



PROGRAMME

The skills-sharing event for people involved in the communication of science, technology, engineering and maths

Welcome from BIG's Chair

Welcome to Edinburgh and to the BIG Event 2019!

We are really excited to be in Edinburgh at Dynamic Earth this year. What a great venue, in such a great city. If this is your first time at BIG: welcome! We hope you have an informative and thought-provoking time and leave full of new ideas and with lots of new friends and colleagues.

What a stimulating and diverse programme we have this year. All made up of sessions that have been suggested and run by you. BIG is an organisation that is truly run by its members, for its members – so thank you for putting forward a huge range of session ideas. You'll see that we have sessions covering the latest and best projects, training, freelancing and a whole host of other topics. This is alongside our regular activities including the BIG Mingle, our AGM and the fabulous Best Demo Competition.

We have partnered with the British Science Association this year to run a networking event exploring what we can all do to be better equality, diversity and inclusion allies. If you attended, or have learned from someone who did, we hope you found the event useful. We have been developing our work in this area this year with our bursary programmes and how we have been running events. You may notice a few changes to the Event this year, too.



You will also see that we are piloting a Code of Conduct at this year's Event. Codes of Conduct are becoming increasingly common at conferences and events to ensure that everyone feels valued, respected and able to contribute. We haven't had one before, but as our membership has grown and diversified, we felt that the time was right for us to put together a few sentences about respectful behaviour. The Code of Conduct also provides information on how to make a formal complaint, which we hope we never have to use. I hope you agree that the Code of Conduct simply puts down on paper what we all already do and would expect others to do when interacting with us. I look forward to any comments and feedback you have about the Code of Conduct. See page 19 and www.big.uk.com/Code-of-Conduct for more details.

This year we have more than 100 organisations represented; over 200 delegates attending the whole Event as well as more than 40 folk who are just popping in for a day or two. I look forward to meeting as many of you as possible over the next few days.

Helen Featherstone, BIG Chair 2018/19

A BIG Thank You to our hosts

It's great for BIG to be back in Scotland and Dynamic Earth has been a wonderful venue to get to know and to work with. If you've never been before, take advantage of the chance to visit their ShowDome as well as the exhibition. The DE team are also showcasing their summer show, Atlantic Adventures, so don't miss it (page 6).

Special thanks go to Gillian Hill and Martin Todd who have been our amazing go-to people. And many thanks to Scientific Director Dr Hermione Cockburn for hosting the BIG 2019 Event at Dynamic Earth.

Thank you also to the folks at Camera Obscura and World of Illusions for hosting Wednesday's evening social. Alyce Paton and her team have been enormously generous with both their time and their venue. Thank you!

About BIG

BIG is a not-for-profit membership organisation – its ideas and activities are driven, developed and usually delivered by its 350 members. 1,000 people also belong to BIG-Chat, BIG's e-mail list – an active line of communication to exchange examples of good practice, air views, publicise events and news items and circulate job adverts in the field of STEM engagement.

The organisation's administration is carried out by a small band of tireless, dedicated and fabulous members who have volunteered to set up and run regional events. Finally, BIG charges two paid contractors to look after the members, organise larger events, support volunteers and promote BIG.

Look out for them around the Event – ask them what the Executive Committee does and how this work could benefit you.



Helen Featherstone
Chair



Lucy Moorcraft
Vice Chair



Ian Snell
Treasurer



Natalie Ford
Secretary



Paolo Arru
General Officer



Hana Ayoob
General Officer



Nicola Stock
General Officer



Sarah Vining
Membership Services Manager



Ashley Kent
Event Organiser

Your BIG Membership

Now you are a member of BIG you'll enjoy lots of lovely benefits, which include:

- regular UK-wide events and training courses.
- free entry to participating science centres and museums with your membership card.
- a quarterly e-newsletter featuring the latest news and articles, written by and for BIG members.
- access to extra information and resources in the Members' Area of our website.
- inclusion in our online directory of contractors, science centres, members, and their interests.



FAQ

Q: What's happening Wednesday evening?

A: Stop by Bertie's (9 Victoria St) for some real fish and chips before heading onto Camera Obscura and World of Illusions for complimentary drinks and sweets on arrival for BIG members. See page 8 for more details.

Q: Thursday evening dinner – where is it and do I need a ticket?

A: You don't need a ticket, but you do need to be on the guest list. You can find this on the notice board at the Reception Desk. If you can't see your name on the list and think it should be, please come chat to Ashley or Sarah. The dinner takes place at Dynamic Earth and begins with a complimentary drinks reception from 6:45pm. For more details, see page 14.

Q: Best Demo Competition – where is it? Can I compete?

A: The Best Demo Competition will take place following afternoon refreshments on Thursday 18th July, beginning at 5pm. Competitors are lined up in advance, but if there is availability, there will be a notice at the Registration Desk. You will be required to provide a Risk Assessment for your demo.

Q: Would you like me to share my photos?

A: Yes, please share them on Twitter using the hashtag #bigevent19 or share to our Facebook page.

Q: Membership card – where do I get mine? How do I find out about my membership benefits?

A: Everyone attending the Event is now a member of BIG and your card is in your delegate folder. If you have any questions about membership, please see Sarah at the Registration Desk.

Q: Delegate list – why am I not on it?

A: At Registration you were asked to confirm if you wanted to be on the Delegate List. If you ticked "No, don't add me to the Delegate List," we didn't add you. However, all members of BIG are able to access the Members' Area on www.big.uk.com and search the BIG Membership Directory. If you want people to be able to find and contact you, make sure your BIG profile is up-to-date.

Q: How accessible are the BIG Event venues?

A: BIG makes every effort to choose venues that are accessible for everyone, but sometime this is not always possible. See page 19 for specific venue accessibility details.

Please visit the Registration Desk so you don't miss any impromptu activities or changes.

At any time during the conference, you can call Ashley Kent with your questions on 07 929 789 727.



