
**‘Operation Earth’
A National Science Engagement
Programme
Information and Invitation to Participate**



**A National Environmental Science Engagment
Programme for Families**

Deadline for Applications: 10 August 2017

An Overview

As a nation and as a global society we have some major challenges ahead, especially in relation to climate, energy, water and the other finite resources of our planet. Now, more than ever we need our young people to be inspired by science and engineering and to see it as something innovative they can be part of, that can solve these challenges and make the world a better place. We also want every person in the UK to feel sufficiently confident with science and the process of science, so they can understand the latest evidence, ask the questions they wish, and discuss matters and policies that will have a big impact on their lives.

This programme will create a National and Strategic partnership between the UK Science Centres and Museum sector with the world leading Natural Environment Research Council (NERC) <http://www.nerc.ac.uk/> to bring this latest research directly to the public.

The UK Association for Science and Discovery Centres (ASDC) is the UK's vibrant national charity that brings together the leading informal science engagement organisations in the UK, including all the major science and discovery centres and science museums. Through this national infrastructure, we will reach over 100,000 people with NERC science who will take part in person whilst they are enjoying leisure time with family and friends.

NERC is the leading funder of independent research in environmental science in the UK. NERC invest public money in world-leading science, designed to help us sustain and benefit from our natural resources, predict and respond to natural hazards and understand environmental change.

We are now seeking ten Science and Discovery Centres and Science Museums across the UK to partner with us for this exciting programme.

We are asking the ten selected UK science centres to leverage their exceptional talents in engaging families with science in fun and engaging ways, as well as their relationships with press, PR and other partners to publically celebrate environmental science in a way that works for them and their family audiences.

Each centre will be given a host of resources, including a bespoke family show, special equipment, staff training on key topics, easy use of films and images from NERC, and a series of hands on activities for meet the expert sessions. You will also have access to media releases, publicity materials and use of the project logos.

All ASDC members may apply using the associated application form. The deadline is August 10th 2017.

All applications should be sent to james.summers@sciencecentres.org.uk

Information on the National Programme

Introduction

The Programme Vision and Mission

The Vision: To engage, inspire and involve families with school-age children across the UK with the amazing stories, science and people of NERC's world-leading environmental research, highlighting the relevance of contemporary environmental science issues to their daily lives and to society's future.

The Mission: To deliver an inspirational and exciting national hands-on environmental science programme celebrating the science of the natural environment, the latest research and the scientists who make it happen, through activities and experiments for families and the wider public delivered through the successful infrastructure of the UK's science and discovery centres and science museums.

The Partnership

This programme will be directed and project managed by The UK Association for Science and Discovery Centres who have considerable experience managing national strategic multi-partner science engagement programmes. The programme is funded by the Natural Environment Research Council and is being developed in collaboration with three science centres with considerable expertise in engaging the public with environmental science, along with specialist expertise from NERC experts and researchers. The three expert content partners are:

- The Natural History Museum, London
- Dynamic Earth, Edinburgh
- Eden Project

Please note, these three organisations will be automatically selected as 3 of the 10 delivery centres partnering with us to run the National Programme with the public at their own centres.

Leveraging the ASDC national network

The UK Association for Science and Discovery Centres (ASDC) is a national organisation that brings together the UK's major science engagement organisations to play a strategic role in the nation's engagement with science. Within our network are over 60 of the nation's largest publicly accessible science centres, discovery centres, science museums and scientific bodies. Together, our vision is for a society where people of all backgrounds and in all parts of the UK are inspired and fully involved with the sciences.

Every year in the UK, 20 million people of all ages and backgrounds choose to engage with science at one of the UK's science and discovery centres or science museums. This equates to 385,000 people every week who come to our member centres to explore and discuss science in an involving and personal way. Over half (ten million) are girls and women. Over half, are school-age children.

This programme leverages this national infrastructure, expertise and investment. Science and discovery centres and science museums are already embedded in the heart of their communities in England, Ireland, Scotland and Wales. They all have long-term relationships with communities, schools and families as well as local institutions such as universities (including of course NERC researchers), industry, local government, MPs and the media.

