



Science in the City 2016 Evaluation Report

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1. Executive summary

1.1 Project summary

The 2014 Public Attitudes to Science Survey suggests that around 33% of the UK adult population (i.e. around 15 million people) is disengaged from science. Around half of these feel uninformed, overwhelmed, and concerned about the speed of development of science. The others feel that science is simply not “for people like them” (Ipsos MORI/BIS 2014, p.18). Effective mechanisms to reach these people are few, primarily because this audience does not generally engage with “culture” outside the confines of its own domestic environment.

Following the success of our 2015 pilot, the British Science Association (BSA), with support from the Royal Society of Chemistry (RSC), ran the 2016 Science in the City programme, aimed at engaging with this audience by running events which are embedded in their community, such that the target audience feel the activity is “for them”. This was primarily done by supporting and giving grants to members of the UK Science Festivals Network (UKSFN). THE UKSFN is managed by the BSA and comprises 36 festivals spread around the UK that focus on science or include science content. As local festivals, each has specific knowledge about its local areas, communities and populations. Moreover, partnering with local festivals allowed an opportunity for the engagement with the Science and City events to be extended by directing participants to science festival activity in their local area.

1.2 Key findings and recommendations

- The programme consisted of 14 events, spread across the RSC's nine regions of the UK.
- Approximately 9,500 people were reached.
- The most successful events used tiered engagement and activities adapted to the target audience and environment.
- Some events could have benefitted from reduced reliance on volunteers.
- 91% of surveyed participants rated the event they engaged with as 'Excellent' or 'Good'.
- 90% of survey participants did not work in a science-related job.
 - Two thirds (67%) of these participants said that they have an interest in science but don't make a special effort to keep informed, and an additional 14% said that 'science was not for them'.
- Engagement with science festivals was low among surveyed participants, with 61% of saying that they hadn't ever attended or been aware of one. A further 15% had heard of science festivals, but hadn't attended.
- The programme was particularly successful in attracting lower engaged and less affluent groups based on Audience Spectrum profiling (Up Our Street and Facebook Families) and Mosaic profiling (Rental Hubs and Aspiring Homemakers).

- Over two-thirds (68%) of the largely disengaged groups, those saying that they had an interest but didn't make an effort to keep informed and those who said that 'science was not for them', said that their interest in the subject had increased as a result of engaging with a Science in the City event.
- Although they expressed a lack of confidence in the subject of chemistry, surveyed participants reflected a broadly positive attitude to chemicals and the levels of information available about their presence in everyday products. There were some slight differences by age group, gender, and levels of engagement with science.

2. Grant and event criteria

The target audience was members of the public who did not intend to participate in a science activity. Based on audience development work undertaken for British Science Week 2014, which included an in-depth literature review of under-represented groups in science engagement, we identified three specific groups that have historically been under-represented within STEM: women, those from certain ethnic backgrounds, particularly Pakistani, Bangladeshi & Black, and people with lower socio-economic status (SES).

Events were run in two different ways. The majority were run by members of the UKSFN who were invited to apply for grants to run events in their local areas. A few events were centrally run by the BSA.

Criteria for selecting locations to run events were that they were places with high footfall, and places where visitors would not usually find science activity. These could either be public spaces (e.g., shopping centres or markets) or community festivals. The selected locations were required to be in areas that had a high proportion of the under-represented target audiences (see above), the same or higher than the national average.

Activities were required to be on topics familiar and relevant to the target audiences, capturing their interest and imagination in a way that fit their lifestyle. Activities were also required to encourage two-way conversation to allow the audience to feel they are connect to science and scientists.

3. Events

Fourteen events, spread across the RSC's nine regions of the UK, were run as part of the Science in the City 2016 programme (see Figure 1). Nine events were run in public areas of high footfall, and five events were run at community or arts festivals. None of the events were advertised in advance or during the day apart from at the event itself, thus ensuring that the audiences reached had not planned to participate in science activity.