DELEGATES
Password: D3L3GATE



BIG STEM Network



@bigchats
#BIGEvent19

Wednesday 17 July

	Biosphere Green (140)	Biosphere Blue (64)	Stratosphere/ Ozone (60)	Salisbury (40/24)	Boardroom (16)	Hutton (20)
10.00 - 12.00	BSA Equality & Diversity Inclusion Networking (Hemma café)					
12.00 - 12.30	Exec and Conveners meeting (Stratosphere)					
12.15 - 1.00	REGISTRATION and COFFEE (Stratosphere)					
1.00 - 1.45	BIG Welcome and the Josh Award (Biosphere) followed by... The BIG Event Mingle (Biosphere)					
1.45 - 2.00						
2.00 - 2.30						
2.30 - 3.00						
3.00 - 3.30	COFFEE Break (Stratosphere)					
3.30 - 4.00	Perform EU	Understand Exhibit Design	Atlantic Adventures (Ozone)	Can I ask you a Q?	Tiny Tots	Critical Friend
4.00 - 4.30						
15 min						
4.45 - 5.15	Diversify Audiences			Explain it to the Explainers	Once Upon a Time	Young Researchers
5.15 - 5.45						
6.00 onwards	Evening entertainment (Fish and Chips at Bertie’s; Camera Obscura from 8pm)					

The Josh Award 2019

The Josh Award is an award established to recognise and support up-and-coming talent in science communication. The Award is inspired and named in memory of Josh Phillips who was the first Science Communication Officer at the Museum of Science and Industry, and Chair of BIG at the time of his passing.

The Award recognises a defining moment in the career of a science communicator; a person who is a practicing scientist or someone who has chosen science communication as their profession.

The 2019 joint winners, Ben Nicholson and Frederike Gerstner, will receive their award during the BIG Welcome. Find out how you can apply for the Josh Award in 2020 here: www.big.uk.com/josh.



Performing PerformEU**Biosphere Green • 3.30 - 4.30pm**

PerformEU ran from 2015 to 2018 in Spain, France and the UK. It sought to gather data on the effective use of performing arts techniques in communicating STEM. Join Grace, Dani and David as they give you the lowdown on their first experience of working on a Horizon 20/20 funded multinational project and introduce you to the Perform project, some of its findings and the performances that lay at its core.

David Price, Science Made Simple
Daniel Carrillo-Zapata, Bristol Robotics Laboratory
Grace Mullally, University of Bristol

Understand Exhibit Design**Biosphere Blue • 3.30 - 5.15pm**

Would you like to have a lightning go at the exhibit design process? Do you have an exhibit idea or a demo that you'd like to turn into an exhibit? Or do you just want to see the process in action? This session is a fun, fast-paced "design sprint". Design is more than drawing and sketching, it's a way of thinking and a user-centred process of experimentation. We'll take you through the exhibit development process from ideas to first prototype (which we'll test with other BIG Event people) and have fun discovering our creative sides along the way.

Lyndsey Clark, Exhibitions-Interpretation-Engagement
Kenneth Boyd, Former Owner/Director of FifeX Ltd
Ben Craven, Glasgow School of Art
Lorna MacKenzie, Science Museum Group

Atlantic Adventures with Atlas Show**Ozone • 3.30 - 4.30pm**

A chance to experience Dynamic Earth's summer show, aimed at family audiences. The show is part of a suite of activities created to share and explain the science behind an EU-funded research project into deep-Atlantic ecosystems. Audience participation is definitely required! The show will be followed by a discussion on how it was adapted for a family audience from the original, which was aimed at Primary school children (aged 8-12 years).

Natalie Walls, Dynamic Earth
Laura Gordon, Dynamic Earth

Can I ask you a question?**Salisbury • 3.30 - 4.30pm**

When it comes to evaluation asking the right question is crucial, but complex. This session will explore the science behind the survey giving you the skills you need to plan the perfect evaluation without a social science degree in qualitative analysis. Discover why some of the most commonly asked questions are also the most unreliable and how to fix this. The session will also explore how many projects don't need more evaluation, but smarter evaluation. Following this workshop, you should be able to:

- Understand the purposes, uses and limitations of evaluation and
- Prepare useful, answerable and relevant evaluation questions

Dr Jamie Gallagher, Public Engagement Consultant

STEM for Tiny Tots**Boardroom • 3.30 - 4.30pm**

After a workshop for under-5s at last year's Midlothian Science Festival attracted over 150 people, and we received requests to run spin-off sessions at local toddler groups, it seems there is an appetite for activities aimed at the smallest of scientists. How do you translate this desire into effective engagement? Should you focus your engagement on the parents or the toddlers? Is it better to just let the little ones have fun or to focus on increasing the whole family's STEM exposure over time? In this session we'll look at some of our toddler-approved experiments and the science behind them. We'll also discuss designing age- and ability-appropriate experiments as well as how to evaluate success for an audience who won't study science formally for a very long time!

Emily Goddard, School of Chemistry, University of Edinburgh
Jenny Bos, School of Chemistry, University of Edinburgh
Ellen Geerts, Artesis Plantijn University College

Sci-Comm Critical Friend Discussions**Hutton • 3.30 - 4.30pm**

Within the arts, the concept of critical friends helps ensure that organisations and the sector hear different voices and experiences. This session is a peer-led discussion of provocations exploring potentially uncomfortable challenges constructively of how we could make our broad sector better – for example, why structural barriers for diversity, inclusion, equity within our sector's work practices prevail and the ultimate question of the impact of our work – the So What? We will be gathering provocations online and during BIG anonymously and will discuss them using a range of participatory methods, in-person and digital, with appropriate issues raised and actions shared for further discussions after the session. We will also have guests from different sectors (including arts, grassroots communities and formal education) to share their external perspectives and experiences on the provocations as well as shared learning.

Lewis Hou, Science Ceilidh, Fun Palaces
Briana Pegado, Voluntary Arts Scotland
Paul Tyler, Mearns Primary School Science Coordinator
Miles Tubb, Living Memory Association

Diversifying Your Audience Through Non-Traditional Science Experiences**Biosphere Green • 4.45 - 5.45pm**

Join the discussion, as we explore how science centres and museums can diversify their audiences with non-traditional science experiences in this interactive session. From interactive digital art to science Lates and other unusual experiences, we investigate the opportunities and challenges of engaging with new audiences. How do you know you are attracting the intended audience?