Outputs of the National Programme:

This project will deliver the following:

1. A highly adaptable family show for use by science centres and museums across the UK. This will have a focus on whole family groups (not just children) with a particular focus on engaging 6 -11 year olds.
2. A suite of additional activities to add to the show or other events to extend and adapt the stories and latest science that can be covered.
3. An exceptional set of hands-on equipment and resources for each science centre to use with families and the wider public to explore the latest NERC and natural environment-related science and research, focussing on areas of personal significance.
4. A national training academy for 20 science centre staff from the ten science centres and museums across the UK to enable them to run the entire programme.
5. A meet-the-expert session format and guidance for event days and activities for families with introductions to guest NERC scientists, or those working in NERC-related areas.
6. A simple website with all the resources that science centres needed to run the full programme, and a place where all public participants who have visited science centres can find out more.
7. Specific guidance on using NERC-related science as an opportunity to inspire girls with the physical sciences (including areas of mathematical modelling) and to help all families explore STEM careers with their children.
8. A 'Press and Marketing Pack', with images/video, project and partner and NERC logos, sample press releases and approved copy for web, as well as social media resources (twitter cards etc), developed in collaboration with the NERC press team, and delivered in a flexible manner for centres to celebrate NERC research.
9. An 'Advocacy Guide and Resource Pack' to help science centres approach MPs, political stakeholders and to inspire centres to give evidence in select committee inquiries showcasing the great public engagement work they are doing around NERC environmental science and science learning more widely.
10. A summary of the latest approaches from research by environmental psychologists and behavioural scientists, showing the very best way to engage people with climate science.
11. An Evaluation Programme, the design of which will be agreed between ASDC and NERC at the outset of the programme. This will include assessing the impact on the families (both the children and adults) as well as providing recommendations of best practice in engaging families with environmental science, for use by researchers and others outside of the science centre network.

The Programme Goals

In addition to the outputs listed above, the seven key goals that this national programme will achieve, in order of importance, are as follows.

1. To inspire and intrigue children and their families nationally with a new sense of curiosity, questioning and interest in our planet and the future of the environment.
2. To bring alive the areas of NERC science that have the greatest impact on all of us, as individuals who will need to make choices, and as societies who need to make changes.
3. To inspire children and their families to explore, test, experiment and discuss the amazing range of science and engineering needed to understand planet Earth, and to understand better how this evidence is collected.
4. To inspire both schoolgirls and schoolboys to consider careers in science, especially in the physics, engineering and mathematical modelling side of NERC's work.
5. To build family science capital, given we know 67% of young people feel they get most careers advice from family, and that family science capital is the biggest predictor of whether students will study science (and 80% of a schoolchild's waking time is spent out of school).
6. To increase the public engagement opportunities of NERC environmental scientists and engineers (especially women) and enable the public to meet them in informal settings.
7. To train science engagement professionals embedded in ASDC member organisations across the UK to engage the public with the latest and potentially difficult and contentious areas of NERC science, and to empower them to continue to engage their visitors into the future, providing a national educational legacy for this programme.

The Key Audiences

The key audiences for this national programme are:

1. Children aged 6-11 to explore *Operation Earth* and how science goes about collecting evidence to uncover what is happening. The focus is on children aged 6-11, as the ASPIRES academic report has shown how vital it is to engage younger children for longer term interest and engagement.
2. Parents and families of these young people so they are equally inspired and can continue to inspire and encourage their children's science learning and career aspirations long into the future, seeking out other related activities to involve their children with.
3. NERC researchers and scientists to give them the confidence and motivation to share their excellent research with the public by showcasing great activities and methods to engage the public.

4. Science centre and museum staff who will ensure these NERC- focussed science shows and activities, and relationships with environmental scientists continue into the future, and are catalysts for future science learning programmes focussing on UK science and engineering.
5. Political and other stakeholders so they can better understand the range of world-leading environmental science and expertise that NERC has, and see that science centres are engaging the public in discussions around contentious areas of environmental science such as fracking, climate change, carbon reduction and neonicotinoids.

