

*Evaluation report*

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# Evaluation of In the Zone

## Final report

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# Executive summary

## Introduction

ICF GHK Consulting, in association with Brand Driver Ltd and Red Kite Advice and Consulting Ltd, was commissioned in November 2011 to conduct the evaluation of the In the Zone initiative. This is the final report of the evaluation, which focused on the two main components of the initiative: the In the Zone experiment kits and the touring exhibition.

The Wellcome Trust's education strategy, and the opportunity offered by the 2012 London Olympic and Paralympic Games, set the context for In the Zone. Lessons from the earlier Darwin Education initiative, which included the development of experiment kits on the topic of evolution for primary schools (the Great Plant Hunt) and secondary schools (Survival Rivals), underpinned the approach that was followed. The report of this evaluation work is available on the Wellcome Trust website.

The focus of the In the Zone initiative was physiology – specifically, the science of how the body works during exercise, movement and rest. The initiative featured two main components: the distribution of a free set of experiment kits to every UK school and a UK-wide touring exhibition. Additional activities included In the Zone 'Lite', a pop-up experience, and a programme of training for non-teachers. In the Zone was championed by Sir Steve Redgrave CBE and was awarded the Inspire Mark from the London Organising Committee of the Olympic Games (LOCOG).

The evaluation featured qualitative and quantitative elements, including interviews with programme and STEM stakeholders, a telephone survey of 502 schools, case study fieldwork with 17 primary and secondary schools, visits to seven touring exhibition events (with an exit survey and interviews with non-users and staff), and the review of internal documents and management information.

## The school kits

### Background

Experiment kits, as shown in Figure 1.1, were developed for use in primary and secondary schools. The primary school kits consisted of four sets of experiments linked to the theme of 'body parts' and the secondary school kits consisted of three sets of experiments on 'limits to performance'. Both kits were complemented by online resources through a dedicated In the Zone website ([www.getinthezone.org.uk/](http://www.getinthezone.org.uk/)). In each case the kits included 'high value' practical equipment that could be used more widely across schools.



Figure 1.1. The In the Zone kits

More than 32 000 kits were produced by a consortium led by Pearson Education, with Guardian Professional providing communications support. Every primary school, secondary school and further education college across the UK received a kit at no charge during February or March 2012. Recipients also included teacher training colleges, science centres, independent schools and special schools with more than 30 pupils.

The kits were sent to Heads of Science in secondary schools and Science Coordinators in primary schools. In contrast to the Darwin Education initiative, which was solely aimed at teachers of science, some marketing approaches for In the Zone targeted PE teachers to encourage them to work with their science colleagues, although the kits were not sent to them directly.

## Levels of awareness and use

Table 1.1 provides a summary of the levels of awareness, use and expected continued use, and teacher satisfaction with the kits as reported in the teacher survey, with comparative data for the Darwin Education initiative.

Table 1.1 A comparison of In the Zone and the Darwin Education Initiative

	In the Zone			Darwin		
	Primary (n = 250)	Secondary (n = 252)	Total (n = 502)	Primary (n = 250)	Secondary (n = 252)	Total (n = 502)
<b>Of all teachers surveyed</b>						
Awareness of ITZ/Darwin	83%	91%	87%	96%	81%	88%
Of these, awareness of kits with arrival of the box itself	72%	67%	69%	47%	N/A	N/A
Usage rate	61%	71%	66%	60%	41%*	51%
Of users, percentage fairly or very likely to use again	94%	95%	94%	99%	94%	97%
Percentage of teachers using website	24%	27%	25%	32%	26%	29%
<b>Teachers who had looked at kits</b>	<b>Primary (n = 192)</b>	<b>Secondary (n = 209)</b>	<b>Total (n = 401)</b>	<b>Primary (n = 231)</b>	<b>Secondary (n = 179)</b>	<b>Total (n = 410)</b>
Used teacher notes	70%	54%	62%	73%	84%	78%
Percentage of teachers reporting content as good or very good	92%	97%	94%	98%	98%	98%
<b>Of all teachers surveyed</b>	<b>Primary (n = 250)</b>	<b>Secondary (n = 252)</b>	<b>Total (n = 502)</b>			
Teachers aware of Darwin materials	34%	38%	36%			
Percentage of these still using the Darwin materials	70%	62%	66%			

Source: In the Zone teacher survey, conducted September 2012; Darwin survey, conducted September 2009. NB Darwin secondary sample included schools ordering kits (202) and schools not ordering kits (50).

\* Base: 202 secondary schools ordering only.

Links to the London 2012 Olympics and a high-profile project champion were helpful in securing early stakeholder engagement and media coverage. However, the teacher survey found the majority of teachers (69 per cent) became aware of the kit when the box itself arrived. This was despite several pre-marketing activities, which included: a series of direct emails, letters, posters and flyers sent to schools; the opportunity to sign up for e-newsletters; and the availability of In the Zone resources via TES Connect, which were viewed 3698 times. Sir Steve Redgrave featured in some of these marketing materials but not on the kit boxes; his role did not seem to influence teachers' awareness or use of the kits.

In the first six months after distribution, 66 per cent of the primary and secondary schools surveyed had used the kit, whether following one or more of the prescribed activities (52 per cent) or using the equipment provided independently (14 per cent). This exceeded the target of 60 per cent. A larger share of secondary schools than primary schools used the kits (71 per cent and 61 per cent, respectively). This use rate is particularly impressive because most teachers were not aware of the kit until it arrived at the school, which emphasises the importance of kit design and functionality, perhaps more so than any pre-marketing.

As with the Darwin Education kits, the quality, appropriateness and 'ready-to-use' nature of the kits were the primary triggers for use among teachers. The inclusion of high-value products in the kits also sent a clear positive message to teachers that they were valued and worth investing in. This was especially true of the special schools.

No significant reasons emerged regarding why some of the schools surveyed were yet to use the kits, and non-use did not reflect perceptions of the quality of the kits or competition from other resources (Olympic-themed or otherwise). Indeed, there were no discernible patterns of non-use by location or country in the UK or by any other characteristics.

### **Usage rate compared with other similar initiatives**

The previous Darwin Education initiative and LOCOG's Get Set education initiative provide some useful, albeit limited, points for comparison. Although the 66 per cent usage rate for In the Zone exceeded the rate achieved for Darwin (51 per cent), we would expect a lower rate among secondary schools because the Darwin kits had to be ordered. LOCOG's Get Set programme was joined by 88 per cent of UK schools; however, several incentives were provided and this result was achieved over a four-year period.

### **Competing resources**

In the Zone was one of many STEM- and/or Olympic-related initiatives that schools were exposed to in 2012, and 71 per cent reported having used at least one other Olympic-themed external resource. However, the use of other resources did not seem to displace the use of In the Zone, as just 7 per cent of all respondents reported using other Olympic-related activities but not using In the Zone.

### **Type of use**

Most schools (67 per cent) first used the activities or materials in the summer term of 2012, suggesting that the kit was picked up and used fairly quickly. The main motivating factors for use across the schools were relevance to the curriculum, ease of use and the high-quality appearance of the kits.

In incorporating In the Zone materials into the curriculum, primary schools tended to focus more on the health theme (34 per cent) than on biology (29 per cent), and 19 per cent used them to support an Olympic theme. Secondary schools tended to focus on biology (54 per cent) rather than health (21 per cent) and were much less likely to focus on the Olympic theme (3 per cent).

### **Views on quality**

The vast majority of teachers responding to the survey rated the quality of the kits as either good or very good (94 per cent) – a similar rating to the Darwin materials (98 per cent). Evidence suggests teachers have used the kits to deliver cross-curricula work and applied them flexibly with pupils of different ages, with 40 per cent having used the equipment provided independently of the prescribed experiments.

Although survey responses from primary teachers suggested there was no obvious 'favourite' experiment, the secondary respondents suggested the experiment designed for 11–14-year-olds was the most popular – as was also the case for the Darwin Survival Rival materials.

### **Use of teacher notes**

62 per cent of all teachers that had examined the contents of the kits reported also looking at or using the teacher notes in the survey. Some 95 per cent of those reading the teacher notes described them as either very easy (70 per cent) or fairly easy (25 per cent) to understand. Primary teachers were markedly more likely than secondary teachers to use the notes in lesson planning (46 per cent versus 24 per cent).

### **The website**

Google Analytics data show that between January and December 2012, there were 120 533 visits to the In the Zone website, 32 per cent of which were returning visitors. For Darwin in the 12-month period January 2009–January 2010, the number of visits to the Great Plant Hunt website for primary schools was slightly higher at 156 633, and the number of visits to the Survival Rivals for secondary schools was much lower at 31 525 over a 15-month period. The design and functionality of all three websites were similar in terms of providing interactive games, videos and downloadable materials, but because the Survival Rivals school kits had to be ordered, we would expect overall use rates – and, in turn, website hits – to be lower.

The number of visits to the In the Zone website was highest in May and June 2012, coinciding with 'Get In the Zone Week' when schools were encouraged to use the practical activities in the kits and access the website. Perhaps most significant is the drop-off rate after the London 2012 Olympics: much smaller numbers accessed the website in the autumn.

One in four (25 per cent) respondents to the teacher survey reported using the website, which was most commonly used by teachers to download teaching materials and by pupils to watch videos. The share of primary and secondary schools using the website was small, but primary schools generally made more use of it than secondary schools.

Overall, however, the impact of the website was marginal. This raises the question of how to make more effective use of an online resource in the context of a 'time-poor' profession with limited access to personal computers on a daily basis.

### **Impacts**

Teachers reported that using the kits had provided positive impacts for pupils. The survey found that more than half of primary (59 per cent) and secondary (56 per cent) teachers felt that the kits had a great deal of

impact on pupils – mainly in terms of increasing their enjoyment of science lessons but also in enhancing knowledge, inspiring them and increasing their engagement with science.

Those who had read the teacher’s notes, or who worked in schools that regularly engage in enhancement and enrichment activities, were more likely to say In the Zone had a great deal of impact on pupils.

The teachers also reported impacts for themselves and their schools. The vast majority (92 per cent), and particularly primary teachers, using the kits said they had supported their teaching of the science curriculum a great deal (59 per cent) or a little (33 per cent).

### **Legacy**

The Wellcome Trust was keen that the kits be used by schools as an ongoing resource. The evaluation found that almost all of the teachers surveyed using the kits have continued to use them after the 2012 Olympics and plan to continue using them in the future. In addition, 76 per cent of the schools yet to use the kits said they were very or fairly likely to use them in the future.

More than a quarter of the teachers intending to use the kits in future described having firm plans in place for the 2012/13 school year, while half (47 per cent) were yet to make firm plans or schedule their use. Most teachers intended to use the activities across whole year groups and to use the equipment independently from the experiments; this was particularly true among primary teachers.

This was also reflected in the case study schools, each of which stated that they had plans in place to use elements of the kit in the coming year and beyond, with their use being mainstreamed if not necessarily branded as “In the Zone”.

Biology teachers and those new to the profession were the most keen to continue using the kit. In secondary schools, biology teachers were more likely to report being very likely to reuse the kits (63 per cent) than those who taught another science (55 per cent). Teachers more recently entering the profession were also more likely to report being very likely to use the kits again, compared to those who had been teaching for more than 15 years (44 per cent compared to 27 per cent).

### **Suggestions for improvements**

The majority of teachers responding to the survey felt there were no areas for improvement with the kits. Where suggestions were made, these were mainly about including more equipment to enable wider use by pupils. This is perhaps a reflection of a general lack of practical resources available for teachers, an issue commonly raised in the case study fieldwork.

### **Summary recommendations**

Our recommendations for any future large-scale education initiative include:

- Replicate the following core principles, found to be effective, in any future educational resource:
  - using a well-designed and clearly labelled box to act as the main marketing tool
  - producing kit content that is interactive, easy to use and tailored to the curriculum
  - including high-value equipment to boost teacher morale and provide additional practical resources, as well as to promote ongoing use.
- Consider the use of external events as a hook for future initiatives (while recognising that such links are useful but not mission critical), particularly given the momentum created by the Darwin Education and In the Zone initiatives. However, a key consideration is to ensure the design of materials is not too explicitly linked to a single event to avoid being seen as outdated.
- Explore the apparent higher levels of materials use with 11–14-year-old secondary pupils as part of any future preparatory research, to identify whether this is a reflection of general teaching patterns or a consequence of experiment design.
- Alternatively, consider the production of a single ‘light-touch’ box of resources per year, rather than relying on an external hook for larger scale initiatives. While not explicitly articulated by teachers themselves, this option could focus on a different theme in the biology curriculum each year and be more targeted towards specific years (or at least primary and secondary).
- Consider limiting future investment in website development and focusing on providing a mechanism for refreshing or re-ordering resources, and the means for teachers to download extra teaching and/or guidance materials.
- If pre-marketing is seen as important, explore the opportunities to develop person-to-person contact to improve the effectiveness of marketing investment. The use of ‘link teachers’, and closer working with STEM-focused organisations and networks, should also be considered.

## The touring exhibition

### Background

The touring exhibition was designed and delivered by the At-Bristol Science Centre and was the first time that the Trust had commissioned an outdoor interactive touring exhibition. It took the form of a large inflatable dome supported by a live stage show and buskers (Figure 1.2). Inside the dome, participants progressed through five interactive activities in approximately ten minutes, with the opportunity to retrieve personal performance data from the In the Zone website.

Figure 1.2. The In the Zone touring exhibition



### Engagement levels

The touring exhibition appeared at 16 events across the UK between March and September 2012, each of which were designed to cater for the general public, particularly families, and included events directly linked to the London 2012 Olympic and Paralympic Games. A total of 91 006 participants engaged with the exhibition: 54 660 people completed the five activities, and the remainder experienced the show or busking outside the dome.

The design and look of the exhibition, combined with the proactive work of the buskers, worked well in attracting visitors. Key motivating factors for engagement were that the exhibition looked interesting, the presence of the buskers, the appearance of the dome and that it looked 'fun'.

A range of external factors should be considered when understanding engagement levels for each event, such as:

- the weather – the poor weather in the summer of 2012 led to some of the host events being cancelled and influenced the composition of the audience at others
- pitch location – where the exhibit was placed had substantial implications for footfall
- the type and nature of event – particularly in terms of audience type.<sup>1</sup>

As local marketing of the In the Zone experience was not prioritised separately from the marketing of the host event, the evaluation found little prior awareness of the exhibition among participants. Where pre-event marketing took place, it resulted in higher awareness levels being expressed by exit survey respondents. Perhaps the most effective marketing took place where staff were able to engage in wider in-event marketing, although this was not allowed in all events.

### Satisfaction levels

The aim of delivering an interactive experience that provided a memorable experience and generated interest in biomedical science across diverse audiences was achieved. The response of participants was overwhelmingly positive: 99 per cent of those interviewed exiting the dome said they found it very (90 per cent) or fairly entertaining (9 per cent).

Particular features that participants enjoyed were the family-focused nature of the experience, the competitive element, and the interactive and physical exercise elements. The Live Handcycling activity proved the most popular exhibition activity across all ages and both sexes.

<sup>1</sup> Annex 2 provides a descriptive overview showing the context for each event.

### **Barriers to participation**

Some respondents to the exit survey reported not being clear on what was inside the dome and what they would be required to do. This led in some cases to certain misconceptions that prevented some people from engaging – for example, that the exhibition was about dance, that it was for younger children only or that it would not cater for pushchairs or wheelchairs.

### **Aspects of the delivery model**

One of the delivery challenges was allowing sufficient time at each activity while maintaining a steady flow of participants through the exhibition. With an overall duration time of just under ten minutes, the rapid pace of progress through the exhibition proved not to be an issue for most participants, and the vast majority (95 per cent) stated that they understood what to do at each stage. However, participants suggested that perhaps more time was needed to account for young children, where parents had to take time to explain and facilitate their participation.

The TV theme provided a useful narrative for the explainers and buskers when facilitating the process and encouraging engagement, even though it was not always reported as being particularly prominent by the participants interviewed.

The use of buskers worked very well and was vital in both engaging passers-by and entertaining those waiting in the queue. The show also worked well in terms of entertaining the queue, with more than 90 per cent of those having seen the show reporting that they found it very or fairly entertaining. However, where there was no queue or only a short queue, which seems to have been the case for substantial periods of time at several venues, the show was modified accordingly.

The celebrity endorsement by Sir Steve Redgrave was important for media profiling, and his presence at events proved popular, but it does not seem to have motivated substantially more attendance.

Overall, the exhibition was perceived as being physically active, fun, and based on activities that users felt they performed well. This suggests the activities were pitched well and achieved a good balance between providing learning opportunities and being accessible and fun.

### **The website**

One-third (36 per cent) of participants went on to access the In the Zone website, with a degree of variation between events. User engagement with the online aspects of the exhibition compared well to similar approaches elsewhere, which typically report take-up rates of between 10 and 16 per cent.

### **Impacts**

More than half the respondents exiting the dome said they had learned something from their experience, including ‘that the heart pumps blood’, ‘that their body contains a network of blood vessels’, ‘that muscles, bones and tendons work together to lift the body’ and ‘that exercise affects their heart rate and breathing rate’.

### **Legacy**

The exhibition is the property of At-Bristol, which is keen to ensure that booked and paid-for use is maximised through maintaining a low cost base. The continued use of the exhibition fits well with the At-Bristol Explore More concept – where exhibitions at the centre include an online element to encourage follow-up and continued visitor engagement at home.

The main challenges to the ongoing use of the exhibition are its size, the logistics of moving it between sites and the number of staff required to deliver a meaningful experience. Several modifications were considered, with a decision made to merge the transition zones with the exhibits and to reduce the current four lanes to two. The exhibition is also being split in two, although it can be re-combined: one half is remaining on site at At-Bristol, and the other half is being marketed to a range of venues, such as science centres, shopping malls and sports events.

### **Summary recommendations**

- Consider the ‘key success factors’ for attracting audiences identified in the study in any future activity of this type, namely that the exhibition is highly visible, is clearly labelled, looks interesting, includes physical activity and is well paced.
- We also endorse the additional ‘venue success factors’ identified by At-Bristol (i.e. that the events have free entry, attract a similar target audience as the service provided, have an obvious content link and/or tie in, and include a ‘discovery’ or ‘activity’ zone).
- Place more of an emphasis on internal marketing to audiences already on site, with tailored pre-event promotion taking less of a role, through the increased use of buskers (where allowed by venues) and by securing a prominent and accessible location.

- Ensure the activities within the exhibition are visible to passers-by, with information describing the extent to which the exhibition is accessible for all, to alleviate potential concerns and encourage participation.
- Consider using the live show more to draw in users when the queue is short or using videos without a soundtrack that can then be easily adapted by the actors to suit a specific situation, to build on the success of the approach already taken by At-Bristol.
- If a celebrity endorsement is considered for any future exhibits, we suggest that research is undertaken to establish the suitability and levels of awareness of the individual in question.
- Provide hard copy material (such as simple leaflets) in addition to online routes to additional information and potential learning for visitors, and ensure that in any future cross-branded initiative, examples of other materials (in this case, the kit boxes) are on show at each event.
- Although the TV theme was not always recognised by participants, it provided a useful narrative for staff, so the use of a theme should be considered in future providing it is appropriate to the content of the exhibition and a decision is taken early on in the design process.
- Ensure that tour bookings allow sufficient time between events for travel, set-up and knock down, and to allow for issues and/or delays.

## The linked activities

### Background

The Wellcome Trust commissioned and funded a range of additional activities to complement the two main strands of In the Zone. These included In the Zone 'Lite' (which featured a pop-up experience) and a network of training events. Several grants were also awarded, including those for Face to Face with Sports Science, the 'Science Junkie: In the Zone' live science show and *I'm a Scientist, Get Me Out of Here!*

### In the Zone 'Lite' Pop-up Experience

This project included a range of interactive exhibits and workshops delivered at 21 events across the UK on the theme of elite athlete performance. The majority of these were delivered at non-science events, and audiences varied from family groups to adults.

Delivered over 27 days, this strand of activity successfully engaged with a total of 178 910 participants. Nearly half of these engagements (78 910) consisted of direct one-to-one interactions (one member of staff discussing the science and activities with an individual).

The majority of respondents to the evaluation survey engaged with the activity for 11–30 minutes, and 22 per cent remained for longer than 30 minutes. Overall, very positive qualitative feedback was received at all the events.

Measures of the impact of the exhibition were found in the following three areas:

- 82 per cent of respondents said they 'liked science more after engaging with the activities than before'.
- 69 per cent of visitors said they 'liked sport more after engaging with the activities than before'.
- 83 per cent said they would look at the In the Zone website after visiting the pop-up events.

The pop-up experience was also taken to the National Science and Technology Fair in Bangkok, resulting in a footfall of 100 000.

### In the Zone 'Lite' network of training events

This activity consisted of a network of training delivered to 199 scientists, youth leaders and communicators at 14 events across the UK. The training focused on how to use the school kits and busking activities in informal settings.

The overwhelming majority of participants were positive about the training and found it enjoyable, well organised and relevant. Some 96 per cent of participants reported that they would recommend the training to a friend or colleague and would use the training in their future work with young people.

### Face to Face with Sports Science

Designed and delivered by the Research Institute of Sport and Exercise Sciences at Liverpool John Moores University in partnership with World Museum Liverpool and the Museum of Science and Industry (Manchester), Face to Face with Sports Science (F2FSS) included interactive exhibits and workshops highlighting the science underpinning the performance of elite athletes and the application of this research to the general public.

The success of this project at the museums led to invitations to take F2FSS to the 'Blue Peter Big Olympic Tour' events. F2FSS was also invited to the British Cardiovascular Society Annual Conference, where activities were delivered to more than 120 schoolchildren aged 10–11 and 20 teachers from Manchester.

### **The ‘Science Junkie: In the Zone’ live science show**

A high-energy live science show exploring the physiology and sports engineering that make an Olympic or Paralympic athlete a champion. It was performed at 15 public events (principally science and music festivals), with 46 shows playing to more than 10 000 children and adults, and at 21 school events, with more than 50 shows reaching almost 9000 pupils.

Key findings from their evaluation suggest the shows were effective in stimulating an increased interest in the biosciences among their audiences: the vast majority found the show excellent or good and reported that they had learned something new. The ‘demonstration’ elements of the show proved the most popular.

### ***I’m a Scientist, Get Me Out of Here!***

*I’m a Scientist* was a free online event facilitating contact between school pupils and scientists. During the ten weeks of delivery, more than 1600 students submitted more than 1785 questions, and students had more than 110 live chats with 39 scientists. Most questions were on topics of the mind and body in motion.

Although it proved challenging to recruit teachers, positive feedback was received from the vast majority of the young people, teachers and scientists involved.

## **The management and delivery of In the Zone**

### **Background**

One objective of In the Zone was to consolidate the Trust’s role as a leader in science education and provider of contemporary science resources for UK primary and secondary schools. This was perceived as important in helping to maximise engagement with each strand of activity and to position the Trust more strongly for any future similar initiatives.

Considerable importance was placed on the management and delivery of In the Zone, and considerable resources were directed towards it. The management structure adopted by the Trust consisted of a small dedicated team within the Trust to lead on and deliver In the Zone, working closely with key delivery partners and supported by a series of working groups – particularly during the development stage – involving an impressive range of high-profile experts.

### **The approach to marketing**

For In the Zone, the Trust adopted a more proactive and coordinated approach to marketing and communications than for the previous Darwin Education initiative.<sup>2</sup> This involved making the Trust more prominent, creating a single common brand across the different strands and hiring Sir Steve Redgrave to provide a celebrity endorsement and act as project champion.

The benefits of using a single brand were not immediately clear, with little cross-promotion being identified (e.g. the school kits were rarely displayed at events featuring the exhibition). Although the single brand was visible to most of the professionals interviewed, users of the kits and exhibition reported little awareness of the other product, and the different strands seemed to run in parallel to – rather than complementing – each other.

Assessing the impact of the investment in a high-profile project champion is not straightforward. However, it was clear from the partners and stakeholders interviewed that Sir Steve Redgrave played an important part in raising the profile of the initiative within the STEM infrastructure. Although the endorsement by Sir Steve Redgrave was important for media profiling, and his presence at events proved popular, it does not seem to have motivated substantially more attendance or influenced the use of the kits.

Overall, the positive experiences reported by users of the main strands of the initiative, and the positive feedback received from stakeholders, suggest that In the Zone has strengthened the position of the Trust as a provider of quality education materials in the biological sciences. For example, 21 per cent of respondents to the teacher survey were aware of the Trust’s role in providing science education materials and activities for schools (31 per cent secondary and 11 per cent primary). This builds on the Darwin Education Initiative and provides a strong base for future initiatives.

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<sup>2</sup> See Annex 6 for a summary report of the Darwin Evaluation.

**Summary recommendations**

When managing a project of this scale, we recommend that organisations:

- Allow more time for development – although the main initiative strands were delivered to time, a longer ‘active’ development period would have reduced risk and better allowed for slippage.
- Be clear on the purpose and function of any common branding across multi-stranded initiatives before making any investment and, if such an approach is followed, use the single brand to underpin and inform a systematic approach to cross-promotional activities (e.g. by routinely including information on or references to all strands in all marketing, exhibits and/or products).

## Introduction

ICF GHK Consulting, in association with Brand Driver Ltd and Red Kite Advice and Consulting Ltd, were commissioned by the Wellcome Trust in November 2011 to conduct an independent evaluation of the In the Zone initiative. This is the final report of the evaluation, which was undertaken between December 2011 and January 2013 and follows two earlier formative reports in April and July 2012. The report draws on all stages of the evaluation to provide a summative assessment of the development, delivery, management and impacts of the initiative, and provides lessons and recommendations for the Wellcome Trust in planning similar initiatives in the future.

The evaluation focused on the two main elements of the In the Zone initiative: the school experiment kits and the touring exhibition.

The initiative also included another strand, In the Zone 'Lite', which featured a pop-up experience and a training programme.

Several grants were also awarded, including those for Face to Face with Sports Science, the 'Science Junkie: In the Zone' live science show and *I'm a Scientist, Get Me Out of Here!* Each component of the initiative is described in detail in Section 2.

### The evaluation: aims and objectives

In the Zone is an ambitious, large-scale, multi-component initiative. In commissioning this evaluation, the Wellcome Trust was keen to learn about the process by which the initiative and the different elements were developed and delivered, including their impact and legacy effects, with a view to identifying lessons for future initiatives. Indeed, the overall aim of the evaluation, as set out in the invitation to tender, is "to determine the extent to which the In the Zone elements worked together to create a coherent programme which engaged people with the science of how the body works during exercise, movement and rest".

The specification, in particular, set out several areas for focus, which formed the core of the final agreed methodological approach. In summary, these were:

- Project and process, including the review of project management arrangements, the effectiveness of the delivery model, the partnership arrangements, the use of a 'hook' and the links forged between the different elements.<sup>3</sup>
- School experiment kits:
  - at the school level: the number, spread and type of schools that participated, reasons for non-use, and impacts on teaching methods and teacher collaboration
  - among teachers: awareness of marketing, views on quality, levels of use, triggers for and/or barriers to use, required levels of support, and perceived impacts
  - among pupils: levels of engagement, views on quality and perceived impacts.
- The touring exhibition: the number and types of people that engaged, the most and least successful exhibits and reasons why, the link between the venue and visitor experience, triggers for and/or barriers to engagement, perceptions and experiences of users, and perceived impacts (e.g. the extent to which people engaged with and learned about the science of how the body works).
- Legacy and future initiatives: looking specifically at legacy effects within schools, the wider public and delivery partner organisations, and including recommendations for future management and delivery of similar large-scale initiatives.

The Trust is also interested to learn how In the Zone compares with the previous Darwin Education initiative. Where relevant, the findings from the In the Zone evaluation are compared to the findings from the Darwin evaluation.

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<sup>3</sup> In this instance, the hook was the 2012 Olympic and Paralympic Games.

## Evaluation methodology

The evaluation methodology included qualitative and quantitative elements across several stages, as summarised below. More detailed information relating to the stakeholder interviewees, venues visited, school case studies and teacher survey is provided in Annexes 1–4.

### Scoping stage

This involved a series of initial tasks to develop a detailed understanding of the initiative, the materials produced for it, and the supporting process components. Specific tasks included:

- an internal document review for each element of the initiative
- a literature and practice review to map other similar initiatives
- initial interviews with the Wellcome Trust, the key delivery partners (including Guardian Professional, Pearson Education and At-Bristol) and additional stakeholders involved in the development process
- the development of a framework for the evaluation and an implementation timetable.

### Evaluation of the overall project process, impact and legacy

This stage of the evaluation was concerned with evaluating the development and delivery approach to In the Zone and exploring its benefits, impacts and legacy from a stakeholder perspective. Specific tasks included:

- follow-up ‘programme stakeholder’ interviews with the Trust and the key delivery partners
- interviews with a set of wider ‘STEM stakeholders’, comprising organisations involved in science education, promoting science as a subject or career choice, or wider science promotion and communication activities
- an ongoing review of key internal documentation.

### Evaluation of experiment kits: process and impacts

This stage featured two main activities, supported by a review of available monitoring information:

- A telephone survey of 502 primary and secondary schools across the UK, including special schools and private schools, which took place between September and November 2012.
- Impact case study fieldwork with 17 primary and secondary schools, which included visits to schools and consultations with teaching staff using the In the Zone materials. We engaged with schools from all four countries of the UK, including special schools, a private school and an FE college. A descriptive overview of the institutions visited is listed as Annex 3.

### Evaluation of the In the Zone touring exhibition: process and impacts

The approach for this element of the evaluation featured three main tasks:

- visits to and observations of seven events, including an exit survey, interviews with staff, and interviews with non-users
- a follow-up focus group with staff members involved in the delivery of the exhibition
- analysis of management information, including the review and analysis of data collected by the providers.

### Review of additional In the Zone elements

Finally, the evaluation reports produced by linked In the Zone activities not explored in detail in this evaluation (namely In the Zone Lite, the ‘Science Junkie: In the Zone’ live science show, and *I’m a Scientist Get Me Out of Here!*) were reviewed to provide additional coverage of the initiative.

## Report structure

The remainder of this report is structured as follows:

- Section 2 provides an overview of the In the Zone initiative, including the school experiment kits, the touring exhibition and the additional linked activities.
- Section 3 explores the process by which In the Zone was managed and developed, including the marketing and communications approach followed.

- Section 4 provides the key evaluation findings as they relate to the school experiment kit, covering awareness and marketing, use of materials, the website and additional support, perceived impacts, and plans for future use.
- Section 5 sets out the key evaluation findings as they relate to the touring exhibition, covering awareness, patterns of engagement, triggers and barriers to participation, enjoyment levels, perceived impacts, and follow-on website activity.
- Section 6 summarises the key findings from the evaluations of the main linked activities, In the Zone 'Lite', the 'Science Junkie: In the Zone' live science show, and *I'm a Scientist Get Me Out of Here!*
- Section 7 provides overall conclusions and recommendations for the Trust, drawing out highlights and key lessons for future initiatives. It also sets out future plans in relation to each of the strands.

The report also features seven annexes:

- Annex 1: List of stakeholder interviewees
- Annex 2: List of sites visited for the Touring Exhibition fieldwork
- Annex 3: List of school case studies
- Annex 4: Overview of findings from the two case study special schools
- Annex 5: Description of telephone survey sample
- Annex 6: Review of other similar initiatives
- Annex 7: Summary evaluation report of the Darwin Education Initiative.

# In The Zone: an overview

## Introduction

A key objective of the Wellcome Trust is to stimulate the public's interest in and engagement with science, a central element of which involves the provision of education programmes to promote science. In particular, the Trust has an education strategy that sets out the aims of promoting contemporary science in the curriculum, supporting teachers in the delivery of high-quality and stimulating science education, and enabling young people to engage with biomedical science and the issues it raises.<sup>4</sup>

As part of this agenda, and following the successful Darwin Education Initiative, the In the Zone Initiative was launched in 2012 (after a period of development and initial promotion) as an Olympic-inspired education and public engagement programme. Focused on physiology and the science of how the body works during exercise, movement and rest, the initiative featured two main elements: the distribution of a free science kit to every UK school and a UK-wide touring exhibition. Several linked additional activities were also developed, including a pop-up experience and a programme of training for non-teachers.<sup>5</sup>

In the Zone was championed by Sir Steve Redgrave CBE and was awarded the Inspire Mark from the London Organising Committee of the Olympic Games (LOCOG). The link to the London 2012 Olympics was perceived as an important hook to mobilise engagement among teachers and the wider public with both of these main elements. The Trust, however, intended the initiative to outlive the London 2012 Olympics, particularly in relation to the school experiment kits, which were intended to provide resources that could be drawn upon in the future.

In the Zone is therefore an ambitious, large-scale, multi-component initiative comprising a range of activities linked by a common brand. The main components that formed the focus of this evaluation are described in more detail below, followed by an overview of the additional linked activities.

## The school experiment kits

The Wellcome Trust's education strategy, the success of the Darwin Education Initiative and opportunity presented by the 2012 Olympic and Paralympic Games provided the drive for the In the Zone initiative. As Section 3.3 describes, considerable preliminary research was commissioned by the Trust, the findings of which suggested that the teaching of physiology was widespread and that there was considerable interest in an Olympic-inspired resource.<sup>6</sup>

In line with these findings, the Wellcome Trust commissioned a series of Olympic-inspired and age-appropriate experiments for young people in schools aged 4–19 that explore a range of physiological phenomena within the context of various physical activities. A key aspect of the experiment kits was the inclusion of high-value technological items. One kit caters for primary school pupils and the other caters for secondary school pupils, with individual experiments designed for each key stage or equivalent. For primary schools the theme is 'body parts', with four experiments available within the kit, and for secondary schools the overall theme is 'limits to performance', with three separate experiments available.

As part of the In the Zone website ([www.getinthezone.org.uk/](http://www.getinthezone.org.uk/)), there was a Live Data Zone for secondary school pupils in particular to upload data. Figure 2.1 below provides an overview of the individual experiments in each kit.

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<sup>4</sup> Wellcome Trust Education Strategy 2010–2020. 'Inspiring Science Education: Extraordinary opportunities'.

<sup>5</sup> Although these are referred to in this report, they did not form a focus for the evaluation.

<sup>6</sup> Ed Comms. 2010. Wellcome Trust: Resource development research report.

Figure 2.1. Overview of individual experiments

### Primary kit

- **Brilliant Bodies, for ages 4–5**, is all about body parts and balancing. This uses the body challenge cards, the floor tape and the Fizzy puppet from the box.
- **Stupendous Steppers, for ages 5–7**, investigates which kind of step is fastest, how to improve reaction times and use pedometers to determine how active they are. This uses pedometers, reaction testers, stopwatches and timers.
- **Super Athletes, for ages 7–9** – pupils investigate body facts and fictions and find out whether people with the longest legs jump the farthest. They use what they have learned to design their own Super Athlete. This uses measuring tapes and floor tape.
- **Heart Beaters, for ages 9–11** – children investigate how their hearts work and how their bodies recover after exercise. They use what they learn about the effect exercise has on their pulse rate to solve problems. This uses stethoscopes, pedometers and timers.

### Secondary kit

- **On Your Marks, Get Set, Breathe, for ages 11–14**, consists of four experiments in which students find out their breathing rate, lung volume, peak flow, blood oxygen level and pulse rate and explore the effects different types of physical activity have on them. This uses pulse oximeters, peak flow meters and lung volume bags.
- **From Strength to Strength, for ages 14–16** – students measure the size of their muscles and relate this to strength and endurance, investigate their upper and lower body strength, and explore the effect of fatiguing one set of muscles on another. This uses tape measures and chalk.
- **I've Got the Power, for ages 16–19** – students investigate aerobic and anaerobic respiration. They calculate the power they generate, estimate their  $VO_2$  max and measure the  $CO_2$  they breathe out, blood pressure and pulse rate before and after exercise. This uses the respirometer, blood pressure monitor and pulse oximeters.

The experiments were designed to be used in a 'carousel' model, whereby different elements of the kit could be used by different groups and circulated as part of a lesson. In addition to being used in the set experiments, the component parts of each kit could be used separately. The inclusion of 'high-value' items such as the blood pressure monitors, pulse oximeters, pedometers and timers was intended to provide schools with additional resources for wider use.

The kits were developed and delivered by a consortium led by Pearson Education, with Guardian Professional providing communications support. One kit was delivered free of charge to every primary school, secondary school and further education college across the UK during February or March 2012, including special schools, independent schools, teacher training colleges and science centres. The kits were sent to Heads of Science in secondary schools and Science Coordinators in primary schools.