Come and share the approaches, formats and topics that you have used to attract a new audience or join in our brainstorming sessions as we collaborate to uncover new and exciting ideas as a group.

Chris Snowden, Eureka! The National Children's Museum

Explaining it to the Explainers**Salisbury • 4.45 - 5.45pm**

The Explainer! The magnificent human being that is bringing your science demos and stage shows to the masses, or even making their own! However, not all Sci-Comm organizations have the same sort of people working these jobs, which demands different approaches to training them. At the Centre for Life (UK) the Explainers have a scientific background and training focusses on the performance. At Technopolis (Belgium) the Explainers have no scientific background and therefore training is mostly focussed on content, execution and safety. Join us as we explore the differences and similarities between training our Explainers and find out what we have learned from each other. We'll open the discussion up to chat about how you tackle some issues/difficulties so we can all leave this session a little older (1h?) and a little wiser!

Didier Le Lièvre, Technopolis
Esther RedhouseWhite, Centre for Life

Once Upon a Time...**Boardroom • 4.45 - 5.45pm**

...back in 2017, the Institute of Physics created a science storytelling programme for early years children and their parents/carers which has gone on to visit thousands of folks across Scotland in locations from refugee centres to music festivals. Join writer/SciCommer Siân Hickson and a selection of adorable puppets to hear tales and experiences from the evolving project, before taking part in a creative and interactive session that will show you how to build your own accurate, entertaining and educational science stories for young children. Ages 2 and up.

Sian Hickson, Institute of Physics

Young Researchers Programme**Hutton • 4.45 - 5.45pm**

The Young Researchers Programme is designed to engage young people in doing independent research guided by a postgraduate mentor. After five iterations of the programme, we have decided to share this experience with others by creating a step-by-step guide enabling universities and science organisations to run this programme in their communities. Come along and have a play with the prototype of the booklet and interactive activity flash cards, one or two of which we plan on demonstrating. We want to gather your views on the activities, as well as fresh ideas on how to improve the programme and its dissemination.

*Caroline Kuhn, Bath Spa University
Stacy Ramkissoon, University of Bath*

Evening Social event at Camera Obscura**Camera Obscura, Castlehill, The Royal Mile, EH1 2ND • 8.00 - 11.00pm**

BIG members are invited to Camera Obscura and World of Illusions on Wednesday evening. Wander up The Royal Mile, an iconic street that connects Edinburgh's Castle to the Palace of Holyrood. Stop by Bertie's (9 Victoria St) for some real fish and chips before heading onto Camera Obscura.

Camera Obscura and World of Illusions is the oldest purpose-built tourist attraction in Edinburgh, delighting visitors since 1853. Camera Obscura is open to the public until 10pm and can admit BIG members from 8pm. Enjoy exploring the World of Illusions (some built by our very own BIG members); get lost in a Mirror Maze, take a spin in The Vortex, shrink in the Ames Room and enjoy a demo of the original Camera Obscura.

Drinks and sweets will be provided to BIG members on arrival and once we are closed to the public, a bar area will open on the rooftop (weather permitting). We look forward to seeing you there!

Thursday 18 July

	Biosphere Green (140)	Biosphere Blue (64)	Stratosphere/ Ozone (60)	Salisbury (40/24)	Boardroom (16)	Hutton (20)
8.30 - 9.00	Exec and Conveners meeting (Stratosphere)					
9.00 - 9.30	REGISTRATION and COFFEE					
9.30 - 10.00	Speculative Understanding	Reduce, Recycle	BIG/NCCPE/ ScotPEN Jamboree (Ozone)	Impact Part 1	Matter of Representation	How Not to Kill or Maim
10.00 - 10.30						
15 min	Room Turnover			Break		
10.45 - 11.30	Welcome Session (Biosphere Green)					
11.30 - 12.00	COFFEE Break					
12.00 - 12.30	Budget Sci-Comm	Women in Science		Impact Part 2	Stop, Collaborate, Listen	Money Taboo
12.30 - 1.00						
1.00 - 1.30	BIG AGM 1.25pm		LUNCH (Stratosphere) Gorgeous and Gadgety Marketplace & Laser Testing			
1.30 - 2.00						
2.00 - 2.30						
2.30 - 3.00	Best Demo Comp Setup/Rehearsal (all competitors required)	On Trial: Volunteers	STEM Lab Skills (Ozone)	Speed Dating	Old/New Exec meeting	Beyond the One Off
3.00 - 3.30						
3.30 - 4.00						
4.00 - 4.30						
4.30 - 5.00	COFFEE and SNACKS to tide you over until dinner (Stratosphere)					
5.00 - 6.30	BEST DEMO COMPETITION (Biosphere)					
6.45 - 7.30	Drinks Reception and Best Demo Voting (DE Gallery)					
7.30 - 11.00	Food served from 7.30pm (Stratosphere)					

Speculative Understanding: How Do We Progress Beyond Curiosity?

Biosphere Green • 9.30 - 10.30am

We all want to stimulate and celebrate curiosity, don't we? But how do we go further with participants to connect with prior knowledge, or speculative understanding? In this workshop, we want to consider the concepts of Funds of Knowledge and techniques like Mantle of the Expert. We will offer illustrations to kickstart the session and invite further examples, supporting less confident, disinclined groups to explore beyond curiosity, speculate with what they may already know, predict what happens next and express their understanding and appreciation of the STEM concepts under investigation.

Rick Hall, Ignite!

Dr Jen DeWitt, UCL Institute of Education

Jennifer Hogan, Little World Discovery Centre, Abu Dhabi

Reduce, Reuse, Recycle, Replace!

Biosphere Blue • 9.30am - 10.30am

The Blue Planet TV series was a wake-up call. It is now impossible to ignore Sci-Comm's contribution to the growing problem of plastics and other waste. We hope to spark "ah ha!" moments galore as you have-a-go with hands-on activities and commit to making one small change that would make your activities more environmentally friendly and (potentially) save you £££ by reducing single-use items. To enable honest and frank chat, we will be sharing both good & bad practice e.g. (to my shame) every googly eye I've ever used is completely non-recyclable! This should be of interest to newbies and old-hands alike.