Figure 1. Map of all 14 events

3.1 Events in public places

City/Town	Venue	Organiser	Estimate attendance
London	Deptford Market	SMASHfestUK	100
Hull	St Stephen's Shopping Centre	Hull Science Festival	800
Edinburgh	Ocean Terminal Shopping Centre	Edinburgh International Science Festival	2040
Ramsgate	Ramsgate Town Centre Market	Discovery Planet	750
Warrington	Golden Square Shopping Centre	Amazed By Science	680
Glasgow	St Enoch Shopping Centre	Glasgow Science Festival	1314
Bournemouth	Sovereign Centre	Festival of Learning	277
Swansea	Swansea Indoor Market	Swansea University	668

Peterborough	Queensgate Shopping Centre	British Science Association	400
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Table 1. Events in public areas of high footfall

Approximately 7,000 people were reached through the nine events in public places of high footfall, with particularly large audiences in Edinburgh and Glasgow (see Table 1). The 'public places' these events were held in included shopping centres and markets. In the future, the project could expand the variety of venues used for these events into those which aren't focused primarily on commerce, such as leisure centres or sports events. This would allow assessment of how the venue type affects the willingness of members of the public to engage in an activity when approached.

3.2 Events at community and arts festivals

City/Town	Venue	Organiser	Estimated attendance
Luton	Luton International Carnival	British Science Association	1000
Eastbourne	Eastbourne Carnival	British Science Association	400
Nottingham	Bulwell Arts Festivals	Nottingham Festival of Science and Curiosity	400
Belfast	New Lodge Arts Festival	NI Science Festival	270
Dalkeith	MidFest (family music festival)	Midlothian Science Festival	853

Table 2. Events at community and arts festivals

Approximately 2,500 people were reached across the five events at community and arts festivals (see Table 2). Although the audience numbers were on average less than the events in public places, these events provided the opportunity to access audiences predisposed to engage in activities, if not necessarily expecting science-themed ones.

3.3 Feedback from events

BSA staff attended eight of the Science in the City events, and every event organiser also provided their feedback and impressions after the events. One noted successful method used in many events was tiered engagement. This meant the event organisers had provided several different types of activity with different durations and complexity, and thus different levels of engagement were required. When most successfully used, this involved a very visual aspect at the lowest level of engagement, allowing passers-by to be attracted and curious about the event and

watch without feeling pressured to be involved. Many audience members who would have likely not engaged if approached directly by a science busker were thus able to gain confidence in their surroundings and go on to take part in activities with higher levels of engagement.

Activities with higher levels of engagement allowed audience members to interact with scientists, often completing more in-depth activities over a slightly longer time period. These parts of the events were more focused on two-way engagement.

Another successful feature of many events was that the activities on offer had been specifically adapted to their location. For example, activities involving chili and spice were used at a food market, and those involving sound were used at a music festival. Here event organisers had considered the local area and, in some cases, the audience expected at their community/arts festival, and tailored the activities on offer.

In organising events such as these, with no advertising and a completely incidental audience, the time, date and location are of paramount importance. Many event organisers reported that their audience levels were not as high as expected, often due to weather conditions or the event clashing with large events such as football matches. It may have been useful to set up alternative plans for poor weather arrangements and ensure large events in the area with a similar audience are avoided if possible.

A few events experienced issues related to their use of volunteers. These issues were predominantly due to not having as many volunteers as initially anticipated or the quality of volunteer staff being highly variable. An option to combat this problem would be to ensure that the events are sufficiently staffed without the use of volunteers, and that providing opportunities for volunteers is an addition to the event, not a requirement.

4. Audiences

In total, approximately 9,500 people were reached across the 14 events. The BSA, via The Audience Agency (TAA), contracted fieldworkers who surveyed participants at each event. Feedback was collected by face-to-face interviews with visitors on each event day using a survey designed by the BSA. Potential respondents were selected randomly to ensure a representative sample, and only those who had engaged with the activity were invited to take part in the survey. 453 responses were received across 13 of the 14 events, giving an overall margin of error of $\pm 4\%$. Note: the survey was aimed at adults, but data from under 16s was collected when they were part of a group with adults and permission was given to interview them (a count of 26 under 16s were interviewed).

TAA was then commissioned to evaluate the reach and impact of the Science in the City programme. TAA analysed the results of the audience feedback and compiled audience profiles based on geodemographic and engagement

segmentation, which classifies people into different 'segments' depending on their levels of cultural engagement and where they live. Segmentation and profiling can be used to understand more about the lifestyles and motivations of a group of attendees. TAA used two profiling tools: Audience Spectrum and Mosaic, which are discussed in more detail in the separate report.