In contrast to Darwin, some marketing approaches for In the Zone also targeted PE teachers, although the kits were not sent to them directly. The intention was that the kits would be used not only in the lead up to the London 2012 Olympics but also beyond. The experiments have been designed deliberately to not require specific CPD, and they include guidance on their use and links to the curriculum to enable them to be used 'straight out of the box' – an identified strength of the previous Darwin materials. They were also packaged to be highly visible and appealing to teachers, as Figure 2.2 below illustrates.

Overall, and in a similar vein to the Darwin Education initiative, the aims of this strand were broadly two-fold:

- to create an enjoyable experience for both teachers and pupils, with a view to supporting teachers in delivering more practical and pupil-led investigative experiments
- to increase scientific knowledge among pupils, particularly in their understanding of how the body works.

Figure 2.2. The school kit boxes



The key success criteria, as set out in the specification for the kits, were:

- the involvement of children from all four nations of the UK
- the use of kits by 60 per cent of all primary and secondary schools and colleges across the UK
- the involvement of a broad range of young people, including those who typically do not engage in such activities
- to leave a lasting legacy, supporting the delivery of practical based and pupil-led investigative experiments post-2012.

### The touring exhibition

This strand of the initiative consisted of a touring exhibition that appeared at 16 events across the UK between March and September 2012. The exhibition and its constituent components were intended to cater for the general public, particularly young people and families. Designed and delivered by the At-Bristol science centre, the aim was for each exhibit to provide practical and innovative learning opportunities on how the body works during sport, exercise and rest. More specifically, and according to the ITT for this evaluation, the aims of the In the Zone touring exhibition were broadly two-fold:

- to generate interest in biomedical science across diverse audiences through events held in traditionally non-scientific venues, providing an interactive and personalised experience and providing access to cutting-edge technology
- as part of the Inspire Programme, to promote the Olympic and Paralympic values of excellence, friendship and respect and of courage, determination, inspiration and equality.

As shown in Figure 2.3, the exhibition took the form of a large inflatable dome and a stage area, with people progressing through five interactive activities in groups of up to four, and with a duration time of just under ten minutes.

Figure 2.3. The In the Zone touring exhibition



Figure 2.4 below provides an overview of these activities, most of which were facilitated by staff members and recorded in some format (e.g. filmed or photographed). The experience was framed within a narrative of producing a TV show, where the recordings of participants' interactions were presented back as TV footage as they progressed through the exhibit. Participants were also able to view this footage again later on the In the Zone website. Transition zones were included between most of the activities, where participants were shown short video clips and data to explain the activity they had just participated in and the physiology underpinning it.

Figure 2.4. Overview of activities

### The visitor journey<sup>7</sup>

- **Meet the director:** Visitors viewed a video showing the Director who explained what they would be doing.
- **Activity 1 – ITZ Sports Spotlight: You've Got the Power!** At the start visitors have their photograph taken. They then jump twice on a pressure pad, get to see a playback and are presented with their statistics showing the impact of the jump. This exhibit utilised a force plate and a high speed camera.
- **Activity 2 – ITZ Special: Under the Skin:** With support from a member of staff, users place their hands under a "Vein viewer" which emits a near infrared light and then uses a camera to gather images of their veins under their skin. They then place their hands on a pair of metal plates to record their ECG trace and pulse.
- **Activity 3 – ITZ Sports Round-up: Live Handcycling:** Users stood on their coloured spot and used a handcycle to take part in a virtual race. On the screen was a simulation of a country road with data provided showing their progress and speed relative to the others in their group.
- **Activity 4 – Quick Off the Mark!** Set within a game show studio, users were led through a series of reaction tests using coloured light flashes. The winner of each round and their reaction time over the three rounds was then shown on the screen.
- **Activity 5 – ITZ 10-metre Sprint: Live:** After a videoed coaching session from Sir Steve Redgrave, users left the dome by taking part in a short sprint. Their time and a photo were recorded on crossing the line.
- **End Zone:** On completing the sprint, the user moved to a screen where they could see their final time and photo and could scan their access pass. This allowed them to retrieve their data and video footage from the In the Zone website at a later date.

<sup>7</sup> The descriptive terms provided here are taken from the At-Bristol Final Evaluation Report, 2012.

In addition to the activities, there was a stage show situated next to the main dome, hosted by two staff members playing the part of an outside broadcast team. Depending on the venue, the show featured at least one of the following elements: video footage, interviews with athletes and participants, and audience participation activities. Buskers took the role of 'roving reporters' to engage participants in the show and the exhibition itself.<sup>8</sup>

The stated success criteria for the Interactive Zones were:

- to engage at least 105 000 people across the UK in 2012<sup>9</sup>
- to deliver the programme in at least 12 UK regions including Wales, Scotland and Northern Ireland
- the involvement of a broad range of participants, including those who typically do not engage in such activities.

### The additional linked activities

In addition to the two main elements outlined above, In the Zone featured a range of linked activities. These included:

- **In the Zone 'Lite'**, which involved a series of lighter touch 'pop-up' shows at 21 local community events across the UK and a training programme on the kit and busking delivered to nearly 200 scientists, youth leaders and communicators at 14 events across the UK.
- **Face to Face with Sports Science** included interactive exhibits and workshops highlighting the science underpinning the performance of elite athletes and the application of this research to the general public. Activities were delivered at 'Blue Peter Big Olympic Tour' events and the British Cardiovascular Society Annual Conference.
- **The 'Science Junkie: In the Zone' live science show**, a high-energy live science show exploring the physiology and sports engineering that make an Olympic and Paralympic athlete a champion. This was performed at 15 public events (principally science festivals and music festivals), with the team delivering 46 shows playing to more than 10 000 children and adults.
- **An In the Zone-themed *I'm a Scientist, Get Me Out Of Here!* season**, where students had the opportunity to interact with sports scientists online.

Although these activities were not the main focus of the evaluation, the evaluation reports produced by each have been reviewed, and the findings appear in Section 6.

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<sup>8</sup> For more detailed information on the content of the exhibition, see At-Bristol. 2012. In the Zone – Interactive Spaces: Evaluating the model of a touring exhibition and accompanying website.

<sup>9</sup> Originally this was 500 000 (an arbitrary figure), then 200 000, which was revised down further still to 105 000 following a more informed view from At -Bristol once the tour was up and running and they could measure realistic throughput levels.

# The management and delivery of In the Zone

## Introduction

This section provides a descriptive overview of the approach taken to the development, delivery and management of the initiative to set the context for Chapters 4, 5 and 6. It draws on internal documentation and a range of qualitative interviews undertaken with Trust staff, contractors and wider stakeholders throughout the evaluation period.

The section is structured to provide an overview of:

- the management structure used by the Trust
- the process by which the school kits and the exhibition were developed – drawing on an initial initiative development review produced in April 2012
- the marketing and communications approach followed, including the branding and marketing of the main components of the initiative.

## Overall initiative management approach

Given the high-profile nature, scale and complexity of the initiative and the innovative nature of the touring exhibition component, considerable importance was placed on the management and delivery of In the Zone and considerable resources were directed towards it.

### Working and steering groups

A series of working groups were established at different stages in the development and implementation of the initiative. These were central to establishing the initial vision, developing the school kits and interactive spaces exhibition, and overseeing implementation and other associated issues. As subsequent sections will describe, these different groups also benefited from a range of expert inputs, on a contractual or a voluntary basis, which played a key part in developing the final In the Zone products.

The groupings formed included:

- An initial steering group, the Olympics Working Group, which provided a useful resource for the Trust to draw upon in the initial concept development stage.
- Specific working groups for the school kits and for the exhibition elements, established once the contractors for each element were appointed:
  - the school kit producer (Pearson) convened an expert advisory group to advise on the content of the experiments, which included experts in physiology and education, and Guardian Professional
  - the travelling exhibition element had its own expert ‘scientific advisory’ group focusing on content development, and a working group introduced at the Trust’s request to monitor and report on progress, as well as providing advice.
- Given the scale of the Trust’s investment and the high-profile nature of the initiative, three representatives of the Trust’s Board of Governors monitored the development of the initiative on a bi-monthly basis, as well as signing off on the initiative and providing expert inputs.

A small team of Trust staff were responsible for the delivery of the initiative, working with the working and steering groups above and being able to draw upon expert inputs from within the Trust and beyond. Figure 3.1 summarises the structure of this group: Daniel Glaser, Head of Special Projects, provided a high-level oversight of the initiative, and Amy Sanders had the role of Programme Manager. Amy then managed three project managers:

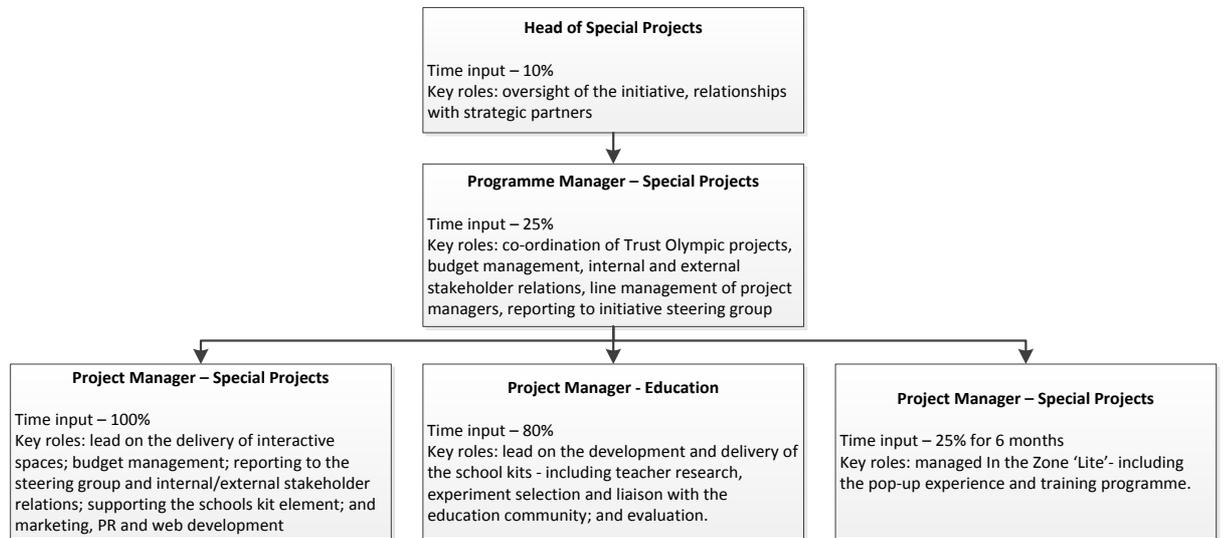
- Stephanie Sinclair led the delivery of the school kits and the evaluation of the initiative.
- Leah Holmes was recruited specifically for the In the Zone initiative. She led on the interactive spaces component and supported the delivery of the school kits and public relations and marketing activities.<sup>10</sup>

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<sup>10</sup> Nora Maddock provided maternity cover for Leah Holmes from October 2012 to June 2013.

- Chloe Sheppard led In the Zone 'Lite', which included the pop-up experience and training programme.

Figure 3.1. In the Zone delivery structure



## The initiative development process

An early task in the evaluation was to review and report on the process by which the initiative was developed, identifying what went well and what went less well, with a view to informing similar developments in the future. This report, submitted in April 2012, drew on the first wave of qualitative fieldwork with Trust staff, project stakeholders, contractors and many of the expert advisers who had participated in the development process, as well as the review of key internal documentation. The key findings from this review are summarised below.

### Developing the In the Zone concept

Lessons from the successful delivery of the 2009 Darwin Education initiative were considered in the development of In the Zone. The key areas in which the Darwin initiative influenced In the Zone are summarised below.

## Lessons from the Darwin Education Initiative

The previous Darwin Education initiative was delivered in 2009 as part of a range of activities to celebrate the 200th birthday of Charles Darwin. The initiative included the development and distribution of experiment kits sent to all primary schools in the UK and to secondary schools on request, so it shared many similarities with the experiment kit element of In the Zone.

The evaluation of the initiative provided a series of lessons for future large-scale education initiatives, which were drawn upon to inform the development of In the Zone. Key learning points for the experiment kits included:

- The need to allow plenty of time for the planning and development of any large-scale initiative.
- The need for any new resources to compete in a crowded market – teachers are time poor and frequently in receipt of new resources and/or marketing materials, so any additional product must both stand out from the crowd and add clear value.
- Activities must be firmly linked to the appropriate curricula in each of the nations they are used in, as well as being able to be used ‘straight out of the box’ with limited preparation and no additional materials required. While guidance materials should also be included – in hard copy and via the internet – the design of the materials should mean that they are required as little as possible.
- The activities should be designed to be used flexibly, both in terms of the pupils engaged and the context (e.g. in enhancement and enrichment activities such as science clubs, as well as in the mainstream classroom as single or linked activities).

In addition, lessons for marketing the kits included:

- The importance of raising awareness of the initiative and its products early, to raise expectations and to allow teachers to plan their use in advance – ideally, using prototypes in any early marketing and promotion work.
- Marketing to individual teachers is challenging. Direct mail can be effective, but materials often fail to reach their intended recipients.
- Peer recommendations and contacts from trusted sources can be helpful in raising awareness and stimulating use.

Finally, the evaluation concluded that there are few organisations in the UK with the capacity, capability and positioning of the Trust to deliver a national initiative such as Darwin. Nevertheless, replicating such an initiative would require working closely with external subcontractors, so well-resourced and high-quality project management would be required throughout.

Figure 3.2 provides an overview of the key steps in the initiative development process.

**Figure 3.2.** Summary timeline for the development of In the Zone

Date	Activity
2005	July: London bid to host the 2012 Olympic and Paralympic Games successful. London Organising Committee for the Olympic and Paralympic Games (LOCOG) established. Wellcome Trust explore opportunities for a large-scale initiative with LOCOG.
2006	Trust explored in consultation with other STEM stakeholders the positioning of science within wider proposals for the Cultural Olympiad.
2009	Trust delivers the Darwin Education Initiative – experiment kits provided to all UK primary schools and to secondary schools on request.  Trust’s vision for In the Zone established, based on the broad concept of engaging the public across the UK with the science of how the body works, featuring the use of high-end physiological monitoring techniques for elite athletes and located in schools and public settings.
2010	March: Trust Board of Governors approves funding for outline proposal for In the Zone. May: brainstorming event on options for both elements of the initiative. Longlist of potential experiments developed and ‘pods in the park’ concept developed. June: Trust Olympics Steering Group formed. Supporting research commissioned by the Trust to develop the kits: <ul style="list-style-type: none"> <li>• review of current physiology teaching and potential experiments (Essex University, reporting June 2010)</li> <li>• research on ‘wearable technology’ and use in school kits (Nancy Tilbury, (June 2010)</li> <li>• study into the curriculum and teachers’ needs in relation to teaching physiology (Edcoms, July 2010)</li> <li>• students at Central St Martin’s College invited to provide initial concept designs for ‘pods in the park’ (June 2010).</li> </ul> August: second brainstorm event to produce a shortlist of 15 experiments. August: invitation to tender issued to education resource producers to refine the shortlist and produce kit ideas and costs. Sheffield Hallam University commissioned and reported in December 2010, with detail to inform ITT for the kits. Research and feasibility study to explore similar ‘pods in parks’ ideas in public spaces (Sam Willis and Associates, October 2010). Established principles, including a mobile facility (the touring exhibition). December: Trust Olympic Working Group established. December: invitation to tender produced to provide promotion and marketing support to In the Zone, Guardian Professional awarded contract.
2011	January: invitation to tender issued to supply the school experiment kits, drawn from the shortlist and with proposals required for March. February: invitation to tender circulated to develop, build and manage the touring exhibition. March: proposals received for kits, Pearson Education consortium awarded contract. April: At-Bristol receive preferred contractor status for the touring exhibition. July: decision taken to provide kits to independent schools, budget agreed. August: prototype kits piloted with eight schools and report produced. December: Trust Olympic Steering Group agree final school kits.
2012	February and March: In the Zone experiment kits distributed to all primary schools, secondary schools in the UK. March–September: In the Zone travelling exhibition at events across the UK. July–September: London Olympic and Paralympic Games 2012.

As illustrated in Figure 3.2, the Wellcome Trust’s involvement in the development of an initiative themed around the 2012 Olympic Games began with the announcement of London’s successful bid in July 2005 and the subsequent establishment of the London Organising Committee for the Olympic Games and Paralympic Games (LOCOG). The Trust’s involvement in an Olympic-themed initiative was attractive for several reasons: first, it provided a potentially effective vehicle

to further the Trust's education objectives because the Olympic and Paralympic Games provided a positive 'hook' and strong theme with which the initiative could align. In addition, the success of the Trust's subsequent Darwin Education initiative, which was delivered in 2009 but for which planning commenced in 2005–06, provided the Trust with confirmation that large-scale education initiatives could be delivered effectively.

After discussing potential ideas with the Olympic Planning Committee/LOCOG in 2005 and exploring the positioning of science within the proposed Cultural Olympiad with other STEM stakeholders in 2006, the Trust decided in 2007 to offer an independent initiative themed around the Olympic Games, with a view to involving schools and the general public across the UK.

By 2009, a vision for In the Zone had developed. It featured the development of a range of experiments that could be carried out in schools and by the general public across the UK, including the use of 'high-end physiological monitoring techniques' used by elite athletes in the experiment kits, and allowing different audiences to interact with them. From the outset it was clear that a balance had to be drawn between offering the latest 'cutting-edge' technology and the cost and practicality of its use in schools. There was also a clear ambition to extend these experiences beyond the school setting – again, the practicalities of use by the general public had to be considered. In 2010 the public element of the initiative had crystallised into the concept of 'pods in the park', providing interactive experiences for a wide audience and experiments from the school kits also being available in at least 12 public sites and used by at least 500 000 people during 2012.

In March 2010 an outline proposal for the initiative, with a budget of £5 million, was approved by the Trust's Board of Governors. This marked the start of the development of content and materials and was followed in June 2010 by the establishment of the Olympics Steering Group, who met every three months to advise on the shape and content of the initiative, monitor the budget and release funds, and monitor progress against a delivery plan. The allocation of funding, alongside the commitment to the overall vision for the initiative expressed by the Board, was described by the project delivery team as particularly helpful and gave them a degree of freedom to define the final scope of the project. However, given the scale of the Trust's investment and the innovative and high-profile nature of the initiative, approval came with the caveat that three governors would closely monitor and scrutinise developments on a bi-monthly basis.

By the time approval was received from the Board, considerable preparatory work had been undertaken to refine and develop the initial vision and explore its practical implementation. Particular consideration was given to how participation in the initiative could extend beyond schools, to engage with the general public through the more radical and potentially innovative 'pods in the park' idea.

#### **Development of the experiment kits**

The development of the experiment kits can be divided into two stages: the development and selection of suitable experiments, and the production of the kits themselves.

#### **Development and selection of the experiments**

Following the approval of the initiative budget, the Trust commissioned research to identify experiments suitable for inclusion in the school kits. Maintaining the vision of reflecting the techniques used to monitor elite athletes, while also being affordable and simple enough to be used in schools, the studies included:

- Research by Essex University on physiology experiments, including a review of what is taught in schools and at undergraduate level that could be transferred into the school setting (reporting in June 2010). The report categorised potential experiments against the criteria of 'brain, bone, brawn, blood and breath'.
- A study by Edcoms on teachers' views and needs in relation to teaching physiology, which reviewed the curriculum for potential links and areas in which support would be helpful (reporting in July 2010). The research found that there were already many practical resources available, although the teachers involved in the research showed a clear interest in more innovative resources that linked to the Olympic Games.
- A study undertaken by Nancy Tilbury on wearable electronic technology and whether – and how – such technology could be included in the kits for schools (reporting June 2010).

An initial brainstorming event also took place in May 2010, featuring facilitated discussion on both elements of the initiative and reviews of a range of physiology tests and gadgets (as well as designs for 'pods in the park'). This resulted in an initial longlist of experiment ideas for further consideration.

This was followed by a second event in August 2010, which was attended by wide range of individuals from the worlds of sport, science, education and urban design. At the event, the longlist of experiment ideas was assessed against a series of criteria, including fit with the curriculum, contemporary science research, the Olympics and sport, as well as the feasibility and practicality of their use in schools. This event and the resulting assessments resulted in a shortlist of 15 experiment ideas.

Following the August event, an invitation to tender was issued to ten education resource producers to develop the shortlist further, including producing prototype kits and costs for different year groups and associated protocols for each experiment. Sheffield Hallam University was commissioned to undertake this work, reporting in December 2010 and providing additional detail to inform an invitation to tender for the production of the kits.

An Olympics Working Group was also constituted and met for the first time in December 2010. The group comprised 12 individuals, including lead staff from the Trust and experts in human physiology, sports science and sports psychology, education and the curriculum, and technology.

At the same time, a brief was issued and proposals were received to provide promotion and marketing support for In the Zone. Eight proposals were received, and Guardian Professional emerged as the preferred bidder.

#### **Production of the experiment kits**

Following further feedback from the Olympics Steering and Working Groups and advice from specialists in human physiology, sports science and education, an invitation to tender for the supply of the experiment kits was issued in January 2011. The invitation, which included the experiments selected for the shortlist, called for submissions in March. A total of seven organisations were invited to tender, five of whom submitted proposals, and three were invited to present their proposals. A consortium – led by Pearson Education, Scientific and Chemical Supplies, and Sheffield Hallam University – was awarded the tender to provide experiments and kit boxes to each state-funded primary and secondary school in the UK.

Further negotiations and development of the experiment ideas took place following the contract award, and the Olympics Steering Group and the project team reviewed the experiments as they developed. As indicated by the Trust staff interviewed, this was necessarily a time- and resource-intensive process, which made it difficult to maintain an overview of the kits 'in the round'. The decision was also taken to provide additional kits to independent schools across the UK, and a final budget for the kits was approved, in July 2011.

Once they were commissioned to develop the kits, Pearson convened an internal expert advisory group with the remit of advising on the content of the experiments as they developed; they included experts in physiology and education (some of whom had been involved in earlier stages of the development of the initiative) and Guardian Professional.

This development phase also included piloting prototype kits in eight schools (four primary and four secondary), the results of which were reported in August 2011. The pilot exercise identified that the experiments were well received at both primary and secondary levels and provided useful learning to inform the final versions. The overriding concern from the Trust at this point was that the experiments would be as new and exciting as the Darwin kits had been in their context of teaching the principles of evolution.

Although the kit content and the experiments were signed off earlier, the final versions of the kits and the boxes they would be distributed in were signed off at a meeting of the Olympics Steering Group in December 2011, and their distribution to schools was scheduled for mid-February to mid-March 2012.

#### **Development of the In the Zone touring exhibition**

As described previously, the idea that underpinned the eventual In the Zone touring exhibition was to extend the range of individuals participating in In the Zone and enable access to the

experiments developed across a wider population group. The development of this component of the initiative, which was initially titled 'pods in the park', is summarised below.

The development process paralleled that for the experiment kits, and the original concept focused on establishing 'pods' in parks and other public spaces to attract joggers and other passers-by. In contrast to the experiment kits, the fundamental principles of which were established under the previous Darwin Education initiative, the touring exhibition concept was new and offered the potential for considerable innovation. It was also the least developed element of the overall In the Zone vision, although the Trust was clear that the final product should be different to other, more familiar science exhibitions, with a view to attracting audiences beyond 'traditional' science centre users.

### **The development process**

#### *The initial idea*

As described in the minutes of the first Olympics Steering Group meeting in June 2010, the aim of 'pods in the park' was to deliver a set of hands-on activities to encourage individuals to discover the science of how their bodies work during sport and movement – with the expectation that some of the experiments being developed for the school kits would be adapted for use in this context. From the outset, the potential for innovation in this element of the initiative was recognised, as was the fact that “the activities might not be in pods, and the 'pods' might not be in parks”.

To develop initial ideas around this theme, MA students at Central St Martin's College were asked to develop concept designs to promote debate about the possible nature of these 'interactive spaces'. A range of ideas were produced in June 2010, including pop-up exhibitions in parks, art installations and a fountain synchronised to a human heartbeat. The brainstorming event held in May 2010, which focused on potential experiments for the school kits, also considered initial ideas for the 'pods' and the experiments that could be housed within them.

Further research into potential options, and the organisation to take them forward, was undertaken: Sam Willis and Associates were commissioned to undertake a feasibility study and research similar initiatives in public spaces internationally. The resulting report (October 2010) featured a series of case studies and included recommendations for potential delivery models, including events, street furniture and installations, and mobile spaces and structures. This led to a series of principles to underpin this element of the initiative, namely that participation should be on a supervised basis, that a mobile facility was the preferred delivery model and that the project should acquire Inspire Mark accreditation.

#### *The invitation to tender and commissioning process*

An invitation to tender was then produced to develop, assemble and manage the In the Zone touring exhibition. This was issued to 13 organisations including science centres, commercial organisations, exhibition contractors and urban designers in mid-February 2011 for responses by mid-April. The invitation set out the requirement to develop an overall project concept and delivery plan (to include timings, audiences numbers and staffing arrangements) and a timetable for delivery at events between May and September 2012.

Five organisations responded to the invitation, four of whom were invited to present their proposals to the Trust. The minutes of the Olympics Steering Group show that although none of the proposals fully met the requirements of the interview panel, the At-Bristol proposal was strong in terms of content and the use of technology and received 'preferred contractor' status. At-Bristol was also preferred because of their status as science specialists and because of the confidence the Trust had in their ability to meet the delivery schedule required. However, the group suggested that At-Bristol engage a 'performance/theatrical agency'/creative consultant to ensure that a balance was achieved between providing a strong science component and providing a memorable experience.

After the payment of grant funding, the Trust project team and staff from At-Bristol worked together to develop a brief for the creative consultant. At-Bristol also established a scientific advisory panel to guide their work. An initial plan was developed, setting out potential venues and dates for visits, and on the basis of this document the initial expectation of engaging with 500 000 people was reduced to engaging with just over 200 000.

### *Development of the touring exhibition*

The development of the In the Zone touring exhibition component continued throughout 2011 and early 2012. Key features included establishing an overall theme for the exhibition and the visitor experience, developing content and, importantly, developing routing and queue management approaches to help ensure waiting times were minimised and the flow of individuals through the exhibition was as smooth as possible. To help extend the user experience, participants received a lanyard that allowed them to download a visual record of their experience and access wider resources through the In the Zone website.

After initial trialling at the At-Bristol science centre, the exhibition made its first public appearance at the Big Bang Science Fair in mid-March 2012, before the UK tour completed in September 2012.

### The marketing and communications approach

For In the Zone, the Wellcome Trust adopted a more proactive and coordinated approach to marketing and communications than it had used in the Darwin Education initiative. One of the key objectives of In the Zone was to position the Wellcome Trust as a leader in science education and provider of contemporary science resources for UK primary and secondary schools. This was perceived as important to help maximise take up, participation and attendance for all strands of activity, but also to position itself more strongly for any future similar initiatives. The key features of this approach were a proactive and coordinated approach to seeking mainstream national press coverage, as well as coverage in specialist media (including the development of a common brand across all aspects of the initiative), and a greater investment in the use of celebrity endorsement through Sir Steve Redgrave's role as project champion. These are discussed more fully below.

#### **Coordinated PR across In the Zone**

The key communication objectives for In the Zone were:

- to position the Wellcome Trust as a key contributor of Olympics-related activity within the busy Olympics marketplace
- to raise understanding of the Wellcome Trust and its vision and priorities, and to position the Trust as a leader in science education and provider of contemporary science resources for UK primary and secondary schools
- to maximise take-up, participation and attendance for all strands of activity
- to generate awareness and advocacy of the Olympics-inspired initiative among internal audiences
- to bring together all strands of Olympics-inspired activity and ensure coherent overarching messaging and cross-promotion, across all audience groups.<sup>11</sup>

In January 2011, Guardian Professional was contracted to provide branding and design, website services and marketing for the school kit elements of In the Zone. In February 2012, Firebird PR was contracted to promote the UK-wide tour of In the Zone exhibition, also with a remit to cross-promote the education packs. In 2011, the Wellcome Trust Media Office was brought in to coordinate PR for In the Zone more widely, including the work of Guardian Professional and later Firebird PR.

A common brand was a crucial part of the more coordinated approach to marketing and promotion. Guardian Professional developed an In the Zone brand that incorporated the Wellcome Trust logo and provided guidelines for its use across the initiative in a wide range of print and digital outputs. The Trust also worked closely with LOCOG to allow In the Zone to be associated with the London 2012 Olympic brand through Inspire Mark accreditation.

The common In the Zone brand provided a useful springboard from which to develop and coordinate a range of promotional activities across both main strands.<sup>12</sup>

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<sup>11</sup> Lucy Evans, In the Zone communications: Evaluation report, November 2012

<sup>12</sup> This draws on our own findings together with: Wellcome Trust Media Office, Evaluation report: In the Zone PR campaign, November 2012. Internal Report; Firebird PR, Regional PR activity review and recommendations, September 2012; and Guardian Professional, In the Zone Marketing Evaluation Report, July 2012.

### PR activities: both strands

- The launch of a dedicated and branded In the Zone website.
- Regular news stories about In the Zone on the main Wellcome Trust website.
- The targeting of national and education media.
- The production and dissemination of a printed WT corporate brochure presenting the whole initiative and other relevant Trust projects.
- An interactive VIP event in London for 189 guests from key audience groups.
- The use of social media, including Twitter and YouTube, to promote In the Zone. A Twitter account was set up in January 2012 and short films were made available through YouTube.

### PR activities: school kits only

- Targeted email campaigns to introduce the project and generate subscriptions to the ITZ e-newsletter.
- Regional media activities, including radio broadcasts, coinciding with the delivery of the kits.
- The distribution of printed direct mail (letter, poster and flyer) in two separate mailings to primary schools, secondary schools, colleges and local education authorities.
- PR around the initial launch of the project and the delivery of the first school kits (e.g. at the ASE conference and the Big Bang Fair).
- A broad print advertising campaign in trade publications (e.g. *Primary Science* and *School Science Review*).
- The provision of resources for In the Zone via TES Connect, which was viewed 3698 times.
- The promotion of Get In the Zone Week, a marketing campaign devised to create a buzz around the project, encourage teachers to use their free kits and help link ITZ to the 2012 Games. It took place over 14–19 May.

### PR activities: the touring exhibition only

- A core press pack was created and tailored to each of the individual ITZ touring exhibition events. A total of 16 press releases were issued over the six months.
- A range of promotional activities for each event (e.g. inviting regional sports journalists, news reporters and torch bearers to events).
- A letter-writing campaign raising the profile of the touring exhibition. The campaign targeted regional MPs and MEPs at the constituency level, as well as key government departments and Select Committees.

Key events in the core media campaign were:

- announcing the In the Zone project to the education media at the Association of Science Education annual conference in Liverpool with Sir Steve Redgrave
- the launch of In the Zone and delivery of the first school kits to a school in East London with Sir Steve Redgrave
- the launch of the touring exhibition at the Big Bang Fair.

This coordinated approach to marketing led several outputs, including:

- A total of 99 pieces of positive media coverage about the In the Zone project, more than half of which mentioned the Wellcome Trust. These included a feature on In the Zone as part of Blue Peter's Big Olympic Roadshow launch programme (09.00, 26 May, BBC2 and CBBC) and an item on the ITV lunchtime news (9 February).
- The In the Zone kit e-newsletter, subscribed to by more than 6500 teachers.
- Reaching 432 followers (including teachers, academics and organisations such as National Science and Engineering, Crest Awards and UK Gymnastic) through regular tweets and retweets, particularly by TES Science and Mumsnet.
- Visits by 36 MPs and VIPs to various In the Zone exhibitions.<sup>13</sup>

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<sup>13</sup> Wellcome Trust Media Office, Evaluation report: In the Zone PR campaign, November 2012. Internal report.

### Use of celebrity endorsement

Sir Steve Redgrave was contracted as the lead ambassador for the project and engaged in press and PR work, endorsements, images, and event appearances. His role covered both strands of the initiative. As lead ambassador, he appeared on the website and in media materials used to promote In the Zone, appeared and presented at national promotional events, participated in some of the touring exhibits, and was the face of the e-newsletters sent to teachers.

This represented a substantial investment for the Trust and, on balance, most stakeholders interviewed thought his role was very useful for the media and communications work and for providing gravitas to the project overall.

### Views on the role of celebrity endorsement

- According to Firebird PR's own report: "Sir Steve Redgrave's role as the project's ambassador was invaluable and proved a real draw for media (e.g. Blue Peter Roadshow, Caerphilly) and was reflected by the press coverage achieved. Greater access to his time and other high-profile Olympians would have been a bonus for the media relations effort."<sup>14</sup>
- According to Guardian Professional: "Using Sir Steve Redgrave to introduce each newsletter was a good device to help engage the audience."<sup>15</sup>
- The Society of Biology interviewee thought his role was "invaluable" to the initiative, giving an authenticity to a science and sport project. She considered that he did a lot of work to support the initiative and did it really well, notably engaging with the media and attending launch events.
- The LOCOG interviewee believed Sir Redgrave's role at events was crucial in securing media interest and presence: "The press just don't turn out to events like this without someone like Sir Steve Redgrave being there." He also felt that the Trust had got it right in terms of choosing an ambassador that would relate more to teachers than to pupils.
- Pearson also thought Sir Steve Redgrave had been a wise choice, particularly for teachers and other adults; he gave the project gravitas. Ultimately, he helped to make the project feel upbeat and signalled to all those working on it that it was going to be high profile.

Subsequent sections assess the impact of the marketing campaign and in particular the use of a celebrity endorsement.

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<sup>14</sup> Firebird PR, Regional PR activity review and recommendations, September 2012.

<sup>15</sup> Guardian Professional, In the Zone Marketing Evaluation Report, July 2012.

## In The Zone school experiment kits

### Key findings

- The kits were delivered to schedule, with more than 29 000 primary and secondary schools across the UK receiving them by the end of March 2012.
- For the majority of teachers (69 per cent of those surveyed), awareness of the kit was heralded by the arrival of the box itself. While the celebrity endorsement by Sir Steve Redgrave was important for media profiling, and his presence at events proved popular, his role seems to have had relatively little impact on teachers' awareness and use of the kits.
- The vast majority of teachers responding to the school survey rated the quality of the kits as either good or very good (94 per cent) – a similar rating to the Darwin materials (98 per cent rating as good or very good). Evidence suggests that teachers have used the kits to deliver cross-curricula work and applied them flexibly with pupils of different ages: 40 per cent of the sample had used the materials outside of an activity, either on their own or alongside prescribed activities.
- Within the first six months of distribution, 66 per cent of primary and secondary schools surveyed had used the kit, whether following one of the prescribed activities (52 per cent) or simply using equipment from it (14 per cent). A higher proportion of secondary schools than primary schools used the kits – a usage rate of 71 per cent and 61 per cent, respectively.
- Most of the schools (67 per cent) using the kit first did so in the summer term of 2012, suggesting the kit was picked up and used fairly quickly. According to the survey, the main motivating factors for use across primary and secondary schools were relevance to the curriculum and the high-quality appearance of the kits. Case study findings further emphasised this, and several schools also cited the Wellcome Trust brand as a key factor.
- We know that in 2012 In the Zone was one of several STEM- and/or Olympic-related initiatives that schools were exposed to. However, it seems that the use of these other resources did not displace the use of In the Zone.
- 62 per cent of all teachers responding to the survey and examining the contents of the kits reported also looking at or using the teacher notes. Of those who read the teacher notes, 95 per cent said they were either very easy (70 per cent) or fairly easy (25 per cent) to understand.
- In terms of the website, Google analytic data shows there were 120 533 visits to the In the Zone website during the period January to December 2012, of which 32 per cent were returning visitors. (For Darwin in the 12-month period January 2009–January 2010, the number of visits to the Great Plant Hunt website was higher at 156 633.) The number of visits was highest in May and June 2012, coinciding with Get In the Zone Week. Perhaps most significant is the drop-off rate after the London 2012 Olympics; much smaller numbers accessed the website in the autumn.
- The survey found that more than half of primary (59 per cent) and secondary (56 per cent) school teachers using the materials, whether as part of a suggested activity or otherwise, reported they had a great deal of impact on pupils, mainly in enhancing their enjoyment of science lessons but also in enhancing their knowledge, inspiring them and increasing their engagement with science. In addition, the 92 per cent of all teachers that had used the kit found it had supported them either a great deal (59 per cent) or a little (33 per cent) in teaching the science curriculum.
- In the survey, 94 per cent of those who had used the kits said they were either very likely or fairly likely to continue to do so. This was also reflected in the case studies, where all schools visited had plans in place to continue using elements from the kit. Most teachers in the survey felt there was no room for improvement in the kits, and where suggestions were made they were mainly about the need for more equipment.