Kirsty Ross, University of Strathclyde

Alina Loth, University of St Andrews

Henry Rae, University of St Andrews

BIG/NCCPE/ScotPEN: The Jamboree

Ozone • 9.30 - 10.30am

Let's have a discussion on where the BIG, NCCPE, and ScotPEN networks intersect, overlap and diverge. How should they work together for all members? Annotate our colourful Venn diagram (available throughout the Event) and help us debate questions like: What does each network provide (e.g. professional support, training, advocacy)? What should each network provide for members?

What is distinct about each network? What should be distinct about each network? Where are the overlaps in membership and mission? Are there areas of potential transition that could be supported through collaboration, e.g. individuals going from freelance practice to researcher support (or vice-versa)?

Mhairi Stewart, University of St Andrews & Scottish

Public Engagement Network

Helen Featherstone, University of Bath & BIG

Maddy Foard, National Coordinating Centre for

Public Engagement

Impact Part 1: Designing Splendidly Impactful Events

Salisbury • 9.30 - 10.30am

Impact and the Research Excellence Framework (REF) is really important for universities in terms of funding and prestige. Good evaluation is key for gathering impact evidence and starts at the planning stage. We'll explore setting clear aims and objectives, working with different audiences and being realistic about the impact you can make. We'll consider where in the engagement triangle you are/want to be; being honest about potential impact; designing events and performance for impact and how to involve academics in PE. This is one part of two sessions, you can attend one, both or neither.

Helen Obee Reardon, Cardiff University School of Engineering

James Piercy, John Innes Centre Norwich

Martin Khechara, University of Wolverhampton

Dr Olivia Keenan, SEPnet

A Matter of Representation

Boardroom • 9.30 - 10.30am

When it comes to developing programmes or exhibitions, along with the materials to market them to various audiences, how do we improve representation across society and ensure that we do not further embed negative stereotypes? In this session, discover how a partnership between multiple organisations has led to improved ways of working in terms of inclusion, diversity and equity. The session will explore several examples of successes and failures across marketing, programmes, exhibitions and projects, providing food for thought on how we can all approach these tricky themes.

Sam Langford, Glasgow Science Centre

Clare Meakin, National Museums Scotland

How Not to Kill or Maim (Not Just for Newbies)

Hutton • 9.30 - 10.30am

Whether your work is routine and predictable or includes thrills and hazards, your professional and legal responsibilities with regards to Health and Safety remain the same. How do seasoned practitioners go about it? If you are seasoned, how do you know if you are doing it right? Pro-active Health and Safety guru Matthew Tosh offers an introduction/reminder to those who deliver stage shows or activities where a participant or member of the public could be killed/lightly damaged. Matthew reveals how his approach to H&S was transformed from "can't do" to "can do". There is nothing to be scared of. Or is there...?

Matthew Tosh, Freelance Presenter and Pyrotechnician

Science Communication on a Budget

Biosphere Green • 12pm - 1.00pm

This session attempts to give a starting point for new developers who do not have the benefit of financial backing. The session will include but is not limited to: the potential of using easily available objects for builds and demonstrations; concerns and advice when sourcing materials; health and safety when re-purposing electronics; the basics of extracting chemical compounds for lab use from common products. This session will include some builds previously developed by Thompson STEM Engagement to further illustrate these points, presented in an easy going and approachable fashion which will encourage a rich new variety to science communication.

Tony B. Thompson, Thompson STEM Engagement

Rosie Cane, Thompson STEM Engagement

How do we Increase the Number of Women in Science?

Biosphere Blue • 12pm - 1.00pm

Women's rights are the zeitgeist of the moment. The Women's March, #metoo and the 4% challenge are just some of the movements building momentum in the last few years which champion women in the workplace and society. STEM is no stranger to initiatives aimed at increasing the number of women in science, technology and engineering – so let's take a minute and take stock of how we are doing. Have the problems changed? Have our approaches shifted? Have we identified any solutions? What is working? What isn't? This is a group chat, not a lecture from experts – all people and ideas are welcome! Please come with an open mind and bring

someone from a different gender with you. Because increasing the number of women in STEM isn't just about women. It's about diversity, too.

Ashley Kent, Sci-Comm Consultant

Sam Langford, Glasgow Science Centre

Impact part 2: evaluation and measuring the slippery things

Salisbury • 12pm - 1.00pm

Following on from Part 1, this session will look at effectively evaluating events and trying to measure the right things including framing using logic models and theories of change; conundrums in evaluation and measuring slippery things; and measuring personal change. We'll also look at not being terrified when evaluation shows you're not having the impact you thought and harnessing unexpected impacts. This is part of two sessions, you can attend one, both or neither. It's also friends with the Wednesday session "Can I ask you a question?", which looks specifically at asking the right questions.

Helen Obee Reardon, Cardiff University School of Engineering

Bella Williams, Runcible Hat Communications

Jen DeWitt, Freelance Research and Evaluation Consultant

Martin Khechara, University of Wolverhampton

Stop, Collaborate and Listen: Co-Creation for Science Events

Boardroom • 12pm - 1.00pm

Is co-creation key to reaching specific audiences and tackling specialist subjects? Creating a large well-informed science event is often down to collaborating with other people and organisations. Across distinct projects, we will discuss how collaboration has enhanced the end result and the techniques for co-creation that have come out of these projects. We will explore co-creation with engineers in the Careers Hive project, with young people in Youth Consultation Group events for teenagers and with scientists in the Pale Blue Dot exhibition. Come along with your stories and ideas of co-creation to help inform and inspire on the topic and create a guide on new co-creation projects.

Jennifer Rodger-Casebow, Edinburgh Science

Terence Finnegan, Edinburgh Science

Hannah Grist, The Scottish Association for Marine Science

Scott Casebow, Network Rail Engineer

The Money Taboo. What's your value equation?

Hutton • 12pm - 1.00pm

Freelancer, contractor, casual staff, session worker? However you classify yourself, whatever stage of career you are at, most of us feel uncomfortable about the question of pay so we undersell, undervalue or just plain avoid the question. Welcome to the money taboo! Like a quick-fire poster session, our 5 mini-workshops will aim to give you time and tools to reflect on how you position yourself to be valued appropriately and have confidence in your worth.

