

# TECHFEST

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



## 2019 EARLY YEARS AND PRIMARY PROGRAMME

Monday 26th August - Friday 30th August

Robert Gordon University, Garthdee Campus, AB10 7GJ

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

Scottish Charity Number: SC010349

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Joint Principal Sponsors

TechFest is delighted to present its Early Years and Primary Schools Programme for 2019 - 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. This year, in light of the focus education has placed on mental health, we have also added in a greater provision to support the Health & Wellbeing aims with many workshops promoting emotional intelligence and supporting our children's positive mental health.

We are also delighted that events like our school's programme can help your school embedding 'Developing Young Workforce' into your school curriculum, inspiring and informing our future workforce. Thanks to our extensive sponsorship and the time volunteers give to working with the children during their time at TechFest we hope that your school can make the most of this chance to build employer links and create lasting relationships with our university partners. It is also never too early to help our young people raise awareness of all the jobs there are that match their interests and increase their confidence.

**The cost per primary pupil** this year will 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 Nursery - P7 age range, with a variety of topics. **Groups will be a maximum of 33 children.**

Each Early Years group 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 **'first come, first served'** basis, so please complete and return your application form without delay.

We welcome any school staff contacting us to discuss requirements or plans for a visit as our aim is to ensure the day is as enjoyable and runs as smoothly as possible

#### 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 Experiences and Outcomes 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 Jenny Taylor - Telephone: 01224 274194  
Email: [jennytaylor@techfest.org.uk](mailto:jennytaylor@techfest.org.uk)**

#### DISCLOSURE

TechFest supports disclosure for all people who work with schools, however at no time should volunteers be alone with students. All schools must write 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. Please bring written Photographic Permission for your class. 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.

#### 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.

## EARLY YEARS P1 – P3

SHOW

## Roxy and her Rock Pool Friends

Presented by Live Wire Productions

Roxy visits her favourite rock pool friends, the Laughing Limpet, the Boring Barnacles, the Prickly Prawns, Aggie Anemone and the Creepy Crab on a warm summer's day when they exchange ideas and feelings about their emotions with the help of CC, their magical friend.

Running Time: 45 minutes

CfE Links: Science, Emotional Health &amp; Wellbeing

## 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

## STEM in the Installation

Presented by TechFest | Supported by CNOOC

Inspired by new North Sea developments, children will be encouraged to take responsibility for their own safety and learn how to make their school and home environment safer.

Running Time: 45 minutes

CfE Links: Health &amp; Wellbeing, Science, Technology, Engineering

## EARLY YEARS P1 – P7

NEW

## Glorious Germs

Presented by TechFest

Plunge into the mysterious world of sickness and disease. Learn about the transmission of germs and how to protect your body. How long would you have lasted during an outbreak of the Black Death?

Running Time: 45 minutes

CfE Links: Science, Health and Wellbeing, Other - Social Studies

NEW

## Gruesome Guts

Presented by TechFest

Follow the journey of food from your mouth, through the acid bath in your stomach, along metre after metre of pulsating guts and out the other end! Find out how the body gets energy and nutrients from food, and what waste we leave behind.

Running Time: 45 minutes

CfE Links: Science, Health and Wellbeing

## P1 - P3

## Wild About Maths

Presented by TechFest | Sponsored by Marathon Oil

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

NEW

## The Code Factory

Presented by Aberdeen Science Centre

How do Robots know what to do? Can you help our robot make a jam sandwich? Explore computational language and test your digital skills in this hands-on workshop. Work as a team and put your programming skills to the test with our friendly robots!

Running Time: 45 minutes

CfE Links: Technology

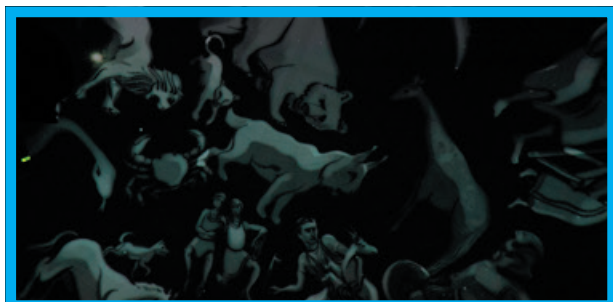
## The TechFest Dome – Day and Night

Presented by TechFest | Sponsored by Apache

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



**P1-5**

**Weather Workshop**

Presented by Jon Davies

'What is the Sun? Why does it rain? What are clouds and how do they get into the sky? Find out in this interactive weather workshop where you will see the power of the Sun and be engulfed in a cloud.

Running Time: 45 minutes  
CfE Links: Science



**P1-7**

**NEW Geology Rocks**

Presented by TechFest | Sponsored by CNR International

Get your hands on some exciting rocks in this interactive workshop. learn about natural processes that have shaped the surface of the earth and delve underground to explore what lies beneath.

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

**An Introduction to Dinosaurs**

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

**The Wonderful Rainforest**

Presented by The Critter Keeper

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 Aberdeen**

Presented by TechFest | Sponsored by Equinor

'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**

**NEW The Physics of Floating**

Presented by TechFest | Sponsored by SPE Aberdeen

Learn about the forces of buoyancy and how the physics concepts apply to real life scenarios. Test them yourselves using engineering skills to design and craft a seaworthy vessel.