### Introduction

This section presents our findings on the uptake and use of the school experiment kits and explores their perceived impacts on pupils and teachers, as well as plans for their future use. It

primarily draws on a UK-wide survey of teachers from primary and secondary schools and a series of more in-depth 'impact case studies' with 17 schools from across the UK (including primary and secondary schools, two special schools and an FE college).<sup>16</sup> See Annexes 3 and 4 for more detailed information. Where relevant, the section also refers to the findings from our interviews with a range of programme and wider stakeholders, as well as available management information, internal documentation and website data. The structure of this section is as follows:

- distribution, levels of awareness, and use of the In the Zone kits
- how the kits have been used
- perceived impacts on teachers, pupils and schools
- future use.

## Distribution, awareness and uptake

This section sets out findings on distribution, levels of awareness and the usage rate of the kits. It then sets out the key pull factors underpinning use and explores how In the Zone was used and perceived in relation to other competing resources.

### **Distribution of the kits**

The distribution of kits by Pearson to all schools across the UK went to schedule and all targets were met. In the Zone kit boxes were sent to all primary, secondary, private and special schools and further education colleges across the UK (about 7800 to secondary schools and 21 600 to primary schools) during February and March 2012. The kits were distributed on a staged regional basis, which was tied into local publicity activities such as radio broadcasts. The request from the Trust to include independent schools came later, although Pearson was able to incorporate this into their existing plans.

Boxes were addressed to either the Head of Science (secondary schools) or the Science Coordinator (primary schools) and had to be signed for on delivery. A small number of boxes were returned (41 primary kits and 75 secondary kits), mainly owing to school reception staff not signing for the kits or changed address details.

### **Levels of awareness**

According to the survey, most teachers (87 per cent of all respondents) were aware of In the Zone before being contacted about the survey – the vast majority (82 per cent) without any prompting. Awareness was higher among secondary schools than primary schools (91 per cent versus 83 per cent).

However, for 69 per cent of teachers overall, awareness of the kit was heralded by the arrival of the box itself. For the Great Plant Hunt element of the Darwin initiative, this figure was 47 per cent.<sup>17</sup> Prior knowledge was slightly higher among secondary school respondents than primary school respondents, and Table 4.1 below shows the ways in which primary and secondary respondents first heard of In the Zone.

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<sup>16</sup> Case studies were randomly selected from the list of schools who had agreed to be re-contacted from the telephone survey and who had reported already using the kits. For an overview of the findings as they relate specifically to the special schools, please see Annex 4.

<sup>17</sup> NB there are no comparative data available for secondary schools because Darwin materials were provided on request.

Table 4.1 How recipients first found out about In the Zone

	Total number	Primary	Secondary
In an email	36 (8%)	16 (8%)	20 (9%)
Online/website	34 (8%)	16 (8%)	18 (8%)
In a letter or flyer	33 (8%)	16 (8%)	17 (7%)
From colleagues within my school	22 (5%)	11 (6%)	11 (5%)
At a conference or teaching event	15 (3%)	6 (3%)	9 (4%)
From colleagues at other schools	10 (2%)	2 (1%)	8 (4%)
Saw an advert in a magazine	10 (2%)	8 (4%)	2 (<1%)
National Science Learning Centre	3 (<1%)	1 (<1%)	2 (<1%)
Previous contact with the Wellcome Trust	3 (<1%)	–	3 (1%)
From my Local Authority	2 (<1%)	1 (<1%)	1 (<1%)
From LOCOG/GETSET/Olympics newsletter	2 (<1%)	1 (<1%)	1 (<1%)
I saw the exhibition/show	2 (<1%)	2 (1%)	–
Did not know about this until the pack arrived	302 (69%)	149 (72%)	153 (67%)

Source: *In the Zone teacher survey, conducted September 2012. Base: 437 – all those reporting being aware of ITZ (primary, 208; secondary, 229).*

The case study fieldwork also suggested awareness of In the Zone was limited before the boxes arrived in schools. Indeed, a teacher in one case study school described how an unopened box was used as a staffroom coffee table for some time before it was discovered, and another school found their box in their resources cupboard after the evaluation team contacted them. For most of the schools, the arrival of the box was their first experience of In the Zone.

Where teachers in the case study research had heard about In the Zone before delivery, three referred to pre-delivery marketing (email/flyer) with the rest having heard about In the Zone via their attendance at conferences/events or having read about it in specialist media. These included: the Big Bang show, Association of Science Educators (ASE) conference; a Local Authority Science Coordinators training day/conference; reference to In the Zone in a children’s education section (unknown publication); and through SciTech Forums, a chat room for lab technicians. In the case of the latter, the teacher explained:

“People on the forum were getting very excited about it. Asking: have you got yours? When will mine arrive? There was a buzz going round. Some were getting anxious when theirs didn’t seem to be arriving. Once they started to arrive, people were very positive about it.”

Secondary teacher

It was also unclear for the majority of survey respondents (81 per cent of those aware of In the Zone) who the kits had been sent by. Just 15 per cent correctly identified the Wellcome Trust, and almost none identified Pearson Education (0.2 per cent) or Scientific and Chemical (1 per cent). When informed by the interviewer that the box had been sent by the Wellcome Trust, then asked what they understood the Wellcome Trust to do, recipients gave a range of responses. Table 4.2 below shows that while nearly half of respondents were not familiar with the Trust, a fifth (21 per cent) knew that it funded science education and activities for schools.

Table 4.2 Awareness of the Wellcome Trust brand

<i>Secondary schools</i>	<i>Percentage</i>
Fund science education materials and activities for schools	21%
Fund medical/healthcare/biological/pharmaceutical/drug research	16%
Pharmaceutical company/develops/sells/makes drugs/medicines	14%
Fund healthcare/medical services (e.g. hospitals, places where you can get healthcare)	13%
Fund science education at university level and above (PhDs, etc.)	12%
Fund history of medicine research	9%
Fund activities that engage the public in science	7%
Fund museums	6%
Something not listed	9%
Never heard of the Wellcome Trust	7%
Do not know	46%

Source: *In the Zone* teacher survey, conducted September 2012. Base: All those aware of *In the Zone* (437). Respondents could give more than one answer.

Awareness that the Wellcome Trust funds science education materials and activities for schools was much higher among secondary teachers than primary teachers (31 per cent and 11 per cent, respectively). Perhaps unsurprisingly, this awareness was higher among those who regularly (25 per cent) or occasionally (23 per cent) use enhancement and enrichment activities, against those who rarely use these types of activities (15 per cent). The case study fieldwork – discussed in Section 4.2.4, below – suggests previous use of the Darwin education materials raised awareness of the Wellcome Trust and acted as a positive influence for the new materials.

The important part played by Sir Steve Redgrave was recognised by several wider STEM stakeholders in terms of raising the profile of the initiative in a crowded field and serving as a quality endorsement, but his role seems to have had a minimal impact on teachers' awareness and use of the kit. Just one respondent in the survey gave Sir Steve Redgrave's involvement as a motivation for engaging with *In the Zone*. This was also reflected in the case study fieldwork, where we found that just two of the teachers were aware of his role with *In the Zone*. One primary school teacher had been impressed that *In the Zone* was supported by Sir Steve Redgrave, and considered that "maybe subconsciously" it had encouraged her to use the kits.

### Use of the kits

#### 1.1.1.2 Overview

Having received their materials, 69 per cent of teachers across primary and secondary schools said they had looked through the box thoroughly.<sup>18</sup> This compares favourably with the Darwin survey findings, in which half of the recipients described having looked through the kits thoroughly.<sup>19</sup> Indeed, at the time of the survey, 84 per cent of all those interviewed reported having looked in the box themselves (81 per cent) or knowing someone else in the school that had done so.

As shown in Table 4.3, 66 per cent of the primary and secondary schools surveyed had used the kits in the six months after distribution. Overall, 52 per cent of the schools had used the materials to deliver the prescribed experiments and 14 per cent had used the equipment independently. Of the 52 per cent using the materials:

- 26 per cent had used the kits solely to deliver the prescribed experiments
- a further 26 per cent had used the kits both to deliver the prescribed experiments and as separate pieces of equipment.

<sup>18</sup> Base: all respondents who were aware of *In the Zone* (437).

<sup>19</sup> See GHK, PSP and TNS. 2010. Evaluation of the Darwin Education Initiative, Interim Report. Wellcome Trust, pp.30–31.

Table 4.3 Uptake and use of ITZ materials compared with Darwin

	In the Zone			Darwin		
	Primary (n = 250)	Secondary (n = 252)	Total (n = 502)	Primary (n = 250)	Secondary (n = 252)	Total (n = 502)
Usage rate	61%	71%	66%	60%	41%*	51%
Use of teacher guidance <sup>20</sup>	70%	54%	62%	73%	84%	78%
Percentage of teachers surveyed reporting website use	24%	27%	25%	32%	26%	29%

Source: In the Zone teacher survey, conducted September 2012; Darwin survey, conducted September 2009. NB Darwin secondary sample included schools ordering and not ordering kits. \*Base: 202 secondary schools ordering.

Teachers responding to the survey and using the kits were asked to estimate the numbers of students they had been used with. The 66 per cent of teachers (331) reporting using the kits described doing so with just under 50 000 students (49 088), an average of 150 students per school.

Although the sample sizes do not allow for disaggregation by country, the survey findings do not suggest any immediate differences in the rate of use across the four UK nations.

Finally, no significant reasons emerged regarding why some of the schools surveyed were yet to use the In the Zone materials, and non-use did not reflect perceptions of the boxes' quality or competition from other resources (Olympic-themed or otherwise).

#### 4.2.3.2 Comparing primary and secondary schools

Among primary schools, 61 per cent of teachers reported having used the materials before the survey. This is very similar to the rate for the Darwin Great Plant Hunt materials: a survey of schools identified a usage rate of 60 per cent at a similar time after delivery (September 2009). As discussed more fully below, the most used experiment within the primary kit was Heart Beaters, which targeted the 9–11 age group.

A much higher proportion of secondary teachers (71 per cent) reported having used the materials before the survey. This compares very favourably to the usage rate of 41 per cent for the Darwin Survival Rivals materials. This is a particular success as the Darwin materials were only available to secondary schools on request, so the wider distribution of the In the Zone kits combined with a much higher usage rate suggests a considerable increase in their use with pupils. As discussed more fully below, the experiment used most by secondary school teachers was On Your Marks, Get Set, Breathe, aimed at the 11–14 age group.

#### 4.2.3.3 Comparison with other initiatives

While industry standards on 'good' usage rates for UK-wide STEM initiatives of this kind do not formally exist, the standard set by Darwin provides a useful point of comparison. As Table 4.3 (above) shows, the usage rate for the In the Zone kits has exceeded the usage rates for Darwin, particularly in secondary schools.

The latest data for LOCOG's Get Set education programme also provide useful context. Get Set was the official London 2012 education programme, providing resources (mainly online) for schools and colleges across the UK and targeting people aged 3–19. The evaluation of this programme showed that over the four years more than 26 000 schools had registered with the initiative, suggesting a usage rate of approximately 88 per cent of all UK schools.<sup>21</sup> Although it is not clear how registration is defined and whether it equates to use in the classroom, or what the balance was between primary and secondary schools, it nevertheless indicates a high level of engagement (at least initially) across the board. However, registration was rewarded with several incentives, and – as pointed out by the LOCOG stakeholder interviewed for this study – this

<sup>20</sup> Of teachers who reported looking at the kits, n = 192 for primary, 209 for secondary and 401 in total for In the Zone, and 231, 179 and 410 for Darwin.

<sup>21</sup> Nielsen/LOCOG (2011). Get Set Evaluation Report, Phase 1, Sept 2010; Phase 2, Oct 2011.

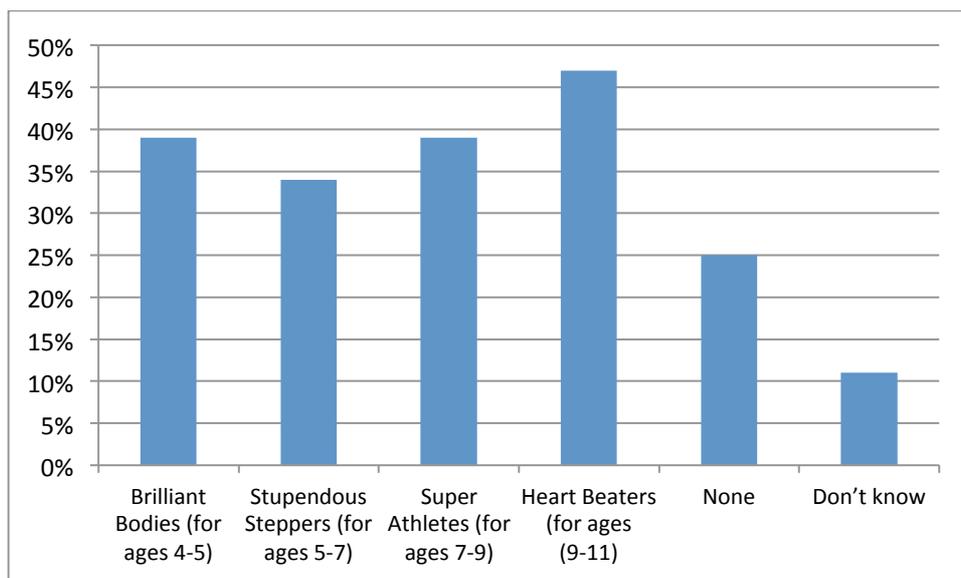
usage rate was achieved over a much longer timeframe than the six months of In the Zone, and it was delivered with more intense marketing and communications.

Indeed, this interviewee and others felt that the 66 per cent usage rate that In the Zone attained in just six months was a considerable achievement. The Nuffield Foundation, for example, would expect a minimum of 30 per cent uptake and suggest that a ‘good’ level of uptake would be around 75 per cent across the duration of an initiative (although they operate on a much smaller scale).

**4.2.3.4** *Use of particular experiments within the kit*

Primary teachers most commonly reported having used at least two of the experiments, with some proving more popular than others. As Figure 4.1 below shows, Heart Beaters was the most popular activity at primary school level: 47 per cent of teachers reported its use.

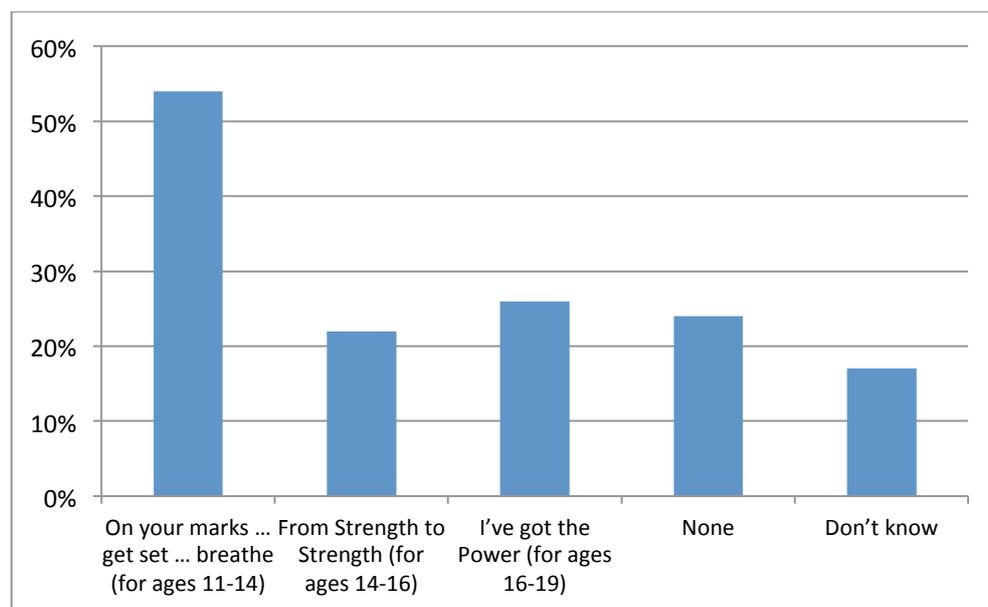
**Figure 4.1.** Levels of use of primary school activities



Source: In the Zone teacher survey, conducted September 2012. Base: All those in primary schools who have personally looked in the box or who know that someone else has (197).

For secondary schools, the use of different experiments was slightly less frequent than for primary schools. The average number of different activities used by secondary schools was 1.7, compared to an average of 2.5 for primary schools – however, there were only three activities for secondary schools compared with four for primary schools. As shown in Figure 4.2 below, On Your Marks, Get Set, Breathe was the most popular activity at secondary level.

Figure 4.2. Levels of use of secondary school activities



Source: In the Zone teacher survey, conducted September 2012. Base: All those in secondary schools who have personally looked in the box or who know that someone else has (224).

#### 4.2.3.5 Use of equipment in other activities

As well as delivering the prescribed experiments, teachers also reported using different pieces of equipment in the kits independently. As described above, 40 per cent of primary and secondary schools had used the equipment and delivered the experiments or had used the equipment but were yet to deliver the experiments. This tended to be more common among the primary schools surveyed than among the secondary schools (49 per cent vs 46 per cent), although secondary schools were more likely to have used the pieces of equipment and not delivered the prescribed experiments (18 per cent vs 10 per cent).

Table 4.4 below shows the equipment that had been used in non-ITZ activities.

Table 4.4 Use of equipment in other activities

	Primary <i>n</i> = 26 (100%)	Secondary <i>n</i> = 45 (100%)
Pulse oximeters	–	34 (76%)
Blood pressure monitor	–	33 (73%)
Peak flow meters	–	31 (69%)
Lung volume bags	–	25 (56%)
Respirometer kit	–	24 (53%)
Indicator charts	–	15 (33%)
Laminated knowledge cards		7 (16%)
Pedometers	14 (54%)	–
Hand puppet	13 (50%)	–
Stethoscopes	13 (50%)	–
Timers	12 (46%)	–
Body challenge cards	3 (11%)	–
Fizzy Cole poster	3 (11%)	–
Not known	4 (15%)	2 (4%)

Source: In the Zone teacher survey, conducted September 2012. Base: Schools not using kit experiments but using the equipment.

As the table above shows, the equipment from the kits that was most commonly used independently was:

- for primary schools – the pedometers, Fizzy hand puppet and stethoscopes, which were each used by more than half the schools yet to deliver the experiments
- for secondary schools – the pulse oximeters, blood pressure monitor, peak flow meters, lung volume bags and respirometer kit, which were each used by between 53 per cent and 76 per cent of the schools yet to deliver the experiments.

Section 4.3 shows how different elements of the kit were used in the case study schools.

### Key pull factors

#### 4.2.4.1

#### Overview

Most of the schools reporting using the kits described first using the activities or materials in the summer term of 2012 (67 per cent). However, an additional 22 per cent reported first using them in the spring term, suggesting that the kit was picked up and used fairly quickly. As Table 4.5 below shows, the main motivating factors for use across primary and secondary schools were relevance to the curriculum and the overall high-quality appearance of the kits.

Table 4.5 Reasons for using activities and materials

<i>Reason for using</i>	<i>All respondents</i>	<i>Primary schools</i>	<i>Secondary schools</i>
They are appropriate to the curriculum	32%	29%	35%
The equipment/materials look attractive/professional/striking/different/exciting	28%	30%	26%
The equipment is easy to use	18%	15%	20%
The equipment is ready to use straight from the box	17%	15%	19%
They provided a link to the Olympics/could be used to help celebrate the Olympics	16%	16%	15%
They are good quality	12%	11%	13%

*Base: All who have done an activity or otherwise used the materials (330).*

#### 4.2.4.2

#### *Fit with existing plans around the London 2012 Olympic and Paralympic Games*

Among the case study schools, the main motivating factor to use the kit was that it fitted with their existing teaching plans around the Olympics. This was highlighted particularly by one of the London secondary schools given its close proximity to the Olympic site and existing plans for exercise-themed activities linked to the Olympics. The London-based private all girls' secondary school also highlighted this: "[In the Zone] fitted well with the whole school 'Olympic theme' for the year." Other schools in the north of England, Northern Ireland and Scotland also highlighted the importance of In the Zone's fit with their existing plans around the Olympics. For example, a primary school in Scotland explained how the kit fitted well with their 'Health and Wellbeing Olympic theme' planned for Primary 4 in the summer term.<sup>22</sup>

#### 4.2.4.3

#### *The look and design of the box*

For several case study schools that did not necessarily have plans in place to celebrate the Olympics, it was the look and design of the box that made the difference, particularly because it was free, easy to use and "could be used straight out of the box". One Foundation-level teacher in an English primary school explained how she first presented the kit box to pupils to see how they interacted with it before deciding whether to use the materials (a positive response led to the materials being used in the school). Similarly, a Year 4 teacher in another primary school in England described how much she liked the look of the box and said: "The children were very excited...it was a bit like Christmas – we had this box and they wanted to see what was in there."

#### 4.2.4.4

#### *The provision of high-value equipment*

Another pull factor highlighted by the case study schools was the equipment within the kits that the schools did not currently hold. For some of the primary schools, for example, the kits

<sup>22</sup> Primary 4 is equivalent to Year 3 Primary in England.

provided the opportunity to use stethoscopes and pedometers for the first time. At one of the special schools, both the teacher and the pupils were impressed by the fact that the equipment “looked real...like something a doctor or a nurse would use”. This made the kit particularly attractive to the students, who “felt they were doing real science...their reaction to the equipment was ‘we are using real science equipment here’.” For several of the case study secondary schools and for the FE college in particular, the attraction of the kit was more about building on and extending their existing resources.

#### 4.2.4.5 *The Wellcome Trust brand*

Several case study schools noted that it was the Wellcome Trust brand that proved most appealing. Although (as discussed above in Section 4.2.2) the survey found that the majority of teachers were not aware the Trust had provided the kits, for those case study schools that were aware – often those having used the previous Darwin education materials – association with the Trust was a positive influencing factor. A primary school teacher in Cardiff, for example, explained how she was drawn to the In the Zone box because of the Wellcome Trust brand, having previously used the Great Plant Hunt kit. Similarly, both case study special schools explained how they still use the Darwin materials and on this basis were keen to use In the Zone. As a secondary school teacher in England, who had used the ‘Brine Shrimp’ experiment from Darwin’s Survival Rivals and found it to be “brilliant”, summed up:

“Having seen the quality of the kit that was in the Brine Shrimp, as an example, I knew that I wasn’t going to be let down by the quality of the resources.”

Team Leader, Science, secondary school

#### **In the Zone and other competing resources**

In the Zone was just one of several STEM- and/or Olympic-related initiatives that schools were exposed to during 2012. One secondary case study school, for example, explained that they received a huge amount of material on resources in the lead-up to the Olympics, citing CISCO in particular.<sup>23</sup> See Annex 5 for an overview of other similar initiatives. As shown in Table 4.6 below, this was reflected in the survey findings, where 71 per cent of all respondents reported having used at least one other Olympic-themed external resource, most commonly linked to sport. However, the use of other resources did not displace the use of In the Zone; just 7 per cent of all respondents reported that they had used externally provided Olympic-related activities but not used In the Zone.

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<sup>23</sup> CISCO, one of the official network infrastructure supporters for the London 2012 Olympics, delivered an initiative called Out of the Blocks. Launched in January 2012 at nearly 4000 UK secondary schools and other locations, it included free activity books inspired by the London 2012 Olympic and Paralympic Games, along with website and video content. These were designed to inspire children to further their learning in math and science and become aware of future careers that rely on strong STEM skills. See [blogs.cisco.com/csr/olympics-are-starting-point-for-ciscos-commitment-to-ict-education-innovation-in-the-uk/](http://blogs.cisco.com/csr/olympics-are-starting-point-for-ciscos-commitment-to-ict-education-innovation-in-the-uk/).

Table 4.6 Other externally provided Olympic-related activities used

Activity	All respondents	Primary school respondents	Secondary school respondents
Anything to do with doing sport – sports days, PE	45%	48%	41%
Anything to do with the biology of sport – how the body works	18%	16%	20%
Anything to do with the history of the Olympics	18%	23%	12%
Anything to do with the torch relay route – geography/history/personal stories	16%	20%	11%
Anything to do with learning about the countries taking part in the Olympics	15%	18%	12%
Anything to do with the Paralympics	12%	15%	8%
Personal stories of the athletes	11%	16%	7%
Anything to do with languages that related to the countries taking part in the Olympics	11%	14%	8%
Anything to do with the Cultural Olympics, which took place all over the UK (music festivals, art, and so on)	10%	12%	8%
Anything to do with the mental preparation required for sport	6%	8%	4%
Other	21%	24%	18%
Nothing	29%	24%	33%

Source: *In the Zone* teacher survey, conducted September 2012. Base: All respondents (502).

Examples were also identified from our case studies of schools that had used the kits but had not engaged substantially with other enhancement and enrichment activities previously. We also found examples where schools were currently involved in a range of enhancement and enrichment activities and had delivered some kind of London 2012 Olympic-themed activity, and which had also used the *In the Zone* materials. For example, several primary and secondary schools explained how they had signed up to other Olympic-themed science resources, such as the Get Set Network and the BBC Assemblies website, but this did not displace their use of *In the Zone*. Indeed, the case study schools tended to see the *In the Zone* kits as being materially different to the other ‘Olympic’ resources they had received. For example:

#### Case study: Teachers’ views on other available resources

“I can’t think of any other organisation off the top of my head that has put something into a package that makes you think, actually, yes there is a really simple experiment you can do here.”

Team Leader, Science, secondary school

“We don’t tend to buy kits because they are for one age group, and we need them for more than one age group.”

Teacher, primary school

“We do not receive free science resources from other bodies; we occasionally get signposted to free online resources, but nothing to compare with [*In the Zone*].”

Teacher and Science Coordinator, primary school

“[*In the Zone* is] much better than other free materials, which tend to be black-and-white photocopies or stickers.”

Teacher, primary school

Source: *Case study fieldwork*

In one example from a primary school in Wales, a teacher stated that she preferred to use Cornerstone materials as her main teaching resource because she found them to be more closely aligned to the Welsh curriculum. This did not prevent her, however, from also using In the Zone materials.

## How the materials have been used and experience of use

This section examines how the In the Zone materials are viewed by teachers and the ways in which they have been used in schools, drawing on the school survey and case study fieldwork.

### **Key findings: primary and secondary schools**

#### **4.3.1.1** *Satisfaction levels*

The In the Zone kits were seen as being of a high quality by the vast majority of respondents to the school survey: 94 per cent of those who had personally looked in the boxes rated their content as very good (57 per cent) or good (37 per cent). Some 92 per cent of primary and 97 per cent of secondary school respondents rated the content as very good or good, with secondary respondents being more likely to rate the materials as very good (68 per cent), compared with primary schools (44 per cent). Those teaching biology were more likely to rate the materials as very good (71 per cent) than those teaching other subjects (64 per cent).

This is similar to the ratings given to the Darwin materials, where 98 per cent of both primary and secondary schools rated the quality of the materials as very good or good.<sup>24</sup> This view was also reflected in the case studies, with pupils and teachers alike speaking very highly of the kit and the equipment. In common with the findings from the Darwin evaluation, the case study teachers also emphasised the importance of being able to use the kits ‘straight out of the box’, with all the necessary equipment being provided.

The kits also compared well against other materials generally used in science teaching, with 63 per cent of primary and secondary teachers describing them as either “better” (34 per cent) or “a lot better” (29 per cent) and 28 per cent reporting them to be about the same – again, very similar levels to those reported for the Darwin initiative. Respondents in schools regularly using enhancement and enrichment activities were also more likely to say that the materials were a lot better than others (37 per cent, compared to 25 per cent who occasionally or 31 per cent who rarely engage in these types of activities).

#### **4.3.1.2** *Ease of use*

The majority of primary and secondary teachers (88 per cent) found the kits easy to use, with most teachers not requiring additional help. This is also evident from Pearson’s helpline data, which shows that the demand for additional support was fairly minimal; just 520 queries were received from all schools between March and September 2012. Most of these were concerned with requesting another pack, registration or acknowledging receipt of the box.<sup>25</sup>

#### **4.3.1.3** *How the kits were used*

Where lessons had been planned to use In the Zone, a third of respondents (33 per cent) reported adapting their lesson plans to incorporate the materials, with the remaining two-thirds incorporating their use into existing lesson plans. As would be expected, the most common curriculum area in which the In the Zone materials was used was science, with 39 per cent of all teachers reporting that they only used the materials to support the science curriculum – a fifth (22 per cent) of primary schools but more than half (54 per cent) of secondary schools. More than half (52 per cent) of primary schools and a fifth of secondary schools (20 per cent) reported using the activities in PE, and a quarter of primary schools (25 per cent) but only 8 per cent of secondary schools used the activities in Olympic-themed work. However, the curriculum areas in which In the Zone materials were used varied between primary and secondary schools in other ways. Primary schools tended to focus more on the health theme (34 per cent) than on biology (29 per cent), and a fifth (19 per cent) used them to support an Olympic theme. Secondary schools tended to focus on biology (54 per cent) rather than on health (21 per cent) and were much less likely to focus on the Olympic theme (3 per cent). Primary schools were also much more likely to use the activities to support sport science (12 per cent) than secondary schools (5 per cent).

<sup>24</sup> See GHK, PSP and TNS. 2010. Evaluation of the Darwin Education Initiative, Interim Report. Wellcome Trust, pp. 40 and 54.

<sup>25</sup> Pearson – end-of-grant summary report, Dec 2012

### In the Zone primary school kit

This sub-section focuses on the use of the primary school kits, exploring the way in which they have been used to date and some of the issues raised.

#### 4.3.2.1 *Primary teacher views on quality*

As described above, the kits were viewed positively by the primary teachers responding to the survey and participating in the case studies. Examples of comments from the case study schools on the quality and appropriateness of the materials are provided below.

#### Primary school teacher views on the quality of the kit

“I thought this was very comprehensive; the materials all linked in, and I would definitely use any other materials they produced.”

Primary school, Northern Ireland

“I opened the box: everything I needed was there. I used the resources, and it was great that it was all free and available and that I did not have to order any additional material to use it.”

Primary teacher

“[In the Zone has been designed] to suit what our age group likes and it makes it more exciting.”

Year 6 pupil

“Whoever designed these materials knows what works for children.”

Special school

“The quality of the materials is up there with the things we would have to pay for.”

Primary school, Wales

One of the commonly reported strengths of the materials among the case study schools was that they saved teachers’ time, which would otherwise have been spent sourcing equipment and materials. As one primary school teacher described: “It saved me time; it was all in one place, and I didn’t need to scurry around looking for timers that worked. There were some things I could readily photocopy and adapt, so it saved me a lot of time – and I like that.” In this sense, several teachers particularly appreciated the attention to detail (e.g. including wipes for the stethoscopes within the box).

#### 4.3.2.2 *Ease of use among primary teachers*

The ease of use of the kits was also highlighted as a strength by primary teachers in the survey and case study fieldwork. Table 4.7 below provides the survey findings on the share of primary respondents finding the materials ‘very easy’ or ‘fairly easy’ to use. Just over a third of primary teachers using the activities overall found them to be very easy to use with pupils, with a further half saying they were fairly easy to use. As the table shows, no single activity was described as being any more difficult to use than the others.

Table 4.7 Overall ease of doing the activities at primary school

Activity	Percentage saying that overall the activities were very easy to use	Percentage saying that overall the activities were fairly easy to use
Brilliant Bodies (for ages 4–5)	35%	53%
Stupendous Steppers (for ages 5–7)	39%	54%
Super Athletes (for ages 7–9)	36%	57%
Heart Beaters (for ages 9–11)	37%	51%

Source: In the Zone teacher survey, conducted September 2012. Base: All those in primary schools who have done at least one activity (123).

#### 4.3.2.3 Views on particular elements of the kits

Both the primary pupils and their teachers interviewed in the case studies described the different activities they had participated in, with many highlighting elements that they found to be most enjoyable. These are set out below.

#### Primary case study examples: most valued elements

- **The box itself:** Teachers and pupils talked about the ‘wow’ factor of the box, with one teacher describing it as a “box of goodies” and others saying how receiving the box was “like Christmas”.
- **Fizzy the puppet:** This proved popular among all primary pupils, and the favourite part for many. For example, one Year 5 pupil explained: “Fizzy gave us stuff to do – and Fizzy said on the board what we had to do next. [Our teacher] asked us if we wanted to use the puppet and we said yes.” In another school, the Reception/Year 1 teacher explained how much her pupils loved the kit and the Fizzy puppet in particular:

“It is a great resource because the children loved it. Whenever I took Fizzy out of the box, the children would go quiet and really concentrate. They were really enthused by it and they worked really hard whenever we used it. The materials were new, they looked nice and they were different. They like the wee story that was told by Fizzy.”

Primary school

One teacher in a special school that used the puppet with Year 4, 5 and 6 pupils said: “The pupils loved using the puppet. I think it’s because it’s someone who needs more help than them, and they were trying to help her to do things by talking to her.”

- **The equipment:** There were examples of the use of all the equipment in the kits to varying extents across the case studies. Pupils and teachers alike were particularly impressed with the quality of the equipment and the ability to get their hands on ‘real’ kit such as the timers, stethoscope and pedometers. One case study school explained why the pupils loved the pedometers: “They were new and exciting; the children hadn’t seen them before.” A teacher from a special school mentioned that the pupils “loved using the stethoscopes to listen to the heart and learning about how bodies work”.
- **Particular experiments:** For example, one Year 6 pupil said: “We did Super Athletes [which was] fun. Mine was a runner.” A teacher in a special school explained that her Year 4, 5 and 6 pupils were “fascinated by super athletes because they were guessing and trying the activities”. In relation to Heart Beaters, one Year 6 pupil explained: “It was interesting to find out what your body can actually do and how it does it.”
- **The Body Challenge Cards:** Several primary schools cited this activity as particularly enjoyable. For one primary school teacher, this was one of the best elements of the kit, providing flexible resources with lots of good ideas for the pupils. The pupils enjoyed doing the challenges.
- **The videos:** One Year 6 pupil said: “I liked the videos; they gave you quite a lot of information about the subject.”

#### 4.3.2.4 Primary school implementation models

The ability to use the kits on a flexible basis, including with different pupil age groups, was also a clear strength. Table 4.8 below shows that each of the primary experiments was used with a range of age groups and shows that teachers were able to use them with older or younger children than prescribed.

Table 4.8 School years using each primary activity

School year group	Percentage using Brilliant Bodies	Percentage using Stupendous Steppers	Percentage using Super Athletes	Percentage using Heart Beaters
Foundation/Primary 1/P2	38%	20%	12%	13%
Year 1/Primary 2/P3	43%	29%	19%	12%
Year 2/Primary 3/P4	34%	35%	24%	13%

Year 3/Primary 4/P5	30%	38%	39%	28%
Year 4/Primary 5/P6	36%	41%	49%	36%
Year 5/Primary 6/P7	31%	36%	49%	55%
Year 6/Primary 7/Year 8	25%	33%	44%	42%

Source: *In the Zone teacher survey, conducted September 2012. Base: Brilliant Bodies, 77; Stupendous Steppers, 66; Super Athletes, 78; Heart Beaters, 93.*

The case study fieldwork identified several different implementation models, which are summarised in the examples below.

### Case study examples of kit use: primary schools

#### **Use of Heart Beaters in a small, rural, mixed-age classroom setting**

'Heart Beaters' materials were used with a Year 5/6 class as part of PE. The teacher used the PowerPoint slides as an introduction to the lesson: "having the slides was a really good idea". She showed the email from Fizzy as part of this. She then did the Trivia Quiz, which she was able to adapt. Following this, working in groups, the pupils came up with a hypothesis and thought of an appropriate exercise. The teacher then went round each group with the stop clock to time their pulse rates. The pupils thought of ways to record and show the data, with the older pupils drawing up a line graph and the younger pupils plotting the results. Pupils interviewed were able to recall what they had done, saying "We did a test of our pulse rate when at rest and after a minute of exercise and then after two minutes," and "We were allowed to choose our own exercises; some of us did star jumps, others ran round in circles". The teacher noted that "it would be great to get mixed-age lesson plans; we never get these".

