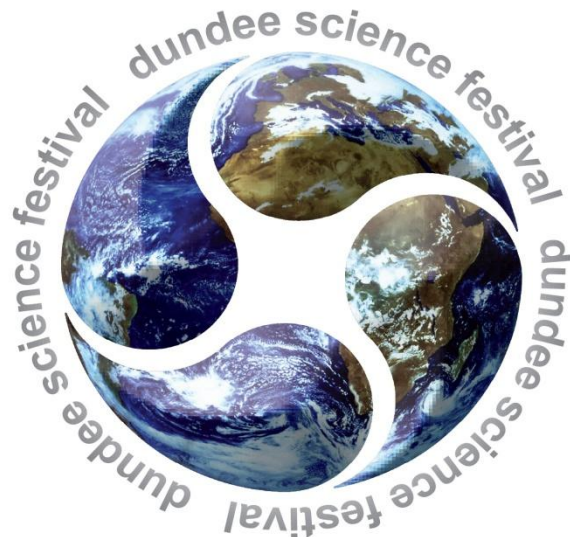


# Dundee Science Festival 2010

## Report



Prepared by Dundee Science Centre



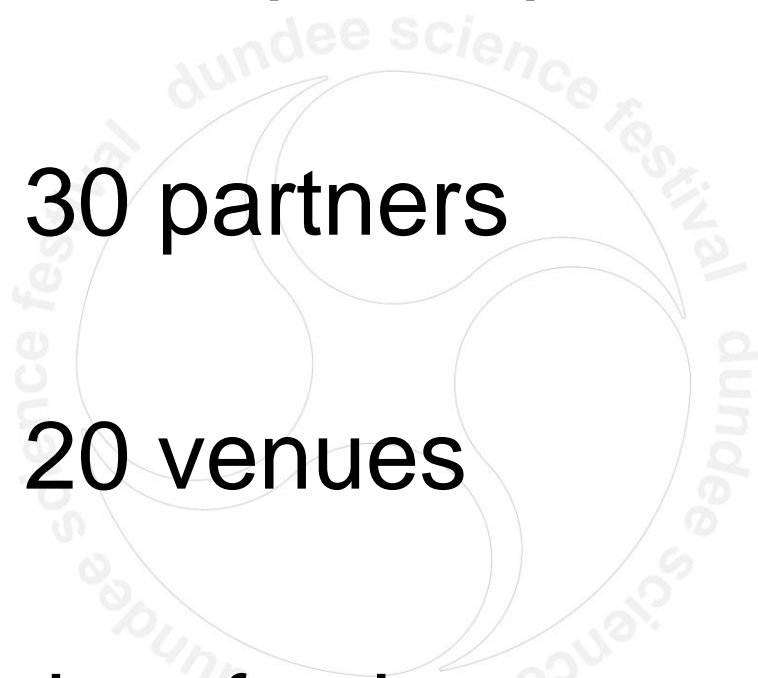
Two weeks

Over 8800 participants

Over 30 partners

Over 20 venues

One city of science



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## 1) Executive summary

2010 saw Dundee's first two-week celebration of science.

In over 20 venues throughout the city centre, schools and outlying residential areas, Dundee Science Festival reached over 8800 visitors through its various programmes and events.

The festival was led by Dundee Science Centre as a collaboration of over 30 partner organisations and supporters. The festival brought together Higher Education Institutions, Further Education, visitor attractions, science communicators, industry, local authority, and education partners in a joint initiative to celebrate science and lifelong learning.

Events ranged from family fun days to stand up comedy, including talks, lectures, exhibitions, teacher CPD, professional networking, children's workshops, and science shows. This range of events engaged their audiences with cutting edge research, current and local initiatives, the future of science in Dundee, and fun science topics.

Professor Sir Philip Cohen is patron of the Dundee Science Festival Partnership, and gave the opening lecture, emphasising the position of Dundee as a city of scientific discovery. The following fortnight of events then enabled the community to engage with science, making science not just the city's major industry, but also a key part of its culture.