This session aims to lay the money questions bare, dissect the taboos, explore examples of tried and tested agreements and processes and to think through your value equation so you have a clearer picture of what is and isn't normal when it comes to money in sci-comm. Honesty and a lack of judgement a must.

Renee Watson, The Curiosity Box

Dom McDonald, Royal Institution

Matthew Tosh, Presenter and Pyrotechnician

Lyndsey Clark, Interpretation-Exhibitions-Engagement projects

Rachel Mason, science made simple

Is Your Laser Lethal?

Stratosphere • 1.00 - 2.30pm

Many cheap laser pointers are much more powerful than they claim to be and some that claim to be safe could blind you.

We have a laser power meter, so come and test your lasers. Last year more than half of the lasers we tested were a more dangerous class than they claimed to be, some scarily so. Visit us over lunch and set your mind at rest.

Dave Ansell, Sciansell

Gorgeous and Gadgetsy

Stratosphere • 1.00 - 2.30pm

Some describe it as a pop-up shop, others as a STEM-lovers paradise! You will find a veritable treasure trove of STEM-themed goodies including badges, clothing, pyjamas, comics, gadgets, games and more! Come and meet the Makers, support the hard work of our UK STEM Maker community and deck yourself and your loved ones out like... Ada Lovelace would've done, if she were alive today.

Renee Watson, The Curiosity Box

BIG AGM

Biosphere Blue/Green • 1.25 - 2.30pm

BIG STEM Communicators Network operates as a not-for-profit organisation of members – a club, effectively; everything it does is to support the development of the science communication profession in the UK and beyond.

BIG's AGM is held during the BIG Event to give as many members as possible a chance to contribute: to have a grasp on what the Executive Committee has done for the membership over the last year and to help shape the next year or two.

Everyone welcome. Please bring your two-pennyworth. Find out what joining the BIG Exec Committee is all about and give it some consideration as something that could broaden your professional horizons.

The BIG Executive Committee 2018-2019

Meeting for the Incoming and Outgoing Executive Committee

Boardroom • 2.30 - 4.00pm

All the newly elected Committee Members as well as the outgoing Committee get together to discuss handover and forward planning.

Best Demo Prep

Biosphere Green • 2.30 - 4.30pm

This is a closed session, just for Best Demo competitors to set up and for helpers to help. Strictly no peeking in here, please. If you're competing, you need to drop in even if you don't need any set up time.

Jamie Gallagher, Public Engagement Consultant

Lucy Moorcraft, BIG STEM Communicators Network

On Trial: The Volunteer

Biosphere Blue • 2.30 - 4.00pm

Order, order! Join us in the courtroom to put on trial the concept of the volunteer. The prosecution and defence will call a series of witnesses to share their experiences. Is it ethical? Exploitative? Essential? Abominable? A wonderful opportunity, but only for the privileged few? Get controversial in a friendly environment - we may have a judge to keep order, but no one is being judged. Seeking witnesses with experience of working with volunteers or being a volunteer themselves to speak for or against (your own opinion or Devil's Advocate are both welcome).

Naomi Foster, North Pennines AONB Partnership

Hana Ayoob, Freelance Events Producer, Trainer and Speaker

Chris Snowden, Eureka! The National Children's Museum

Getting hands-on with STEM lab skills

Ozone • 2.30 - 4.00pm

We believe that learning is best done by doing – join staff from hands-on STEM engagement labs in Edinburgh, Newcastle and London to explore what works (and what doesn't) when teaching STEM skills in a lab environment. Get hands-on with a selection of our skills-based activities, learn some tricks of the trade and work together to map out key STEM skills and take your own activities to the next level.

Nicola Stock, The Roslin Institute, University of Edinburgh

David Porter, L'Oréal Young Scientist Centre, Royal Institution

Noel Jackson, Centre for Life

Jayne Quoiani Easter Bush Science Outreach Centre, The Roslin Institute

Liz Coates, L'Oréal Young Scientist Centre, Royal Institution

Skills Speed Dating

Salisbury • 2.30 - 4.30pm

How often do you reflect on yourself as a presenter? Adapt to different audiences? Employ tips and tricks? Once upon a time, there was a small skills-sharing hub in London called the Presenter Network... But in the last year, the Presenter Network has ballooned into a spiderweb of hubs in Cambridge, Oxford, Birmingham, Leicester and Scotland. As these bright-eyed baby hubs take their first steps, we're offering up snippets from our best skills-sharing sessions in a speed-dating extravaganza, where you not only get to test drive our training, but also design and dry run ideas of your own.

Rowena Fletcher-Wood, Science Oxford

Dhara Patel, Royal Observatory Greenwich

Jess Bartlett, Cambridge Science Centre

Tremaine Bilham, RSPB Scotland

Going Beyond the One-Off... Get with the Programme!

Hutton • 2.30 - 4.00pm

Research into school students' aspirations has highlighted the limited impact of one-off interventions. Several programmes featuring repeat interventions have thus been developed to maximise having a positive effect. In this session we explore some of these programmes and their outcomes thus far. What works? What doesn't? And how do we know this? Be prepared for discussion and explorations of approaches, tools and frameworks that might affect your own practice. Share your own experiences and evidence, too by sending your 1-slide/3-min lightning-talk to m.archer@qmul.ac.uk. The outcome of this session will be a concise resource for the community, highlighting current knowledge and best practice.

Dr Martin Archer, School of Physics and

Astronomy, Queen Mary University of London

Dr Jen DeWitt, UCL Institute of Education

Dr Carol Davenport, NUSTEM, Northumbria University

Lewis Hou, Science Ceildh

Thursday evening festivities

The Best Demo Competition

Biosphere Blue/Green • 5.00 - 6.30pm

BIG members line up to compete for one of the least valuable and yet most highly prized honours in UK science communication.

The Best Demo Competition presents a light-hearted look at some of the demos you think are worth sharing with your peers. There's no money to win, it's not an Oscar, it's not a Nobel Prize. But within BIG we think it's worth winning.

Each competitor has no more than three minutes (and a warm and welcoming audience) to demonstrate the maths, science, engineering and so on that really lights their fire and they just can't help showing off to their peers. The audience decides. If you're in the audience, don't take it too seriously. If you're competing, take it seriously, but not too seriously.

