

## NEW INVENTORS - INVENTORS IN RESIDENCE

### PROJECT BRIEF

#### About the project

Thanks to funding from the Platten Family Fund at the Community Foundation Tyne & Wear and Northumberland, Discovery Museum is pleased to announce the return of New Inventors, a residency programme working with three practitioners, three primary schools and visitors to the museum over the course of 2018/19 to inspire children to pursue opportunities in STEM.

Discovery Museum tells the changing story of Tyneside and holds internationally important collections including those that showcase the region's contribution to the history of invention and have had a significant impact on our lives. Today, the region continues to be at the centre of innovative research investigating what the future holds for Tyneside and how we can harness the power of data and technology to improve the lives of citizens and businesses.

Discovery Museum is seeking to recruit an innovative external practitioner working within contemporary engineering and the wider STEM industry to serve as an Inventor in Residence who will devise and deliver a bold programme with a focus on the theme of 'Smart Cities.'

#### Project aims –

- To inspire children with a range of hands-on activities that positively influence attitudes towards STEM, (particularly that of girls in response to the underrepresentation of women working in the industry – currently women make up 25% of those employed in the STEM industry<sup>1</sup>) and encourage aspiration to study and/or work in this field.
- To inspire and develop the skills of TWAM staff who can consider the use of new practice and technologies in future events, exhibitions and learning programmes
- To continue to build on the successful PLAY+INVENT programme and grow and diversify visitor engagement with Discovery Museum.

The Inventor in Residence will spend 25 days (equivalent to 2 full days per week, flexible) across 12 weeks between **29 April and 19 July 2019** working on site at Discovery Museum engaging with visitors in our dedicated PLAY+INVENT space and at an assigned primary school.

---

<sup>1</sup> Women in STEM workforce 2018, <https://www.wisecampaign.org.uk/statistics/2018-workforce-statistics/>

The Inventor in Residence will be expected to –

- Develop and deliver 3 x weekend and/or school holiday public making workshops for families with children aged 5 – 13 (format of events to be agreed with chosen practitioner) taking inspiration from the practitioner's own practice and Discovery Museum's collections (both on display in gallery and in store)
- Develop a design brief focusing on the theme of 'Smart Cities' for a group of KS2 school children, working with them in school over the course of 5 days to develop an invention prototype for presentation at a final showcase event at Discovery Museum
- Develop and deliver a continued professional development session which will inspire and develop the skills of TWAM staff who can consider the use of new practice and technologies in future learning programmes
- Capture evaluation throughout the duration of the residency
- Document the residency through photography and other sharable content for social media and TWAM's blog.

### Timescale

1. Deadline for submissions is **Friday 12 April at 5pm**
2. Interviews will take place on **Tuesday 23 April**, please note, you will be expected to prepare a 30 minute hands-on demo for the interview panel. **You will be contacted no later than Wednesday 17 April 2019**
3. The appointment of the successful candidate will be no later than **Wednesday 24 April 2019**
4. The residency will take place across 12 weeks on agreed dates between **Monday 29 April and 19 July 2019**

For the duration of the project you will work with Tyne & Wear Archives & Museums' Digital team, Discovery Museum staff and staff and children from St John's RC Primary. We fully expect that the final programme will be shaped following consultation with TWAM staff and its audiences.

We invite proposals that –

- Set out the ambition of what you will deliver and how you will meet the aims of the brief
- Suggest ideas of how you would like to make use of Discovery Museum, its collections and the school classroom space
- Demonstrate that you have a strong track record in engaging audiences and participants, in either schools, museums or other public spaces
- Give evidence of your creativity and originality of thought
- Provide a detailed budget breakdown – please indicate whether you are VAT registered.

**Please note, successful applicants must provide evidence of a satisfactory Enhanced DBS check and must provide a copy of their valid Public Liability Insurance certificate in the sum of not less than £5 million prior to the commencement of the contract**

The contract of this work will be issued by TWAM.

## Budget

A fee of £5000 (equivalent to £200 a day for 25 days)

A production budget of £1000 is available for materials and technologies to deliver family and school activity.

We welcome quotations from applicants based in or outside the North East of England (in the UK or internationally) but please note that there is no separate budget for accommodation or travel.