#### **Use of Super Athlete with a Year 4 class**

The teacher had always planned to do a Year 4 Olympics Science module, and when *In the Zone* came along the Super Athletes module fitted exactly with what was needed. The teacher delivered the Super Athlete lessons with her Year 4 class in the summer term of 2012. The Super Athletes idea as a whole proved attractive to the pupils; it allowed them to create a model and take it home and also allowed them to relate what they had learned about human physiology to the Olympic Games. The scheme of work also fitted well with their Sports Day. The teacher drew on the online resources and found the videos really enjoyable. Pupils reinforced the teacher's positive views. Male pupil, Year 4: "We looked at whether if you have longer legs it affects whether you can jump longer. We actually found that it didn't. We measured people's legs and then we measured how far they jumped." Female pupil, Year 4: "We then did the bar chart of the measurements." Male pupil, Year 4: "I liked the videos. They gave you quite a lot of information about the subject."

#### **Use of equipment in cross-curricula activities in a small rural school in Northern Ireland**

The resources had been exclusively used by the P1/P2 teacher (equivalent to reception and Year 1 in England). She had used all the resources in the box in a broad range of ways in both PE and science. The teacher adapted the materials to fit with her children's needs and age level. This included using the stethoscopes as part of a role-playing activity based on a doctor's surgery, using the tape measures to measure baby dolls' heads as part of a role-playing exercise based on a baby clinic and using the Body Challenge Cards in class.

#### **Using ITZ with pupils for whom English is not their first language**

The kit was used flexibly with Year 2 and Year 5 pupils. The puppet proved popular with the younger children. Other elements used were the cards (used in small group work), the timer (used to measure how fast pupils could run), the pedometer (used as part of a monthly walk to school), the stethoscope, and the measuring tape (used to measure arms/feet and ears/nose). The teacher also left the materials out on display for pupils to play with during 'free time'.

### **In the Zone secondary school kit**

#### **4.3.3.1** *Secondary teacher views on quality*

Like the primary kits, the secondary kits were viewed extremely positively by the secondary teachers, summed up by the comment:

“The equipment is nice, very student friendly, easy to use, they feel nice – you can feel the quality.”

Science teacher, Northern Ireland secondary school

As with the primary teachers, the attention to detail was particularly appreciated. Positive comments were made on the value of some of the small items, as well as the larger ones; for example, the private secondary school noted that the tape measure was “better quality than the tape measures we already had, which were just long pieces wrapped around tin cans, [and were] very handy to have around.”

#### **4.3.3.2** *Ease of use among secondary teachers*

The In the Zone activities were again commonly reported as being easy to use, with around 40 per cent of secondary teachers responding to the survey and using the materials finding them very easy to use in the classroom and 48 per cent finding them fairly easy to use. In common with the primary materials, Table 4.9 shows that none of the activities for secondary schools was identified as being more difficult to use than the others.

Table 4.9 Overall ease of doing the activities at secondary school

<i>Activity</i>	<i>% saying that overall the activities were very easy to use</i>	<i>% saying that overall the activities were fairly easy to use</i>
On Your Marks, Get Set, Breathe (for ages 11–14)	40%	47%
From Strength to Strength (for ages 14–16)	37%	47%
I've Got the Power (for ages 16–19)	42%	50%

Source: In the Zone teacher survey, conducted September 2012. Base: All those in secondary schools who have done at least one activity (108).

#### **4.3.3.3** *Views on particular elements of the kits*

More generally, secondary school teachers and pupils in many of the case study schools described how it was the equipment itself that was most valued. Teachers and pupils alike often referred to the pulse oximeters, peak flow meters and blood pressure monitor when highlighting what they liked most about the kit. In particular, they valued the high quality of the equipment, recognising that it would “normally be quite expensive”. Another teacher was particularly impressed by the blood pressure monitor (“it’s incredible; I mean, it just looks so professional”), and a third commented: “You can tell they weren’t cheap to make – the blood pressure monitor, for example, is from a medical supplier.” This gave a clear positive message to the teachers: that they were valued and worth investing in.

Elsewhere, the less expensive items also proved popular with pupils, with one teacher in a secondary special school explaining how the students particularly enjoyed using the lung volume bag and competed with each other to see who could blow it up the fullest. As the teacher described:

“When we used the bags, they just loved it...I said ‘one breath, one breath’ and they were trying to blow the whole bag up – I mean, they just loved it. Just being given a piece of equipment that is of really good quality and obviously new, and they were the first ones to use it. That was so important.”

#### **4.3.3.4** *Secondary school implementation models*

As with the primary school materials, teachers in secondary schools felt able to use the experiments with a range of age groups beyond those prescribed in the kit. Table 4.10 below shows the use patterns identified in the school survey.

Table 4.10 School years using each secondary activity

School year group	Percentage using On Your Marks...	Percentage using From Strength to Strength	Percentage using I've Got the Power
Year 7/S1/Year 9	32%	24%	31%
Year 8/S2/Year 10	47%	31%	37%
Year 9/S3/Year 11	43%	53%	41%
Year 10/S4/Year 12	38%	51%	42%
Year 11/S5/Year 13	23%	33%	41%
Year 12/S6/Year 14	14%	22%	24%
Year 13	6%	10%	17%

Source: *In the Zone teacher survey, conducted September 2012. Base: On your Marks..., 120; From Strength to Strength, 49; I've Got the Power, 59.*

From the case study research, we also found several examples of how the secondary kit was being implemented in different ways. Many of the case studies were using elements of the kit independently, as illustrated in the examples below.

### Case study examples of kit use: secondary schools

#### **Use of equipment without following prescribed activities by a mixed comprehensive school**

Pieces of equipment were used individually for physiology and sports science purposes by a range of teachers in the 2012 summer term. None of the set experiments had been carried out. The teacher interviewed took the 'long view' of the curriculum and knew he would be doing work on human physiology (heart rate, breathing and blood pressure); having the kit made it easy for him to develop practical work to meet the 'how science works' criteria. An NQT teacher explained how he had designed a physiology programme of study and a booklet for Key Stage 4 (Years 9, 10 and 11) using the In the Zone equipment. The extra equipment enabled sophisticated experiments that pupils could engage with directly.

#### **Use of Get Set Breathe with Year 8 pupils in a girls comprehensive**

The On Your Marks, Get Set, Breathe equipment was used in a 'circus' format, allowing Year 8 students to rotate around the classroom undertaking different experiments. The teacher had to simplify the guidance and recording material for students to make the practical session more engaging. The equipment proved to be ideal for the age group. Students reported to the teacher that they remembered certain things because of the association with the practical. The resources were not used across the school, although the pieces of equipment are gradually being introduced into a range of lessons; for example, the pulse oximeters are being used in all experiments related to fitness.

#### **Use of Get Set Breathe as part of a Specialisms Day with Years 7/8 in a mixed comprehensive**

The activity was used in the summer term (July 2012) during a Specialisms Day with year 7 and Year 8 students. (On Specialisms Days, held after exams, an entire day is spent on one of the school's specialisms.) The students did a range of experiments based on exercise. These included testing pulse rates and blood pressure before and after exercise to allow recovery periods to be measured. They also measured lung capacities, investigated the way the diaphragm works and measured the glucose content of energy drinks. The strengths of the In the Zone materials were the inclusion of high-quality pieces of equipment and the presence of stimulating support material.

#### **Use of In the Zone by a specialist FE college**

Materials were primarily used by the animal biology and sports departments. The former used them for experiments comparing animal with human anatomy, and sports clubs used them to support football and tennis activities. The main benefit of the materials was that they boosted existing, albeit limited, supplies. Upon receiving the equipment the Senior Science Technician developed new 'practical protocols' for using the materials, allowing teachers to slot use of the

resources into existing sessions. Overall, they were impressed with the quality of materials: “We are not restricted to the curriculum as much as schools are, so many of the bits and pieces fit in very well with things we already do.”

#### **Use of In the Zone by a special school**

This school has students with profound and multiple learning difficulties, complex learning difficulties, and autism, and science teaching overall is limited. The materials had been used by one teacher in the school, who used the peak flow monitor, lung volume bag and pulse oximeters with a range of pupils. In general terms, she thought the equipment was a fantastic resource and that the pieces she chose to use were easy to use. The equipment enabled her to carry out experiments that she wouldn't otherwise have been able to do. She expressed some minor reservations with the blood pressure monitor and the respirometer, and stressed that because most of the students function at below Level 3, the primary kit would also have been useful.

#### **Use of In the Zone by an all-girls private boarding school**

Get Set Breathe was used with Year 7 for National Science Week (March 2012). The week culminated in an intra-house poster competition on breathing. They submitted data to the Live Data Zone, but the teacher did not have time to do any analysis or download national results. In the autumn term of 2012, they also used the peak flow monitors and the lung volume bags with Year 10 pupils as part of the ‘circulation and respiration’ module for IGCSE. The peak flow monitor was found to be good quality and easy to use, with the kit also re-introducing the lung volume bag experiment into their school's practical repertoire; it had been forgotten in recent years because the old bags had been damaged.

### **Challenges and suggestions for improvements**

#### **4.3.4.1** *The need for more equipment items within the kit*

In the survey, about half (49 per cent) of the teachers surveyed felt there were no further improvements that could be made to the kit; however, of those who did make suggestions, the most common one was the need for more items of equipment (16 per cent) within the kits to allow greater use among pupils. This also reflects case study feedback: the most common issue identified by the case study schools was simply the need for more equipment. Both teachers and pupils from several of the case study schools suggested that it would be good to have more of the kit so that pupils could do experiments in pairs. In one school, to overcome the challenge of not having equipment for all pupils, the teacher did the activities in small groups and the children took it in turns to use the materials – sometimes referred to as a ‘carousel’ approach. In her case, it worked well for her with those children identified as working faster being given the equipment first. This allowed time for them to then write up the experiment.

Another teacher in a primary school was familiar with the carousel approach and could see its potential for In the Zone, but she stressed that in practice it is challenging to implement. She explained that particularly in the context of mixed-age and/or mixed-ability classes, there is the need to ensure that each activity is suitable for each group and that a teaching assistant is necessary to help oversee and facilitate – a resource that is not always available. Other issues raised included the difficulties faced by some pupils in finding their pulse and the need for equipment to be robust enough for use in the long term (e.g. “We have gone from five to three pedometers”).<sup>26</sup>

Secondary case study schools also made the point that there was the need for more equipment to allow more hands-on experience. As one teacher put it: “Having one [pulse oximeter] was a little limited, but one is better than none. If there were more, it would have facilitated group work, which can allow time to go deeper into learning.”<sup>27</sup>

#### **4.3.4.2** *Challenges with the use of particular items within the kit*

Another general point was made by some of the teachers that in activities based on the human body, there was the potential for pupils (particularly older pupils) to be self-conscious. This raised the point that the experiments had to be implemented in a sensitive manner. One secondary

<sup>26</sup> The primary school kit actually included ten pedometers.

<sup>27</sup> The secondary school kit actually included two oximeters.

school, for example, said that although the exercise on measuring their own bodies helped promote engagement among pupils, for older pupils there was capacity for alienation and embarrassment.

Similar points were raised regarding the use of the blood pressure monitor. One teacher from a secondary special school had reservations about its use:

“Some of the students have special medical needs and I just need to be sure that I am using it right. It didn’t seem appropriate at the time – my students were just not ready to use it. It wouldn’t have been appropriate.”

Science teacher, special school

In another school the biology teacher thought the blood pressure monitor might not be appropriate because it made him “queasy” and he thought it would make the pupils worry about their health. On a more practical note, a Year 13 BTEC Level 3 Medical Science student from another secondary school had used the equipment as part of her course. She had experienced some minor issues with the blood pressure monitor: the straps did not fit on all people, and sometimes “it didn’t say when the air wasn’t out properly, so it wouldn’t work”. This was supported by the teacher, who wasn’t sure whether the equipment was at fault or whether they were not using it correctly.

#### 4.3.4.3 *The use of the kit within PE*

Finally, one secondary school noted the challenge of doing sports-based experiments as part of PE. Even though they have conducted science lessons in association with the PE department before, this particular school did not choose to use the kits in a PE setting:

“It’s a bit of a faff, getting the girls down there and organising a lesson. It is much harder nowadays to do sports-based experiments safely. In order to really show results, you need to push them hard...like running on a treadmill for an hour. You can’t get a good sports experiment going with 10 minutes’ mild activity. It’s hard to do within the limits of health and safety.”

Biology teacher, secondary boarding school for girls

#### 4.3.4.4 *Suggestions for improvements*

In the survey, when discussing additional needs for support or guidance, most respondents who had looked in the box (68 per cent) said they did not need such support; however, a few would have liked advance warning about the box (4 per cent), more equipment (4 per cent) or more ideas for use (2 per cent). Finally, when asked for any other comments about the In the Zone activities and materials, most teachers (51 per cent) made no further comments. A third (34 per cent) concluded that the materials and activities were very useful and 7 per cent asked to continue receiving similar materials.

## Supporting materials and activities

This section presents findings relating to the use of the teacher notes and curriculum guide, the website, and the marketing and communication activities.

### **Use of the teacher notes and curriculum guide**

62 per cent of all teachers responding to the survey and examining the contents of the kits reported also looking at or using the teacher notes. Of those who read the teacher notes, 95 per cent said they were either very easy (70 per cent) or fairly easy (25 per cent) to understand – with teachers in secondary schools being less likely to describe them as very easy to understand (67 per cent vs 74 per cent).

However, a quarter (26 per cent) of those who had used the activities reported not reading the teacher notes at all. This would suggest – as discussed above – that teachers found the kits easy to incorporate into lessons without the need for guidance or were using equipment from the kit without following the prescribed experiments. Indeed, of those who had read the teacher notes, only just over a third (36 per cent) reported using them to plan lessons involving In the Zone. Secondary schools were markedly less likely than primary schools to use the teacher notes in their planning (24 per cent vs 46 per cent).

A fifth (21 per cent) of those who had read the teacher notes also used the curriculum guide. However, more than half (52 per cent) of the respondents who had looked in the box reported not reading the curriculum guide at all; these teachers tended to be the same ones who had not read the teacher notes.

From the case study research, the reasons for the limited use of the teacher notes and guide included those given below.

- Although they might have been useful for NQT teachers or those using equipment for the first time, the teacher notes were not usually needed. This was because the experiments were perceived as straightforward and/or very similar to what is already done, so their “use and preparation for use required very little thought or input”. Alternatively, equipment use was simply incorporated into existing lesson plans and teaching methods. As one secondary teacher put it: “Having used all the kit before, all I needed to do really was look at it to work out how it worked.”
- Although the teacher notes and worksheets were seen as useful for stimulating ideas, they were not always seen as appropriate for immediate use: some were considered too complex and some were not sufficiently detailed. However, it was appreciated that it would be impossible to have guidance materials that could meet all needs, and having generic information was a good starting point. A secondary teacher, for example, thought the notes could be intimidating for some teachers and suggested that paper-based resources are generally less helpful than electronic ones, which can be edited and amended more easily. (Editable electronic versions of the resources are available on the In the Zone website.)
- The teacher notes were not always seen as relevant for all schools. A primary school teacher, for example, explained: “The curriculum planner I didn’t use hardly at all, because everything is a mess with the curriculum so we have stayed with the old QCA units and expected outcomes.” For one of the special schools, the guidance was less useful as it did not refer to pupils with learning difficulties:

“I couldn’t have used the guidance it wasn’t really suitable for the students here...I did flick through, and it gave me a couple of ideas, but that wasn’t really the thing. It was the equipment for me, [although] if I had been working in a mainstream school then it would have been useful...it was quite detailed.”

- In the absence of a description of the contents on the outside of the box, some teachers may not have been aware of the guidance materials. A teacher from a Scottish primary school, for example, did not know that the box included lesson plans and was surprised when she examined it before our visit to see that it was tailored to the Scottish curriculum. After she looked at it again, she commented: “This looks brilliant. I could have really used it straight out of the box – it’s got all the skills and science outcomes aligned to the [Scottish] Curriculum for Excellence”. She would have preferred “a label on the box, saying ‘This Box contains these things (materials) and fully planned lesson plans with outcomes for the Curriculum for Excellence’”.

Where the teacher notes and/or the curriculum guidance had been used by the case study schools, teachers were largely positive about them, as illustrated below:

### Case study teacher views on their use of the guidance

- A secondary school teacher in Northern Ireland liked the curriculum guidance: “It had very good suggestions and was detailed.”
- A private all-girls boarding school found that the materials and guidance were easy to understand and pitched at the right level, and the teacher was able to pull the material straight out of the pack and turn it into a workbook for Year 7 pupils: “No alterations were needed – very pleased with this. Usually when material like this comes through you think ‘I need to do all this work to adapt it for use in my class’, [but] nothing was needed with this material.”
- A primary school teacher: “I used the spiral-bound book a lot; I looked at [the website] a little bit and ended up going back to the book, as I prefer a book that I can actually look at.”
- A primary school teacher found the teacher notes clear and very specific, and found the

specific objectives and outcomes really useful. “Everything you really need to plan a lesson.”

- A primary school teacher in Northern Ireland described the teachers’ guidance as very easy to follow and “full of lots of really good ideas”. She thought any teacher could use it, including inexperienced teachers, as it is laid out clearly and is very comprehensive. Rather than use lesson plans wholesale, she picked out elements and adapted the materials to her age groups. For example, she used a lot of the warm-up games described in the teacher’s guide, which served as a “good reminder” of activities that children love.

### Use of the website

Data from Google Analytics on the use of the In the Zone website shows that for the period January 2012 to December 2012:

- There were 120 533 visits to the In the Zone website, 32 per cent of which were returning visitors. For Darwin in the 12-month period January 2009–January 2010, the number of visits to the Great Plant Hunt website was slightly higher at 156 633, and for Survival Rivals the number of visits was much lower at 31 525 over a 15-month period. The design and functionality of all three websites were largely similar in terms of providing interactive games, videos and downloadable materials, but as the Darwin secondary school kits had to be ordered we would expect overall use levels (and, in turn, website hits) to be lower.
- There were 81 880 unique visitors accounting for 68 per cent of the total visits made.
- Between November 2011 and May 2012, Guardian Professional delivered targeted email campaigns to introduce the project to audiences and generate sign-up to the ITZ e-newsletter – in the period from January to July 2012, 7210 e-newsletter registrations were received.
- Printed direct mail (letters, posters and flyers) was sent out in two separate mailings to 23 117 primary schools, 12 004 secondary schools and colleges and 244 local education authorities. Although the response was hard to measure, direct traffic to the In the Zone website increased between 46 per cent and 59 per cent after the second mailing.<sup>28</sup>
- There were 642 916 page views, with five pages visited on average per visit.
- The average visit duration was 5 minutes and 36 seconds (for Darwin’s Great Plant Hunt it was 6 minutes).
- The number of visits was highest in May and June 2012, with 22 702 and 22 670 visits, respectively. (This coincided with Get In the Zone Week, 14–19 May.) There was also a smaller peak of 11 991 in March 2012. Perhaps the most significant factor to note is the drop-off rate after the London 2012 Olympics, with much smaller numbers accessing the website in the autumn. That such a large proportion of visits are made up of new visitors largely explains this high drop-off rate (i.e. they visit once and don’t go back). See Table 4.11 and Figure 4.3 below.

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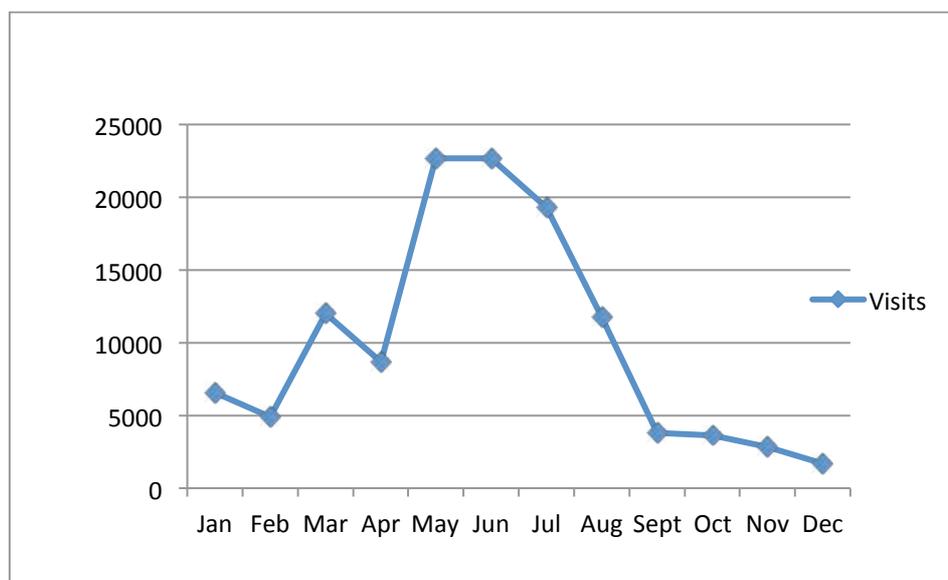
<sup>28</sup> Lucy Evans, In the Zone communications: Evaluation report, November 2012

Table 4.11 Number of visits and unique visitors by month (Jan–Dec 2012)

	Number of visits	New visits (percentage of total visits)
January	6574	81.03%
February	4898	66.80%
March	11 991	69.97%
April	8655	65.87%
May	22 702	65.55%
June	22 670	63.04%
July	19321	67.54%
August	11 763	73.61%
September	3800	66.68%
October	3649	67.85%
November	2819	73.11%
December	1691	71.44%

Source: Google Analytics.

Figure 4.3 Number of visits to the ITZ website by month (Jan–Dec 2012)



In terms of use by individual page/content, Table 4.12 below sets out the top ten pages viewed. The primary website pages were viewed more than most; within these, views were fairly evenly spread.

Table 4.12 Number of page views – the top ten (Jan–Dec 2012)

Page description	Page views (n)	Page views (%)
General Schools Section (/schools/)	66 620	10%
General Primary School Section (schools/ages-4-11/)	75 405	12%
<b>General Secondary School</b> Section (/schools/ages-11-19/)	21 804	3%
<b>Primary 4-5 Section</b> (/schools/ages-4-11/ages-4-5/)	20 107	3%
<b>Primary 5-7 Section</b> (/schools/ages-4-11/ages-5-7/)	26 586	4%
<b>Primary 7-9 Section</b> (/schools/ages-4-11/ages-7-9/)	25 200	4%
<b>Primary 9-11 Section</b> (/schools/ages-4-11/ages-9-11/)	23 637	4%
<b>Primary games: Super Speedy</b> (/schools/ages-4-11/ages-5-7/game-super-speedy/)	18 053	3%
<b>Primary games: the Pulse</b> (/schools/ages-4-11/ages-9-11/game-the-pulse/)	17 769	3%
Not specified	117 022	18%

Source: Google Analytics.

Finally, Table 4.13 shows that the main source of traffic to the In the Zone website was direct or via the Google search engine, and 5 per cent came from the Wellcome Trust main website.

Table 4.13 Number of visits to the ITZ website according to source (Jan–Dec 2012)

Source/medium	No of visits (%)
Direct/(none)	50 462 (42%)
Google/organic	40 283 (33%)
Wellcome.ac.uk/referral	5821 (5%)
Bing/organic	3235 (3%)
Exhibition.getinthezone.org.uk/referral	2500 (2%)
Topmarks.co.uk/referral	1797 (2%)
Tes.co.uk/referral	951 (<1%)
Btlondonlive.com/referral	894 (<1%)
Getset.london2012.com/referral	774 (<1%)
View.mail.guardian.co.uk/referral	598 (<1%)
Total	120 533 (100%)

Source: Google Analytics.

Between March and July 2012 the dedicated Get In the Zone Week website received 7457 page views (exceeding the target of 5000), of which 4358 were unique views. For this website, resource downloads by secondary schools were lower than those for primary schools.<sup>29</sup>

The school survey and case studies explored the use of the website in more detail. According to the survey, 25 per cent of all the teachers reported having looked at the website – with levels of use across primary and secondary schools being broadly similar – and that it had been used by pupils in 7 per cent of cases. Access to the website was almost exclusively by teachers using the kits; few non-users accessed the website. One of the case study secondary schools made the point

<sup>29</sup> Guardian Professional, In the Zone Marketing Evaluation Report, July 2012.

that they had limited access to IT in the science department, so for them using the In the Zone websites was not an option.

As Table 4.14 below shows, among those using the website, the two most common uses were for students to watch videos (39 per cent) and to download teaching materials (38 per cent). Although the number of primary and secondary schools that had used the website is quite small (59 and 69, respectively), it would seem that primary schools have generally used the website more than secondary schools.

Table 4.14 Use of the website

<i>Nature of use</i>	<i>Respondents who had used the website (%)</i>	<i>Primary schools (%)</i>	<i>Secondary schools (%)</i>
Watched videos	39	46	33
Downloaded teaching materials	38	41	35
Played games	20	42	1
Followed links to other projects	20	24	16
Read the news section	17	19	16
Downloaded posters	13	15	10
Signed up to the e-newsletter	9	10	7
Uploaded data to the website (secondary schools only)	6	N/A	12
Just flicked through/looked at it briefly	6	3	7
Don't know	21	19	23

*Source: In the Zone teacher survey, conducted September 2012. Base: All where staff and/or students have looked at the website (128).*

Several case study schools had used the website (primary schools, a middle school and a special school). Their views of the experience are summarised below:

#### Case study teacher views on their use of the In the Zone website

- One primary school had used the website to download teaching materials and the posters and to follow links to other related projects.
- Another primary school had used the website extensively to provide the teacher with teaching resources; the PowerPoint slides were particularly valued. She had not yet shown the games to the pupils.
- In one of the special schools, the teacher had used the website games during class with the pupils. A whole-class approach was taken with the younger pupils, whereas older pupils were allowed to play games independently.
- The primary school in Northern Ireland explained how she had used the website games and found them to be 'good' but very slow to load.
- Another primary teacher in England explained how she used the PowerPoint slides for whole-class teaching but did not have time to use the other elements of the website with pupils: "I prefer them to actually be having a go at doing instead of sitting at a computer and clicking...with the computer and website activities, I often use them as an extension activity." She also reported IT issues, which caused problems when using the PowerPoint slides from the website: "That was a huge problem – you always need a plan B."

#### Use of the Live Data Zone

As part of the Live Data Zone section of the website, secondary schools could upload data from the three kit experiments done in the classroom. Google Analytics shows that 28 726 Live Data Zone pages were viewed between January and December 2012, which is 5 per cent of the total number of page views on the In the Zone website (642 916), and that just 117 schools uploaded

data.<sup>30</sup> Table 4.15 below shows that the most popular experiment by far in terms of uploading data was the On Your Marks experiment.

Table 4.15 Use of the Live Data Zone: Numbers uploading data

	Number of individual users	Number of schools
On Your Marks	2281	109
Strength to Strength	429	18
I've Got the Power	225	17

In the survey few teachers reported engaging with this section of the site: just 12 per cent of website users (eight schools) reported that they had uploaded data to the Live Data Zone. Secondary school teachers that had used the website but not uploaded data were asked whether they were aware of this facility; half (49 per cent) of this group stated they were not aware of it. Those who were aware of the upload option but had not used it most commonly cited a lack of time as the reason.<sup>31</sup>

The case study fieldwork also suggested that being aware of the Live Data Zone did not always translate into use: just one of the schools visited reported having uploaded data. A reason for the limited use given by some was the lack of adequate IT facilities within the school or their limited availability. The case study below provides an example of a school that did attempt to use the Live Data Zone.

### Case study example: use of the Live Data Zone

A private all-girls' secondary school used the Live Data Zone as part of their Year 7 National Science Week, and pupils were encouraged to upload data as they went along. The teacher found that although the site was easy to use (e.g. there were no problems with logging on and uploading data), problems emerged with the perceived quality of the data, which undermined the teacher's confidence in using them. The teacher explained:

"I was excited about this – I had a vision of a national experiment or national data collection, where we would put in our data and then use the national data to see the bigger picture (in a future lesson). However, some of the readings the girls were putting up were a bit odd. It made me question the validity of the national results. Some of the oxygen readings: the girls shouldn't be breathing with such low oxygen. So that put me off collecting and analysing our results against the national results."

She also experienced difficulties in downloading data, which also prevented further use: "I tried to download it once and it didn't quite work, and then I didn't try again. You know how things are when they don't work first time." She would have found it useful to have had a more user-friendly teacher interface for this activity.

### Perceived impact on teachers, pupils and schools

Drawing on the survey and case study fieldwork, this section explores the perceived impacts of using the kits for teachers, pupils and (where relevant) the wider school. Overall, the findings are extremely positive: 98 per cent of respondents reported some sort of impact on their pupils, and 73 per cent stated that there had been 'a great deal' of impact.

#### Impact on pupils

The In the Zone activities and materials are perceived by teachers as having affected students mainly in terms of enhancing their enjoyment of science lessons, but also in terms of enhancing their understanding of science, inspiring them and increasing their engagement with science. Perhaps understandably, secondary school respondents were more likely to say that there had

<sup>30</sup> Data made available from Guardian Professional.

<sup>31</sup> This was according to just seven schools.

been a great deal of impact on scientific understanding (45 per cent) than primary school respondents (39 per cent).

The survey found that more than half of both primary (59 per cent) and secondary (56 per cent) school teachers using the materials, whether as part of a prescribed activity or otherwise, reported they had had a great deal of impact on pupils. Table 4.16 below shows the teacher's perceptions of impact against different areas reported in the survey.

Table 4.16 Impacts on pupils, primary and secondary

	<i>All respondents</i>		<i>Primary schools</i>		<i>Secondary schools</i>	
	A great deal	A little	A great deal	A little	A great deal	A little
Impact on pupils	58%	37%	59%	36%	56%	38%
Contributed to enjoyment of science lessons/teaching sessions	42%	50%	39%	51%	45%	48%
Contributed to scientific understanding	36%	52%	43%	45%	29%	57%
Inspired pupils	35%	48%	39%	47%	32%	49%
Increased pupils' engagement with science						

Source: *In the Zone teacher survey, conducted September 2012. Base: All who have done an activity or otherwise used the materials (330).*

Differences emerged in the respondents' perceptions of impact reported in the survey:

- Teachers who had read the teacher notes were far more likely to say that there had been 'a great deal' of impact on pupils, across all variables, than those who had not.
- Those who described the materials as 'good' or 'very good' were also more likely to report 'a great deal' of impact than those who rated the quality of the materials less positively, although observed impact could well influence impressions of kit quality.
- Schools regularly engaging in enhancement and enrichment activities were also more likely to say that In the Zone had a great deal of impact on pupils' engagement with science than the schools that occasionally or rarely engaged with these activities.

Tables 4.17 and 4.18 show the survey findings in terms of the share of respondents reporting a 'great deal' of impact as a result of using the specific In the Zone activities. In line with the overall findings, 'a great deal' of impact was most commonly reported in terms of the activities' contributions to the enjoyment of science lessons and least commonly in terms of pupils' engagement with science. In general, however, the differences in the shares reporting a 'great deal' of impact by the same variable were small between the different activities (i.e. the primary responses ranged from 67 per cent to 62 per cent across the four activities in terms of their contribution to the enjoyment of science lessons).

Table 4.17 Percentage of primary respondents saying each activity had 'a great deal of impact'

	<i>Primary schools</i>			
	Brilliant Bodies	Stupendous Steppers	Super Athletes	Heart Beaters
Impact on pupils	66%	67%	64%	62%
Contributed to enjoyment of science lessons/teaching sessions	46%	47%	41%	41%
Contributed to scientific understanding	56%	61%	50%	47%
Helped your school to be involved in the Olympics	55%	52%	50%	45%
Inspired pupils	46%	47%	41%	41%
Increased pupils' engagement with science				

Source: *In the Zone teacher survey, conducted September 2012. Base: Primary schools that used the activities or materials (152).*

Table 4.18 Percentage of secondary respondents saying each activity had 'a great deal of impact'

	Secondary schools		
	On Your Marks, Get Set, Breathe	From Strength to Strength	I've Got the Power
Impact on pupils			
Contributed to enjoyment of science lessons/teaching sessions	57%	61%	59%
Contributed to scientific understanding	50%	51%	54%
Helped your school to be involved in the Olympics	42%	33%	46%
Inspired pupils	33%	37%	37%
Increased pupils' engagement with science	32%	39%	41%

Source: In the Zone teacher survey, conducted September 2012. Base: All secondary schools that have used the activities or materials (178).

In addition to reporting on the impact measures above, survey respondents were asked to identify any additional impacts for pupils resulting from the use of the activities or materials. A fifth (19 per cent) gave responses that related to an improved awareness of health, fitness and/or pupils' own bodies, and 31 per cent referred to the opportunity to use the new equipment.

The case studies also explored teachers' perceptions of the impacts of In the Zone on their pupils. In most cases the impacts were considered to relate to encouraging pupils to engage more in science, often as a result of more enjoyable science lessons, and some schools highlighted how they proved particularly beneficial for pupils who were typically hard to engage. Examples of the impacts reported in the case studies are provided below.

### Case study examples of pupil impacts

- A secondary school teacher explained how In the Zone "got pupils enthused about the science behind [the Olympics]". More specifically, he found the kit was particularly beneficial to those pupils most difficult to engage: "It was fun for them. We have a competition, who has the biggest peak flow – they could do it for hours, but if it is properly handled you get a discussion going as to why someone's peak flow is larger and what the consequences are of low oxygen saturation. This happened among the kids who are usually difficult to engage... We have seen kids develop leadership and other social interaction and communication skills." Other pupil benefits included increased enthusiasm, enhanced pupil engagement, an increased interest in science, and enhanced social and emotional skills (such as teamwork).
- A Year 13 BTEC Level 3 Medical Science student in a secondary school found her experience of using the blood pressure monitor very positive. It was the first time she'd had the opportunity to use one: "I found it better to learn when using this. It's just good for hands-on experience. To hold it and see how it is used." The teacher added that without this equipment, they would have done the same lesson, but it would have been via "the old-fashioned, time-consuming way." Having the kit also empowered students to lead the activity themselves, which might itself have generated improved learning outcomes.
- Similarly, several secondary school teachers, including one special school teacher, found the pulse oximeters were hugely beneficial to pupils by providing an easy way to measure pulse rates. The special school teacher described trying to teach students to take a pulse before In the Zone: "They just couldn't do it – it was just too difficult. I thought the older ones could cope but they couldn't...we just had to struggle along with what we had." However, using the pulse oximeters: "They were all able to do it...and we are able to use this equipment across the school – it is easy to use across the whole school. Having this equipment has made it so much better." Similarly, the practical nature of the lung volume bags enabled learning.
- A Year 6 pupil in one of the primary schools explained how they had made links between

what they had learned through In the Zone when watching the London 2012 Olympics: “It was quite interesting watching the Olympics in the summer, because you can see why Usain Bolt runs so fast because he has long legs and big muscles.”

- A primary school teacher who had used elements of the kit with her foundation class (including the Body Challenge cards, pedometers, floor tape, timers and stethoscope) believed that the pupils had enjoyed the materials and that they had helped with their learning. The pupils we interviewed were now in Year 1 but were able to recall the activities; the pupils spoke very positively about them and said they would like to do more.
- A primary school teacher in Northern Ireland had used a range of equipment as part of lessons with P1 and P2 pupils (equivalent to Reception/Year 1), which had helped “enthuse” the children. They had learned about keeping healthy, hygiene and the effect of exercise on the heart, and many still remembered what they had learned from the previous term.
- A primary teacher in a small rural school who had used Heart Beaters with Year 5/6 pupils felt that it had enthused them, and the pupils themselves reported the following:
  - “I learned that the heart rate goes up. [Before doing this experiment] I didn’t know how much it went up.” Boy, Year 6
  - “We learned how to make a hypothesis.” Boy, Year 6
  - “It was interesting to find out what your body can actually do and how it does it.” Boy, Year 5
- Similarly, pupils from another primary school that used Heart Beaters explained that:
  - “At first I didn’t know a lot of science, so we have done more and I did learn more.” Boy, Year 5
  - “I never used to like science but now I do – I used to get a bit lost.” Girl, Year 6

One of the case study special schools highlighted some quite specific learning outcomes:

### Case study example: In the Zone impacts on pupils in a ‘primary’ special school

This special needs school in the north of England caters for children aged 2 to 19. The materials were used by pupils in Years 4, 5 and 6, as well as pupils in Year 9 with profound multiple learning disabilities. All the materials were used except the pedometers, as most of the pupils use wheelchairs. Although the teacher – who is also the Science Co-ordinator – referred to the guidance and lesson plans, she followed them loosely and altered some tasks to meet the learning needs and capabilities of the pupils. For example: “One of the activities was based around who could jump the highest, so I changed this to how far they could throw a ball.”