Previous Best Demo winners...

1997	Wendy Sadler
1998	Derek Fish
1999	Chris Norton
2000	Gillian Pearson
2001	Gillian Pearson
2002	James Piercy
2003	Suse Brumpton
2004	Rob Copeland & Izi Mohammed
2005	Ben Craven
2006	Marcus Weber
2007	Ben Craven
2008	Diane Gray
2009	Ian Simmons
2010	Farrah Nazir
2011	Brian Macken
2012	Karl Byrne
2013	Marcin Chydzinski & Błażej Dawidson
2014	Stephen Williams
2015	Matt Pritchard
2016	Tobias Happe
2017	Brian Mackenwells
2018	Matthias Salewski

Best Demo Voting and Drinks Reception

Dynamic Earth Gallery • 6.45 - 7.30pm

A chance to enjoy a drink in the Exhibition. Skip it to freshen up before dinner if you like, but make sure you are back at Dynamic Earth before 7.30pm so you can cast your vote for the Best Demo winner.

Dinner (and the Best Demo winner announcement!)

Stratosphere • 7.30 - 11pm

Enjoy dinner in the iconic tented structure in this World Heritage Site at the foot of Salisbury Crags in the Holyrood area of Edinburgh. Do you have a ticket to dinner? See page 4.

The Beetlestone Award 2019

Professor John Beetlestone (1932-2017) was the founding director of Technique, the UK's first purpose-built science discovery centre. Set up in his honour, the Beetlestone Award* recognises "leadership and legacy in the field of informal science learning" and carries a personal cash prize of £500; an additional bursary to facilitate dissemination of the holder's vision and legacy and free registration for the next BIG conference.

The 2019 joint winners of this prestigious award are Helen Featherstone, University of Bath; and Ian Russell, Interactive Science Ltd.

**This Award has been made possible through the generosity of The Beetlestone family and John's former colleagues and friends. Keep an eye on the BIG website and your inboxes to find out how to apply in 2020.*



Friday 19 July

	Biosphere Green (140)	Biosphere Blue (64)	Stratosphere/ Ozone (60)	Salisbury (40/24)	Boardroom (16)	Hutton (20)
9.00 - 9.30	REGISTRATION and COFFEE					
9.30 - 10.00	Neuropsychology in Practice	Who Are You?		Location, Location, Venue	Autism Friendly	Careers Conversations
10.00 - 10.30						
15 min	Room Turnover		Break			
10.45 - 11.30	Welcome Session and Beetlestone Award (Biosphere Green)					
11.30 - 12.00	Coffee Break (Stratosphere)					
12.00 - 12.30	Taking the Plunge	Science in the Spotlight		Co-Development	No Whizzes, Bangs or Pops? No Problem	Sci-Comm in Universities
12.30 - 1.00						
1.00 - 1.30						
1.30 - 2.00	LUNCH (Stratosphere)					
2.00 - 2.30						
2.30 - 3.00						
3.00 - 3.30	Re-inventing Research	Edutainment	Exhibit Design Wrap Up (Ozone)	Fam-tastic Experiments		Spaces, Places, Faces
3.30 - 4.00						
4.00 - 4.30	Coffee Break (Stratosphere)					
4.30 - 5.00	Just a Bit of Fun & Plenary (Biosphere)					
5.00 - 5.30						
5.30 - 6.00						
6pm onwards	Event Closes – the designated pub for lingerers is posted at the Registration Desk					

Neuropsychology in practice

Biosphere Green • 9.30 - 10.30am

How are emotions, memory, language and understanding affected by changes in the brain caused by damage? This session will look at neuropsychology, the study of brain function and behaviour. James Piercy will explore the assessment and treatment of psychological impairments, building on his personal experience as a brain-injury survivor.

James Piercy, Science Communicator and Brain Injury Survivor

Who ARE you?

Biosphere Blue • 9.30 - 10.30am

Who ARE you? Playful companion? Slick performer? Awesome demo wizard? Gentle explainer? Entertaining clown? Something else? What 'persona' best suits your personality? What 'persona' best suits your audience, your subject matter and your objectives? How often do you switch from one 'persona' to another in a single presentation? When is this necessary? When is it unhelpful? How aware are you of your 'perceived persona'? Ian Russell reflects on 30 years of science-show experience, makes suggestions, demonstrates examples and leads a discussion.

Ian Russell, Ian Russell Interactives

Location, Location, Venue**Salisbury • 9.30 - 10.30am**

So, you've got a great idea for an event. You know the who and the what. Now you just need the where. "Anywhere will do. Cheap and available is all I need", you might think. But that's not the whole story. Finding a (good) venue can be a difficult task and one we will all do at some point. In this session, we will explore some of the key factors to consider when selecting your venue. How could your location change your audience? What you can and can't expect from a venue? How do you get the most from the least? Experienced venue negotiators will share their tips and tricks as we explore why a venue can make or break your event.

*Sam James, Palace of Science**Ashley Kent, Event Coordinator and Consultant***Autism-friendly STEM Experiences****Boardroom • 9.30 - 10.30am**

Join this session to discuss creating STEM experiences that positively engage an autistic audience. David Jones from the Centre for Life has been working in partnership with the North East Autism Society, recruiting a group of young autistic people to help Life improve their autistic visitors' experiences. David shares learning, thoughts and ideas from the process. Ruth Perkins from science made simple discusses the development of a show for ASD audiences that will be visiting schools in 2019 and shares advice from a former Educational Physiologist for the National Autistic Society.

*Ruth Perkins, science made simple**David Jones, Centre for Life***C for Career: A Panel Conversation****Hutton • 9.30 - 10.30am**

No two days are the same in science communication and engagement. Join our panel to explore different career options in the field, find out where to start and discover the skills needed as you embark on a career in the sector. Hear from people at different stages of their career working for a variety of organisations (or themselves!). Looking for more information on what a career in STEM engagement has to offer? Look no further!