Running Time: 60 minutes  
CfE Links: Science, Technology, Engineering

NEW

## Powering The Future

Presented by Glasgow Science Centre

Energy underpins our modern lives but there are difficult choices to be made about how we will supply and use energy in the future. Is our energy affordable, secure and environmentally sustainable? As you explore these interactive hands-on exhibits, you can explore our energy options – from how we can produce electricity and fuels to how we can be smarter with our use of energy. What would you do?

Running Time: 45 minutes

CfE Links: Topical Science, Planet Earth, Technologies

## Shiny Science

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 Lighthouses

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, Engineering

NEW

## Pollution Investigators

Presented by TechFest

As part of the environmental pollution monitoring team you have been called to a fish kill incident. Using scientific tests, you must uncover what happened and put a plan in place to prevent future incidents.

Running Time: 60 minutes

CfE Links: Science, Numeracy and Maths

NEW

## STEM Through The Ages

Presented by TechFest

History is all around us but have you ever considered how Science, Technology, Engineering and Maths have impacted on the ancient world? Investigate the challenges that civilisations overcame to make their environments safer. Discover how they were able to navigate incredible distances successfully and learn how to do it yourself.

Running Time: 60 minutes

CfE Links: Science, Technology, Engineering, Maths, Other - History

## Maths Around the World

Presented by TechFest | Sponsored by Chevron

A fun, hands-on maths workshop designed to challenge and build confidence. A variety of puzzles, representing different countries, are set out around the room. In small teams, pupils travel around each puzzle with a customised passport logging the countries they have visited. Help and encouragement is at hand and solutions checked.

Running Time: 60 minutes

CfE Links: Mathematics

## 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

## STEM in the Installation

Presented by TechFest | Supported by CNOOC

This workshop explores the engineering, science and technology involved in the installation of North Sea assets. Core transferable skills such as problem solving, collaboration, team work, evaluation and improvement will encourage students to develop decision making skills which are bold and innovative.

Running Time: 60 minutes

CfE Links: Science, Technology, Engineering, Health & Wellbeing

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NEW  
SHOW

## The Scientific Dilemma of Dippy the Dinosaur

Presented by Science2Life | Sponsored by Chevron

Join Scientific Sue on yet another ROAR-some journey of scientific discovery!

Learn about how Palaeontologists, the intrepid explorers of uncharted territories, discover fossils of prehistoric proportions and then use them to unravel the puzzles surrounding the lives of dinosaurs.

This unique, educational and entertaining show investigates and explores some mind-boggling dilemmas of the magnificent sauropod: DIPLODOCUS.

What is so special about their tails? How did they digest the huge amount of plant food required to keep their humongous bodies moving? Why are so many fossilised sauropods unearthed headless?!

A fun informative show for all filled with brilliant science. Promoting the concept of working scientifically.

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

NEW

## Apollo 7

Presented by TechFest

Ensuring astronaut safety is one of the biggest challenges faced by NASA engineers. This workshop will facilitate pupils working as a team to apply physics and engineering principles in a dynamic and creative way to bring an astronaut safely back to Earth.

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

NEW

## Programming Lego Robots

Presented and Supported by Robert Gordon University School of Computing

Self-driving cars are just around the corner! Learn how to program a self-driving Lego Mindstorms robot. Watch as it navigates a maze.

**Running Time:** 45 minutes  
**CfE Links:** Technology

## The TechFest Dome – Night Sky

Presented by TechFest | Sponsored by Apache

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

## 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

**P5 – P7**

## Making Things Move

Presented and Supported by Robert Gordon University School of Engineering

How do we generate movement in different forms of transport? What is it that keeps us moving and, more importantly, what will stop us moving? We will use some demonstrations and hands-on experiments to investigate these important questions.

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

## 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

## Tremendous Trees

Presented by the Duthie Park Ranger Service

Do you know your Beech from your Birch? Come and meet the Rangers and your class will work on their identification skills, so by the end of the session you will know a tree both inside and out, and learn some other interesting facts along the way!!

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



Joint Principal Sponsors

## 2019 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: \_\_\_\_\_

Class Name at September 2019: \_\_\_\_\_

Class teacher if known at September 2019: \_\_\_\_\_

### 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 Years Group 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 5 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.

Preferred workshops, topic or theme \_\_\_\_\_

Do NOT wish to attend \_\_\_\_\_

### Date

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

Mon 26/08/19  Tues 27/08/19  Wed 28/08/19  Thurs 29/08/19  Fri 30/08/19

### 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.

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

### BEFORE POSTING YOUR BOOKING FORM 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 £25.00 per class booking (payable to TechFest-SetPoint)

# TECHFEST

## 2019 EARLY YEARS AND PRIMARY PROGRAMME

As Joint Principal Sponsors of TechFest 2019, 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). 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.

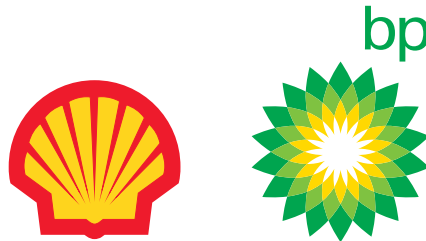
We look forward to another successful festival which, we hope, will encourage pupil's interest in these important subjects from an early age.

Steve Phimister  
Upstream Director U.K. & Ireland  
Shell U.K. Limited

Ariel Flores  
Regional President  
BP North Sea

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#### SPONSORS



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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