Evaluation from participants shows a very high level of enjoyment, with visitors very much enjoying their experience, and very likely to recommend festival events to others. The festival also very successfully made visitors feel that science was interesting and relevant to them, and led to a desire to learn more.

Approximately 70% of participants were from Dundee, with other predominantly from Fife, although some visitors had travelled from Glasgow and Edinburgh.

*"Fantastic way to bring science research to a new audience"*

*"I learnt that Dundee is at the fore of scientific research"*

*"Enthusiastic, engaging and entertaining"*

*"Perfectly pitched at the children's level in all aspects of the workshop"*

*"It was all amazing!"*

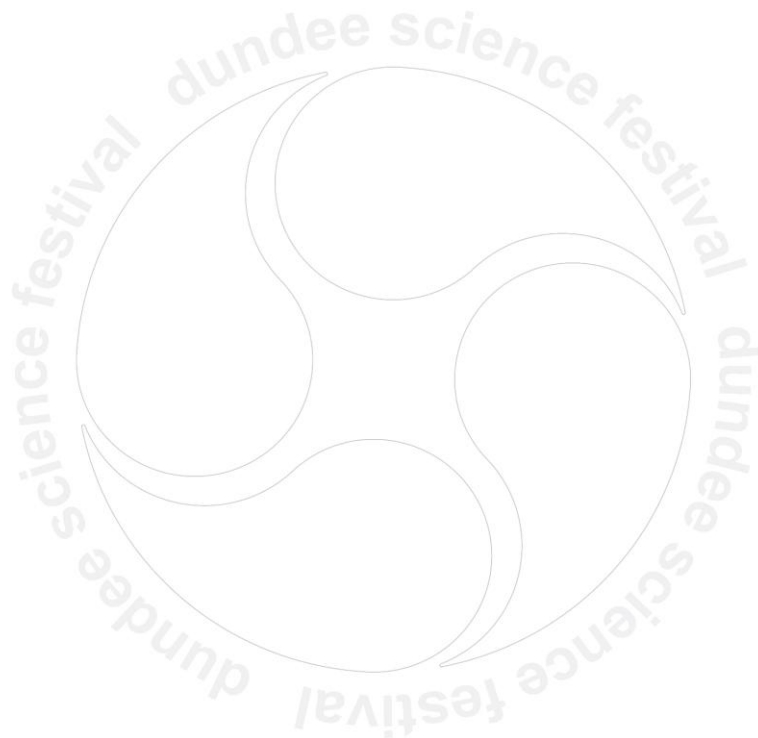
Dundee Science Festival 2010 visitors

## 2) Festival Programme

27 <sup>th</sup> October	Pre-festival lecture: Professor Sir Philip Cohen – ‘Discovery of New Drug Targets for the Treatment of Disease in the 21 <sup>st</sup> Century’
Throughout the festival	DinoDig!
Throughout the festival	Enlightenment art exhibition
Throughout the festival	What do Scientists Do?
Throughout the festival	How do you make a Robot Dance?
1 <sup>st</sup> -5 <sup>th</sup> November	Primary schools programme
1 <sup>st</sup> November	You CAN play with your food!
2 <sup>nd</sup> November	Dundee Arts Café: Avatars have emotions too! The Art and Science of Believable Facial Animation.
3 <sup>rd</sup> November	What has Science Ever Done for Dundee?
4 <sup>th</sup> November	The Riddle of the Mast Cells: Pioneering Studies in Dundee
5 <sup>th</sup> November	Early Explorers: The World Around Me
6 <sup>th</sup> November	Think Ink!
6 <sup>th</sup> November	Science Discovery Day
6 <sup>th</sup> November	Curator's Favourites - Natural History at McManus Collections Unit
6 <sup>th</sup> November	Visit the Wellcome Trust Building
7 <sup>th</sup> November	Family Fun Day
8 <sup>th</sup> November	Life Science Sampler day
8 <sup>th</sup> , 10 <sup>th</sup> , 11 <sup>th</sup> November	Forensic Science Roadshow
9 <sup>th</sup> and 10 <sup>th</sup> November	Institution of Civil Engineers' Engineering for Life Festival
9 <sup>th</sup> November	The Primitive Methodist Guide to Arctic Survival
10 <sup>th</sup> November	Café Science Extra: I am the Boss of Me – the Psychology of Self in Early Childhood
10 <sup>th</sup> November	3 things you need to know to live to 100
10 <sup>th</sup> November	Science on the Waterfront
10 <sup>th</sup> November	Reclaim
10 <sup>th</sup> November	BioDundee quiz night
11 <sup>th</sup> November	Recording the Past, Present and Future: Science in the University Archives
11 <sup>th</sup> November	Family Fun Night at Mills Observatory
12 <sup>th</sup> November	Physics in Dundee: Past & Present