The teacher reported that the materials fitted into her lessons really well. She tends to use practical and interactive methods with her class, which normally starts with a song about what they will be learning and ends with a song as “it helps them remember what they have learnt”. The materials were used to teach science with a focus on bodies, and included:

- The use of Fizzy, body labels and the interactive game on the website: they drew around themselves on large pieces of paper or used photos to label bodies, and played the ‘silly naming game’. As a result of this, pupils were able to copy simple actions.
- The use of Fizzy and the Body Challenge Cards: Fizzy was used to look at pictures and check the names of body parts, and the Body Challenge cards were used to show that we are all different. The children drew up a list of the differences and played a describing game, ‘Who Am I?’ As a result, pupils could recognise and understand similarities and differences.
- Super Athletes: pupils followed the prescribed activities, such as predicting fact or fiction, measuring body parts and finding out whether the longest arm throws the furthest. Pupils were able to remember events, name simple actions, repeat actions when prompted, measure accurately and record data in tables.

### Impacts on teachers and the wider school

Survey respondents who had used the materials were also asked about the impacts for them personally, and how their use supported teaching the science curriculum. Table 4.19 shows that

92 per cent of all teachers that had used the kit found it had supported them either a great deal (59 per cent) or a little (33 per cent) in terms of teaching the science curriculum. However, there was some difference between primary schools (57 per cent and 37 per cent, respectively) and secondary schools (61 per cent and 30 per cent, respectively).

Table 4.19 Impact on teachers

	<i>All respondents</i>		<i>Primary schools</i>		<i>Secondary schools</i>	
	<i>A great deal</i>	<i>A little</i>	<i>A great deal</i>	<i>A little</i>	<i>A great deal</i>	<i>A little</i>
Impact on staff	59%	33%	57%	37%	61%	30%
Supported the teaching of the science curriculum	12%	31%	13%	40%	11%	23%
Increased confidence to deliver science practicals	8%	39%	7%	43%	8%	36%
Increased knowledge of contemporary science	6%	29%	5%	36%	6%	24%
Improved knowledge of the human body						

Source: *In the Zone teacher survey, conducted September 2012. Base: All who have done an activity or otherwise used the materials (330).*

However, fewer respondents considered that In the Zone had:

- increased their confidence to deliver science practicals ('a great deal', 12 per cent; 'a little', 31 per cent)
- increased their knowledge of contemporary science (8 per cent and 39 per cent, respectively)
- increased their knowledge of the human body (6 per cent and 29 per cent, respectively).

Importantly, the reported impact on confidence to deliver practicals, and knowledge of contemporary science and of the human body, was greater among primary respondents (53 per cent, 50 per cent and 41 per cent reporting a 'great deal' or 'a little' impact for each criteria, respectively) than among secondary school respondents (34 per cent, 44 per cent and 30 per cent, respectively).

Understandably, biology teachers using the materials – whether as part of a suggested activity or otherwise – were less likely than other science teachers to report 'a great deal' of impact on supporting the teaching of the curriculum (64 per cent compared with 72 per cent). Again, those involved regularly in engagement and enrichment activities were more likely than occasional participants to report 'a great deal' of impact around supporting the teaching of the curriculum (69 per cent compared to 61 per cent).

In the case studies, many teachers explained how the kit and its contents were most beneficial to themselves in terms of enhancing existing teaching and enabling them to deliver more of what they were doing already. In common with the survey findings, few described radical changes to their teaching practice. According to a teacher in a secondary school in Northern Ireland, for example, the In the Zone kit "had very, very good suggestions and was detailed; most of it we had done before, like heart rates before and after exercise, but last year we did more and spent more time on it because of [In the Zone and the Olympics]". This suggests the content was designed well to fit with existing curriculum priorities and that the choice to focus on high-quality materials was correct. There were also some examples of more tangible impacts, as set out below.

## Case study examples of teacher impacts

- For some teachers, the materials were beneficial because they provided useful and practical suggestions “and it is sometimes difficult to be original”. Some teachers reported gaining new ideas from the materials and guidance; for example, investigating whether the same groups of muscles are used for different activities: “I hadn’t thought about that before – we would usually have just stepped up, but there were loads of things like pushing against the walls, backward push-ups and then measuring muscles – this is something we will retain. It’s also interesting for the teachers.”
- A primary school teacher explained how In the Zone had an impact on one of her colleagues, an experienced teacher who has been reluctant to teach science-related lessons in the past: “He always asks me to do them, but with this he was able to look at the teacher notes and refer to the PowerPoints and he was away. He didn’t ask for my help once.” The teacher believes her colleague’s confidence in teaching science had increased because the supporting materials for teachers clearly conveyed the information, had well thought-out lesson plans and signposted the teacher to other elements of the guidance.
- A secondary school teacher found that the kit had provided opportunities for more creative teaching to help with student learning. Overall, the equipment had enhanced existing lesson plans by providing more units to work with.

Finally, in terms of impact on the wider school (and although no particular examples were cited in the case studies), Table 4.20 below shows that one of the impacts cited by teachers was how the kit provided the opportunity for schools to get involved in Olympic-related activities. It is interesting to note that this was reported by more primary teachers (48 per cent) than secondary teachers (36 per cent).

Table 4.20 Impact on wider school

	<i>All respondents</i>		<i>Primary schools</i>		<i>Secondary schools</i>	
	A great deal	A little	A great deal	A little	A great deal	A little
Impact on wider school						
Helped school to be involved in the Olympics	42%	31%	48%	32%	37%	29%

Source: In the Zone teacher survey, conducted September 2012. Base: All who have done an activity or otherwise used the materials (330).

## Future use

“Every time we do anything about the human body, I will be thinking ‘I have got [In the Zone] – let’s see what is there that I can use’.”

Year 4 primary teacher

According to the survey, 94 per cent of the respondents who had already used the In the Zone kits said they were either very likely (55 per cent) or fairly likely (39 per cent) to continue to use them in future. The reported likelihood of continued use was similar for the primary and secondary respondents: 94 per cent and 95 per cent, respectively, were either very or fairly likely to use them again. In secondary schools, biology teachers were more likely to say that they would be very likely to reuse In the Zone (63 per cent) than people who taught another science (55 per cent).

The majority of teachers (80 per cent) undertaking In the Zone activities said they had recommended it to others in their school, and a fifth (19 per cent) had recommended it to teachers at other schools. Primary school respondents were more likely to have recommended it to teachers in their school (88 per cent) than secondary respondents (71 per cent) – possibly a reflection of the smaller school size and the different role of teachers in primary schools.

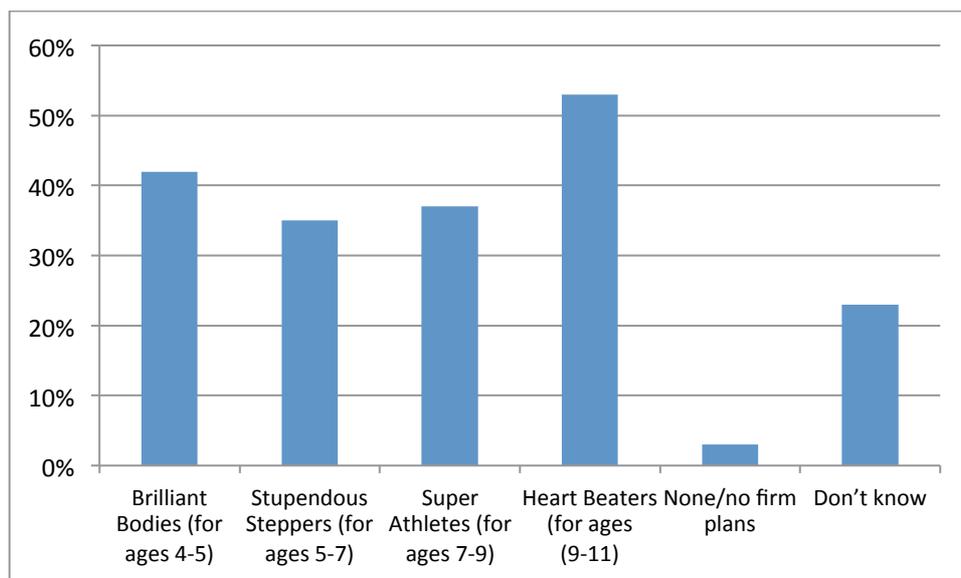
Those teachers who had more recently come into the profession were more likely to say that they would be very likely to use In the Zone again, compared with those who had been teaching for more than 15 years (44 per cent compared with 27 per cent).

Those who were aware of In the Zone but who had not used the kits were asked how likely it was that they would be used in the future. About a third (36 per cent) said they were very likely to use it, and a similar share (39 per cent) said they were fairly likely to use it. There was little difference between primary and secondary schools. Of those who had not yet done any activity, 55 per cent of those who rated the overall kit quality as very good and 25 per cent of those who rated them as good said they were very likely to use the activities in the future.

Half (47 per cent) of those very or fairly likely to use In the Zone (whether again or for the first time) said they had not yet made firm plans or scheduled when they might use it. However, between a quarter and a fifth said they had scheduled plans for In the Zone for each term in the 2012/13 school year: 23 per cent for the autumn 2012 term, 21 per cent for the 2013 spring term and 22 per cent for the 2013 summer term.

When asked which activities they were likely to use or use again in primary schools, Heart Beaters was by far the most popular activity – more than half (53 per cent) said they planned to use it.<sup>32</sup> As Figure 4.6 below shows, Brilliant Bodies was the next most popular activity (42 per cent likely to use or use again), followed by Super Athletes (37 per cent) and Stupendous Steppers (35 per cent). In general, teachers were more likely to say that they would reuse an activity rather than start a new one, although around half planned to use activities other than those previously used. The exception in primary schools was Heart Beaters, where 62 per cent of those not using it planned to do so. In secondary schools, three-quarters (77 per cent) of those who had not used On Your Marks, Get Set, Breathe said they would do so in future.

Figure 4.4. Planned future use of activities – primary schools

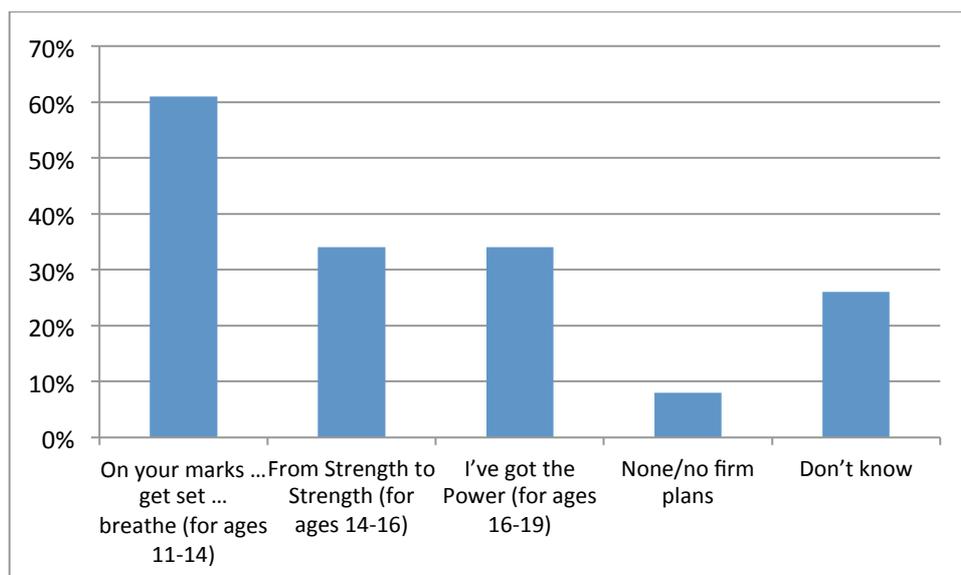


Source: In the Zone teacher survey, conducted September 2012. Base: All primary schools likely to use In the Zone in the future (171).

As Figure 4.5 shows, when asked which activities they were likely to use (again) in secondary schools On Your Marks, Get Set, Breathe was by far the most popular activity: 61 per cent said they planned to use it.

<sup>32</sup> Those who had used In the Zone were asked which activities they would use again, while those who had not used any activities but who said that they were very or fairly likely to use at least one activity in future were asked which activities they planned to use.

**Figure 4.5.** Planned future use of activities – secondary schools



Source: *In the Zone teacher survey, conducted September 2012. Base: All secondary schools likely to use In the Zone in the future (195).*

Most teachers intended to use the activities across whole year groups, as reported by 77 per cent of primary schools and 74 per cent of secondary schools.

All those who had personally looked at the In the Zone materials were asked whether they planned to use the materials other than in the suggested activities (i.e. as independent pieces of equipment). Two-thirds (66 per cent) said they did, although 22 per cent were unsure. Primary schools were more likely to be planning to use the materials other than as part of the suggested activities (73 per cent) than secondary schools (60 per cent).

As Table 4.21 shows, about half of the primary respondents planned to use the pedometers (53 per cent), the timers (50 per cent) and the stethoscopes (48 per cent), with almost as many planning to use the hand puppet (44 per cent). Fewer were planning to use the body challenge cards (33 per cent), the teaching guide (27 per cent) or the curriculum guide (24 per cent), but these are significant minorities.

**Table 4.21** Planned future use of materials – primary schools

Material	Primary schools planning to use each material
The pedometers	53%
The timers	50%
The stethoscopes	48%
The hand puppet	44%
The body challenge cards	33%
The teaching guide	27%
The curriculum guide	24%
None	9%
Don't know	18%

Base: *All who have personally looked at the contents (192).*

About half of the secondary school respondents planned to use the blood pressure monitor (51 per cent), the pulse oximeters (50 per cent), the peak flow meters (50 per cent) and the lung volume bags (45 per cent), with almost as many planning to use the respirometer kit (42 per cent). Fewer were planning to use the indicator charts (31 per cent), the laminated knowledge cards

(23 per cent) and the curriculum matching charts (17 per cent), but these are significant minorities. See Table 4.22.

Table 4.22 Planned future use of materials – secondary schools

<b>Material</b>	<b>Secondary schools planning to use each material</b>
The blood pressure monitor	51%
The pulse oximeters	50%
The peak flow meters	50%
The lung volume bags	45%
The respirometer kit	42%
The indicator charts	31%
The laminated knowledge cards	23%
The curriculum matching charts	17%
None	14%
Don't know	26%

*Base: All who have personally looked at the contents (209).*

Each of the 17 case study schools stated that they had plans in place to use elements of the kit in the coming year and beyond. Several saw the kits as an ongoing resource, even if they would not necessarily be branded as In the Zone. Many of the teachers interviewed in the case studies planned to promote further use among their colleagues.

Examples of planned future use were given for most year groups. The most common anticipated use was to pick and mix equipment according to demand. The pieces of equipment most cited were the blood pressure monitor, peak flow meter, stethoscope, pedometer and timers, and some respondents reported that they would purchase more kit themselves. Some intended to use the kit in wider science activities; for example, a secondary teacher planned to use the pulse oximeter with his A-level physics class as part of the medical element of the AQA module. Another secondary school was not sure whether they would repeat Get Set Breathe as part of National Science Week next year because of the Olympic branding, although they considered that the branding could simply be removed.

## In The Zone touring exhibition

### Key findings

- The In the Zone touring exhibition consisted of 16 events across the UK from March to September 2012. They were designed to cater for the wider public, particularly families. Designed and delivered by the At-Bristol Science Centre, the exhibition took the form of a large inflated dome supported by a stage area and buskers. Inside the dome, participants progressed through five interactive activities in just under ten minutes; after the event, they could retrieve personal data on performance from the In the Zone website.
- Throughout the touring exhibition, At-Bristol engaged with a total of 91 006 participants. In total, 54 660 completed the main set of activities, and 36 per cent of these went on to access the In the Zone website.
- Key factors that affected overall visitor numbers included the weather, pitch location, and the type and nature of event, particularly in terms of audience type.
- Prior awareness of the event was limited, but proactive local marketing was not prioritised. Where there was pre-event marketing of In the Zone, this was reflected in a higher level of awareness expressed by exit survey respondents.
- The design and look of the exhibit, combined with the proactive work of the buskers, worked well in attracting visitors. Key motivating factors for engagement were that it looked 'interesting', the buskers, the dome, and that it looked 'fun'.
- Barriers to participation were an overall lack of information and understanding of what was inside and what participants would be required to do. In some cases, this led to misconceptions that prevented some people from engaging – for example, that it was about dance, that it was for younger children only or that it would not cater for pushchairs or wheelchairs.
- For those who did engage, the response was overwhelmingly positive: 99 per cent of those interviewed exiting the dome said they found it very entertaining (90 per cent) or fairly entertaining (9 per cent).
- Participants particularly enjoyed the family experience, the competitive element, and the interactive and physical exercise elements. The Live Handcycling activity proved the most popular of the five activities across all ages and both genders.
- Despite the fast pace of progress through the exhibition, the vast majority of participants (95 per cent) said they had understood what to do at each exhibit. Participants suggested that perhaps more time was needed for young children, whose parents had to take time to explain and encourage their participation.
- The TV theme provided a useful narrative for explainers and buskers when facilitating the process and pulling in people to engage – even if was not always noticed by participants.
- The use of buskers worked extremely well, and they were vital in engaging people passing by and entertaining those waiting in the queue. The show also worked well in terms of entertaining those in the queue: more than 90 per cent of people who saw the show reported that they found it very or fairly entertaining.
- More than half of respondents exiting the dome said they had acquired at least one learning outcome from their experience, including learning 'that the heart pumps blood', 'that their body contains a network of blood vessels', 'that muscles, bones and tendons work together to lift the body' and 'that exercise affects their heart rate and breathing rate.'
- The celebrity endorsement by Sir Steve Redgrave was important for media profiling, and his presence at events proved popular, but it did not seem to have motivated substantially more attendance.

### Introduction

Commissioning a series of public engagement events sharing a common theme and branding with the school kits was a new approach for the Wellcome Trust; consequently, the evaluation of this strand of activity placed an emphasis on gaining detailed feedback on individual events, as well as on gaining a broader understanding of the effectiveness of this type of delivery model.

Drawing on interviews with key delivery staff, in-depth fieldwork in seven of the exhibition sites and the review of management information/performance data, this section explores patterns of use, prior awareness of the exhibition, motivation and barriers to participation, the participant experience, levels of understanding, learning outcomes, and follow-on website activity.

Much of the analysis draws on the data from the exit survey conducted with 304 participants across the seven sites. Although these data allow the identification of key patterns and trends, interviewee numbers did not allow comment on sub-groups at each venue. The exit survey is complemented by qualitative fieldwork conducted at each site, however, including observations, interviews with non-users and staff interviews.

## The methodology

As outlined in Section 1.2, we conducted interviews with key design and delivery staff from At-Bristol and visited seven of the 15 events:

1. Big Bang Fair, Birmingham (15–17 March)
2. Blue Peter Big Olympic Tour, Caerphilly (26 May)
3. Jodrell Bank Live Festival, Macclesfield (23–24 June)
4. Danson Festival, Kent (7–8 July)
5. Farnborough International Airshow, Farnborough (14–15 July)
6. BT London Live, Victoria Park, London (27 July–12 Aug)
7. Northampton Balloon Fiesta, Northampton (17–19 August).

See Annex 2 for a more detailed overview of the sites visited. These events were selected to cover a range of geographical locations and different types of events with different target audiences across the UK. At each venue we visited, we:

- observed the use of the exhibition by the public
- assessed the position of the exhibition at the venue
- assessed ‘competitor’ activities at the venue
- conducted short interviews with staff to explore issues such as what worked well, what worked less well and the public’s reactions
- talked to individuals attending the events but not visiting In the Zone (‘non-users’)
- talked to people in the queue for the In the Zone exhibit
- conducted exit interviews using a structured questionnaire immediately after people had been through the exhibit (‘users’).

In addition to the qualitative interviews with lead staff from At-Bristol, a follow-up focus group took place with eight delivery staff members, and the final evaluation report produced by At-Bristol was reviewed.<sup>33</sup> It was clear from these consultations that the development and scheduling of the touring of the exhibition had been logistically challenging at times, particularly given the time required to build and dismantle the kit and where events were scheduled close together. However, it was found to be a largely enjoyable experience and had provided floor staff with the opportunity to widen their skill base in a new environment.

## Overview of participants and patterns of use

This section draws mainly on management information data produced by At-Bristol in their performance reporting to the Wellcome Trust. As set out in Table 5.1, a total of 91 006 participants were engaged through the touring exhibition across 16 events, with 54 660 completing the main set of activities. Although this did not quite meet the revised target of 105 000 users, the Trust was satisfied with this figure – particularly given the poor weather conditions, which influenced attendance or led to the cancellation of several of the events. The overall participation rate was 12 per cent of the total visitor numbers attending the wider events in which the exhibition took place. Of those visiting the In the Zone exhibition, 60 per cent scanned their access card on exiting the dome.

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<sup>33</sup> See their evaluation report for details on research undertaken by them. At-Bristol (2012) In the Zone – Interactive Spaces – Evaluating the model of a touring exhibition and accompanying website, Wellcome Trust, December.

Table 5.1 ITZ touring exhibition: visitor numbers

Event	Event attendance	ITZ total engagement numbers* (% of overall event)	Number of scanned passes (% of total ITZ participants)
Big Bang Fair, Birmingham (15–17 March)	45 000	7783 (17%)	4798 (62%)
UK School Games, Olympic Park (9 May)	34 850	2348 (7%)	1457 (62%)
Balmoral Agricultural Show, Belfast (16–18 May)	75 000	7643 (10%)	4307 (56%)
Bristol Torch Relay, Bristol (22 May)	11 000	1951 (18%)	1188 (61%)
Blue Peter Big Olympic Tour, Caerphilly (26 May)	9052	1943 (21%)	1182 (61%)
Suffolk County Show, Ipswich (7–8 June)	40 000	2489 (6%)	1543 (62%)
Three Counties Show, Malvern (15–17 June)	87 000	5610 (6%)	2894 (52%)
Jodrell Bank Live Festival, Macclesfield (23–24 June)	12 000	1904 (16%)	1212 (64%)
Game and Wildlife Conservation Trust (GWCT) Scottish Game Fair, Perth (29 June–1 July)	6192	1235 (20%)	404 (33%)
Danson Festival, Kent (7–8 July)	33 000	4236 (13%)	2530 (60%)
Great Yorkshire Show, Harrogate (10–12 July)	42 000	1355 (3%)	754 (56%)
Farnborough International Airshow, Farnborough (14–15 July)	100 000	4282 (4%)	2568 (60%)
Blue Peter Big Olympic Tour, Newham, London (21–22 July)	17 689	4723 (27%)	3061 (65%)
BT London Live, Victoria Park, London (27 July–12 August)	194 472	35 919 (18%)	22 620 (63%)
Anglesey Agricultural Show, Anglesey (14–15 August)	51 000	2252 (5%)	1479 (66%)
Northampton Balloon Fiesta, Northampton (17–19 August)	30 000	5333 (18%)	2663 (50%)
<b>Total</b>	<b>788 255</b>	<b>91 006 (12%)</b>	<b>54 660 (60%)</b>

Source: At-Bristol (2012) \*scanned visitors, stage show observers and busking participants.

At-Bristol highlight several factors to consider when understanding levels and patterns of participation at the different events:

- **Weather:** According to At-Bristol, the biggest challenge during the tour was the weather. This mainly had an impact on overall visitor numbers, although anecdotal comments from the At-Bristol team suggested that the nature of visitors at some events was also not what was expected. The weather also influenced the operational days at the events themselves, with 7.5 delivery days being lost throughout the tour. At-Bristol calculate that this equates to a potential loss of 9645 visitors. It also resulted in delays setting up and taking down the exhibition and, with the tight schedule, any issues or delays that arose quickly had knock on-effects for subsequent events.<sup>34</sup> However, on the whole, the kit proved to be robust and weather proof.
- **Pitch location:** The quality of pitch location within the wider event was found to affect visitor numbers. Certain events, for example, offered in the Zone a good pitch and/or location in terms of being easily accessible, and some were in specific areas of the event ground, such as the Discovery Zone or Sports Zone. For others, however, they found

<sup>34</sup> At-Bristol (2012) End of Grant report, p. 8.

themselves situated far from the main entrance, which reduced exposure time.<sup>35</sup> Ultimately, although the exhibition was viewed as a high-quality free attraction and thus generally treated favourably, in some cases it competed with other exhibitors who were willing to pay more for a plot.

- **The type of event, particularly in terms of audience type:** Although no comprehensive demographic data are available, At-Bristol and our own observations suggest that the majority of visitors to the In the Zone exhibition were family groups with children but that there were differences between events. For example, in most cases family units went through the exhibit together; however, in some events – particularly the Balloon Fair, the Three Counties Show and the Danson Festival – it was perceived more as an activity “for kids”. For some of the events (e.g. Belfast, Harrogate and Suffolk), there was a higher than expected schools audience, particularly those that were incorporated into the schools trails or were near a sports-related zone. At the Jodrell Bank Live! music festival, there were a high number of independent adults, including students and young professionals. Similarly, the early evenings and weekend days at BT LondonLive saw a young professional crowd. By contrast, the larger free events included a wider mix of people, including high numbers of visitors for whom English was a second language or from Black and minority ethnic backgrounds. It was also noted that for events such as Blue Peter and where In the Zone was part of a discovery zone, participants were more willing to engage than in the agricultural shows (where they were more used to being spectators or consumers).<sup>36</sup>

### Prior awareness of the exhibition

There was some marketing of In the Zone in advance of the events, and attempts were made to secure coverage during the event from local and regional journalists. It was usually featured on the website of the main event and always on the In the Zone website. For the Blue Peter Big Olympic Torch Road Show, additional pre-event marketing activities were undertaken, including a press release. This seemed to help generate awareness of In the Zone among the local public before attending the event, in a way that was not the case for other events. From our exit survey we were able to determine that 12 per cent overall had heard about In the Zone before they came to the event, and the vast majority of these were at the Blue Peter Big Olympic Torch Road Show (where half of users questioned reported prior awareness).

The survey of teachers included a question on the exhibition to gauge general awareness of the other elements of In the Zone. This showed that only 6 per cent of teachers surveyed had seen or heard about the touring exhibition and that none had visited the tour themselves.

### Motivation and barriers to participation

Drawing mainly on the exit survey and the qualitative interviews conducted with non-users across the seven sites visited, we now explore the key factors that motivated visitors to engage with In the Zone or prevented them from doing so.

#### **Motivating factors**

The exit survey respondents were asked what had attracted them to the exhibition. Across all seven venues visited, the most common response (39 per cent of respondents) was that it looked interesting. In addition, a fifth (21 per cent) reported being attracted by the buskers, 11 per cent reported being attracted by the dome (particularly at the Big Bang), 11 per cent said it looked fun and 6 per cent had been told about it by someone else at the event.<sup>37</sup> The noise of the show attracted 8 per cent of respondents and the show itself 4 per cent. This would suggest that the design and look of the exhibition, combined with the proactive work of the buskers, worked well in attracting visitors.

Indeed, the buskers played an important part in encouraging observers to enter the exhibition, although this depended on how much they were used at a particular event. For example, while almost no one said they were attracted by the buskers at the Big Bang or the Blue Peter Big

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<sup>35</sup> At-Bristol (2012) End of Grant report, p. 13

<sup>36</sup> At-Bristol (2012) End of Grant Report, p. 13 and p. 23.

<sup>37</sup> About a third of respondents at the Big Bang indoor event said that they were drawn by the dome, which stood out against most of the other exhibits.

Olympic Torch Road Show, at events where buskers featured more (e.g. BT London Live), their presence was acknowledged.<sup>38</sup> Observation at the events and interviews with staff revealed that the buskers were crucial to recruiting visitors to the In the Zone exhibit, by:

- Describing the activities inside the dome to potential visitors. This was especially important for some shy children and reluctant adults.
- Reassuring potential users that the exhibit was free, in the absence of signs explaining this.
- Assuring people in wheelchairs and their carers and people with pushchairs that they would be able to take part and physically manoeuvre around the exhibition.
- Drawing in people who thought the activity was not for their age group.
- More generally approaching passers-by and drawing them in.

The queue itself attracted some visitors to the exhibition. Although just one of the respondents to the exit survey specifically mentioned this as a factor, informal interviews with people queuing and observations by delivery staff on the ground indicated that the queue acted as a pull factor for some: “People see a queue and join it, even if they don’t know what it’s for.”

Although the show acted as a draw for some, it did not necessarily prepare people for the exhibition and its different activities. In some cases the mystery of what was inside the dome was an attractor in itself, for example:

“Well, really it was the short wait time, and he said ‘come on’ . I suppose it does look a bit like ‘I wonder what is in there’. But I quite like it that you don’t know what to expect; otherwise, you might have built it up to be something a lot better than what it actually was, but it was brilliant the way it was done.”

Woman, Blue Peter Big Olympic Torch Road Show

Finally, the fact that In the Zone was seen as offering something different to the other exhibits or activities in the events served as a pull factor. For example, the qualitative interviews suggest that at the Big Bang and the Northampton Balloon Fiesta, In the Zone was one of a very few exhibits that included physical activities.

### **Barriers to participation**

The reasons given for not entering the exhibition ranged from practical points about having just arrived and still looking around to concerns about the queue or simply not being interested.

Perhaps the most common issues were to do with perceived barriers to accessibility and potential hidden costs. These are discussed below.

#### **5.5.2.1** *Accessibility*

Our interviews with staff and those passing by and not engaging with In the Zone indicated that the main barrier to participation was the lack of information about what was inside the dome. This led to a series of misconceptions: many assumed the exhibition was about exercise or dance, which deterred some sections of the audience. As the At-Bristol evaluation reported: “On initial inspection people also sometimes enquired whether the exhibition was something to do with dance. This is likely to be as a result of the graphics on the tent and the loud popular music being played.”<sup>39</sup>

There was also the misconception held by some that the exhibition was not accessible to wheelchair or pushchair users. Although this was not a substantial issue in terms of overall numbers, the buskers had to work hard to reassure some potential users. For example, at the Balloon Fiesta a group of people in wheelchairs spent some time observing In the Zone before the At-Bristol team drew them in by assuring them that they would be able to manoeuvre their wheelchairs through the exhibition. Indeed, according to At-Bristol:

“The exhibition was remarkably accessible, accommodating pushchairs, wheelchairs and many varied groups including those with special educational needs, disabilities and English as a second language. The use of the coloured carpet dots was complimented as a useful interpretive tool to reduce any physical or intellectual barriers to engagement. The radio headsets allowed the delivery staff to communicate any additional assistance that was required for

<sup>38</sup> The buskers had less of a role at Big Bang as there was almost always a queue and busking did not start until later in the afternoon.

<sup>39</sup> At-Bristol. 2012. In the Zone End of Grant Report, p. 23.

such groups. In fact, the majority of the time, merely reducing the size of the group to accommodate carers and or mobility equipment was sufficient.”<sup>40</sup>

In the absence of clear signage, the expectations of passers-by about content was largely informed by the look of the exhibition compared with neighbouring exhibits at the venue and their observations of who was in the queue. In places such as the Big Bang and the Balloon Fiesta, where there were many children in the queue, some adults and teenagers were deterred from joining the queue in the belief that the exhibition was targeted at young children. A group of older teenagers at Big Bang, for example, said “It doesn’t look like it’s for kids our age” and “There’s no one in the queue our age; it’s all younger kids and families”.

#### 5.5.2.2 *Perceived hidden costs*

Concerns over hidden costs were also cited by some passers-by. There were some events, for example, where visitors were seen to be more cautious than others, such as at the Balloon Fiesta and, according to staff, at the Balmoral Agricultural Show in Northern Ireland. At both of these events – which included other paying exhibits – the audiences were expecting to have to pay to enter or to give credit card details to be able to view the online experience. As the At-Bristol End of Grant Report described:

“There were times when In the Zone’s successes sometimes presented barriers to engagement. The high-quality finish and hi-tech feel of the exhibition meant that people tended to assume it was a chargeable experience. Staff were often asked how much it was and sometimes adults assumed there must be a hidden cost, even when they were assured it was free, thanks to funding from the Wellcome Trust. At some events visitors also asked what the exhibition was promoting. There was a sense that it was ‘too good to be true’.”<sup>41</sup>

### The participant experience

Drawing mainly on the exit survey conducted across seven sites, this section explores the participant experience with reference to the particular activities within the dome, as well as the wider set of activities including the stage show, buskers and TV studio theme.

#### **User experience of the exhibit**

In line with At-Bristol’s findings, the response to the exhibition was overwhelmingly positive, with nearly all participants reporting having enjoyed it.<sup>42</sup> Overall, 99 per cent of those interviewed on exit said they found the activities in the exhibition ‘very entertaining’ (90 per cent) or ‘fairly entertaining’ (9 per cent). Virtually all those interviewed at the Danson Festival, BT London Live and the Jodrell Bank Live Festival said they found the exhibition ‘very entertaining’, as did around three-quarters of interviewees at the Blue Peter Big Olympic Torch Road Show and the Balloon Fiesta. Only at the Balloon Fiesta did any respondents say that activities were ‘not very entertaining’. An independent evaluation of the Big Bang Fair found that In the Zone was highlighted as one of the best exhibits by young people.<sup>43</sup>

A slightly higher share (97 per cent) of the people aged 25 to 44 reported that they found the exhibition ‘very entertaining’ compared with younger or older audiences. It is likely that many, if not most, of those in this age group were parents in a family group, and the ‘family experience’ seems to have been a key contributing factor to their enjoyment levels. Indeed, in the exit

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<sup>40</sup> At-Bristol. 2012. In the Zone End of Grant Report p. 7.

<sup>41</sup> At-Bristol. 2012. In the Zone End of Grant Report p. 23.

<sup>42</sup> The reception the exhibition received while it was touring was enormously positive. In fact, visitors who did take part almost unanimously found the exhibition a positive and fun experience. The event reports detail only two instances of overtly negative feedback from visitors in the whole of the tour. In contrast, there are limitless anecdotes of visitors shaking hands with staff and thanking them. In a science centre environment this degree of spontaneous appreciation is actually quite rarely encountered and so indicates that visitors to In the Zone had a highly enjoyable experience that they valued. ‘It shouldn’t be so good. I can’t get them away from it!’ – Mother at Farnborough Airshow; “Wow! That was dead, dead good” – Teenager at Jodrell Bank Live!; “Bloody brilliant – best thing here!” – Father with two children at Scottish Game Fair. At-Bristol, EOG report, p. 22.

<sup>43</sup> Interviews with young people aged 8–19 showed that 20% liked the interactive elements best and that 3% cited In the Zone as the best exhibit; this was the highest percentage that said a specific exhibit was the best thing about the event, although several exhibits scored 3%.

interview 43 per cent of all respondents and 42 per cent of parents said that the family experience was one of the most memorable aspects of the exhibition.

Another positive aspect of the experience highlighted, particularly by men, was the competitive element, with just over a quarter (27 per cent) of all respondents saying that they enjoyed comparing themselves against others, including 30 per cent of the men interviewed.

A quarter (24 per cent) of people interviewed exiting the dome said they enjoyed feeling the effects of exercise, with some explaining that this made it different to (and more enjoyable than) other exhibits. For example, at the Blue Peter Big Olympic Torch Road Show, a person who had just completed the activities explained:

“I thought it was just something to look at – maybe just a few pictures and interesting facts, you know? We didn’t realise it would be quite as interactive and the fact that they superimpose you doing it all as well. It was very good seeing yourself doing it.”

Woman, Blue Peter Big Olympic Torch Road Show

Looking at each element of the exhibition individually, Table 5.2 shows that all of the elements of the exhibition were enjoyed ‘very much’ by the vast majority of respondents.

Table 5.2 Enjoyment of the different elements of In the Zone exhibition

<i>Exhibit</i>	<i>Very much (%)</i>	<i>Somewhat (%)</i>	<i>Not very much/not at all (%)</i>
You’ve Got the Power	81	16	3
Under the Skin	78	18	4
Live Handcycling	84	11	6
Quick Off the Mark	85	13	2
10m Sprint	84	12	4
Transition zones	83	15	2

Base: 304.

Although most people enjoyed all of the individual activities, Table 5.3 shows that Live Handcycling was the activity that was ‘liked best’ by a clear majority of users (40 per cent). The table also shows that men, women and users of all ages liked the more physical activities best (e.g. Live Handcycling and the 10m Sprint), with a slightly higher proportion of men than women reporting this, particularly for You’ve Got the Power.

