reflection Refraction

**NEW**

Presented by : **Kenny Bean**

Discover the science of mirrors and lenses through a series of inspiring hands-on experiments.

Use prisms and torches to split white light into the full colour spectrum then explore the angle of reflection with mirrors before using these angles to construct a working periscope. Draw with ultra-violet torches then construct a box camera that uses the light sensitive paper and convex lenses to make actual photographs.

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

## K'NEX Solar Challenge

Presented by : **K'NEXT 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, Technology, Social Studies**

## Codes and Cyphers

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**

## Wild about Scotland

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

Hop on-board our specially designed double-decker 'Wild about Scotland' bus to learn about Scotland's amazing animals and the habitats they are found in. Pupils will discover the threats that Scottish endangered animals face and ways which we can help protect them for the future.

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

## K'Nex Lighthouses

**NEW**

Presented by : **TechFest**

Shine a light of creativity to tackle a historic engineering challenge. Investigate problems associated with the construction of lighthouses. Work in teams and use your engineering skills to develop a lighthouse prototype

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

## The Chemistry of Cooking

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**

## The TechFest Dome – Night Sky

Presented by : **TechFest**  
Sponsored by :

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**

P5 – P7

## Floating and Sinking

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

Presented by : **TechFest**  
Sponsored by : **CNR International (UK) Ltd**

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**

## Good Vibrations

**NEW**

Presented and Supported by : **Robert Gordon University  
School of Engineering**

Sounds are everywhere but what actually is sound? See some demonstrations and carry out a range of exciting hands-on experiments which help us to picture what sound is, how we can hear it, and how we can use sound to solve problems in engineering.

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

## Build Your Own Cable Supported Bridge

Presented by : **Institute of Civil Engineers  
(Aberdeen Branch)**

A great event where children work in teams to build a 7m span cable stayed suspension bridge to walk across and then take it apart again.

Civil Engineers will help the children to understand team working, safety issues and practical engineering principles. The children discover for themselves in a hands-on environment the challenges in building and dismantling structures.

- Running Time : **60 minutes**
- CfE Links : **Science, Technology, Maths**

### 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.

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## 2018 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 2018 : \_\_\_\_\_

Class teacher if known at September 2018 : \_\_\_\_\_

### 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

### Workshop Selection:

Each class will be allocated three workshops per visit. Every effort will be made to allocate your choice of workshop or theme, however due to demand this is not always possible. Please state below which are your 3 preferred workshops and any which you do not wish to attend. **Workshops will be allocated on a first come, first served basis.** If your preferred workshops are fully booked you will be allocated alternative workshops suitable for your age group unless you have specified otherwise on this form.

### Date :

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

Mon 27/08/18 ☐ Tues 28/08/18 ☐ Wed 29/08/18 ☐ Thurs 30/08/18 ☐ Fri 31/08/18 ☐

### Times of Visit :

Doors are open from 9am 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 : \_\_\_\_\_

**Mail to:** TechFest, Butchart Centre, University Road, Aberdeen, AB24 3UT (please note new address)

**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)

### Before posting your booking please ensure you have:

- Selected your workshop, 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)



## Primary Schools Programme 2018

As Joint Principal Sponsors of TechFest 2018, BP and Shell 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 25th 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.

**Ariel Flores**

*Regional President  
BP North Sea*

**Steve Phimister**

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

### 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.