*Paolo Arru, NIHR Manchester Biomedical Research Centre**Hana Ayoob, Freelance Events Producer, Trainer and Speaker**Dom McDonald, Royal Institution***Taking the Plunge...****Biosphere Green • 12.00pm - 1.30pm**

This session will explore lessons and experiences from four folk who have jumped into a life working for themselves. We are four freelancers working in various areas of Sci-Comm, training, public engagement and events. We've had some ups and downs and learnt a bit along the way. The first year or so of going solo can be tough, it can also be amazing. We'll be sharing some of our experiences, learning points and "wish I'd known that"s. With plenty of interesting tidbits and thoughts ranging from the commercial to the personal, this session will cover many aspects of working solo, but also more generally what it's like working in Sci-Comm. The session will focus into a pooling of knowledge, experience and advice from folk at the conference which will be turned into a document to be disseminated post conference. It shall be interesting, thought provoking and definitely fun (we are really good at making things fun!).

*Duncan Yellowlees, DY Training**Hana Ayoob, Freelance Events Producer, Trainer and Speaker**Jamie Gallagher, Public Engagement Consultant**Sarah Cosgriff, Freelance Science Communicator and Trainer**Jennifer Rodger-Casebow, Edinburgh Science***Science in the Spotlight: Devising Science Theatre****Biosphere Blue • 12.00pm - 1.30pm**

Combining science and the stage can be a difficult prospect, which means some science shows lack the impact of theatrical productions and some theatre shows lack thoughtful and accurate science. Science in the Spotlight is a theatre programme at the Edinburgh Science Festival developed to combine science communication and theatre. Developing high quality theatre pieces has led us into new territory in theatrical techniques to find story and dialogue around science topics. Devising is a collective technique where the rehearsal process creates the script through collaboration – actors, directors, scientists and science communicators can all contribute. This session will share the experiences of how the technique has been used so far to create works that are rooted in science and scientific research. Join us to create a devised scene and raise the question of how science communicators can use this technique for shows and workshops.

*Andrew Jeffrey, Freelance Theatre Producer**Dr Alastair Bruce, Royal Observatory, Edinburgh***Co-development and community science engagement****Salisbury • 12.00pm - 1.00pm**

Interested in engaging communities in more socio-economically deprived areas through science; Are you doing it? Done it? Wish to? Have questions unanswered or have great tips surrounding approaches to co-development? Interested in 'science capital' as a way of conceptualising the aims and outcomes? Then this session is for you. We will take advantage of being in Edinburgh with a rich and colourful session involving local community group members as part of the debate. We will look first at some tip-full case studies with fabulous fails and magic moments before embarking in dialogue unpicking some of those sticky questions about what communities really want.

*Cathy Southworth, MRC Centre for Regenerative Medicine, The University of Edinburgh**Maria Fanourgiaki, School of Biological Sciences, University of Edinburgh**Martin Khechara, University of Wolverhampton**Helen Obee Reardon, Cardiff University***When Your Science Doesn't Whizz, Bang or Pop: Stories and Activities****Boardroom • 12.00pm - 1.30pm**

As an Earth and Environmental science centre, Dynamic Earth frequently has to overcome the challenge of making certain areas of science accessible to all audiences when many of the concepts do not easily lend themselves to demonstrations or experiments. This session will give you the chance to explore some of the solutions to this issue and hopefully come up with a few yourself! Dynamic Earth staff will facilitate discussions and provide activities and information to get the creative juices flowing.

*Craig Smith, Dynamic Earth***It's Never Too Early (or Too Late) for Science Communication Training in Universities****Hutton • 12.00pm - 1.30pm**

Public engagement and communication are becoming core skills for researchers at all stages of their careers. How do we ensure that scientists are fully supported in this area as they progress through their career? In this session we'll share case studies of training interventions we have developed to discuss the highs (and lows) of embedding training throughout the academic career. We'll look at undergraduate modules, co-produced cohort programmes for PhD researchers, case studies for Early Career Researchers and the role of national showcases for supporting senior staff. We will also be introducing brand new self-assessment tools for use by anyone thinking about doing public engagement and communication.

*Helen Featherstone, University of Bath**Jessica Fletcher, Swansea University Medical School***What do you want to know? Reinventing Research for Real People****Biosphere Green • 3.00 - 4.00pm**

Can just anyone do scientific research? What would they do if you let them? We grabbed 2,500 unsuspecting parents on Facebook and told them we would help them do research to answer their burning parenting questions and to fill in the gaps where traditional research is falling short. Two years later, we have 7 research projects and articles submitted to academic journals. In this session, we'll discuss how we found people who weren't just "the usual suspects", got parents actually doing science and how we used Facebook for good rather than evil. Together we'll explore ways of approaching the daunting territory of how to give all the power to the people with the questions.

*Sophia Collins, Parenting Science Gang**Marisa Strutt, Parenting Science Gang*

The Age of Edutainment: Games in STEM Learning and Engagement

Biosphere Blue • 3.00 - 4.00pm

Games have become a popular method in edutainment (education and entertainment) in recent years. Creating good games with STEM content is a balancing act between fun, learning and playability. This session will showcase examples of STEM games that vary on the spectrum of fun and playability and whether they result in increasing knowledge or empowerment of their players. Join us for this hands-on session where you will get the chance to play some games, rate them on how effective they are and discuss how to start your own STEM game projects.

Dr Natalie Masento, University of Reading
Katie Cooper, University of Reading

Understand Exhibit Design: The Wrap Up

Ozone • 3.00 - 4.00pm

This is the wrap up from the Understand Exhibit Design session earlier in the week. In this session, participants from the Wednesday session will share the results of their prototyping with the BIG Event participants. We will discuss how to interpret results and how we might use the findings to move the concept forward. We will also reflect on what we've learned through the experience and hold an open Q&A.

Lyndsey Clark, Exhibitions-Interpretation-Engagement
Kenneth Boyd, Former Owner/Director of FifeX Ltd
Ben Craven, Glasgow School of Art
Lorna MacKenzie, Science Museum Group

Fam-tastic experiments and where to find them

Salisbury • 3.00 - 4.00pm

What do oobleck slime, bird beaks, scytale ciphers and red cabbage paper have in common? How can elephant's toothpaste explain grammar and punctuation? Whether you have an idea and don't know where to start, need to create an experiment to fit a specific topic, want to merge ideas from multiple demonstrations or need to change an individual experiment to make it hands-on, this session is for you. We'll show you some examples that have (and haven't) worked for us and discuss how you can create or modify an activity for your next event. Get

ready to dust off your lab books and revise the scientific method because it's time to experiment!

