

Science Outreach Grants

Zombie attack!

David Allison (University of Manchester, Manchester, UK)

It's 11am on Saturday, 29 November 2014 and zombies are attacking University Place at The University of Manchester. The zombies carry a new antibiotic resistant strain of bacteria, *Bacillus zombieits* which turns victims into zombies when infected. Our mission was to use our collective pharmacy skills to identify the nature of the disease, a target site for attack and a lead molecule. We would then optimize and test the resultant medicine before finally looking at an effective formulation and packaging prior to product release. That was the scene that was presented to visitors to the Biochemical Society sponsored Manchester Pharmacy School Bugs to Drugs Community Open Day as they followed a storyline based around the drug development process.



Rapid testing for 'infection'



Molecular modelling

The classroom is not always a welcome environment to learn about science, especially for those who are more disadvantaged from formal learning. It is important therefore to provide opportunities to engage with science outside formal education that are as accessible and engaging for disadvantaged groups as they are for non-disadvantaged families. Hence, the intention at the outset was to raise the profile of science and pharmacy in an exciting, informal manner. During the course of the 4 hour event visitors were able to experience numerous fun yet informative hands-on activities, many of which had a strong biochemical theme including antibiotic design and mode of action, splat the bug, antibiotic resistant skittles, molecular building and modelling, rapid testing methods and DNA extraction. For the young, and young at heart, there was a wacky children's entertainer, an excellent pharmacy art corner (where some wonderful and ingenious play-dough models of microorganisms were made) and the opportunity to beat pupils from a local High School at their own 'Target to Market' drug development process board game. A significant feature of this Open Day which set it apart from other similar university events was direct engagement with the local community. Engaging in events and activities which benefit the community will build relationships with local people and can help promote the welfare of the local community. As such, contributions of artwork and theatre from local and neighbouring communities and schools helped to make this a public engagement event for the community, by the community.

In addition to the above, university staff and students and senior staff from Gilead Sciences were present to assist with activities and answer queries about either the drug development process or careers and innovations in research. Information about higher education and pharmacy as a career was also available.

The venue for the event (University Place) was in easy access to the neighbourhood and the event free of charge, as accessibility and cost are often seen as prohibitive barriers to many young people and families from disadvantaged backgrounds. Approximately 350 people attended the event. Questionnaire feedback was overwhelmingly positive, giving the event an average Likert scale rating of 3.7 out of a possible 4, with 98% stating "I liked it a lot"



DNA Extraction

(74%) or “I liked it” (24%). The vast majority of respondents said the event was “fun”, “interesting”, “educational” and “inspiring”. Many even asked if we would be repeating the event or whether we could present it in a school setting. No negative comments were received. Significantly, since 81% of those that completed a questionnaire were not associated

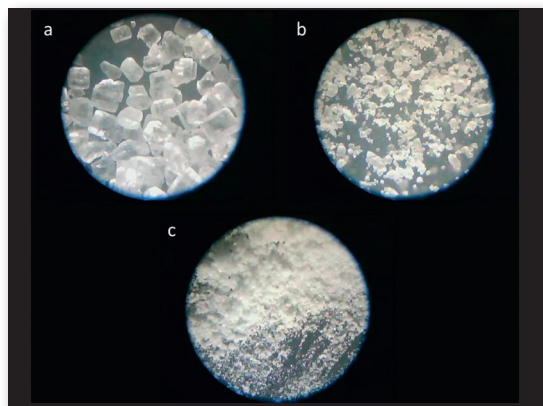
with the University, this event fulfilled its main aim of being a public engagement activity for the local community.

Thanks to The Biochemical Society for a Science Outreach Grant, to Mother Hen for role-play activity, staff and pupils from Trinity High School and Chorlton High School for artwork and zombie actors respectively, and to staff and students at Manchester Pharmacy School that contributed to the event. ■

Detective Scientists

Claire Price (Swansea University, Swansea, UK)

On 9 March 2015, Claire Price (a researcher from the Centre for Cytochrome P450 Biodiversity, Swansea University) arrived at Abercanaid Community School, Merthyr Tydfil to hold an event as part of the school's Science Week activities. The event was delivered to 28 nine- and 10-year old school children. It was focused on promoting a number of skills, including scientific investigation and scientific thinking, as well as enhancing English language abilities.



The samples



Microscope work



Writing up notes

The children were given three known samples: sugar, bicarbonate of soda and cornflour (all of which look very similar to the naked eye). Using microscopes (which were purchased with the outreach grant), the children were able to work in groups to see how each looked when magnified. The microscopes caused a ripple of excitement around the class when they were produced. The children were then asked to feel the powders and describe how they felt, followed by how they smelt. At all times the information was recorded and discussed.

Water was then added to an aliquot of each powder and the children were asked to describe what happened. Then vinegar was added to a fresh aliquot of each powder. This time the bicarbonate of soda reacted causing much excitement, which was only increased when the iodine was added to fresh aliquots and the starch in the cornflour turned black.

Following the completion of the experiments and the table, the children were given an unknown sample of either sugar, bicarbonate of soda or cornflour. They were asked to see if, using what they had already learnt, they could identify which of the three powders this sample was.

Following the (successful) identification of these unknown samples, the event turned to look at chromatography using felt tip pens, beginning with the primary and secondary colours and then looking at black felt tip pens. Members of the class (along with the teacher) were used to demonstrate capillary action.

The event ended with an interesting question and answer session. Feedback from the class was very positive. The children had a very good time and many were enthused by the day. The teacher also said it was “probably the best science lesson I’ve seen in a primary school.”

As organizer I would like to thank the Biochemical Society for supporting this event. ■