## Submission

All proposals should be emailed as a PDF or a word document (no more than four pages of A4) with the subject title 'Quotation: New Inventors – Inventors in Residence at Discovery Museum' to Sarah Younas, Digital Producer at Tyne & Wear Archives & Museums:

[sarah.younas@twmuseums.org.uk](mailto:sarah.younas@twmuseums.org.uk)

**All proposals should be received no later than 5pm on Friday 12 April 2019.**

If you have any queries relating to this brief please contact Sarah Younas by email or on 0191 277 2324.

## Project Background

### Residency #1

Between April and July 2018, Discovery Museum hosted its first New Inventors residency programme, focusing on theme of transport in anticipation of the Great Exhibition of the North, England's largest event in 2018, which showcased the influence of Northern innovation, art, culture and design on all of our lives.

Our first Inventor in Residence, Dr Jenny Search spent 12 weeks celebrating the return of Robert Stephenson's iconic steam locomotive, Rocket to Newcastle for the first time in 150 years, on loan from the Science Museum Group through a series of exciting workshops which encouraged families to spend a day at the races and create their own modern version of the Rainhill Trials, where Rocket made its name.

Jenny worked with a group of Year 4 pupils from Bridgewater Primary School in Scotswood, to help develop their invention skills so that they could design, build and test their own travel solutions for the future, from the flying skirt, to the extendable double decker car.

*"It has been fantastic to work with the children from Bridgewater Primary. I've watched their confidence, STEM skills, team working and communication skills all improve and it has been a genuine pleasure helping them bring their fantastic ideas to life."* – Dr Jenny Search, Discovery Museum's first Inventor in Residence.

### Residency #2

The second residency started in January and will continue through to the end of March 2019. It focuses on looking at the contribution of Tyneside to the use and generation of power with the invention of the National Grid and world firsts from Joseph Swan, inventor of the incandescent light bulb; Charles Parsons, the inventor of the steam turbine which was first applied to generate public electricity in Newcastle and William Armstrong, who in 1880 powered electricity in his home with the world's first domestic hydro generator and was said

to have anticipated that the direct conversion of the energy in sunlight to electricity could be possible.

Matt Wright, our second Inventor in Residence was tasked with continuing the story of power by devising and delivering a bold programme of activity in response to the theme of 'renewable and sustainable energy.'

Matt has worked with a group of budding inventors from Year 4 at Wingrove Primary School in Fenham to help develop their skills to build working solar panels and pedal powered generators to power lights for their playground shelters. In March 2019, Matt will host a series of wind and water workshops for families at Discovery Museum, including *Hydro Lab*, an exploration of how electricity is generated in a hydro-electric power station and *Windustry*, where participants will get to grips with how a wind turbine turns wind energy into electrical energy by designing their own wind turbine blades, which will be tested in specially made wind tunnels.

*"Working as Inventor in Residence has been an opportunity to try out my ideas in a working museum with a fantastic collection which traces the industrial heritage of Newcastle right back to its roots. It has been extremely rewarding to work with museum visitors, pupils from Wingrove Primary and Discovery Staff to help harness their natural curiosity by designing, building, testing and dismantling new and old technologies, all in order to gain a better understanding of how the world around us works."* – Matt Wright, Discovery Museum's second Inventor in Residence

Like an increasing number of museums across the world, TWAM has evolved its practice by researching and developing projects that look to encourage public participation; enhancing the museum experience for visitors and seeking to more actively involve audiences who are less likely to engage with museums. TWAM believes there is untapped potential in museum spaces (online, in venue and in non-museum physical spaces) as a platform for participation and its collections as a provocation and gathering point for public dialogue. The organisation has delivered a significant number of digital and physical projects that encourage public interpretation, interaction and authorship and provide evidence of new audience engagement facilitated via public meaning-making.

Our work with schools has focused on increasing and deepening engagement to better understand how our venues can support children's learning. Increasingly, we are building programmes that make the most of the link between families and schools. We are creating opportunities where families can get involved and support their children's learning connecting in and out of the classroom and are creating more opportunities for children to lead and share authentic learning experiences. In 2017/18, 15,000 children took part in organised educational activities at Discovery Museum.

PLAY+INVENT is Discovery Museum's family programme for budding inventors, designers and makers. Launched in 2017, the programme presents new ways of telling Tyneside's changing story through hands-on, contemporary STEM activity. The programme included a successful strand of ticketed weekend events including big builds, computing, gaming and electronics workshops. The first phase of events (six events between January and March 2017) attracted 2751 people, with 98% of tickets selling out. The programme also includes the award winning Tiny Sparks, a fortnightly weekday pre-school session championing gender equality and encouraging children to dream big from an early age.