The Audience Agency's full report is available upon request. Below is the report's "Summary and analysis of results".

4.1 Audience profile

The audience profiles were largely consistent across all events, with few significant differences between those that took place in public spaces and those that were part of a larger festival event.

Where the data indicate significant differences based on location type, or audience demographic, these have been noted in the findings.

4.1.1 Demographics and interests

Age

- Most respondents fell into the younger age categories, with over half (60%) being under 40 years old. The most prominent single group were 35-39 year olds, who accounted for 18% of attendees overall.
- The pattern remains the same for both public space and festival-based events although the age profile was slightly younger for the latter, with 66% respondents being under 40; 23% falling into the 35-39 age group, compared to 16% in the public spaces, and 11% falling into the 16-19 age group, compared to 5% in the public spaces.

Gender

- A higher proportion of respondents identified as female than male, with a split of 60% / 40%. This is in line with the pattern generally seen in responses to attendee surveys for cultural activities.

Ethnicity

The ethnic profile may be seen in the context of the geographical spread of events, and the relative ethnic diversity of populations in rural and urban areas.

- 87% of respondents identified as being White. This is directly comparable with the ethnic profile of the UK population, where 87% of people identify as being from a White background.
- The most prominent single BAME group was Asian / Asian British, at 5%. This may be compared to 7% in the UK population who identify as being from an Asian background.
- The profile for festival-based events was slightly more ethnically diverse, with 80% of respondents identifying as White compared to 89% in the public spaces. As with the overall findings, the most prominent single BAME group was Asian/ Asian

British, with 11% of festival respondents identifying as such compared to 3% in the public spaces.

Disability

- 92% of respondents identified as not having a disability. No direct comparison can be made with census population data, as the question was not asked in the same way, but as an indicative comparator 82% of the UK population identify as not having a limiting disability.

Geography and mapping

- The mapping indicates that each event attracted a largely local audience, with clusters of respondents around each location. Luton and Bournemouth had the furthest reach, which is likely due to the well-established and popular nature of Luton Carnival and the draw of Bournemouth as a holiday destination.

Interest in other activities

- Respondents indicated that they engaged with a wide range of leisure activities, with the most frequently cited activities being going to the cinema, attending and participating in sports events – particularly football - attending concerts, and visiting museums.
- Few attenders (a count of 27) said that they had no other interests, and very few (a count of 13) cited specifically science related interests.

4.1.2 Audience Spectrum profile

The Audience Spectrum profile for the overall Science in the City activity is proportionate with the UK population as a whole. To some extent this is a reflection of the geographical spread of events, but it also indicates that the events successfully engaged with a broad range of people from the highest levels of cultural engagement to the lowest.

The programme was particularly successful in attracting lower engaged groups, most notably **Up Our Street** (13%) and **Facebook Families** (13%), both of which were over-indexed in the profile compared to the UK population base.

- **Up Our Street (13%):** An older group, living on average or below average household incomes, for whom access in all its forms can be an issue. Up Our Street lean towards popular arts and entertainment, and are also visitors to museums and heritage sites. Characterised as modest in their habits and in their means, value for money and low-risk can be important factors in leisure decision making.
- **Facebook Families (13%):** A younger, cash-strapped group living in suburban and semi-urban areas of high unemployment. Least likely to think themselves as arty, arts and culture generally play a very small role in the lives. Less than a third believe that the arts is important. Often go out as a family: cinema, live music, eating out and pantomime being most popular.

4.1.3 Mosaic profile

The Mosaic profile indicates that the Science in the City programme was particularly successful in engaging less-affluent groups, although some level of engagement is indicated across all groups relevant to the geographical locations of the events.

The two most prominent groups in the profile are **Rental Hubs** (13%) and **Aspiring Homemakers** (11%). Both of these were significantly over-indexed compared to the UK population base.

- **Rental Hubs (13%):** Educated young people privately renting in urban neighbourhoods. Rental Hubs contains predominantly young, single people in their 20s and 30s who live in urban locations and rent their homes from private landlords while in the early stages of their careers, or pursuing studies.
- **Aspiring Homemakers (11%):** Younger households settling down in housing priced within their means. Aspiring Homemakers are younger households who have, often, only recently set up home. They usually own their homes in private suburbs, which they have chosen to fit their budget.