Table 5.3 Elements of the In the Zone exhibition that were liked best

<i>Exhibit</i>	<i>% liked best</i>	<i>Men</i>	<i>Women</i>	<i>Under 20 years old</i>	<i>20–34 years old</i>	<i>35 years and older</i>
You’ve Got the Power	10%	14%	6%	7%	6%	12%
Under the Skin	13%	19%	16%	17%	14%	11%
Live Handcycling	40%	42%	39%	31%	40%	45%
Quick Off the Mark	12%	10%	13%	10%	14%	12%
10m Sprint	21%	22%	20%	32%	23%	15%
Transition zones	1%	0%	1%	0%	0%	1%
None	4%	3%	4%	4%	3%	4%

Base: 304.

Table 5.4 sets out user experiences of the different parts of the exhibit.

Table 5.4 User experience of each of the activities: an overview

Exhibit	User experience
You've Got the Power	Although 81 per cent of all respondents said they enjoyed this very much, describing it as 'fun', it was not one of the favourite activities overall. 16 per cent of respondents said unprompted that seeing their jump played back in slow motion was something they enjoyed about the whole In the Zone experience. One issue for parents was that young children were too short to be photographed. Men were more likely than women to say that this was their favourite activity (14 per cent compared to 6 per cent).
Under the Skin <sup>44</sup>	78 per cent of all respondents said they enjoyed this very much, describing it as 'interesting', with 13 per cent claiming this as their favourite. Women were more likely to say that this was their favourite activity than men (16 per cent compared to 9 per cent). When asked unprompted what they enjoyed about the overall experience of In the Zone, just over a quarter (27 per cent) of respondents said seeing their veins and heart trace – particularly so among the 8–12 age group.
Live Handcycling	84 per cent of all respondents said they liked this 'very much', and it proved to be the most popular activity across both genders and all age groups (40 per cent saying it was the best activity). Those who rated this activity as their favourite said it was because it was fun (47 per cent), it was exciting (29 per cent) and they performed well at it (21 per cent).
Quick Off the Mark	85 per cent of all respondents said they enjoyed this 'very much', but only 12 per cent described it as the best activity. As with the previous activity, the main reasons for its appeal were that it was fun, it was exciting and they performed well at it. When asked unprompted what they enjoyed about the In the Zone experience overall, about one in eight said testing their reaction time.
10m Sprint	84 per cent of respondents said they enjoyed this very much with 21 per cent reporting this as the best activity. As above, the main reasons for its appeal were that it was fun, it was exciting and they performed well at it. About the same proportion of men (22 per cent) and women (20 per cent) reported enjoying it, and more people aged under 45 (87 per cent) reported enjoying it than people aged 45 and over (73 per cent). When asked unprompted what they enjoyed overall about the In the Zone experience, 8 per cent said finding their speed on the track.
Transition zones	83 per cent of respondents said they enjoyed these very much, although only 1 per cent said the transition zones were their favourite parts of the exhibit. Respondents aged 25 and over were more likely to say they enjoyed the Transition Zone 'very much' (87 per cent) than those aged under 25 (69 per cent) – perhaps because these involved standing and/or listening rather than active participation.

Source: Exit survey.

### User experience of the wider elements

This section explores the role of the buskers, the stage show and the use of a TV theme. Overall, one of the key challenges in designing the touring exhibition was ensuring a balance was reached between allowing people to move quickly through the activities to avoid the build-up of queues and providing a quality experience. This partly determined the final duration of the activity. Although this ensured a fast pace of movement through the exhibition, queuing was inevitable. Indeed, during our fieldwork where there were substantial queues, the stage performance and the

<sup>44</sup> There were some technical issues experienced with this particular activity. While the performance of the heart sensors was improved over the life of the tour, some issues of sensitivity remained and there was occasional flat-lining.

buskers were vital in keeping participants entertained and engaged. The TV theme, in turn, provided a useful narrative for the buskers when engaging passers-by.

#### 5.6.2.1 *The TV theme*

The use of the TV theme was welcomed by delivery staff in providing them with a narrative or “a framework from which to hang the offer”. Although it did not necessarily enhance the experience of the interactive show itself (indeed, the speed of progress through the exhibit meant that for many the idea of a TV theme was lost), it provided staff with a quick and easy way of explaining the concept to incoming users. Staff used the TV theme flexibly and adapted what they explained to the audience. On balance, At-Bristol thought the theme could have been emphasised more and concluded that:

“The television narrative was seen as a major strength of the project. Visitors seemed very taken with and excited by the idea that they would be in a television show and regularly asked where they could watch it. For staff, being in character as television crew allowed for an assertive, yet playful and light-hearted style of delivery. They found this enjoyable and it helped to keep morale high even when faced with challenges.”<sup>45</sup>

#### 5.6.2.2 *The buskers*

A tactical approach to the scope and nature of busking had to be agreed for each event, given that there were not enough resources to enable continuous busking and that some venues placed limits on their use. Overall, though, and as mentioned above, the buskers were vital in engaging passers-by and in entertaining those waiting in the queue. At the Blue Peter event, for example, the length of the queue allowed the actors to perform competitions and activities with the children throughout the day, with several respondents speaking positively of their queuing experience:

“Fine, it was really good; the guys were keeping us entertained. It didn’t take very long, which is good.”

Father, Blue Peter Big Olympic Torch Road Show

“Not too bad because you know you’re in it. When you’re there, there’s a person who will announce it to you [and] you know you’re almost there, so it’s worth the wait. It’s a fantastic experience.”

Father, Blue Peter Big Olympic Torch Road Show

Where the queue remained short and manageable, buskers were able to use their time to actively encourage passers-by to join the queue and explain what was inside the tent. At some events, where the exhibition was situated some distance from the main entrance (e.g. the Farnborough International Airshow), buskers positioned themselves near to the main entrance to help draw people in.

A stakeholder interviewed for the evaluation who had a role in two of the events spoke very highly of the busker and stage show roles: “The stage show and buskers were very effective in warming up people and managing the queue; they were a good solution.”

Overall, At-Bristol thought the buskers had worked well and ‘made a difference’, especially at events where overall attendance was low. On reflection, particularly for the ‘big field’ venues, they wondered whether a ‘street performer’ role rather than ‘busking’ might have been more effective. Ideally, they would also have liked continuous busking throughout the day, but available resources and event constraints did not allow this.

In terms of the exit survey results, nearly a third (29 per cent) of those who went through the exhibition said they had not seen the buskers. This was highest at the Big Bang (reflecting the fact that the buskers were not deployed until later that day) and lowest at the Blue Peter Big Olympic Torch Road Show. Of those who saw the buskers, 82 per cent found them very entertaining and 18 per cent found them fairly entertaining.

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<sup>45</sup> At-Bristol. 2012. In the Zone End of Grant Report p. 22.

### 5.6.2.3 *The stage show*

There were several formats for the stage performance, and according to At-Bristol it was the element that showed greatest flexibility. The show had to work in a range of situations and required a range of techniques and approaches that evolved over the course of the tour. It largely varied between short mini-shows that involved audience members taking part on stage and buskers who worked to engage those waiting in the queue. Videos were available to use when both actors were on a break, but in practice they were not used as much as expected. The precise frequency and nature of the show was determined by the actors at the time, depending on the size of the audience. Indeed, early shows tended to be relatively long, which worked well for longer queues, but over time they developed shorter segments to help provide introductions to the exhibition to a wider set of people. It was here that the TV show theme was more overt, with members of the At-Bristol team apparently 'filming' the crowd during the show.

Overall, 51 per cent of those who were interviewed on exiting the exhibition said they had seen the show. This was highest at the Blue Peter Big Olympic Torch Road Show. At some events (the Balloon Fiesta, Farnborough International Airshow, Jodrell Bank Live Festival and the Danson Festival) at least half of those interviewed said they had not seen the show at all. Indeed, observation suggests that over time there were fewer and fewer shows. This was partly a reflection of the shorter queues observed in the later events visited and because the function of the show was to entertain the queue rather than draw people in. As an interactive activity, it also required a certain number of people in the queue to work; when there were no queues, it was not used. Instead, other modes of the show (i.e. video or live cam filming the queue with commentary from the presenters) were used more.

Of those who saw the show, three-quarters (77 per cent) found it very entertaining and a fifth (20 per cent) found it fairly entertaining.

"I thought [the show] was really interesting... They drew the crowd in, they're coherent, they speak well, they've got a good stage presence and they made it fun. It's appealing to adults and the younger generation – really, really good to watch. Everything made sense because they broke it down into basic chunks."

Mother, Blue Peter Big Olympic Torch Road Show

Anecdotal evidence provided by At-Bristol suggested that some people were so engrossed with the show that they didn't go into the exhibition or waited until it was over to go in.

## Levels of understanding among participants

### **The pace of the activity**

The exhibition was originally designed to last eight and a half minutes, but this was extended to nine and a half minutes, which in practice meant 45 seconds at each activity. Users were asked whether they felt that they had enough time at each element. Most (82 per cent) said they did, but 7 per cent said they did not. However, 10 per cent said they had enough time at some exhibits but not at others. Those aged under 20 were more likely to say that they did not have enough time at any or some of the activities.

Almost all users (95 per cent) interviewed in the exit survey said they understood what to do at each exhibit. Most of the queries related to Under the Skin, and staff were aware that this activity was more complex than the others.

"I think there's enough time to explain things for everything except, potentially, the blood corridor – it takes people a few seconds to realise that they can look at their veins and then they move their hand and take a picture [and] they have to put their hands down on the plate, there is quite a lot of different steps in that one."

Explainer

### Time constraints for certain participants

The qualitative research suggests that where there were difficulties, it was because some children needed more time than was allowed to grasp what to do. Evaluator observation found that parents often repeated the explainer's instructions. One mother commented on this after going through the exhibition (although it does not seem to have had a negative impact on her enjoyment): "It was too quick, I thought, for me personally and children, we had to explain things, but it was very good."

Indeed, the staff recognised this issue:

"If the person is ten years old or over, it's absolutely fine, they get it all. The younger children sometimes don't get it, often don't get it. I don't think it was designed for children under six or seven specifically, but with a bit of help they usually manage it."

Explainer

Owing to time constraints, users only had the opportunity to ask questions at the end of the exhibit. This was a factor that staff were aware of:

"You don't have enough time [to ask questions] (*laughs*). They're all swept up in the moment, so they don't really ask. At the end they ask questions, like 'Is this going to be on TV?' – 'No, but you can go and watch it, it's only you that gets to watch it' – so we need to explain that stuff, but during it, no."

Explainer

Staff found that participants with particular needs, such as those for whom English is a second language, were still able to participate and understand the experience. Children tended to translate for the adults, and the videos in the transition zones were seen as simple and accessible.

### Learning outcomes and impacts

#### Enhanced understanding of how the body works

A series of 'desired learning outcomes' were developed for the exhibition, as shown in Table 5.5 below. The exit survey asked respondents what they felt they had learned from the exhibition in relation to each of these learning outcomes, and 58 per cent of respondents reported having acquired at least one learning outcome from the list.<sup>46</sup> When disaggregated, we can see that nearly a fifth of respondents (18 per cent) said they had learned 'that the heart pumps blood'; 13 per cent 'that their body contains a network of blood vessels'; 13 per cent 'that muscles, bones and tendons work together to lift the body'; and 10 per cent 'that exercise affects their heart rate and breathing rate'.

Table 5.5 Percentage of participants reporting an intended learning outcome

<i>Intended learning outcome</i>	<i>Learned by</i>
That the heart pumps the blood	18%
That muscles, bones and tendons work together to lift the body	13%
That their body contains a network of blood vessels	13%
That exercise affects their heart rate and breathing rate	10%
That people are different in the rates their bodies work	9%
Increased awareness of the work the body does while we are active	8%
That you need to be mentally prepared for sport	8%
That practice can improve reaction time	7%
That the bloodstream is a transport system	7%
That the body is very complex	6%
That any activity is only possible through their body systems working	4%

<sup>46</sup> It should be remembered that we had no information on their baseline knowledge and they were *not* asked what they already knew.

successfully together	
That most sports require power	3%
That the brain controls movement	2%
Any of the above intended learning outcomes	58%
Nothing	21%

Base: 304.

### Comparing impacts across different groups

The vast majority of respondents at the Danson Festival and the Farnborough International Airshow said they had learned at least one of the desired learning outcomes, while those at the Big Bang were the least likely to say that they had learned at least one. This is perhaps a reflection of the audience type; with the Big Bang we would expect a more pro-science audience and therefore a reduced likelihood of them reporting a new science-related learning outcome. Those aged 25–34 were more likely than those in other age groups to say they had learned at least one of the desired learning outcomes. Beyond this, respondents also reported how the experience raised their awareness about themselves in terms of fitness levels, perceptions of health and the effects of exercise on their body.

For some, the speed of progress meant that they did not have time to absorb the information:

“If I go back and look at it again, I could really look and listen, but there was too much – ‘What spot have I got to be on now?’ ‘Where have I got to be?’ ‘What am I doing that’s right?’ If we went through it again, we could sit and relax and take everything in.”

Mother of young child

The survey also included a question on whether respondents would like to know more about how the body works as a result of going through the exhibition, and nearly two-thirds (62 per cent) said they would. Overall, 80 per cent of those aged under 20 said they would like to know more, compared with 56 per cent of those aged 20 or over. Men were more likely to say that they would like to know more (67 per cent) than women (58 per cent). When asked how they intend to find out more, 73 per cent said they would look on the internet.

A respondent in the At-Bristol research explained how the website helped consolidate learning:

“When we were actually there, we did learn – but we were quite quick because, obviously, there was a big queue, and we just did the videos and we went – but once you went onto the website, you could actually learn more about why you did it, which was good. You could understand more information about how and why you did it and what happened afterwards.”

Woman, adult group<sup>47</sup>

### Follow-on website activity

Combining an interactive visitor experience with a post-visit online experience was also an innovative approach for the Wellcome Trust. Learning from this is therefore particularly useful. In the exit survey, we found that everyone interviewed had swiped their card to save their data and that almost all of these people (97 per cent) intended to access the website; 89 per cent were ‘very likely’ to do so and 8 per cent were ‘fairly likely’ to do so.

As shown in Table 5.6 and according to Google analytics data, 18 852 participants that had gone through the exhibition went to the In the Zone website to access their data. This translates into an average conversion rate of visitors to website users of 36 per cent, reaching as high as 54 per cent in the case of the Blue Peter Olympic Tour in Caerphilly. As highlighted by At-Bristol, this compares very favourably with other large informal learning providers using similar approaches, which have quoted take-up rates of 10–16 per cent.<sup>48</sup> Although no target was set for this aspect, the Wellcome Trust saw it as a “triumph”.

<sup>47</sup> At-Bristol, 2012, summative evaluation report, p. 35.

<sup>48</sup> At-Bristol cite three pieces of research: (1) Bielick S, Karns D. Still Thinking About Thinking: a 1997 telephone follow-up survey of visitors to the ‘Think Tank’ exhibition at the National Zoological Park. Report 98-5. Institutional Studies Office, Smithsonian Institution;

Table 5.6 ITZ touring exhibition: post-visit website users (March–September 2012)

Event	Number of scanned passes at ITZ	Website registrations (percentage of scanned visitors registered)
Big Bang Fair, Birmingham (15–17 March)	4798	1195 (25%)
UK School Games, Olympic Park (9 May)	1457	258 (18%)
Balmoral Agricultural Show, Belfast (16–18 May)	4307	1413 (33%)
Bristol Torch Relay, Bristol (22 May)	1188	456 (38%)
Blue Peter Big Olympic Tour, Caerphilly (26 May)	1182	641 (54%)
Suffolk County Show, Ipswich (7–8 June)	1543	707 (46%)
Three Counties Show, Malvern (15–17 June)	2894	1027 (36%)
Jodrell Bank Live Festival, Macclesfield (23–24 June)	1212	536 (44%)
Game and Wildlife Conservation Trust (GWCT) Scottish Game Fair, Perth (29 June–1 July)	404	158 (39%)
Danson Festival, Kent (7–8 July)	2530	982 (39%)
Great Yorkshire Show, Harrogate (10–12 July)	754	269 (36%)
Farnborough International Airshow, Farnborough (14–15 July)	2568	891 (35%)
Blue Peter Big Olympic Tour, Newham, London (21–22 July)	3061	1298 (42%)
BT London Live, Victoria Park, London (27 July–12 August)	22 620	7917 (35%)
Anglesey Agricultural Show, Anglesey (14–15 August)	1479	308 (20%)
Northampton Balloon Fiesta, Northampton (17–19 August)	2663	778 (29%)
<b>Total</b>	<b>54 660</b>	<b>18 832 (36%)</b>

Follow-up research by At-Bristol with a small sample of visitors explored website use in more detail and, coupled with Google Analytics data, found:

- There was some confusion about who the website was aimed at. Some perceived it to be targeting schools and teachers, others thought it was for the general public but for older children, and others still thought it was for the parents of young children. In terms of content for young children, some noted the absence of games, with adults seeking more practical – less technical – content.
- There was a small window immediately following each event when most people would access the website.
- There were some technical issues early on with the registration process. These were resolved later but deterred a sizeable proportion of users.
- On the whole, however, feedback was positive about navigation within the site. Most users accessed the website via the main In the Zone website.
- View the showreel required a device with Flash, so most visits to the website were on a computer, but some visitors accessed it using mobile devices (30 per cent).

1998. (2) Adelman LM et al. Impact of the National Aquarium in Baltimore on visitors' conservation attitudes, behaviour and knowledge. *Curator* 2000;43(1):33–6. (3) Jarvis T, Pell A. Effect of the 'Challenger Experience' on elementary children's attitudes to science. *J Res Sci Teach* 2002;39(10):979–1000.

- The showreel was the most popular part of the website, as indicated by the interviewees and as evident in the viewing numbers. However, rather than serving as a springboard to access other webpages, data suggest that almost half of the visitors exited the website after viewing the showreel.
- Views for other videos on the website were much lower than for the showreel, with feedback suggesting that they were either not immediately obvious or too long and technical.
- Google Analytics data suggest that social media were used to share information about In the Zone, with 2010 users coming to the website via social networking sites, mainly Facebook.

Table 5.7 In the Zone website: activity per page (March–September 2012)

Page name	Unique visits	Average dwell time
Show reel	14 259	1.53 minutes
Power	10 108	41 seconds
Sprint	6344	41 seconds
Exercise	5566	31 seconds
Blood	5497	33 seconds
Reaction	5171	23 seconds
Visit	4490	23 seconds
Results zone (added in late July)	3600	1.36 minutes

Source: At-Bristol (2012).

## The use of a Project Champion

Sir Steve Redgrave acted as an ambassador for In the Zone, both for the experiment kits and for the touring exhibition. For the touring exhibition, his role was to raise its profile among event hosts and the wider general public. A video of him directly addressing visitors featured in the dome ahead of the 10m sprint and he also attended some of the events, appearing in stage shows and mingling in the crowd. Although his image did not feature externally on the main dome or elsewhere, he was included in some press materials used to promote certain events.

There was some internal debate about the extent to which people would know Sir Steve Redgrave, particularly among the younger generation and for those events that took place ahead of the London 2012 Olympics. On balance, though, At-Bristol thought he brought practical benefits (e.g. influencing decisions to allow space for In the Zone at certain events) and that “he was a very enthusiastic, eloquent and knowledgeable spokesperson for the whole project – not just a figurehead”.<sup>49</sup>

Indeed, as discussed further in Section 3.5, it seems that a high-profile project champion was important for providing gravitas to the project and boosting publicity. Sir Steve Redgrave, for example, was described by one stakeholder interviewee as “invaluable” to the initiative, by conferring authenticity to a science and sport project. She considered that he did a lot of work to support the initiative and did it really well, notably engaging with the media and attending launch events.

One stakeholder interviewed for the evaluation explained that she took part in lengthy discussions about involving Sir Steve Redgrave in the Blue Peter events. As far as she was concerned, he proved a great success – “his impact was enormous”. Many of the younger children did not recognise him initially, but once he was introduced on the stage and featured on the Blue Peter programme, there were no barriers to young people engaging with him and asking him questions. For the parents he was considered a very attractive celebrity, and he proved to be very passionate about getting children into sport.

<sup>49</sup> At-Bristol. 2012. In the Zone End of Grant Report, p 21.

## In the Zone ‘Lite’ and other activities

### Key findings

- The Wellcome Trust commissioned and funded a range of additional activities to complement the two main strands of In the Zone. These included In the Zone ‘Lite’ (which featured a pop-up experience), plus a network of training events and grants, including Face to Face with Sports Science, the Science Junkie: In the Zone live science show and *I’m a Scientist, Get Me Out of Here*.

### **In the Zone ‘Lite’ pop-up experience**

- This project included a range of interactive exhibits and workshops on the theme of elite athlete performance, which were delivered at 21 events across the UK. The majority of these were non-science events, and audiences varied from family groups to adults.
- This strand of activity was delivered over 27 days and successfully engaged with a total of 178 910 participants. Nearly half of the engagements with participants (78 910) consisted of direct one-to-one interactions (one member of staff discussing the science and activities with an individual).
- The majority of respondents to the evaluation survey engaged with the activity for 11–30 minutes, with 22 per cent remaining for longer than 30 minutes. Overall, very positive qualitative feedback was received at all events.

### **In the Zone ‘Lite’ network of training events**

- This activity consisted of a network of training delivered to 199 scientists, youth leaders and communicators at 14 events across the UK. The training focused on how to use the school kits and busking activities in informal settings.
- The overwhelming majority of participants were positive about the training, finding it enjoyable, well organised and relevant. Some 96 per cent of participants reported that they would recommend the training to a friend or colleague and would use the training in their future work with young people.

### **Face to Face with Sports Science**

- Designed and delivered by the Research Institute of Sport and Exercise Sciences at Liverpool John Moores University in partnership with World Museum Liverpool and the Museum of Science and Industry (Manchester), Face to Face with Sports Science (F2FSS) included interactive exhibits and workshops highlighting the science underpinning the performance of elite athletes and the application of this research to the general public.
- The success of this project at the museums led to invitations to take F2FSS to the Blue Peter Big Olympic Tour events. F2FSS was also invited to the British Cardiovascular Society Annual Conference, where the activities were delivered to more than 120 schoolchildren aged 10–11 and 20 teachers from the Manchester area.

### **The ‘Science Junkie: In the Zone’ live science show**

- This was a high-energy live science show exploring the physiology and sports engineering that make Olympic and Paralympic athletes into champions. This was performed at 15 public events (principally science festivals and music festivals), with the team delivering 46 shows to more than 10 000 children and adults, and at 21 school events, with the team delivering more than 50 shows reaching almost 9000 pupils.
- Key findings suggest the shows stimulated an increased interest in the biosciences among the audiences: the majority of participants found the show ‘excellent’ or ‘good’ and reported that they had learned something. The demonstration elements proved most popular.

### ***I’m a Scientist, Get Me Out of Here!***

- *I’m a Scientist* was a free online event facilitating contact between school pupils and scientists. It reported that over the ten weeks of delivery, more than 1600 students submitted more than 1785 questions and that students had more than 110 live chats with 39 scientists. Most questions were on topics of the mind and body in motion. It proved challenging to recruit teachers; nevertheless, positive feedback was received by the vast majority of young people, teachers and scientists involved.

The findings from the evaluations conducted by the providers themselves are summarised below.

### In the Zone 'Lite' pop-up experience

Delivered by Science Junkie with support from Classroom Medics, this project included a range of interactive exhibits and workshops delivered at 21 events across the UK on the theme of elite athlete performance. The majority of these were delivered at non-science events (e.g. Liverpool Pride and the Secret Garden Party), and audiences varied from family groups to adults (the greatest number of visitors were within the 12–16 age range).

Compared with the main In the Zone touring exhibition, this experience offered more one-to-one contact over a longer engagement period. The pop-up experience consisted of a branded Spider Dome, containing interactive kit items such as a rowing machine, a WATT bike (complete with gas analysis), mini reaction testers, a BATAK machine, and a range of physiology testing equipment including strength tests and a mat to measure jump height. Science buskers were also used to help attract visitors.

This strand of activity was delivered at 27 events and successfully engaged with a total of 178 910 participants. Nearly half the engagements with participants (78 910) consisted of direct one-to-one interactions (one member of staff discussing the science and activities with an individual).<sup>50</sup>

Overall, stakeholders interviewed for the wider In the Zone evaluation were positive about the pop-up activities. One interviewee, in the context of the Blue Peter tour, noted that although In the Zone 'Lite' was very popular, the smaller scale was sometimes an issue, particularly in a large field with several thousand people. Although a good spread of equipment was available, there was only one of each item, so queues soon built up.

The majority of respondents to the evaluation survey engaged with the activity for 11–30 minutes, with 22 per cent remaining for longer than 30 minutes. Overall, there was very positive qualitative feedback received at all events. Measures of the impact of the experience were found in the following three areas:

- 82 per cent of respondents said they 'liked science more after engaging with the activities than before'
- 69 per cent of visitors said they 'liked sport more after engaging with the activities than before'
- 83 per cent said they would go and check out the In the Zone website after visiting the pop-up events.

The pop-up experience also went to the National Science and Technology Fair in Bangkok (resulting in a footfall of 100 000).

### In the Zone 'Lite' Network of Training Events

Delivered by Science Junkie in partnership with STEMNET, training on how to use the school kits and busking activities in informal settings was provided for 199 scientists, youth leaders and communicators at 14 events across the UK. These events took place between 11 May and 10 September 2012.

The training took place in a four-hour session, which included a structured exploration of the boxes, training in engaging with an audience and the opportunity to try out an activity from the kits in front of the group. After the training session, participants were able to order a primary kit and/or a secondary kit, free of charge.

Feedback was captured immediately after each of the 14 training events from 193 of the attendees.<sup>51</sup> Data from this show that participants were mainly STEM professionals (i.e. scientists or engineers, 58 per cent) but also included Scout and Guide leaders (including Brownies, Beavers and other uniformed organisations, 13 per cent), science communicators and STEM Ambassadors

<sup>50</sup> In the Zone Lite Evaluation Final Report, November 2012.

<sup>51</sup> In the Zone Lite Evaluation Final Report, November 2012.

(15 per cent), youth workers (6 per cent), and sports coaches (6 per cent). Other participants included students, STEMNET contract holders and a maths/finance professional.

The overwhelming majority of participants were positive about the training and found it enjoyable, well organised and relevant, with 96 per cent (186 respondents) reporting that they would recommend the training to a friend or colleague and would use the training in their future work with young people.

Respondents were asked how they intended to use the training. Of the 187 who planned to use it, a large majority proposed outreach work in schools: 62 per cent mentioned general educational outreach, with 22 per cent specifically mentioning the STEM Ambassadors Programme. 12 per cent will work with Scouts, Guides or their younger counterparts, and nearly 5 per cent with other youth groups. 12 per cent suggested work with sports teams, and 5 per cent were keen to link with the Work Package 1, In the Zone 'Lite' shows or other science busking opportunities. Finally, 5 per cent mentioned higher education and widening participation.

Respondents were asked whether they had any comments or suggestions that would help with the delivery of future training sessions. Of the 118 comments made, 55 were positive with no suggestions for improvement and 31 commented on content, predominantly requesting more demonstrations of the In the Zone kit and a greater focus on basic physiology for those with unrelated backgrounds.

A follow-up email survey conducted in late September yielded 29 responses and showed that of these, 13 participants had gone on to run an event with young people or the general public using the In the Zone kit and 16 had not, citing lack of time or opportunity as the main reason rather than issues arising from the kit itself. Respondents were more likely to report cascading the training to colleagues, with 19 respondents having done so or having plans to do so.

Many events that had been organised were run by those who work with young people and/or the public on a regular basis: lecturers, outreach workers and Brownie, Scout and Guide leaders. Examples where the ITZ kit has been used in follow-up events or activities included:

- a taster day event at an FE college with school pupils and perspective FE students wanting to take A-level biology
- using the kits with Scouts and Beavers for their Fitness challenge badge
- delivering an 'In the Zone' area during an 'Olympic Super Saturday' community day at a church in Southampton
- school-based activities using the kit with teachers and pupils
- an outreach session with 120 Year 9 and Year 10 pupils who attended a day-long conference
- using the kits at a public drop-in event as part of Sports Science Week and as part of a workshop linked to the Olympic Torch relay, both Jodrell Bank.

## Face to Face with Sports Science

Designed and delivered by the Research Institute of Sport and Exercise Sciences at Liverpool John Moores University in partnership with World Museum Liverpool and the Museum of Science and Industry (Manchester), Face to Face with Sports Science (F2FSS) included interactive exhibits and workshops highlighting the science underpinning the performance of elite athletes and the application of this research to the general public.

The success of this project at the museums led to invitations to take F2FSS to the Blue Peter Big Olympic Tour events. F2FSS was also invited to the British Cardiovascular Society Annual Conference, where the activities were delivered to more than 120 schoolchildren aged 10–11 and 20 teachers from the Manchester area.

The evaluation report produced by Liverpool John Moores University highlighted that the feedback received from school pupils, school staff and the general public was extremely positive.<sup>52</sup> All groups found F2FSS an interesting, enjoyable, topical and educational experience that they

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<sup>52</sup> Dr Lee Graves. 2012. Face 2 Face with Sports Science Wellcome Trust – Engaging Science Award Evaluation Report. Research Institute for Sport and Exercise Sciences (RISES), Liverpool John Moores University, November 2012.

would tell family, friends and colleagues about. In particular, across the four school workshops 161 secondary school pupils (of the 238 that attended) provided feedback, of which:

- 64 per cent found the event ‘very interesting’
- 60 per cent found it ‘very enjoyable’
- 53 per cent found it ‘very topical’
- 62 per cent found it ‘very educational’
- 62 per cent would tell their family and friends what they had discovered,
- 62 per cent would want to find out more about research, sports science, medicine and engineering as a result of taking part.

The opportunity to engage in practical tests and activities was highlighted by pupils as an important element for the workshop. Feedback from teachers highlighted the need in any future events to develop curriculum materials related to the event to help them “to use the workshop as a catalyst for deeper learning”.

### The ‘Science Junkie: In the Zone’ live science show

In contrast to the In the Zone touring exhibition, which had to be staged at an event of two to three days’ duration and consist of three self-guided separate activities (i.e. the busker and stage show, the tent, and the website), this strand of activity consisted of one guided activity (i.e. one-to-one contact with an expert) and could therefore be more flexible and held at one-day events.

The aim of this strand of In the Zone was for Science Junkie to deliver the show in five public spaces and ten schools. The ‘Science Junkie: In the Zone’ show included:

- an hour-long live interactive show written by Greg Foot from the Science Junkies and developed with the Royal Institution
- two active researchers directly involved in the development and performance of the live show
- a bespoke short film, filmed specifically for the show
- links to the Wellcome Trust ‘In the Zone’ initiative.<sup>53</sup>

In their evaluation, Science Junkie reported that:

- They exceeded the target set by the Wellcome Trust and performed at 15 public events (principally science festivals and music festivals), with the team delivering 46 shows. The show played to more than 10 000 children and adults.
- Through a partnership with The Big Bang (providing financial support) and Classroom Medics (assisting with the logistics and delivery), a UK-wide schools tour ran for six weeks, during which the show was performed at 21 schools, with the team delivering more than 50 shows. The Schools Tour played to almost 9000 pupils.<sup>54</sup>

Drawing on observation data and exit interviews, key findings from their evaluation included the following:

- The principle demographic reached by the show was people aged 12–16.
- The shows successfully stimulated an increased interest in the biosciences among the majority of audience members. This was linked strongly to the show’s interactive nature, the humorous and engaging style of the presenters, and having a strong link to the 2012 Games.
- In the evaluation subset, 98 per cent of people said the show was ‘excellent’ or ‘good’ (rather than ‘alright’ or ‘didn’t like it’).
- The show’s scientific content had a sound basis, using expert consultants to develop and refine it along the way. The vast majority said they had learned something and were then able to list an item of learning.
- The vast majority said they preferred the demonstration elements of the show to the talking elements.
- The show linked very well to the ‘In the Zone’ kits, using experiments from the kits themselves as demonstrations in the show.

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<sup>53</sup> James H and Foot G. 2012. ‘Science Junkie: In the Zone’ Evaluation Report, Wellcome Trust, November 2012.

<sup>54</sup> James H. 2012.

- Overall the show was very successful, featured unique experiments and ambitious new props, and experimented with a rarely used model of including experts alongside experienced science communicators to deliver the show.<sup>55</sup>

### *I'm a Scientist, Get Me Out of Here!*

*I'm a Scientist In the Zone* built on an existing model to deliver a free online event over ten weeks between 16 April and 6 July 2012. It allowed students to meet and interact with real scientists, then vote for zone 'winners' in an *X Factor*-style finale. The site was organised into two zones: the 7–11 Zone for primary students, which hosted 18 scientists, and the 11–19 Zone for secondary students, which hosted 21 scientists.

The event was intended to enable students to ask questions, learn more about the scientists and let the scientists know their opinions. Explicit links were made by the site to the school experiment kits to allow students to draw on these for their questions. During the life of the project, more than 1600 students submitted more than 1785 questions. Students had more than 110 live chats with the 39 scientists. 59 per cent of questions were on topics of the mind and body in motion, with key areas being bones, the brain, psychology, health, nutrition, growth, exercise, sport, muscle and the heart. It proved challenging to recruit teachers and to achieve an average of ten 'chats' per week, with 57 teachers involved in total against a target of 250 and 3–4 chats conducted per week.<sup>56</sup> Nevertheless, research undertaken by *I'm a Scientist* suggests that positive feedback was received from the vast majority of young people, teachers and scientists involved.<sup>57</sup>

More generally, in terms of overall awareness of these additional In the Zone activities, the teacher survey conducted as part of the wider evaluation found that 5 per cent of teachers from across the UK had seen or heard something about a Science Junkie In the Zone show in the past year, with awareness being higher among secondary school respondents (8 per cent) than primary school respondents (2 per cent). Awareness overall of *I'm a Scientist* was slightly higher at 10 per cent.

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<sup>55</sup> James H. 2012.

<sup>56</sup> *I'm a Scientist In the Zone*, Evaluation Report 2012

<sup>57</sup> *I'm a Scientist In the Zone – End of Grant form*. 2012.

## Overall conclusions and recommendations

### Highlights

#### **The school kit**

- Within six months of distribution, 66 per cent of the primary and secondary schools surveyed had used the kit, either following the experiments prescribed or by using the equipment contained within them separately. This use rate is particularly impressive as the majority of teachers did not know about the kit until it arrived at the school. This emphasises the importance of the design and functionality of the kit itself, perhaps more so than any pre-marketing.
- As with Darwin, satisfaction levels with the In the Zone kits were very high. Indeed, the high-value products in the kit gave a clear positive message to the teachers: that they were valued and worth investing in. This was especially true in the case of the special schools involved in the study.
- Teachers felt that the use of the kits had provided a series of positive impacts for pupils – primarily in terms of their enjoyment of science lessons, but also in terms of their scientific understanding and their engagement with science.
- Almost all of the teachers surveyed have continued to use the kits after the London 2012 Olympics and plan to continue using them on an ongoing basis. Of the schools yet to use the kits at the time of survey, 36 per cent considered that they were very likely, and 40 per cent fairly likely, to use their kit in the future.

#### **The touring exhibition**

- This was the first time the Trust had commissioned an interactive touring exhibition of this kind, and it succeeded in engaging with more than 90 000 participants – many of whom were accessed through typically non-science events.
- The design and look of the exhibit, combined with the proactive work of the buskers, worked well in attracting visitors.
- The response of those who had gone through the exhibition was overwhelmingly positive: 99 per cent of those interviewed exiting the dome said they found it very or fairly entertaining, and more than half said they had acquired at least one learning outcome from their experience.
- In addition, 58 per cent of respondents reported at least one of the intended learning outcomes as a result of their participation.

#### **The overall initiative**

- The Trust was able to bring together an impressive range of experts from a diverse range of fields as part of the initiative development process. This proved to be effective in light of the largely positive results emerging from both strands of the initiative.
- The common branding across the strands helped underpin a more coordinated approach to media and communication, though in the absence of cross-strand promotional activities it had limited impacts on overall awareness and participation levels. In spite of this, and although awareness of the kits among teachers before their delivery was low, the high usage levels of the school kit have served to further position the Trust as a provider of high-quality educational resources.