Project Legacy

The excellent hands-on set of equipment, resources and handbook we will create will remain with the science centres to inspire and involve audiences into the long term. In addition a large cohort of public engagement professionals in science centres across the UK will be trained to run 'Operation Earth' programmes on environmental and NERC science, and to encourage discussion around difficult issues and can continue to work together to develop new programmes into the future and share the content, successes and ideas. We hope that after the funded part of this programme, this expertise, knowledge and new equipment will then be used across the wider science centre programmes into the future to celebrate wide areas of environmental science and therefore keep the content alive and refreshed for many years to come.

Note on Intellectual Property

ASDC strives to advance the field by ensuring that everything we create is open for everyone to use, so that public engagement professionals across the UK and world may benefit from this programme and all the ideas and expertise within it.

In line with this, all the resources created by this ASDC programme will be licensed under creative commons (Attribution-Share Alike). To help science centres and scientists to continue to innovate together, and to find ever more brilliant ways to engage families, school students and the public more widely, we ask that all participating centres follow this spirit of collaboration and share any new activities that evolve from the project under creative commons (attribution to their science centre and this programme).

What is on offer for selected science centres and museums

The programme will offer the ten selected centres the following:

1. An exceptional and highly adaptable family Show targeted at 6 - 11 year olds and their families for use by science centres and museums across the UK.
2. Up to £4,000 of bespoke equipment for each science centre to enable delivery of the family show and other major events and hands on activities.
3. A £4,000* grant to assist with your delivery. This you may spend on whatever you need (including staff time) to assist in delivering the 'Operation Earth' special environmental science programme in your centre.
4. A meet-the-expert session format for family audiences with potential for introductions to environmental scientists.
5. Two funded places for your staff at The ASDC National Training Academy in November at (Venue TBC) to train them to run the entire programme and to maximise engagement opportunities. Their travel, food and accommodation will be paid for by ASDC.
6. Training resources including a project handbook and online support to help you with your delivery and to train all your front of house and delivery staff back at your centre
7. Usage of the national project logo, and easy access to images and videos as they become available from NERC.
8. A press and marketing pack, with sample press releases, approved copy for web and flyers, marketing images of family events.
9. Standardised forms for your evaluation and an easy online submission mechanism

* This is a grant. If you wish to charge VAT, it must be within the £4000.

Commitments of the 10 selected Science Centres/Museums

The 10 selected science centres and science museums will need to commit to the following:

1. To reach at least 10,000 members of the public (general family audiences) in a high quality, engaging manner between February 2018 and October 31 2018.
2. To run the 'Operation Earth' Show for families at your science centre in weekends and holidays, and celebrate the opportunities at special events, festivals, evening events, sleepovers and

outreach as you so choose. The show will be modular and flexible, and should be offered to your visitors at no additional cost.¹

3. To ensure two members of staff participate fully in the two-day residential training academy on 28th & 29th November 2017 where they will learn how to run the family show and use the equipment, how to engage the audience with environmental science and the nuances involved. These two members of staff will then have responsibility to train all staff at their centre and remain as the point of contact for the programme. The date will be circulated before the application deadline.
4. To ensure that the show and all environmental science activities are delivered in accordance with the project Goals, for example ensuring gender equity and celebrating STEM careers, and delivering to the key audiences as outlined above.
5. To have a quality control and training system in place that maintains and highlights the integrity and accuracy of the science and the messages your staff are sharing with the public. This must include regular (monthly) review of your staff running the show by your staff who were at the Training Academy.
6. To maximise all the press, PR and social media opportunities at your disposal to fully raise public awareness of environmental science within your local region and its use with tackling issues we face.
7. To market the family shows in accordance with the guidelines using the partner logos (including those of the Natural Environment Research Council and ASDC), and project brand and social media hashtags exactly in accordance with our guidelines.
8. To share information with the project manager for the purposes of reporting and evaluation in a timely manner.
9. To provide a short interim report of all project engagement activities and current status of audience participation and evaluation targets in July 2018.
10. To provide a full detailed final report including high quality images along with a completed metrics form and all evaluation data input in November 2018.
11. To comply with all relevant laws and best practices in regard to data protection, child protection and health and safety, and to understand that all these areas are the sole responsibility of the centre delivering the activity.
12. To confirm that your centre is responsible for all health and safety training of your staff, and you will be fully responsible for all risk assessments for all experiments and activities you do and

¹ For clarification, if your institution charges an admission fee, Operation Earth activities must not be an additional cost to visitors. If you do not charge an admission fee to your centre, but would want to charge visitors for the show, please contact ASDC to discuss if this is permissible.

specifically you will undertake risk assessments for every activity, in every new context and with every new audience type to ensure the safety of all, and to ensure all your staff understand they have full freedom not to run any activity at any time should they choose on grounds of health and safety.

