



# ‘Health from Honey Bees & Steam Boats’ – A Case Study from the University of Bradford

---

## Summary:

Following on from the success of the British Science festival in Bradford, the University of Bradford has developed two new workshops for Primary Schools in Chemistry and Engineering. This work was carried out as part of the National HE STEM Programme’s *Enhancing STEM Public Engagement* adopters group.

The development of new workshops has involved collaborations between the Bradford primary science teachers’ network, Nicholas Garrick of [Lighting Up Learning](#), the adopters group (comprising of 5 other universities) and the shadowing of successful programmes such as [Bristol ChemLabs](#) and the [Bristol Dinosaur project](#). Work has allowed undergraduates, postgraduates and academic staff the chance to expand their experience of methods used in modern teaching and learning in primary schools across the region.

The project has helped to outline a framework for developing future public engagement activities whilst at the same time, delivering practical curriculum-centric workshops to inspire pupils into the STEM subjects.

## Background:

The University Bradford is developing a new STEM centre, for which it is creating a range of primary school activities. The project was interested in identifying opportunities for Physics, Chemistry, Maths and Engineering. Involvement in the public engagement scheme provided opportunities for the sharing of best practice and a chance to investigate a model for developing future resources.



In September 2011 the British Science festival was held in Bradford with academic staff involved in a large range of public engagement activities. We aimed to build on the legacy of activities delivered during the festival by academics by developing workshops that could be delivered on a regular basis.

This has involved four main aspects: identifying research areas that academic staff might be interested in developing; discussing these activities with peers; shadowing existing public engagement activities and developing training opportunities for staff and students at the University.

During a meeting between primary school science co-ordinators three areas of interest were raised: applications and implications of science, science literacy and forces. Two ideas were subsequently developed:

### **(1) Health from Honey Bees**

The University of Bradford pharmaceutical engineering team is engaged in exciting research involving propolis, a product made by bees. An outreach session had been developed for the 2012 British Science festival and as part of the adopter project, an initial trial of a workshop involving the health benefits of propolis was carried out at a secondary school.

The activity provided links to applications and implications of Chemistry and allowed pupils to explore literacy opportunities in the scientific description of propolis. Building on the early success of trials in secondary schools the opportunity was taken to extend the workshop to cover primary levels during the adopter seminars. Work was carried out to balance the context of research at the University and the elements of the activity that would make it a unique and engaging experience, targeted appropriately at the level and knowledge of primary school pupils. We aim to further develop the workshops into a series covering key science literacy skills as pupils investigate developing their own health care product.

*“I thought that the afternoon was so incredible that I became a mad scientist.”*

Primary school pupil involved with *Shadowing Chemistry* event run as training event

*“Today I liked doing the first challenge in which we won, everyone took part in it and it was fun and interesting. Also we got to learn a lot of new facts about bees + we experimented too.”*

Secondary school pupil involved with *Health from Honey Bees* workshop.

### **(2) Steam Boats**

Forces were identified by local primary schools as an area they would like help with, suggesting “*Fear out of Forces*” activities. With this in mind, we worked towards the aim of developing a task that would involve forces. In the past, water rocket activities had been successfully run as family learning activities, but these were weather dependant. An activity was developed using the experiences from water rockets and the guidance provided at adopter seminars to look at the forces involved in floatation and powering steam boats.

## **Project Highlights:**

1. Collaboration between Nicholas Garrick of lighting up learning and Ed Drewitt of the Bristol Dinosaur Project as well as others from differing universities at the three adopter seminars

in the development of new workshops

2. Consultation with local primary schools
3. Development and trialling of Primary and Secondary Workshop for Health from Honey Bees
4. Development and trialling of Steamboats workshop
5. Shadowing of Bristol ChemLabs in Bradford school visits. Shadowing helped those involved to expand their experience of Chemistry in primary schools as well as key skills – e.g. taking measurements and making predictions.

## Outcomes:

- Structure for training students in public engagement developed
- Training of 87 undergraduates as STEMNET ambassadors
- STEAM boats workshop developed with guidance from adopter team
- Structure of two workshops for Health from Honey Bee for primary and secondary schools
- Visits to 5 schools (2 primary school and 3 secondary) with over 300 students involved in activities
- Involvement of 5 students, 2 academics and 3 support staff in training activities and the delivering of workshops

James Machell, University of Bradford



This activity was undertaken as a part of the National HE STEM Programme, via the South West Spoke. For more information on South West Spoke projects, please see [www.hestem-sw.org.uk](http://www.hestem-sw.org.uk). For more information on the overall national programme, please see [www.hestem.ac.uk](http://www.hestem.ac.uk).