This section sets out our overall conclusions and recommendations from the evaluation, relating to the initiative as a whole and with specific reference to:

- The school kits and the extent to which the original success factors have been met, particularly with respect to uptake, impacts and legacy.
- The touring exhibition – and, again, the extent to which the original success factors have been met, most notably in terms of throughput and visitor experience.
- The project development, delivery and management process, including the marketing approach followed.

Running throughout, we consider for each the legacy effects and future plans.

## The school kits

The key performance criteria, as set out in the specification for the kits, were:

- The involvement of children from all four nations of the UK.
- The use of kits by 60 per cent of all primary and secondary schools and colleges across the UK.
- The involvement of a broad range of young people, including those who typically do not engage in such activities.
- To leave a lasting legacy, where teachers continue to deliver practical-based and pupil-led investigative experiments post-2012.

As Section 4 of this report described, all four of the above criteria have been met, with usage levels exceeding the target (66 per cent of the schools surveyed reported they had used the kits) across all four nations. While many of the schools surveyed reported an ongoing involvement in enhancement and enrichment activities, it was clear that for others such activities were rarer, suggesting the use of the kits was a new experience for many. Early signs suggest that the kits will have a lasting legacy in the schools surveyed: the majority reported that they planned to use the kits in the future.

As with Darwin, the quality, appropriateness and 'ready-to-use' nature of the kits were the primary triggers for use among teachers. The high-value products included in the kits, in particular, sent a clear positive message to the teachers that they were valued and worth investing in. This was especially true for the special schools. Pre-marketing was less of a factor in usage rates, with most schools reporting that their first awareness of the kits was the arrival of the box itself, even though they used the kits in the spring and summer terms. This emphasises the importance of getting the look and design of the kit right, as well as providing resources that can be easily incorporated into existing lesson plans. Given the low demand for additional help and the high levels of use, it would seem that this was achieved in the case of In the Zone.

Regarding the extent to which prescribed experiments were used, there was no obvious 'favourite' experiment in the primary schools; in secondary schools, however, the Key Stage 3 experiment for people aged 11–14 proved most popular. This is perhaps a useful indicator that in secondary schools, teachers are more inclined and able to incorporate new materials with their younger pupils. Although this might be a reflection of the timing of the survey, it nevertheless chimes with findings from the Darwin Education Initiative, which also showed greater use of the Key Stage 3 resource.

Although there was evidence of cross-curricular use of the kits at primary school level, there was little evidence of extensive collaboration between science and PE teachers: just 6 per cent of the secondary school teacher sample were non-science teachers.

No significant reasons emerged regarding why some of the schools surveyed had yet to use the materials, and non-use did not reflect perceptions of the materials' quality or competition from other resources (Olympic-themed or otherwise).

In terms of impact, there were reported impacts for pupils and teachers. This suggests that teachers could see the value of using the kits beyond simply the immediate fun and interactive aspects of use. Although these were recognised as important in their own right in terms of engaging pupils, they were also seen as contributing to a greater understanding of science among pupils. Almost all teachers – particularly primary teachers – appreciated how the kit enhanced their own teaching of the science curriculum, most notably in terms of the provision of much-needed high-quality products, often seen as boosting existing resources. In terms of achieving teacher buy-in, this again confirms the importance of having tailored high-quality resources.

Compared with the kit itself, the impact of the website was relatively marginal. Although the In the Zone website received more than 120 000 visits in the 12 months to December 2012, 32 per cent of whom were returning visitors, this was some way behind the number of visits to the previous Great Plant Hunt website alone (156 633 visits in 12 months). This raises the question of how to make more effective use of an online resource in the context of a 'time-poor' profession that has limited access to a personal computer on a daily basis.

Finally, while using the hook of the London 2012 Olympics and a high-profile 'project champion' were helpful in terms of securing early stakeholder engagement ahead of the Olympics and securing media coverage more broadly, they were not crucial to the success of In the Zone, and examples of planned sustained use of the materials beyond 2012 have been identified.

### **Future plans**

The Wellcome Trust wish for the school kits to act as an ongoing resource for schools, both in terms of the use of the equipment and the use of the prescribed experiments. Many of the kit contents were designed to be relatively inexpensive to replace, and plans have been put in place for Scientific and Chemical Ltd to continue to make all elements of the kits available through their catalogue so schools can make additional orders.

More widely, success for the Trust would be for In the Zone to act as a mark of quality and for other bodies to use and adapt the resources elsewhere.

### **Recommendations**

#### **School kit recommendations**

For any future large-scale education initiative, we would recommend the following:

- That the following core principles be replicated in any future educational resource: using a well-designed and clearly labelled box to itself act as the main marketing tool, and producing kit content that is interactive, easy to use and tailored to the curriculum. Including high-value equipment was a particular success in terms of boosting the morale of teachers and providing much-needed practical resources; we would see this also as an important element of any future kit.
- Regarding the use of an external event as a hook, both the In the Zone and the Darwin evaluations found that such links were helpful but not crucial. If a suitable hook is available, it makes sense to use it, but the promotion of an initiative in the absence of such a hook would still be possible (particularly given the momentum created by both Darwin and In the Zone). One key factor that we recommend be considered in the future is ensuring that the design of the kit is not too explicitly linked to any event, so that it is less likely to be perceived as outdated.
- Further exploring the higher usage rate at secondary level among the younger pupils, and whether this is a reflection of general teaching patterns or a consequence of how the experiments were designed.
- The Trust may wish to consider producing one 'light-touch' box of resources per year rather than relying on a big external hook for larger-scale initiatives. Although this was not explicitly articulated by teachers themselves, this option could allow for a focus on a different theme in the biology curriculum each year and could be more targeted towards specific years (or at least primary and secondary). Sending out regular lighter-touch new materials would be more cost-effective in terms of production costs and might prove more valuable to schools than sending out occasional high-value kits. At the very least, it would raise expectations among teachers and the profile of the Trust as a provider of educational resources within a much shorter time period.
- The website does not seem to be the main vehicle for embedding the use of the kits, but if constructed and maintained at a relatively low cost it could still prove useful in terms of providing a mechanism for refreshing resources and providing the means for teachers to download extra teaching/guidance materials. Given the low demand for a telephone helpline, the website could also act as a lighter touch mechanism for re-ordering kit.
- If the Trust believes that pre-marketing is important, we would suggest person-to-person contact as the most effective way of marketing and promoting new materials to teachers. 'Link teachers', for example, might be identified from the ASE conference, courses at the Science Learning Centres or people that have responded positively to equipment in the past. Working more closely with organisations such as STEMNET, the British Science Association and the education teams in the key professional bodies (and making use of their existing networks) might also offer a useful future marketing route. The possibility of incorporating messages about the positive impacts of previous kits could also be explored.

## The touring exhibition

The stated performance criteria for the touring exhibition were to:

- Engage at least 105 000 people across the UK in 2012.<sup>58</sup>
- Deliver the programme in at least 12 UK regions, including Wales, Scotland and Northern Ireland.
- Involve a broad range of participants, including those who do not typically engage in such activities.

The touring exhibition engaged a total of 91 006 individuals through 16 events across the four countries of the UK – just short of the revised target, although more than seven days of availability were lost owing to the poor weather in the summer of 2012. Results from the exit survey and other fieldwork undertaken for this study, coupled with research conducted by At-Bristol, suggest that the aim of delivering an interactive experience that provided a memorable experience and generated interest in biomedical science across diverse audiences was achieved. In particular, user engagement with the follow-on online aspects of the exhibition was considered to have compared extremely well to similar approaches elsewhere, and more than half of the participants reported achieving one or more of the exhibition's stated learning outcomes.

The exhibition worked well during the tour, with only minor technical issues being reported. It was clear that users enjoyed the exhibition (almost all the individuals interviewed rated all the activities very highly, including individuals of all ages). The exhibition was primarily perceived as being physically active, fun, and based on activities that users felt they performed well at. This suggests At-Bristol pitched the nature and level of activities correctly, and achieved a good balance between providing opportunities for new learning and being accessible and fun. Although all of the exhibits were enjoyed by the majority of the participants, the Live Handcycling was most commonly described as participants' favourite exhibit.

The exhibition worked especially well for parents, who enjoyed it as a family experience. However, at some venues adults were reluctant to enter because of the nature of the other exhibits, the length of the queue and misconceptions about the logo, which influenced many individuals' expectations of the content of the exhibition. Preconceived ideas about what is suitable for adults may also have formed a barrier, as did perceptions among some of the teenagers interviewed in terms of perceived age appropriateness. Although it is difficult to achieve, it is important to ensure that the overall look of the exhibition appeals to adults, as well as to younger and older children.

Indeed, we found that the context of the wider event was central to understanding the nature and patterns of engagement. Key factors included the weather, pitch location, visitor demographics and the nature of the wider event. Regarding the last point, At-Bristol highlighted several 'event success criteria' that should underpin the selection of future venues, which should:

- have free entry
- attract the same target audience as the service provided
- have a 'discovery' or 'activity' zone
- have a regional branch of related networks.<sup>59</sup>

Although it was clearly harder to achieve the participation numbers in some of the less traditional science events, it is still important to consider including such events in any future schedule to ensure access to a wider audience. As noted below, perhaps what is more important at such events is the need for greater internal marketing.

In terms of the exhibition itself, one of the challenges faced was allowing sufficient time at each exhibit while maintaining a steady flow of participants. With an average duration of nine and a half minutes, this meant that individuals spent 45 seconds at each activity (including transition zones). Although the majority of participants in the exit survey (82 per cent) said this was

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<sup>58</sup> Originally this was 500 000 – an arbitrary figure – then reduced to 200 000, before being revised further to 105 000 following a more informed view from At-Bristol (once the tour was up and running and they could measure realistic throughput levels).

<sup>59</sup> At-Bristol give the examples of Inspire representatives or Sports Associations. See At-Bristol's final evaluation report for more information.

sufficient to understand what they had to do, one in ten stated they would like more time – particularly parents with younger children. Extending the duration would enable more users to engage with the learning messages, rather than focusing on what to do next, although it would affect potential throughput and queue management.

The show was designed to entertain the queue and attract visitors to the exhibition. It was used flexibly throughout the tour: the frequency and duration of the show depended on the size of the queue or audience for it. The show had the desired effect of reducing the perceived length of time spent queuing among those interviewed. However, where there was no queue or only a short queue, the show had no role, which happened for substantial periods of time at several venues. The show should therefore be adapted to draw in more users when there is only a short queuing period. More use could be made of videos without a soundtrack, which could easily be adapted by the actors to suit the situation. In terms of the TV theme, although it provided a useful narrative to engage audiences, the exit interviews suggested that it did not enhance the overall experience for users.

Although the dome itself attracted visitors, the buskers also played a key part. In addition, the explainers were important in enhancing the user experience and managing the participants' progress. The study fieldwork identified the importance of having sufficient numbers of buskers and explainers to ensure at least one person is always available out front to ensure that all passers-by have access to the exhibition.

Finally, the use of a celebrity helped achieve a media profile, motivated staff and added to the experience of some of the exhibition attendees. In the future, it may be possible to use a celebrity to drive more use of the kits or attendance at events, perhaps by more closely linking the activities and content to the interests of the celebrity, ensuring a higher profile in the permanent elements of the exhibition and using a celebrity recognised by a wider range of target audiences. If a celebrity endorsement is considered for any future initiative, we suggest that research is undertaken to establish their suitability and different audiences' levels of awareness of the individual in question.

### **Future plans**

Following the tour, plans are being developed to ensure the exhibition, and its contents, continue to be put to positive use. As the exhibition has become the property of At-Bristol, the science centre is keen for it to have a legacy of continued use, and maintaining a low cost base to ensure booked use is maximised. The continued use of the exhibition fits well with the At-Bristol Explore More concept – in which exhibitions at the science centre include an online element to extend the visit and encourage follow-up and continued engagement by visitors at home.

The main challenges to the ongoing use of the exhibition are its size and the logistics of moving it from place to place. Several modifications are under consideration, including merging the transition zones with the exhibits and reducing the current four lanes to two to save space and weight. The exhibition itself is being split in two (although it could be recombined), with half remaining onsite at At-Bristol and the other half being actively marketed to a range of venues, including science centres, shopping malls and sports events. Staff at At-Bristol believe that it will not be difficult to secure bookings as the product is good and more portable in its revised format.

### **Recommendations**

#### **Touring exhibition recommendations**

- Future initiatives should consider the 'key success factors' identified for attracting visitors to the exhibition, namely that the exhibition is highly visible, is clearly labelled, looks interesting, is physically active and is well-paced. We would also endorse the additional 'venue success factors' identified by At-Bristol when planning tours or longer-term placements (i.e. that the wider events have free entry, attract the same target audience as the service provided, have a 'discovery' or 'activity' zone and have a regional branch of related networks).
- The use of the London 2012 Olympics and Paralympics was not crucial to the success and enjoyment of the exhibition, perhaps even less so than for the school kits. However, the opportunities for the exhibition to be at BT London Live and Blue Peter's Big Olympic Tour

would probably not have been provided without the link to the Games. The association with the Games was not always evident to users, but this did not hinder their engagement or influence their enjoyment levels. In addition, given the rich network of STEM and non-STEM events available throughout the UK, we would suggest that any future touring exhibition would not be reliant on an external 'hook' or theme.

- To help boost participation rates where needed, we would suggest there is a limited role for additional tailored pre-event marketing. Perhaps more of an emphasis could be placed on internal marketing to audiences already on site. This could include the increased use of buskers and others to draw people to the exhibition (where this is allowed by venues), and ensuring that the exhibition secures a prominent and accessible location.
- The need for exhibits to be clearly visible and labelled in terms of showing 'what's inside', and the extent to which it is accessible for all, is crucial for alleviating potential concerns and encouraging participation. Linked to this is the importance of having sufficient staff to draw in potential participants and further explain what the exhibition involves.
- The range of additional elements such as buskers and a live show to support an exhibit work well in boosting numbers and enriching experiences. In any future exhibits, consideration could be given to using the live show more to draw in more users when there is only a short queuing period. Similarly greater use can be made of videos without a soundtrack that can then be easily adapted by the actors to suit the situation.
- If a celebrity endorsement is considered for any future exhibits, we suggest that research is undertaken to establish the suitability and levels of awareness of the individual in question.
- Although the level of follow-up use of the In the Zone website was high compared to other initiatives (i.e. 36 per cent compared with 10–16 per cent), it was the sole route to additional information and potential learning for visitors. We recommend that hard copy materials (such as a leaflet) also be provided on the day to give a more detailed overview of the exhibits and their relevance to human physiology and/or links to appropriate materials. This would enable visitors not scanning their passes at the events to take their learning further.
- Although the kit boxes were on show at some of the touring exhibition events, we recommend that where there are multiple strands to an initiative, these feature as a permanent inclusion in any cross-branded activities. While we would not expect the cross-selling yield through this route to be large, the benefits for the overall initiative profile would be worth the very small costs incurred.
- The TV theme followed by the exhibition was considered by staff to provide a useful narrative and framework. However, the theme was less clear to the visitors interviewed. Despite this, the theme did serve to link the content together, and the use of a theme could be considered in future, providing it is appropriate for the exhibition content.
- Although the exhibition tour went smoothly overall, in some cases bookings necessitated a rapid knock down, travel and re-assembly at the second venue. While it is testament to the efforts and commitment of the At-Bristol team that all went well, we recommend that in future bookings should allow sufficient time between events to allow for any issues or delays.

## The overall project and process of delivery

An impressive range of individuals brought their skills, knowledge and experience to the initiative development process and its subsequent delivery. In the view of many of the stakeholders interviewed, especially those with a direct role in the process, the Wellcome Trust may be unique in the UK in its ability to bring together national and international experts across such a wide and diverse range of fields.

As the initial review of the development process suggested, the process can best be judged in the context of the quality and effectiveness of the products resulting from it. As this evaluation has found, the results are largely positive, with both the experiment kits and the touring exhibition being rated highly by the individuals engaging with and making use of them. Although elements of the final production process were time constrained, the fact that both of the main components of the initiative were delivered to time and few difficulties have been reported in their use suggests that the development process overall had been effective.

One central element of the initiative was the use of a single brand for the experiment kits and the touring exhibition (as well as wider activities). However, the extent to which this led to real benefits was unclear, and in practice there was little effort made to link or cross-promote the two main products; they ran in parallel, rather than serving to complement each other. Although this single brand was visible to the majority of the professionals interviewed, users of the kits and exhibition reported little awareness of the other product. Although this lack of cross-awareness is not surprising, given the challenges in cross-promoting very different products to different audience groups, more could have been done to raise awareness of one through experience of the other.

As previous sections have described, prior awareness of both the experiment kits and the touring exhibition were limited among their audience groups. In the case of teachers, the majority responding to the survey first heard of the kits when they arrived in their schools, despite the marketing efforts expended. Similarly, prior awareness of the exhibition among the audiences interviewed was low. As described above, 'in-event' marketing, where it is permitted, may be the most effective means of attracting visitors who are attending the event anyway. In the case of schools, raising awareness is notoriously challenging, and we provide recommendations above in Section 7.1.2 for consideration.

One element of the marketing and promotion of In the Zone featured the endorsement of the products by Sir Steve Redgrave. Assessing the impact and effectiveness of this investment is not straightforward – and it was clear that for the partners and stakeholders interviewed he had played an important part in raising the profile of the initiative within the STEM infrastructure through attending the launch and public events. However, awareness of his role among the teachers and individuals attending the exhibition was limited and his influence on use and participation was similarly limited, other than in cases where he was present at an event. Particularly for teachers it may be worth investing in marketing that is more directly targeted at them, perhaps by advertising or using advertorial in appropriate high-profile publications.

Finally, the wider set of activities commissioned to complement the In the Zone touring exhibition and school experiment kits proved worthwhile. Across the additional activities (i.e. the In the Zone 'Lite' pop-up experience and network of training events; Face to Face with Sports Science, the Science Junkie In the Zone Live Show, and *I'm a Scientist Get Me out of Here*), an additional 200 000 participants were engaged in range of activities including live shows, one-to-one interactions, online debates, school events and training programmes.<sup>60</sup>

Overall, the positive experiences reported by users of the kits and those attending the touring exhibition and the wider activities have further positioned the Trust as a key provider of quality education materials in the biological sciences. This builds on the lessons from the Darwin initiative and provides a strong basis for additional initiatives in the future.

### **Future plans**

The scale of investment – both financial and management time – in national initiatives such as In the Zone means that they will be an infrequent occurrence. However, In the Zone has further established the Trust as a producer of high-quality, free, educational resources on a national scale.

On the basis of the data presented in this report, use levels have exceeded expectations and provide a firm base for future initiatives to build upon.

Changes to the curriculum will, of course, need to be considered as part of any future developments, including exploring the support needs of teachers. If a more open and/or flexible curriculum is adopted by the government, and differences between curricula between the four countries of the UK become harder to bridge, then identifying needs and curriculum fit will become a more complex exercise.

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<sup>60</sup> 178 910 Pop-up participants plus 199 trainees plus 10 000 children/adults and 9000 school pupils plus 1600 students – added together comes to the approximate total participation rate for these activities of 199 709.

## Recommendations

### Overall management and delivery recommendations

- Allow more time for development – while the initial concept of an Olympic-themed initiative was mooted in 2005, active development only began with the approval of funding in 2010. Although the main elements of the initiative were delivered to time, a longer ‘active’ development period would have removed stress (and risk), better allowed for any slippage and lessened constraints to creativity.
- In contrast with Darwin, which had multiple brands and several activities running in parallel, In the Zone did not benefit significantly from having a single brand in terms of impact on enhanced awareness of the wider initiative among users or cross-strand participation levels. In terms of any future multi-strand initiative, we would therefore suggest that any decision on whether to invest in developing a single brand is informed by clarity on its purpose and function. If cross-strand awareness and participation is important, we would recommend that the single brand is used to underpin and inform a more systematic approach to cross-promotional activities. Practically, this would mean routinely including information on or reference to all strands of the wider initiative in all marketing, exhibits and/or products.

# Annexes

## **Annex I Stakeholder interviewees**

### **AI.1 First round: January–March 2012**

#### **AI.1.1 Wellcome Trust**

- Amy Sanders and Daniel Glaser, Wellcome Trust, 7 February 2012.
- Stephanie Sinclair (In the Zone Project Manager) and Leah Holmes (Olympics Project Manager), Wellcome Trust, 25 January 2012.

#### **AI.1.2 Delivery partners**

- Dan Bird Head of Exhibitions and Emma Cook, Lead on the In the Zone Touring Exhibition; at At-Bristol, February 2012.
- Sean Canning, Creative consultant for At-Bristol, 6 March 2012.
- Liz Marchant, Head of Science Secondary Team; David Bain, Team Leader at Pearson and Programme Manager for Pearson's input into In the Zone and for the wider consortium; Tim Avery, Education Sales Director at S&C, 28 February 2012.
- Emma Whitehead and Richard Hardy, Guardian Professional, 27 February 2012.

#### **AI.1.3 Other organisations involved in early planning and development of the initiative**

- Colin Johnson OBE, Chair of Working Group for the Touring Exhibition in the early stages of development, 5 March 2012.
- Desiree Lopez, Ed Comms, 1 March 2012.
- Hugh Montgomery, UCL. Member of advisory group, 6 March 2012.
- Valerie Gladwell, University of Essex. Member of Advisory Group. She also conducted physiology experiments and is now one of their 'experts' for ages 11–19, March 2012.
- Sally Johnson, Director of the London Science Learning Centre. Member of advisory group, 22 February 2012.
- Sam Willis, Creative Director, involved in design competition for 'pods in the park' concept, 28 March 2012.
- Ken Mannion, Director of the Centre for Science Education, Sheffield Hallam University. Initial Kit Developers, 27 February 2012.

### **AI.2 Second round: October 2012**

#### **AI.2.1 Wellcome Trust**

- Amy Sanders, Leah Holmes and Stephanie Sinclair, 15 October 2012.

#### **AI.2.2 Delivery partners**

- Liz Marchant and David Blaine, Pearson, 17 October 2012.
- Emma Whitehead, Guardian Professional, 16 October 2012.
- Dan Bird and Emma Cook, At-Bristol, 19 October 2012.

#### **AI.2.3 Wider STEM stakeholders**

- Angela Hall, Director of Science Education, Nuffield Foundation, 22 October 2012.
- Karen Gregory, Executive Producer, BBC, 16 October 2012.
- Miranda Stephenson, Director for Engagement, Science Learning centres; and National STEM Centre, 22 October 2012.
- Andy Martin, LOCOG, 5 October 2012.
- Jenna Stevens Smith, Society of Biology, 28 November 2012.
- Colin Johnson OBE, Chair of Working Group for the Touring Exhibition, 18 October 2012.

## Annex 2 List of sites visited for the touring exhibition fieldwork

The full tour schedule included 16 events. Those marked with an asterisk show the seven sites we visited as part of the evaluation fieldwork. See Table A2.2 below for a more detailed overview of the sites visited.

1. Big Bang Fair, Birmingham (15-17 March)\*
2. UK School Games, Olympic Park (9 May)
3. Balmoral Agricultural Show, Belfast (16-18 May)
4. Bristol Torch Relay, Bristol (22 May)
5. Blue Peter Big Olympic Tour, Caerphilly (26 May)\*
6. Suffolk County Show, Ipswich (7-8 June)
7. Three Counties Show, Malvern (15-17 June)
8. Jodrell Bank Live Festival, Macclesfield (23-24 June)\*
9. Game and Wildlife Conservation Trust (GWCT) Scottish Game Fair, Perth (29 June-1 July)
10. Danson Festival, Kent (7-8 July)\*
11. Great Yorkshire Show, Harrogate (10-12 July)
12. Farnborough International Airshow, Farnborough (14-15 July)\*
13. Blue Peter Big Olympic Tour, Newham, London (21-22 July)
14. BT London Live, Victoria Park, London (27 July-12 Aug)\*
15. Anglesey Agricultural Show, Anglesey (14-15 August)
16. Northampton Balloon Fiesta, Northampton (17-19 August)\*

These events were selected to cover different types of events with different target audiences across the UK, including as many English regions as possible, as well as Wales and Scotland.

Evaluators were present for one day at each event, in most cases on the Saturday but at the Farnborough International Airshow the evaluation took place on the Sunday. In choosing to conduct the evaluation at weekends the intention was to focus on how the exhibition met the needs of the general public. It was felt that most of those who attended these events during the week would be either school parties (most events took place during school term time) or there for professional reasons. Fieldwork consisted of an exit survey, interviews with staff and interviews with non-users. Overall, 304 people were interviewed as part of the exit survey across the seven events. Table A2.1 shows the number interviewed at each venue.

**Table A2.1** Number interviewed at each event

<i>Venue</i>	<i>Number interviewed in exit survey</i>
The Big Bang	32
Blue Peter Big Olympic Torch Road Show	40
Jodrell Bank Live Festival	47
Danson Festival	46
Farnborough International Airshow	46
BT London Live	53
Balloon Fiesta	40
Total	304

We estimate that about 80 per cent of those interviewed were in family groups. This skew towards family groups is to be expected given the nature of the events, as many were marketed as family days out. The Farnborough International Airshow had the highest proportion of respondents in family groups, whereas BT London Live event has the largest proportion of friendship groups, followed by Jodrell Bank Live Festival, which matches the observed nature of the crowds. 41 per cent of the users interviewed were male and 59 per cent were female – a third (32 per cent) of respondents were the mother in a family group. We did not interview children under 8, although children younger than this went through the exhibition. The majority of interviewees were aged over 25.

Table A2.2 Overview of the venues visited<sup>61</sup>

Name and details of venue	Overview of the wider event	Target audience	Entry charge?	ITZ overview, pitch location and weather	Total visitors (wider event)	Total visits (In the Zone exhibition)	Percentage exposure
Big Bang, NEC, Birmingham 15-17 March	Organised by EngineeringUK and funded by the Department for Business, Innovation and Skills alongside several industrial sponsors, Big Bang is an indoor three-day STEM event held in the UK in March every year. Focusing on promoting careers in STEM, the event hosted more than 170 organisations, displayed several demonstrations and new technology and included a live stage area.	Secondary school students, teachers and families	No, although online pre-registration was required	Location was good. In the Zone was located at the far left end of the exhibition area near to BBC Bang Goes the Theory. An indoor event – so weather not an issue.	45 000	7783	17%
Blue Peter Big Olympic Tour, Caerphilly 26 May	As part of the 'Taste of Caerphilly' weekend, this was the first stop on the Blue Peter Big Olympic Tour to celebrate the arrival of the Olympics in the UK. It included a live TV broadcast. The site was relatively small containing approximately seven attractions. Throughout the day there was a series of interactive shows hosted by Blue Peter on the main stage.	Children and families	No, although pre-booking required.	Location was OK. In the Zone was located away from the main stage but near to the main entrance. Sir Steve Redgrave was there to promote In the Zone. One of the Blue Peter presenters was also shown going through the exhibition. While many of the other exhibits were STEM related, In the Zone was the only interactive technology based activity. Weather – hot and sunny, very windy.	9052	1943	21%

<sup>61</sup> See At-Bristol's own evaluation report for a listing of all the events.

Name and details of venue	Overview of the wider event	Target audience	Entry charge?	ITZ overview, pitch location and weather	Total visitors (wider event)	Total visits (In the Zone exhibition)	Percentage exposure
Jodrell Bank Live Festival, Macclesfield 23-24 June	The Jodrell Bank Live Festival was a live open air music event in the grounds of the Jodrell Bank Centre for Astrophysics. The Centre also houses a science centre open to the public. The headline act was Elbow.	Independent adults, young couples and families	Yes – £35 person.	Location was excellent situated in the Science arena close to the visitor centre, away from the music stage. It was the first exhibition past the food caravans on the way to the visitor centre. Apart from the science centre itself, and the lecture programme, the other exhibits were very small, mostly related to physics, space and astronomy. Weather was mixed, but the event was rained off on the second day.	12 000	1904	16%
Danson Festival, Kent 7-8 July	The Danson Festival is a family festival that takes place in a park in the London borough of Bexley every year. It hosts myriad activities including a fun fair, a dance competition, a music stage, craft stalls and refreshments.	Families	No	Location was OK. In the Zone was located within a sports zone of the festival. It was positioned so that it was perpendicular to the main thoroughfare and parallel to a side route that led down to the sports section of the festival. Weather – very heavy showers.	33 000	4326	13%
Farnborough International Airshow, Hampshire 14-15 July	The Farnborough International Airshow is a biannual trade show open to the public. Aircraft were on static display and there were some airborne demonstrations, with a range of rides, interactive exhibits, prototype cars, flight simulators and extreme sports demonstrations.	Families and special interest adults	Yes – with tickets costing a minimum of £13.50 per person.	Location was OK. In the Zone was positioned close to the back entrance but some way back from the main entrance. It was not featured on the main airshow map/programme. Weather – sunny.	100 000	4282	4%

Name and details of venue	Overview of the wider event	Target audience	Entry charge?	ITZ overview, pitch location and weather	Total visitors (wider event)	Total visits (In the Zone exhibition)	Percentage exposure
BT London Live, Victoria Park, London	This was one of a series of free events sponsored by BT before and during the Olympics and Paralympics. Lasting 17 days it hosted three big screens for the public to view the Olympics and a music stage. The venue also included opportunities for the public, especially children, to have free taster sessions in several sports.	Families, teenagers and independent adults	No, although pre-booking was required with a small booking fee per ticket. Some individual exhibitions/activities on site had entry charges.	Location was not good. In the Zone was at the furthest point from the entrance, which was nearly ten minutes' walk. It was next to the largest of one of three screens. Weather – mixed.	194 472	35 919	18%
Northampton Balloon Fiesta, Northampton 17–19 August	The Balloon Fiesta took place at Billing Aquadrome, a large site of 235 acres in the Nene valley in Northamptonshire comprising a permanent mobile home park, a temporary campsite, a permanent fun fair, a state-of-the-art indoor swimming pool and leisure complex, and a marina, as well as (on the day) fun fair attractions, sales and promotional stands, a USA classic car show, and the balloon fiesta.	Families and teenagers	Yes, a charge of £10 for a car with up to five passengers. However, no charge for visitors arriving by foot.	Location was OK. In the Zone was situated in an area with some paying fun fair rides, opposite the sales display for mobile homes and round the corner from promotion sites for several makes of car. There were also several food stands close by and there were three large rubbish bins situated between the path and the exhibition. Weather – sunny and very hot, one of the hottest days of the year.	30 000	5333	18%

Source: Own observations and At-Bristol's evaluation report (2012).

## Annex 3 List of school case studies

### Primary school case studies

	Region	Descriptive information	Date of contact
1	Midlands	Community School; 0–100 pupils; Rural: Village Hamlet and Isolated Dwellings; deprivation decile: 3rd	November 2012
2	Midlands	Church of England Voluntary Aided School; 0–100 pupils; Rural: Village Hamlet and Isolated Dwellings; deprivation decile: 8th	December 2012
3	Scotland	State Funded; 100–200 pupils; Large Urban Areas Settlements of over 125 000 people; Scottish Index of Multiple Deprivation Decile 2012: 2nd	November 2012
4	Northern Ireland	Controlled School; 100–200 pupils; Rural; Northern Ireland Multiple Deprivation Measure Decile 2010: 9th	November 2012
5	Wales	LA Maintained; 400–500 pupils; Urban; Welsh Index of Multiple Deprivation 2011: 1st	December 2012
6	East	Academy; 700–800 pupils; Rural: Town and Fringe; deprivation decile: 5th	December 2012
7	North West	Community School; 200–300 pupils; Urban; deprivation decile: 2nd	December 2012
8	North	Community Special School; 0–100 pupils; Urban; deprivation decile: 1st	November 2012
9	South West	Community School; 0–100 pupils; Rural: Village Hamlet and Isolated Dwellings; deprivation decile: 6th	November 2012

### Secondary school case studies

	Region	Description information	Date of contact
1	South West	Academy (Comprehensive); 1000–1100 Urban; deprivation decile: 6th	December 2012
2	Midlands	Academy (Comprehensive); 1200–1300; Urban; deprivation decile: 5th	November 2012
3	South East	Agriculture and Horticulture FE College; 700–800 pupils aged 16–18; Rural: Town and Fringe; deprivation decile: 9th	November 2012
4	Northern Ireland	Controlled School; 200–300 pupils; Urban; Northern Ireland Multiple Deprivation Measure Decile 2010: 1st	January 2012
5	London	Academy Girls School; 1000–1100 pupils; Urban; deprivation decile: 9th	November 2012
6	London	Community School; 1800–1900 pupils; Urban; deprivation decile: 1st	December 2012
7	South	Other Independent School; 300–400 pupils; Urban; deprivation decile: 10th	November 2012
8	North East	Community Special School – Business and Enterprise; 100–200 pupils; deprivation decile: 1st	November 2012

## **Resources**

### **For English School information:**

[www.education.gov.uk/schools/performance/](http://www.education.gov.uk/schools/performance/)

[www.ofsted.gov.uk/inspection-reports/find-inspection-report](http://www.ofsted.gov.uk/inspection-reports/find-inspection-report)

[www.neighbourhood.statistics.gov.uk/dissemination/LeadHome.do;jessionid=wdpdQiDLt4mZS5kp5jrRodNYXhIQyIWriZHxlH99FfD24XkVGbYG!45229214I!1358250856198?m=0&s=1358250856198&enc=1&bhcp=1&najs=true&nsck=true&nssvg=false&nswid=144I](http://www.neighbourhood.statistics.gov.uk/dissemination/LeadHome.do;jessionid=wdpdQiDLt4mZS5kp5jrRodNYXhIQyIWriZHxlH99FfD24XkVGbYG!45229214I!1358250856198?m=0&s=1358250856198&enc=1&bhcp=1&najs=true&nsck=true&nssvg=false&nswid=144I)

[www.neighbourhood.statistics.gov.uk/HTMLDocs/urbanrural.html](http://www.neighbourhood.statistics.gov.uk/HTMLDocs/urbanrural.html)

### **For Welsh School information:**

Individual school websites

[wales.gov.uk/topics/statistics/theme/wimd/wimd2011/?lang=en](http://wales.gov.uk/topics/statistics/theme/wimd/wimd2011/?lang=en)

### **For Scottish School information**

[www.educationscotland.gov.uk/scottishschoolsonline/index.asp](http://www.educationscotland.gov.uk/scottishschoolsonline/index.asp)

[www.sns.gov.uk/default.aspx](http://www.sns.gov.uk/default.aspx)

### **For Northern Ireland School Information:**

[www.ninis.nisra.gov.uk/](http://www.ninis.nisra.gov.uk/)

[www.guardian.co.uk/news/datablog/2012/nov/24/religious-divide-northern-ireland-schools](http://www.guardian.co.uk/news/datablog/2012/nov/24/religious-divide-northern-ireland-schools)

## Annex 4 Overview of findings from the case study special schools

Two special schools were included in our case study fieldwork providing some useful insights into how much such schools value these resources and the ways in which the kit can be used with a range of abilities.

The first was a special needs school based in the North of England catering for children aged 2–19 and is a mixed school. Some of the pupils are taught in mixed year groups – for example, Year 3 and Year 5 are taught together. The materials were used by classes in Year 4, 5 and 6 as well as pupils in Year 9 who have profound multiple learning disabilities (PMLD). Nearly everything was used with the exception of the pedometers as most of the pupils use wheelchairs. Although the teacher – who is also the Science Co-ordinator – referred to the guidance and lesson plans, she followed it loosely and altered some of the tasks to meet the learning needs of the pupils.

The other school was an 11–19 special school that has students with PMLD, complex learning difficulties, a large number of students with autism (some of whom are on the more complex end of the spectrum but some higher functioning), moderate learning difficulties, severe learning difficulties, and social and emotional behavioural difficulties. There is a teacher who teaches science to the students with behavioural and social emotional difficulties. The interviewee teaches science to the rest of the students. Science teaching is limited. The materials had been used by one teacher in the school who had used the peak flow monitor, lung volume bag and pulse oximeters with a range of pupils.

Both of these schools explained how they still use the Darwin materials, and on this basis were keen to use In the Zone. Both schools had gone onto to use the In the Zone kits and were extremely positive about how their experience enabled them to carry out experiments that they wouldn't otherwise have been able to do.

For one of the special schools both the teacher and the pupils were impressed by the fact that the equipment “looked real...they look like something a doctor or a nurse would use”. This made the kit particularly attractive to the students who “felt they were doing real science...their reaction to the equipment was ‘well, we are using real science equipment here’.” Similarly, the other special school said: “Whoever designed these materials know what works for children.”