When to Delivery Activities

Delivery of your family show and activities can be anytime from February Half Term 2018 until October Half Term 2018. Your final report will be due to ASDC on 16th November 2018. You will specify in your application which of the half terms, holidays (summer and / or Easter) and weekends you will be running the show and activities.

| 2017 | | |
|-----------------------|--|---|
| 28 & 29 November 2017 | Training Academy at (Venue TBC) | For 2 members of staff from each centre |
| 2018 | | |
| February 2018 | February Half term | Delivery can begin from any time from February 1. Please tell us if you wish to deliver before the half term. |
| 6 July 2018 | Interim report and current metrics due All evaluation data to date input online. | All reports and completed metrics forms to be emailed to project manager |
| 31 October 2018 | Completion of the programme delivery | A minimum of 10,000 people reached by each Science Centre |
| 6 November 2018 | Completion and submission online of all final evaluation results and metrics. These will be sent for analysis on 6 November. | Evaluation data and full metric data showing a minimum of 10,000 people were reached by your Science Centre |
| 16 November 2018 | Completion and Submission of your final report with photographs and web-ready text sharing the highlights of your programme. | A complete final report showing that a minimum of 10,000 people were reached by your Science Centre |

Notes about delivery and dates

Science Centres will be trained and have all the resources to begin delivery in February 2018. You are free to choose your start date, but you must comfortably complete your contracted deliverables (Minimum of 10,000 per centres) by 31 October 2018 and submit all evaluation data to ASDC by 6 November 2018, followed by your final report on 16 November 2018.

Numbers of participants you commit to engage

Overall the programme will engage 100,000 people across ten centres. Selected science centre partners will need to engage a minimum of 10,000 people per centre. These should all be in your family audiences (not schools) and be groups with children (rather than adult only groups). The children's target age range is 6-11 so we would expect you to be clear you are reaching within these ages. We would therefore expect most of your activity to be during the school holidays. The definition of a family is any informal group that has at least one child in it (that is not a school). Badged groups during the holidays may be included (max 10% of your total), but the focus is families. For clarification, you may deliver any of the activities to schools groups (and we would be delighted to hear about this) but these numbers could not be counted in your overall numbers reached with the programme.

How might you reach these numbers of people

Family Shows

Run the show for families at weekends, e.g.:

- 35 people per show, 3 times each day on Saturday and Sunday, x 13 weeks = 2,730 people
- Plus at half terms 40 people per event, 4 times a day x 18 days = 2,880 people
- Totalling 5,610

Meet the expert events

As part of an 'Environment' special season, you could invite environmental scientists from your local university, or ask NERC scientists and environmental experts to meet your visitors using the project's amazing equipment as a talking point.

If two scientists are talking to visitors on a busy floor from 10am-4pm, and each talks to a family of 4 for ten minutes, whilst another 4 people look on and listens, they will engage 96 people per hour. Across 6 hours they will have interacted with 576 people. Running 4 days of events will reach 2,304 people.

Festivals, special events, community groups, family events, Summer shows,

Think broadly when deciding what activities you want to run for families. We want to engage widely not necessarily only those visiting your science centre. Inviting experts or MP's to join you at festivals and other public events would be great (please note we expect numbers from festivals etc, to be a best estimate of actual people engaged with, and not the total entry numbers to these large events).

For clarification we are very happy to receive applications where all activities take place with your visitors in your science centre.