Jemma Naumann, Royal Institution
Dani Zelli, Royal Institution

Programming: Different Spaces, Places and Faces

Hutton • 3.00 - 4.00pm

Programming public engagement can be pretty tricky. How are we supposed to juggle the needs and wants of researchers, funders and institutions in the face of dwindling budgets and spiralling aspirations, and all whilst trying to attract those elusive new audiences(!)? Where should we show flexibility? When do we draw the line and say no? And how do we protect against, or capitalise on, twists of fate? How can we balance the places and spaces we have access to with the faces we're trying to reach? Come along to play a fun, fast-paced game of public engagement fortune telling as we navigate these competing priorities together!

Leah Fitzsimmons, University of Birmingham
Hana Ayoub, Creative Producer and Trainer

Just a Bit of Fun

Biosphere Green • 4.30 - 6pm

Join Andy McLeod, Katie Cooper and others for a game of 'Just a Bit of Fun'! This is a panel-style quiz show based on the Radio 4 programme, *Just a Minute*. Participants will have up to 60 seconds to talk on a subject without hesitation, repetition or deviation. Any of the other participants can buzz if they detect rule violations and the Chair decides whether challenges are upheld or rejected. Successful challengers win the subject and the remaining time. Points are awarded accordingly and the winner goes home safe in the knowledge that she/he is the reigning BIG JABOF Champion! Because this is BIG and we are in the business of Sci-Comm (and UNLIKE the Radio 4 version), JABOF will reward participants who have a higher degree of scientific accuracy during their monologues. And of course, there will be crowd participation, too! Participants can represent an institution, an organisation or just themselves – it's just a bit of fun!

Andy McLeod, Public Engagement and Science Communication Consultant
Dr Katherine Cooper, University of Reading

BIG Code of conduct

We want the BIG Event to be a welcoming environment for everyone, regardless of gender identity and expression, age, sexual orientation, disability, physical appearance, body size, ethnicity or religion. BIG does not tolerate harassment of any form (e.g. violent behaviour, display of inappropriate content, discrimination, unwelcome physical contact and so forth). Everyone involved with BIG's activities is subject to the Code of Conduct. Failing to comply with this Code of Conduct could result in the immediate exclusion from any of the programmed events without a refund.

Accessibility

Dynamic Earth, Holyrood Rd, Edinburgh EH8 8AS

Dynamic Earth is fully wheelchair accessible, with ramp access up to the entrance of the building and lifts throughout to navigate through the exhibition and from the car park. Additionally, there are accessible toilet facilities on both sides of the building, which include handle rails and wide door access. There is a hearing loop in the Biosphere and microphones will be used where possible. We have also designated a room near Biosphere Blue as a Quiet Room. See www.dynamicearth.co.uk/visit/visitor-accessibility for more information.

Bertie's Fish and Chip Shop, 9 Victoria St, Edinburgh EH1 2HE

Bertie's is fully wheelchair accessible via a lift and has accessible toilets.

Did you know that BIG programmes Skills Days throughout the year?

The BIG Event is our biggest event of the year, but it's only one of a handful we organise for BIG members. There is also the Little Event, a one-day training session for people who are new to STEM communication, which is usually held in January. But we also programme Skills Days throughout the year.

These one-day sessions vary in topic and location, so there is something for everyone. BIG is always looking for new speakers, ideas and venues. See more at <https://www.big.uk.com/whatwedo> or get in touch with Ashley Kent event@big.uk.com if you have an idea for a Skills Day or BIG Event venue.

We do not intend formal procedures to replace the discussion between BIG members. If you would prefer to discuss someone's behaviour aimed at you or someone else directly with them, please do. Alternatively, please approach a member of the Executive Committee to discuss your concerns or report an incident.

Please take a minute to read the full version of the Code of Conduct and reporting procedures, which can be found here: www.big.uk.com/Code-of-Conduct. Physical copies are available at the Reception Desk.

Camera Obscura and World of Illusions, Castlehill, Royal Mile, Edinburgh EH1 2ND

Camera Obscura is spread over 6 floors without a lift, so anyone with a wheelchair will not be able to access the experience. If people have difficulty walking, there are walking stick chairs, seats on every level and handrails on all stairs. If you have questions, see their website: www.camera-obscura.co.uk/your-visit/accessibility or give them a call on 0131 226 3709.

Hemma, 75 Holyrood Rd, Edinburgh EH8 8AU

The session only is accessible via a spiral staircase up one flight of steps. There is, however, level access from the street via large double doors and there are accessible toilets on the ground floor.

The Next BIG Skills Day

Exhibit Prototyping: Skills Days for Beginners, Edinburgh Tool Library

1-2 October 2019, 10am -7pm both days

£100 for members, £130 for non-members

Do you have an idea for an exhibit or demo that you'd like to make, but feel that you don't have the confidence, the skills or the facilities to make it? In this two-day skills event, we'll show you how to use hand tools and wood-working machines to turn your idea into a useful prototype with two days spent in the Edinburgh Tool Library's workshop. This event is aimed at people with little or no workshop experience, but independent working will be required. There will be experienced staff available to help you get the most out of the workshop and the two days. Booking and more information here: www.big.uk.com/Edinburgh



Charles Darwin's
On the **ORIGIN** *of* **SPECIES**

Retold through beautiful illustrations in a
brand new picture book by Sabina Radeva



'A very important project, most beautifully realised. Sabina Radeva's thoughtful text and gorgeous pictures together tell the story of *On the Origin of Species*, and of Evolution itself, with clarity, humour and great charm.'

Emma Darwin, Charles Darwin's great-great-granddaughter

WIN
1 of 5
copies

**What was the name of the vessel that carried Charles Darwin
on his voyage to the Galapagos Islands?**

To enter, use the hashtag **#OnTheOriginOfSpecies** on Twitter tagging
@PuffinBooksUK with your answer

Competition closes on 30th August 2019 and is only open to UK and Ireland residents. Entrants must be 16
or above and full terms and conditions can be found here: <http://po.st/OnTheOriginOfSpecies>