The items they particularly valued were:

- **The puppet:** One teacher that used the puppet with Years 4, 5 and 6 pupils pointed out that: “The pupils loved using the puppet. I think it's because it's someone who needs more help than them, and they were trying to help her to do things by talking to her.”
- **The stethoscope:** one of the teachers mentioned that the pupils “loved using the stethoscopes to listen to the heart and learning about how the bodies work”.
- **The oximeter:** The secondary special school teacher described trying to teach students to take a pulse before In the Zone: “They just couldn't do it – it was just too difficult. I thought the older ones could cope but they couldn't...we just had to struggle along with what we had.” However, with the pulse oximeters, “they were all able to do it...and we are able to use this equipment across the school, it is easy to use across the whole school. Having this equipment has made it so much better.”
- **The website games:** The teacher working with primary-aged pupils had used the website games during class with the pupils, which worked well with the mixed age range. A whole-class approach was taken with the younger pupils, whereas older pupils were allowed to play games independently.
- **The less expensive items** also proved popular with pupils, with one teacher explaining how the students particularly enjoyed using the lung volume bag and competed with each other to see who could blow it up the fullest. As the teacher described:

“When we used the bags, they just loved it...I said ‘one breath, one breath’ and they were trying to blow the whole bag up – I mean, they just loved it. Just being given a piece of equipment that is of really good quality and obviously new, and they were the first ones to use it. That was so important.”

The secondary special school expressed some reservations about some of the kit, such as the blood pressure monitor and the respirometer. This was mainly because most of the students function at below Level 3 (the primary kit would also have been a useful resource) but also because of the need to be sensitive to the medical conditions of the pupils:

“Some of the students have special medical needs and I just need to be sure that I am using it right. It didn’t seem appropriate at the time – my students were just not ready to use it. It wouldn’t have been appropriate.”

The secondary special school also noted that the guidance did not include reference to pupils with learning difficulties:

“I couldn’t have used the guidance it wasn’t really suitable for the students here...I did flick through and it gave me a couple of ideas, but that wasn’t really the thing. It was the equipment for me, [although] if I had been working in a mainstream school then it would have been useful...it was quite detailed.”

This suggests that the kit in its current form, particularly with the inclusion of the practical equipment, proved perfectly adaptable for different needs. However, perhaps there is the need for some consideration of the particular issues faced by these schools and for more tailored guidance.

## Annex 5 Description of telephone survey sample

Table A5.1 Respondent profile: country, gender, and job titles

	Primary	Secondary	Total
<b>UK country</b>			
England	207	185	392
Scotland	6	38	44
Wales	7	27	34
Northern Ireland	30	2	32
Total	250	252	502
<b>Gender</b>			
Female	193 (72%)	156 (62%)	349 (70%)
Male	57 (23%)	96 (38%)	153 (31%)
Total	250 (100%)	252 (100%)	502 (100%)
<b>Primary school job titles*</b>			
Science Co-ordinator	112 (45%)	–	
Head/Deputy Head	58 (23%)	–	
Other teacher	58 (23%)	–	
Teaching assistant	10 (4%)	–	
Total	238 (95%)		
<b>Secondary school job titles*</b>			
Head or Deputy Head of Science	–	94 (37%)	
Other science teacher	–	33 (13%)	
Technician	–	105 (42%)	
Advanced Skills Teacher	–	4 (2%)	
Other non-science teacher	–	15 (6%)	
Total		251 (100%)	

Base: All respondents, 502.

\*Some teachers did not provide this information.

- 502 respondents across the UK – 250 primary teachers and 252 secondary teachers.
- In each school contacted, one teacher was selected to speak on behalf of the school. In secondary schools interviewers initially asked to speak to the Head of Science, whereas in primary schools they asked for the Science Co-ordinator. In all cases we then asked to speak to a member of staff familiar with In the Zone. Only one person was interviewed in each school.
- Country of respondent – 392 were in England, 34 in Wales, 44 in Scotland and 32 in Northern Ireland.
- Gender – overall 153 respondents were male, and 349 female.

- As Table A4.1 above shows, most secondary respondents were either Heads/Deputy Heads of Science or Technicians, and most primary school respondents were Science Co-ordinators.
- Table A4.2 shows that most of the secondary school respondents taught biology, although often with another subject, most of the rest taught another science with only 2 per cent teaching PE/sports science and 2 per cent teaching a non-science subject not listed.

**Table A5.2 Respondent main subject**

<i>Secondary schools</i>	<i>Percentage</i>
Biology	56%
Chemistry	48%
Physics	43%
Psychology	4%
PE/sports science	2%
Other science	8%
Non-science	2%

*Base: All secondary schools (252).*

- The majority of secondary school respondents reported that there was a science/engineering club at their school (64%), that their school took part in science competitions (62%) or worked with outside scientists (55%), while two-thirds (66%) used materials and resources from external sources, as shown in Table A4.3. Four in ten (41%) respondents said they had a science or an engineering club, took part in science competitions, or worked with outside scientists. Nearly half (44%) did at least one of the four enrichment and enhancement activities listed in Table 3.3.

**Table A5.3 Enrichment and enhancement activities**

<i>Secondary schools</i>	<i>Percentage</i>
A science/engineering club	64%
Science competitions	62%
Working with outside scientists	55%
Using materials and resources from external sources	66%
None of these	12%

*Base: All secondary schools (252).*

- Moreover, 22 per cent said they had some sort of enrichment or enhancement activity taking place most weeks, with a further 46 per cent reporting these types of activities taking place at least once a term, although 22 per cent rarely did such activities, 6 per cent never did and 5 per cent had never heard of such activities.
- More than a third (36 per cent) had heard of the Darwin 200 materials, with awareness slightly higher among secondary school respondents than primary school respondents (38 per cent and 34 per cent respectively). Of those who were aware of Darwin 200 materials, 62 per cent had used them at their current school (23 per cent of all respondents). Of these, 66 per cent were still using them (15 per cent of all respondents).

## **Annex 6 Review of other similar initiatives**

### **A6.1 Introduction**

This annex provides a concise summary of a range of other Olympic-themed initiatives that were implemented in 2012 around the themes of science and sport. The 2012 Olympic Games was an extremely high-profile event. As such, it provided a hook for many suppliers of existing educational resources and activities, as well as inspiring the creation of new resources and activities to engage both children and adults. Our initial proposal described the importance of considering the plethora of Olympic-inspired programmes that could represent 'competition' for the In the Zone activities, as well as their potential interaction with In the Zone.

Interviews with staff at the Wellcome Trust and In the Zone partners were used to identify other Olympic-inspired activities, which was augmented with the review of existing synthesis documents and internet searching. We have divided activities into two main types:

- educational, which are targeted specifically at young people within a formal educational context
- public engagement, which may be targeted to adults, families or young people but not linked to formal education.

### **A6.2 Focus of this review**

The first thing that we have found is that it is impractical to construct anything like a comprehensive map of Olympic-inspired activities. LOCOG introduced the Inspire mark to recognise community, cultural and educational activities, and more than 2000 projects and events have been awarded this mark. We have not been able to access the full list of these projects, but it would be impractical within the confines of the scoping stage of this evaluation to review all of these projects.

We have therefore focused on activities that have a significant STEM component and are widely available (and, therefore, have some similarities to In the Zone). We recognise that In the Zone may be supplanted by local activities and will use the fieldwork elements of the evaluation to assess whether potential/actual participants see different (specific) activities as competing with or complementary to In the Zone.

### **A6.3 Aims of In the Zone**

To assess whether activities might be viewed as competing with or complementary to In the Zone, it is important to consider the aims of In the Zone. The aims are divided into two strands, those relating to education:

- To create an enjoyable experience for both teachers and pupils with a view to supporting teachers to deliver more practical-based and pupil-led investigative experiments.
- To increase scientific knowledge among pupils and in particular their understanding of how the body works.

and those relating to public engagement:

- To generate interest in biomedical science across diverse audiences through events held in traditionally non-scientific venues, providing an interactive and personalised experience, and providing access to cutting-edge technology.
- As part of the Inspire Programme, there is also the aim to promote the Olympic and the Paralympic values of excellence, friendship and respect and of courage, determination, inspiration and equality.

Our focus has been to look for activities that seem to share one or more of these aims.

In the educational sphere, there was a real chance that Olympic-inspired activities with very different aims may provide competition, with the leaders in a school regarding the Olympic theme as having been 'done' through participation in a sporting activity or an enterprise project or through a community event. This is explored in the main body of the report.

## **A6.4 Educational activities**

### **A6.4.1 General mapping**

Table 3.1 below shows the key features of the schemes that we have identified that potentially compete with, or complement, In the Zone.

Drawing on the aims of In the Zone, we have identified four features of activities:

- whether they include practical activities
- evidence of student leadership/design of activities (we have not classed autonomous use by students of pre-prepared material as leadership)
- a significant STEM content
- a significant physiology content.

In addition, we have included two further features, which are:

- whether the activity is available to participants at no cost
- whether the activity requires some form of registration.

We believe that In the Zone has one unique feature, which is that it is providing unsolicited equipment to all schools free of charge. The Trust's Darwin activities showed that the provision of free equipment was more highly valued than the provision of free paper-based materials, which had become a discredited approach among both teachers and enhancement and enrichment practitioners.

### **A6.4.2 Specific activities**

In the following sub-sections, we set out the key features of several schemes that seem to be closest to In the Zone in terms of their key features.

#### *The Science of Sport: How to win gold*

The Science of Sport: How to win gold is open to all A-Level (or equivalent) students in the UK and Ireland. The competition, run by The Physiological Society, is now closed, with final judging taking place on 20 March 2012.

The competition will provide students with an opportunity to conduct research that may influence the athletes of tomorrow; they will direct their own learning and investigation. There are supporting educational resources and links to scientific mentors available for teachers whose students take part. Shortlisted students will also be invited to present their work at the Society's scientific meeting 'The Biomedical Basis of Elite Performance'.

We could find no evidence of materials available for wider use without registration to enter the competition.

#### *Scientists in Sport*

Scientists in Sport is a GlaxoSmithKline (GSK) schools outreach programme, inspired by the London 2012 Olympic and Paralympic Games. It comprises a series of open days at universities for 11-14-year-old schoolchildren to learn about the various uses of science in sport, supported by an array of online teaching and learning materials for both teachers and students.

**Table A6.1 Other schemes complementing/competing with In the Zone**

Scheme (Manager)	Practical activities	Student-led investigations	STEM content	Physiology content	Free/charged	Registration required
In the Zone (Wellcome Trust)	✓	✓	✓	✓	Free	No
The Science of Sport: How to win gold (The Physiological Society)	✓	✓	✓	✓	Free	Yes
Scientists in Sport (GSK)	✓	?	✓	✓	Free	Yes <sup>62</sup>
STEM challenge (STEMNET)	✓	✓	✓	X	Free	Yes <sup>63</sup>
Game On (Nuffield)	✓	✓	✓	X	Free	Yes <sup>64</sup>
Maths and Sport – Countdown to the Games (Millennium Mathematics Project)	✓	?	✓	X	Charged <sup>65</sup>	No
STEM to Stadium (By Design) <sup>66</sup>	✓	✓	✓	?	?	Yes
GET SET website (LOCOG) <sup>67</sup>	✓	?	✓	✓	Free	Yes <sup>68</sup>
Out the Blocks (CISCO)	✓	✓	✓	?	Free	No

<sup>62</sup> For attendance at events – materials available on website without registration.

<sup>63</sup> For entry to competition – materials available on website without registration.

<sup>64</sup> To access 2012 rewards – materials available on website without registration.

<sup>65</sup> Charge for road show to visit school – materials available on website without registration.

<sup>66</sup> Limited to Nottinghamshire schools.

<sup>67</sup> STEM content largely delivered through “In the Zone”, “Scientists in Sport”, “STEM challenge”, “Game On” and “Maths and Sport – Countdown to the Games”.

<sup>68</sup> For access to some materials.

GSK is the Official Laboratory Services Supplier to the London 2012 Olympic Games, and anti-doping and testing sits at the heart of the project. There is, however, much broader physiological content to the activities, which cover fitness, strength, endurance, speed, power and flexibility, as well as anti-doping (and associated measurement techniques).

#### *STEM Challenge*

The STEM Challenges are managed by STEMNET and consist of ten activities that have been inspired by the preparations for London 2012. Each one focuses on a different aspect of the preparations for the event itself, and they are predominantly focused on engineering and the physical sciences. One of the challenges was in partnership with the Scientists in Sport activity delivered by GSK.

The STEM Challenges have formed a series of competitions, the last of which closes for applications in mid-May 2012. The supporting materials have been designed to be used outside of the competition framework and after the Olympics (e.g. in club environments). The materials are being promoted as ways of becoming involved in other STEM projects, such as the CREST awards.

#### *Game On*

Game On, devised by the Nuffield Foundation, considers the features of games and whether these are fair, exploring the rules of a game, the impact of natural abilities and practice, and the role of specialist equipment with experimental exploration of all the factors.

The conclusion of the project is to design “a new game with fair rules and an effective scoring system”.

#### *CISCO ‘Out of the Blocks’*

CISCO, one of the official network infrastructure supporters for the London 2012 Olympics, delivered an initiative called Out of the Blocks. Launched in January 2012 at nearly 4000 UK secondary schools and other locations, it included free activity books inspired by the London 2012 Olympic and Paralympic Games, along with website and video content. These were designed to inspire children to further their learning in maths and science and become aware of future careers that rely on strong STEM skills.<sup>69</sup>

## **A6.5 Public engagement activities**

There have been, and will be, a very large number of events and activities designed to engage the general population with the Olympic and Paralympic games. However, we have been unable to find an exhaustive list of activities awarded the Inspire mark, and searching the ‘What’s On’ section of the 2012 website yielded only nine results for the keyword ‘Science’. Of these, only two activities seemed to have any scientific content. We also found another two activities with significant scientific content. Our main finding, therefore, is that there seem to be very few Olympic activities with any scientific content.

There is a good deal of activity aimed at fostering involvement in sport and activity, which encourages people to take up coaching. This will involve a certain degree of scientific practice, especially at the higher levels, but we feel that this requires a level of input from participants that goes well beyond public engagement. There are also some activities that at first sight might have included a scientific component, such as Gardening for the Games, which do not have any STEM content.

The four activities that could fall within the public engagement with science arena are:

- Cutting Edge 2012: The research behind sport
- Meet the Species
- LeanerFasterStronger
- ReKindling Venus

Each of these is described below.

#### **Cutting Edge 2012: The research behind sport**

Cutting Edge 2012 is a Research Councils UK initiative, in partnership with the Royal Institution, the Department for Business, Innovation and Skills, The Institution of Engineering and Technology and PODIUM (the Further and Higher Education Unit for the 2012 Games).

The initiative comprises six events taking place across the UK. Each follow a common style with UK researchers and Team GB athletes discussing elite performance and the role of research in performance, and providing an opportunity for attendees to contribute their views and raise questions. Each event focuses on

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<sup>69</sup> See [blogs.cisco.com/csr/olympics-are-starting-point-for-ciscos-commitment-to-ict-education-innovation-in-the-uk/](http://blogs.cisco.com/csr/olympics-are-starting-point-for-ciscos-commitment-to-ict-education-innovation-in-the-uk/).

a different sport, and those covering athletics, diving and cycling seem to contain significant biomedical components.

A variety of venues are being used, these are a mix of visitor attractions and relevant sporting institutions. Pre-booking is required through the Royal Institution.

### **Meet the Species**

Meet the Species is run by the Bristol Natural History Consortium.

Meet the Species is working with ISpot and the Open University, Natural England and other environmental agencies across the UK to run the largest survey project ever in an attempt to find 2012 species. Scientists from across the UK have compiled a 'challenge' list, choosing species that would benefit from more data to secure their future.

Members of the public are invited to help search, record and share data so researchers "can learn more about the species we share the UK with and how we can make it a better place for them and us to live". The inspiration for this project is the work done on creating habitats on the Olympic Park.

There will be Meet the Species events across the UK from January until September 2012, where there will be experts presents to support the identification of animal and plant species and officially tick them off the 2012 longlist.

### **LeanerFasterStronger**

LeanerFasterStronger is a play that was performed in Sheffield between 24 May and 2 June 2012.

It is described as "A darkly humorous and provocative theatre experience which explores the limits of what human means. What if bio-engineered body parts and medical science were on tap to make you leaner, faster and stronger? Would you fight it; or embrace the brave new world?"

With the tag line of 'How far would you go to be the best?', the performance seeks to generate interest in biomedical science through events held in traditionally non-scientific venues.

### **ReKindling Venus**

*ReKindling Venus* is a film created especially for planetariums.

It premiered around the world on 5 June 2012 to coincide with the transit of Venus, which inspired the first known attempt at international scientific cooperation – the worldwide observations of transits of Venus in 1761 and 1769. Cooperation was required on a large scale, with observation points spanning beyond continents and across generations. Warring nations offered safe passage to rivals and ships to observe the transits.

This film focuses on the intricate, complex life of the marine environment, rising from the ocean floor to the surface. At a time when marine biologists witness the warming of the world's oceans and predict that whole ecosystems such as coral reefs may disappear within 50 years, *ReKindling Venus* is a call for renewed global cooperation in the present to address new scientific questions. The link back to the transits of Venus is the inspiration to think about the future.

There are about 20 planetaria across the UK, but these fixed sites are augmented by several travelling planetaria, meaning that this film could be widely accessible across the country. However, planetaria might be regarded as scientific venues, particularly as most of the permanent ones are located at science-based visitor attractions.

## Annex 7 Summary evaluation of the Darwin Education Initiative<sup>70</sup>

### A7.1 Background

GHK Consulting with People Science & Policy and TNS-BMRB were commissioned by the Wellcome Trust to conduct an independent evaluation of the Darwin Education Initiative. The initiative featured the provision of materials to support practical experiments in primary and secondary schools across the UK. The evaluation aimed to provide “a good-quality evidence base and recommendations to inform future large-scale projects on unrelated themes”, identifying transferable lessons to inform similar future initiatives delivered by the Trust and its approach to supporting schools more widely. The evaluation took place between January 2009 and December 2010. The method followed featured a combination of qualitative and quantitative approaches, including:

- a literature and practice review focusing on previous large scale education initiatives
- a programme of interviews with key stakeholders in the initiative
- the review of the materials development process
- a telephone survey of more than 500 primary and secondary school teachers
- case study fieldwork with ten primary and 20 secondary schools, featuring interviews with teachers and pupils, and the use of pre and post questionnaires, across three contacts to provide a longitudinal picture of materials use.

Two reports were produced over the evaluation period:

- the first interim report – produced in February 2010 and providing the main findings of the study, exploring the development process, the use of the materials and their impacts, and potential legacy effects
- the summary final report – produced in January 2011 based on final contacts with the case study schools, and exploring continued and potential future use of the materials.

### A7.2 The Darwin Education Initiative

The initiative was one of several celebratory activities marking the 200th anniversary of the birth of Charles Darwin. It aimed to stimulate interest in science by offering pupils in schools across the UK the opportunity to participate in a series of specifically developed experimental activities, which in turn provided resources and developmental opportunities for teachers in primary and secondary schools. The initiative also aimed to provide an enjoyable and memorable experience for pupils, and leave a legacy which extended beyond 2009. A series of age-appropriate Darwin-inspired investigative experiments were developed and distributed to all primary schools in the UK. The primary school element consisted of The Great Plant Hunt (GPH) – a resource filled travel trunk – delivered by the Royal Botanic Gardens (RBG), Kew. The secondary school element consisted of three experiments under the heading of Survival Rivals (SR), provided by Philip Harris and made available by order to secondary schools and colleges. These were:

- ‘I’m a Worm, Get Me Out of Here’ (I’m a Worm) – which focused on principles of natural selection and was targeted towards ages 11–14
- ‘Brine Date’ – an experiment using brine shrimp to investigate sexual selection, targeted towards the 14–16 age group
- ‘The X-Bacteria’ – which used antibiotic resistance in bacteria to investigate horizontal gene transfer, targeted towards the 16–19 age group.

Guardian Professional also provided support to both elements of the initiative, mainly in terms of marketing and supporting website design and development.

### A7.3 Levels of uptake and use

The first stage of the study explored the initial take-up and use of the materials by teachers through a telephone survey of 502 teachers in primary and secondary schools and fieldwork with the 30 case study schools.

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<sup>70</sup> January 2011, Report Authors: Richard Lloyd, Mark Dyball and Heather Rose. Submitted to the Wellcome Trust by GHK (www.ghkint.com) in association with People Science & Policy Ltd and TNS-BMRB.

### **A7.3.1 Primary schools**

The GPH materials were dispatched to all state primary schools in March–April 2009. The vast majority of primary teachers responding to the survey had reviewed them on receipt, with 60 per cent reporting using the materials before the survey (a level of use which, if replicated nationally, would mean that pupils in an estimated 13 000 primary schools would have had some exposure to the GPH materials). The majority of teachers reported looking at or using the teacher notes, with the case study schools reporting them to be pitched at the right level for, and valued by, the teachers.

Data provided by RBG Kew showed that more than 156 600 visits were made to the GPH website between February 2009 and January 2010. Two-thirds of these (65 per cent) were unique visits, i.e. a total of 102 775 people had visited the site.<sup>71</sup> Use over this period ranged from 2245 non-unique visits in August 2009 to a peak of 38 271 non-unique visits in May 2009 – coinciding with the arrival of the materials and the GPH Week in May. The data also showed that 102 367 material downloads were completed, with the introductory video being downloaded more than 60 000 times to the end of November 2009. In addition some 3021 photos were uploaded to the website by more than 260 schools, most of which were uploaded in May 2009. Data to the end of December 2010 showed that a total of 250 591 visits were received, 169 565 of which were by unique visitors.

Of the schools responding to the survey, almost one-third (32 per cent) described using the GPH website as a source of additional information and guidance, with 26 per cent also using it for other purposes (such as watching videos, downloading materials and playing games). Reported use of the website was concentrated among teachers rather than pupils, with at least 10 per cent of the primary respondents downloading teaching materials from it. Again, if this figure was replicated across the UK, it would suggest that approximately 20 000 teachers downloaded material and almost certainly many more visited the site.

All the primary respondents who had looked at the content of the kits were asked if there was any additional guidance or support that would help them make best use of the GPH materials. The large majority (86 per cent) of respondents answered no to this question.

### **A7.3.2 Secondary schools**

Data to January 2010 showed that 66 per cent of all state secondary schools (i.e. approximately 3500 schools) had ordered and received at least one of the SR kits. By the end of July 2010 the penetration rate had risen to 67 per cent of all eligible schools.

A total of 9222 orders were taken to the end of July 2010, comprising:

- I'm a Worm – 3469
- Brine Date – 3363
- The X-Bacteria – 2390.

As with the primary schools, the vast majority of secondary survey respondents (91 per cent) described looking through their kits, including reviewing the teacher notes that accompanied them, which the case study schools suggested were pitched at the right level, highly valued by teachers, and seen as a core part of the kit.

At the time of the interim report, secondary schools' initial interest in the SR materials had converted into actual use in 41 per cent of cases (82 schools of 202 receiving the kits). Again, if this level of use was replicated nationally it would equate to use in more than 1400 schools, and it would seem that the original aim of a 25 per cent usage rate had been exceeded at the time of the interim report. In terms of frequency of use, the survey identified Brine Date as the most used kit (59 per cent of eligible schools responding), with nearly half (49 per cent) using I'm a Worm and 40 per cent The X-Bacteria.

Data provided by the Wellcome Trust show that in the 15 months between November 2008 and January 2010 more than 31 000 visits were made to the SR website. Of these 76 per cent were unique visits, i.e. 23 936 people visited the site in total. Website use peaked in February, March and June 2009, with 41 per cent of visits being direct traffic, 40 per cent being referred from other sites (including 8 per cent from the Wellcome Trust website), and 20 per cent from search engines. On average four pages were viewed per visit,

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<sup>71</sup> Although it is not clear what share of individuals visiting or downloading materials from the site were primary school teachers, given the expected interest in the initiative across the wider education community and beyond.

with the average time spent on the site being 3.35 minutes. The I'm a Worm pages were viewed 8439 times and the X-Bacteria pages viewed 6267 times, although no data were recorded for the Brine Date pages.

The survey of teachers identified that 26 per cent of secondary teachers used the website as a source of additional information and guidance, and 28 per cent reported using it for other functions. As with the GPH website, the share of hits by secondary school teachers, as opposed to other types of users, is unclear, but the level of downloads reported in the survey was considerably lower than for the GPH site – as expected, given the smaller amount of downloadable material.

Additional support requirements, on the basis of data on the use of the telephone helpline provided by Philip Harris, seem to have been fairly minimal. This is reflected in the survey and the case study findings, where teachers reported finding the kits to be self-contained and not necessarily requiring additional support. The large majority (89 per cent) of secondary survey respondents who had looked at their kits also considered that the guidance provided with the materials was adequate, and could not identify any support that might be required.

#### **A7.4 How the materials have been used**

The vast majority (98 per cent) of the primary and secondary schools responding to the survey who had looked at the materials found their overall quality to be good (29 per cent) or very good (69 per cent). The primary and secondary case study schools reflected this view, with all 30 being overwhelmingly positive about the materials' content and quality. Key strengths of the materials noted included: their superior quality; the provision of all the kit required within a single box; being accessible, practical and user-friendly; providing a good fit with the curriculum; and being flexible and adaptable.

The Darwin materials compared well to other practical materials generally used for science, with 69 per cent of the primary and secondary survey respondents describing them as better than other materials they were aware of. The case study schools also explained that although a wide range of science resources are available, they do not generally receive anything comparable in terms of comprehensiveness and quality.

Few of the schools responding to the survey made suggestions for ways in which the materials could be improved, with the main issue for both primary and secondary schools being the need for more materials to enable whole school or multiple class use. Other suggestions raised by the case study schools included:

- primary schools – more engagement/support from education professionals such as regional advisors, and the use of a wider range of (pre-)marketing activities, including working prototypes
- secondary schools – clearer and more user friendly guidance, especially for pupils; more explicit links to the core syllabus and to assessment processes; and ensuring the continued availability of materials (including complete kits) at a subsidised cost.

The survey results showed that the primary and secondary materials had been used mainly in the delivery of practical lessons (Brine Date – 92 per cent of users; I'm a Worm – 73 per cent; The X-Bacteria – 91 per cent; and GPH – 71 per cent), with I'm a Worm (83 per cent) and the GPH materials (93 per cent) specifically encouraging practical outdoor lessons. The most common curriculum area in which the Darwin materials were used by both primary and secondary schools was science (68 per cent), followed by biology (20 per cent), environmental studies (10 per cent), maths and numeracy (9 per cent), history (6 per cent), geography (6 per cent), and the arts (5 per cent).

In many cases it had taken time for schools to start to use the materials and become engaged with them. The case study fieldwork suggested that initial interest in the materials did not always translate into immediate use and that in some cases implementation changed from the schools' original plans. In most cases implementation had been phased, with teachers using the materials on a trial basis with small pupil groups before using them more widely. This was due partly to the timing of receipt (coinciding for some with exam time in the summer term), and partly to teachers wanting to test the new resources to find out how they worked and what resources were required for their wider use.

The schools used the materials in different ways, with the survey showing that more than half (57 per cent) of the primary schools using the GPH materials did so with a specific year group/groups, with 27 per cent following a whole school approach. In both primary and secondary schools the materials had been used flexibly across different year groups; in different settings and – specifically in the primary setting – with some being adapted and incorporated into other non-science curriculum topics.

As described previously, the teacher notes accompanying the primary and secondary materials were well received by the teachers using them. The survey found that teachers in both primary and secondary settings found the notes to be clear, easy to understand and useful in helping them decide how to best use the materials. This was also emphasised in the case study fieldwork, where they were also described as being particularly user friendly and generally well-pitched, although some concerns were raised over the secondary notes providing too much detail in describing the experiment – particularly for pupils.

## **A7.5 Pupil and teacher impacts**

The interim report showed that the vast majority of the primary and secondary schools responding to the survey and participating in the case study fieldwork were able to provide examples of positive impacts resulting from the use of the materials.

### **A7.5.1 Impacts for pupils**

The primary and secondary schools were equally positive about the impacts of the use of the materials for their pupils. Impacts reported in the survey by both groups of schools included an increased engagement with, and enjoyment of, science teaching, with the materials contributing to their scientific understanding. The vast majority of teachers (93 per cent) reported positive effects on their pupils' engagement with science – most (58 per cent) reporting “a little” effect and 35 per cent “a great deal” – with 3 per cent considering it too early to say either way.

The case study fieldwork also identified that the materials had both inspired and enthused the pupils using them, with the follow-up questionnaires used with pupils in the case study secondary schools showing that more than half felt that the kits had made them more interested in science. For example, use of the GPH materials by primary pupils had increased their interest in plants and the natural world; and the impacts for secondary pupils included learning new skills and techniques, making experiments fun, and supporting more independent learning.

The pre and post pupil questionnaires also suggested that the pupils enjoyed the activities, with the great majority (80 per cent) of the primary school students enjoying the GPH. The secondary students were offered a scale of responses; 84 per cent enjoyed the activities, but this was split between those who enjoyed them “a lot” (36 per cent) and those who enjoyed them “a little” (48 per cent). However, the pre and post questionnaires provided little evidence of impacts (either positive or negative) on primary or secondary pupils' attitudes, or of improved knowledge among secondary school pupils.

### **A7.5.2 Benefits for teachers**

The primary and secondary survey responses also described benefits for the teachers resulting from the materials. While primary respondents were slightly more positive than secondary, in both cases more than half reported increased confidence in teaching practical sessions and almost 60 per cent an improved knowledge of evolution. Around two-thirds of the teachers also reported changing their practice – either doing something differently in the classroom or by changing the way in which they deliver practical activities.

The influence on practice was also reinforced in the case studies, where the materials were found to have helped secondary teachers deliver the curriculum differently and encouraged them to undertake more practical sessions. The primary teachers described learning new approaches to teaching science, including making use of school grounds.

Finally, an impressive 97 per cent of teachers responding to the survey considered that the materials had the potential to support the teaching of the science curriculum, and most considered that the materials would be a valuable asset in the future.

## **A7.6 Expectations for continued and future use**

The interim report explored the likelihood of the future and continued use of the materials throughout the 2009/2010 academic year and beyond. Responses to the survey suggested that almost all (97 per cent) of the schools already using the materials would continue to use them in future, with two-thirds (66 per cent) being “very likely” to do so. The secondary schools ordering the materials but yet to use them were also very optimistic about future use – although few had scheduled their use in the 2009/2010 academic year at the time of the survey.

Many schools saw the kits as an ongoing resource, with a key factor in determining their use being their fit with the curriculum in the future. This was particularly emphasised by primary schools using the new skills-based curriculum, where the topic themes selected for study determined the planned use of the GPH materials.

Where schools were yet to use the materials, the reasons for this, and what might make them use them in future, were explored. The responses suggested that having more time to plan into the school timetable would make their use more likely, with the need for sufficient notice of the arrival of the kits to allow for planning and preparation. The May to September period seemed to be the key time for planning lessons for the following academic year, with the case study fieldwork suggesting that on the whole teachers needed at least a half, but ideally a full, term to plan lessons and schemes of work when using new materials. This would suggest that any new materials for teachers need to be available some time before May if they are to be used in teaching from September onwards.

Where a small minority of schools described being unlikely to use the materials again, this seemed to be due to either not being able to get the experiment to work correctly, the time taken to set up the experiment (relating exclusively to the Brine Date kit), the cost, the requirement for more materials, and waiting for the appropriate time of year. In the case of the secondary schools, the survey suggested that the need to order replacement or new kit was seen as a barrier to continued use. However, the case study fieldwork suggests that this has in practice been less of a key determining factor for ongoing use, with issues being more about ease of use and fit with the curriculum.

## **A7.7 Findings from the follow-up research**

Following the production of the interim report, each of the case study schools were re-contacted between September and November 2010 to explore the extent to which they had used the materials in the 2009/2010 academic year, and their intentions to continue to use them in the 2010/2011 academic year and beyond. Interviews took place with teachers in 26 of the case study schools – nine primary and 17 secondary, with continued use by the case study schools being described below.

### **A7.7.1 Primary schools**

Six of the nine primary schools reported continuing to use the GPH materials in the 2009/2010 academic year, comparing well against the schools' expectations as identified in the previous stages. The flexibility of the materials was reflected in the patterns of use identified – which ranged from use with small groups of pupils (on a trial or a targeted basis) to whole class and whole school activities.

The schools using the materials continued to report a similar range of impacts for pupils and teachers, with additional opportunities for hands-on and outside the classroom experiences being particularly welcomed. Examples were identified where the materials had been used alongside other 'environment'-based learning, such as Forest Schools and in gardening clubs. The schools continued to view the materials positively – with their quality and the clarity and comprehensiveness of the guidance materials being reflected in the limited use of, and need for, the additional support available.

The primary schools not continuing to use the materials cited several reasons for this, including changes in the curriculum and resulting option choices by teachers making the materials less relevant, the loss of previous outdoor space and changes in teaching staff – which emerged as a key issue for both primary and secondary schools. The use of 'additional resources and activities' – namely the GPH website and involvement in the GPH Week – were found to be limited among the case study schools.

Seven of the nine primary schools felt they were likely to continue to use the materials in the 2010/2011 academic year and beyond – with two already scheduling for the materials' use into their 2010/2011 teaching plans. The two remaining schools were less clear of their intentions for future use – in one case due to the loss of their external space.

### **A7.7.2 Secondary schools**

Ten of the 17 secondary schools described using at least one of the SR materials, with many reporting trying 'new' kits out on a trial basis as well as extending previous use in terms of pupil coverage. The trial before wider adoption approach identified in the interim report seems to have been continued.

The I'm a Worm experiment continued to be the most commonly used, largely due to its simplicity, ease of application and flexibility, but also as replacement materials could be easily sourced to allow experiments to

be repeated. However, for some the other two experiments posed challenges – notably Brine Date, where problems getting the shrimps to grow had put many teachers off using it again. With The X-Bacteria the effort required for its use, and concerns over the capabilities needed to undertake it, had put some teachers off – although where it was used it was found to work well.

Changes in teaching staff was again cited as a key reason for the use of the materials not being continued in the case study schools, with a shortage of time to plan and deliver the experiments and difficulties using specific experiments being the most commonly reported reasons for use not being continued.

In common with the primary schools, very limited use was made of the telephone helpline by the secondary schools, which was again seen as an indicator of the quality and coverage of the guidance provided. Less positively, just one school reported participating in the SR competition, reflecting the low level of involvement nationally.

Finally, 12 of the 17 secondary schools reported planning to use at least one of the SR kits during 2010/2011, and expectations for continued use beyond this were high.

## **A7.8 Lessons for future initiatives**

The study provided a series of lessons for the design and delivery of future large-scale education initiatives, based on the conclusion that the initiative had set new standards for the quality of materials produced that could be built upon further. Key lessons included:

- From the Darwin experience:
  - The importance of strong project management, with both in-house and contracted out models being shown to be equally effective.
  - Allowing sufficient time for embedding in schools – key to large-scale rollout and building legacies, while considering the strengths and weaknesses of association with an anniversary or event.
  - Ensuring that the materials produced are fit for purpose and for use in schools, provide explicit links to the curriculum, are self-contained for use ‘straight out of the box’, and include clear guidance for teacher and student use.
  - Ensuring that promotion activities start as soon as possible and that detailed information is provided to allow schools to plan. While different views were expressed on the best time for materials to arrive in schools to ensure their use, the summer term was most commonly suggested.
- The follow-up activity also emphasised the importance of:
  - The use of ‘champion’ teachers to engage with new materials in the first instance, followed by the distribution and ownership of the materials more widely across the teaching staff to ensure continued use.
  - The design of experiments avoiding the use of ‘time limited’ materials, and considering the variable capacities in schools regarding technical support.
  - The guidance materials being informed by, and featuring examples of, actual use by schools – both to allow robust piloting and to reinforce messages around ease of use, replication, and so on.
  - Targeting any future initiatives and their content towards parts of the curriculum where practical activities are less prevalent – to help ensure their use and maximise added value.
- For planning future initiatives, allowing:
  - an ‘end to end’ planning cycle of at least three years for a similar approach to the Darwin Education Initiative
  - at least one year between the final materials specification and delivery of the first sets of kit
  - time to produce full working prototypes of any materials, to be used in early marketing and promotion activities
  - sufficient time and resources to identify single suppliers (or, more realistically, consortia of suppliers) – with the Trust being prepared to act as a broker to establish partnership arrangements.

## The Wellcome Trust

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