Reporting and Evaluation

Selected centres will need to commit to the reporting and evaluation as detailed below:

- To supply to ASDC with the metrics of how many people have taken part and what they did. We will collect this data in the summer (interim reporting July 6) and at the end of the project (November 6 2018).
- To hand out short evaluation forms to families and to collate the evaluations and write them online in the manner given. We anticipate this online submission will take a temp or staff member max 10 hours at £10/hour and would be keen to see this £100 costing in your budget.
- Evaluation results will be needed online from each centre at the summer (Interim reporting date July 6 2018) and in full within 2 weeks of your last delivery, or at the latest by November 6 2018 if you are delivering in the October half term.
- An interim word document report on your activities will be required on July 6 2018. If you have not begun delivery at that point you will simply submit your plans.
- A Final report on your activities will be required on November 16 2018, including publishable photos.

Your Budget

The grant of £4,000 may be used to contribute to staff time, marketing, scientist involvement or other costs at your organisation's discretion. All staff should be charged at £250 per day. You may also use the grant for consumables or equipment. Your costing should include the £100 to input the evaluation data online.

In your application please specify how you will use the grant, as well as detailing your organisation's in-kind contributions in the table provided. As this is provided as a grant, you will not be able to add VAT to the £4,000 and any VAT you wish to charge must be included within this £4000.

The Application and Selection Process

The deadline for applications is 11pm on 10 August 2017.

- Organisations wishing to apply must fill in the application form detailing what they will do. This will then be what you are contracted to deliver.
- The 10 participating organisations will be selected by the selection panel, based on your proposals.
- The three project partners, Natural History Museum, Dynamic Earth, and Eden Project, have been pre-selected as part of the ten centres pending a strong application.

Selection panel

The participating organisations will be selected by a selection panel, made up of the following people:

- ASDC CEO and Project Director, Dr Penny Fidler
- ASDC Project Manager, James Summers

- One of more representatives from the Natural Environment Research Council

Eligibility

This grant is only open to all CURRENT members of The UK Association for Science and Discovery Centres. You will be asked to ensure we have received your membership for all years this grant is active.

If you have any questions about your membership please telephone the project manager.

Selection criteria

Priority will be given to Science Centres and Museums that:

1. Demonstrate a strong track record in delivering high quality science engagement activities to families.
2. Demonstrate a clear passion for the environment and environmental science related topics, and for getting experts involved.
3. Have the ability and desire to reach large numbers of children and adults, as well as a range of families in a variety of ways.
4. Demonstrate you will embed the activities or content into your public programme, and continue to run environmental activities into the future.
5. Show a commitment to collecting data on the number of participants involved in activities and routinely collect both formative and summative evaluation data to assure quality.
6. Have a marketing professional (or equivalent) in place to maximise reach and profile.
7. Have the desire and ability to use social media as an integral part of the programme.
8. Show in the application that they are addressing the goals, key audiences and the vision and mission of this programme with passion and vigour.

The Panel will also look at the following considerations when selecting the ten centres:

- 1. A good geographic spread across the UK**
- 2. A mixture of large and small Science Centres and museums**
- 3. A mixture of Science Centres in rural and urban settings**

The Bidders' Conference Call

ASDC will host a conference call at 3pm on **2 August 2017** to answer any questions from all potential bidders in an open manner. Please register on the ASDC website, and book through Eventbrite.

Key Dates

| | |
|--|------------------------------|
| Bidders' conference call | 2 August 2017, 3pm |
| Deadline for Applications | 10 August 2017 11pm |
| Selection Panel Meets | August 2017 |
| Notification of success | September 2017 |
| Science Centres Training Academy | 28 & 29 November 2017 |
| Delivery of equipment to centres | January 2018 |
| Grant payment 1 (£2,000) | February 2018 |
| Delivery window | February 2018 - October 2018 |
| Final submission of your evaluation online to ASDC | 6 November 2018 |
| Final submission of your evaluation and report to ASDC | 16 November 2018 |
| Grant Payment 2 (£2,000) | November 2018 |

How to apply

To apply, please fill in the application form that is available on the ASDC website. Re-save your application form in the following format: 'Operation Earth application – name of your centre'.

Please email your application form to:

**James Summers,
ASDC Special Projects Manager
James.Summers@sciencecentres.org.uk
Deadline for Applications: 11pm 10 August 2017**

Please cc your application to info@sciencecentres.org.uk

Ensure you get an email response saying your application has been received and please call us if you do not.

Any questions please feel free to phone

James Summers, Special Projects Manager

0117 915 0184