PLAY+INVENT also boasts a dedicated invention space families to drop in and build using recycled materials or take on a design challenge inspired by Discovery Museum's internationally important collections.

For more information on PLAY+INVENT, please visit <http://discoverymuseum.org.uk/play-invent>

## **Supporting information**

### About TWAM

Tyne & Wear Archives & Museums (TWAM) is a major regional museum, art gallery and archives service. We manage a collection of nine museums and galleries across Tyneside and the Archives for Tyne & Wear.

We are supported by the four local authorities of the area and Newcastle University. TWAM is also a National Portfolio Organisation funded by Arts Council England.

We manage the North East Museum Development Programme supporting smaller museums across the region and Culture Bridge North East, working to make sure that every child and young person has the opportunity to experience the richness of arts and culture.

TWAM holds diverse collections of international importance in archives, art, science and technology, archaeology, military and social history, fashion and natural sciences.

TWAM achieves 1.4 million in person visits each year. The profile of our audience broadly reflects the demographic profile of the region's population and some of our venues are in areas of low cultural engagement e.g. South Tyneside. Across TWAM venues. Our quarterly benchmarking research using Audience Finder shows that across TWAM venues:

62% are from Tyne and Wear

48% visit with children

37% are socio economic group C2DE

14% are disabled

9% are non-white UK origin (a combination of BAMER and tourists)

TWAM also engages with audiences digitally and has 113,134 followers on social media, 700,000 annual visits to our website and 6,883,300 views of our Flickr content. Increasingly we aim to creatively connect physical and digital experiences, enabling real and virtual engagement where people can be inspired by our buildings, sites, collections, staff and each other.

We use Morris Hargreaves McIntyre's Culture Segments audience segmentation tool for our Must-see Museums membership scheme, marketing and our mainstream audience development activity. Culture Segments is more powerful than other segmentation systems because it is sector-specific and based on people's values and beliefs about the role that culture plays in their lives. The Culture segments we are actively targeting are:

*Expression* - Their priorities are: living life to the full; community; family; arts and culture; nature.

*Affirmation* –Their priorities are: family needs; personal development; quality time with others.

*Stimulation* –Their priorities are: enjoying life; going out; live music; food and drink; contemporary events.

*Essence* - Their priorities are: exploring; adventures; art and culture; self-development; experience over material goods.

*Enrichment* - Their priorities are: home life; the past; conventional arts and crafts; nature; gardening; countryside.

For more information about Tyne & Wear Archives & Museums please visit

<https://twmuseums.org.uk>

### About Discovery Museum

Discovery Museum is housed in the old Co-operative Wholesale Society building, Blandford House in Central Newcastle. Opening in 1899 it quickly became an iconic building in Newcastle city centre. Blandford House became a museum in 1978 and was relaunched as Discovery Museum in 1993. Discovery Museum now tells 'Tyneside's changing story' and holds internationally important collections including those that showcase the region's contribution to the history of invention.

Discovery Museum achieves around 368,000 in person visits a year and its primary audience is local families.

93% are from the UK / 7% from overseas

87% of UK residents are from North East England, 83% of those are Tyne & Wear

69% are repeat visitors

46% are socio economic group C2DE

2% are disabled or have a health problem that limits their activity

92% are white of UK ethnic origin

44% visit with children

29% are under age 12, 26% are 30-44 years reflecting the high proportion of parents visiting with children

Discovery Museum also engages with audiences digitally and achieves around 170,000 annual visits to its website. It has a loyal following on social media (7,845 facebook / 11,700 twitter). Increasingly we aim to creatively connect physical and digital experiences, enabling real and virtual engagement where people can be inspired by our buildings, sites, collections, staff and each other.

Discovery Museum uses Morris Hargreaves McIntyre's Culture Segments audience segmentation tool. The two segments that we are actively developing at Discovery Museum are:

**Expression**

Confident, fun-loving and community-minded, they love to learn and accommodate a wide range of interests. Their priorities are living life to the full; community; family; arts and culture; nature.

**Affirmation**

They enjoy a wide range of leisure activities. Culture is mainly a way of enjoying quality time with friends and family, and offers the chance for self-improvement. Their priorities are family needs; personal development; quality time with others.