4.2 Relationship with science

Overall, active engagement with science was low amongst respondents, although the majority expressed some level of interest.

- 90% of respondents do not work in a science-related job.
- Two thirds (67%) of respondents said that they have an interest in science but don't make a special effort to keep informed.
- A small proportion of respondents (14%) said that science was not for them.
- Engagement with science festivals was low among respondents, with 61% of respondents saying that they hadn't ever attended or been aware of one. A further 15% had heard of science festivals, but hadn't attended.

4.3 Attitudes to chemistry

Although they expressed a lack of confidence in the subject of chemistry, the responses reflected a broadly positive attitude to chemicals and the levels of information available about their presence in everyday products. There were some slight differences by age group, gender, and levels of engagement with science, and these have been noted in the analysis.

Although direct comparisons cannot be made, as the questions asked and the context for the research samples differ from the Science in the City audience research, additional context from the RSC funded research, 'Public Attitudes to Chemistry' has been included for some of the findings.

- Just over half (52%) of respondents said they 'Strongly agree' or 'Tend to agree' that they don't feel confident enough to talk about chemistry. This is in line with the findings of the RSC research, where 52% of the sample said that they didn't feel confident to talk about chemistry.

- 47% of male respondents strongly agreed or agreed that they didn't feel confident compared to 56% of female respondents; indicating that the male attendees had a higher level of confidence in talking about chemistry. This is in line with the RSA research results which also showed a higher level of confidence in male respondents – 45% of males and 58% of females expressing lower levels of confidence.
- On the whole, younger respondents indicated a slightly higher level of confidence in speaking about chemistry than older respondents. For example, 49% of 16-24 year olds said that they strongly agreed or agreed that they didn't feel confident, compared to 61% of 55-64 year olds.
- Those respondents who expressed an active connection with science indicated a slightly higher confidence in talking about chemistry, than those with no active interest or no relationship with science; 42% of the science-engaged group saying they strongly agreed or agreed that they didn't feel confident compared to 55% of the lower or non-engaged.
- Almost two-thirds (64%) said that they felt 'Very well informed' or 'Fairly well informed' about chemicals used in their everyday lives such as those found in cleaning products and cosmetics. This is higher than the levels found in the RSC research sample, where 54% said that they felt informed about chemicals in everyday use.
 - Of those who expressed an opinion, those in the age groups between 25 – 44 indicated the highest levels of feeling informed about the chemicals used in everyday products, with 72% saying they felt very well or fairly well informed.
- Over half (57%) 'Disagreed strongly' or 'Disagreed slightly' with the statement that all chemicals are dangerous and harmful. This may be seen in the context of the RSC findings, where 75% of the sample disagreed with the statement. 48% of respondents aged 65+, and 40% of 55-64 year olds, disagreed with the statement, indicating that the older age groups are the most likely to think that all chemicals are dangerous.
 - A slightly higher proportion (67%) of those who said they had a connection with science disagreed with the statement compared to the lower or unengaged with science group (61%).

4.4 Experience ratings and impact

Satisfaction levels were consistently high, and the results indicated that engagement activities such as those delivered through the Science in the City programme can have a positive impact on levels of interest in science; including on those who don't feel that science is for them.

- 'Fun' was the word most frequently used to describe the experience of Science in the City. 'Interesting', 'Educational' and 'Informative' also featured highly.
- 91% of respondents overall rated the event they engaged with as 'Excellent' or 'Good'.

- Respondents to events in the public areas gave a slightly higher rating, with 93% rating the event as 'Excellent' or 'Good' compared to 88% of festival attenders.
- Over two-thirds (68%) of the largely disengaged groups, those saying that they had an interest but didn't make an effort to keep informed and those who said that 'science was not for them', said that their interest in the subject had increased as a result of engaging with a Science in the City event.
 - More specifically, almost half (46%) of those respondents who said that 'science was not for them' said that the Science in the City event had caused them to be 'much more' or 'a bit more' interested in the subject.
- A high level of satisfaction was indicated in responses to being asked for additional comments:

"Keep it up!"

"Science made fun"

"Shows that everyone can get involved in science"

In line with the decision to not promote the events in advance, 96% of respondents didn't know that science activities would be taking place before getting to the location of the event. Of the few respondents who said they had known, most of them said they had heard through word of mouth – from friends, family or colleagues.