

INGENIOUS Survival at SMASHfestUK



SMASHfestUK started life as a birthday party. Dr Lindsay Keith had been bemoaning the fact that she hadn't been able to go to a festival for years. So her partner, Wyn Griffiths, decided that for her birthday, he would bring the festival to her. Tucked in a small pub in South East London, it lasted all day and included the best bits of her favourite festivals; science, comedy, music and art.

It was tremendous fun, but it got us thinking; why shouldn't everyone get to enjoy this? We're based in Deptford, London, an area where 40% of young people live in poverty and almost 80% of the young population is from a black or ethnic minority background. Research suggests that young people from BME backgrounds are only one third as likely to follow a career in STEM, and that children growing up in poverty are far less likely to enter STEM industries as a career.

Deptford is also a long way away from the opportunities afforded by the science museums in South Kensington - and the distance is not only geographical. A study from Kings College London in 2014 showed starkly that most young people from BME backgrounds thought of science and engineering as "not for me". The gender balance in engineering is equally startling, with women making up just 9% of professional engineers.

In an attempt to redress these imbalances, the award-winning SMASHfestUK was born. A science, engineering and arts movement, organisation and festival, SMASHfest UK is aimed at young people and their families, in the heart of Deptford. Designed to be made in the community, with the community, it was our chance to bring a little of the 'science museum experience' to a corner of South East London.

Set up with the help of the Refinery (a science and engineering film and communications company) and Middlesex University, SMASHfestUK appeals to everyone. The Royal Academy of Engineering 'Ingenious' funded 'Survival Village' is at the heart of the festival. Primarily driven by entertainment, we aimed an 'asteroid' at Deptford and set the clock ticking. Working with a team of scientists and engineers, festival goers had just a few days to plan their survival!

A semi-immersive experience, the village allows visitors to explore the engineering needed to rebuild civilization in the event of a natural disaster. Each year features a different fictional disaster scenario. After the asteroid of 2015, festival goers in 2016 were struck by a 'solar storm', and in 2017 saw the eruption of a nearby 'super volcano'.

The disaster story embeds the engineering foundation of everything we take for granted in our daily lives, highlighting the power of engineering to solve challenges through creativity. We ask the question: "What would you do to prepare, survive and rebuild if disaster struck?"

Festival visitors help us to create the experience and participate in activities, starting with building a basic shelter using simple construction and engineering principles. They then get stuck in building infrastructure such as water supply for survival and sanitation. Next on the agenda is finding a way to cook and keep warm, as well as generating power by exploring human powered technology. One festival saw participants charging a mobile phone by hooking it up to a bicycle!

The 'Survival Village' embodies SMASHfestUK's innovative approach. Our narrative-led, inquiry-driven model uses problem based learning, cutting across multiple scientific and engineering disciplines. The SMASHfestUK approach is about creating a collaborative ecosystem of primary and secondary schools; undergraduate students; researchers; industry; and most importantly, the community. We link formal and informal engineering education, creating intergenerational sharing of knowledge and learning.



Wyn Griffiths ([Http://Www.Smashfestuk.Com](http://www.smashfestuk.com))

SMASHfestUK was set up in 2015 with the help of the Refinery and Middlesex University, with the University of Greenwich joining later as a core partner. The 'Survival village' and the 2017 'Earth and Sky' tour are both funded by Ingenious grants from the Royal Academy of Engineering. SMASHfestUK (<http://www.smashfestuk.com>) won the National Coordinating Centre for Public Engagement 2016 'Engage Award' for public engagement with research in STEM.