13 <sup>th</sup> November	NanoDay
13 <sup>th</sup> November	Fantastic Fossils!
13 <sup>th</sup> November	How clean are your hands?
13 <sup>th</sup> November	Time for Nano CPD
14 <sup>th</sup> November	Family fun day
14 <sup>th</sup> November	Science in the Supermarket!

Dundee Science Festival's programme also incorporated NEoN digital arts festival.



## Acknowledgements

Led by Dundee Science Centre, the festival was delivered by Dundee Science Festival Partnership: a collaboration of partner organisations from Higher Education, Further Education, local government, industry, education, heritage, media and research sectors.

Dundee Science Festival would not have been possible without the following:

Abertay University  
AIM Design  
BioDundee  
British Science Association  
The Courier  
Cyclacel  
DC Thomson  
Dundee City Council Education department  
Dundee City Council Creative Learning department  
Dundee College  
Dundee Heritage Trust  
Dundee Science Centre  
Dundee Waterfront  
Dundee 'One City, Many Discoveries' campaign  
Go Dundee  
Institution of Civil Engineers  
Knowledge Scotland  
The McManus  
NEoN  
MRC Protein Phosphorylation Unit  
NHS Tayside  
OPEN North East  
Scottish Government  
SCRI  
SEPA  
Skills Development Scotland  
TechFest-SetPoint  
University of Dundee  
University of St Andrews

Major funders were the Scottish Government and Dundee City Council Education department, both of whom directly funded the Techfest-Setpoint Family Fun Day and primary schools programme.

The Courier was media partner, and DC Thomson Ltd kindly provided all brochure printing.

Financial contributions to support other festival events and marketing were kindly provided by:

MRC Protein Phosphorylation Unit

OPEN North East

Skills Development Scotland

Abertay University

BioDundee

Discover Dundee Waterfront

Dundee College

Dundee Science Centre

SCRI

Techfest-Setpoint

University of Dundee

### 3) Aims and ethos

The programme is the culmination of work since November 2009, when a wide group of those involved in science and learning met at Dundee Science Centre to discuss partnership working.

Dundee is a city of scientific research, discovery and innovation, and the group, chaired by Dundee Science Centre, wanted to extend science into culture too. Dundee Science Festival 2010 was created through partnership working, with this vision in mind.

Dundee Science Festival aims to:

- celebrate Dundee as a city of science and innovation
- raise local pride in the city
- enhance Dundee's national and international profile as a city of scientific discovery
- establish science as an aspect of culture, alongside arts and heritage

*"Dundee is a city of science and a home to a number of the world's leading scientists. Dundee Science Festival will give the city a well-earned celebration of science, inspiring the scientists of tomorrow, and showing that the city is a great place to both work and play in science, with great science leisure and lifelong learning opportunities"*

Professor Sir Philip Cohen, Patron of Dundee Science Festival

#### 4) Programme content

The festival programme offered a range of events at a range of venues, offering science to all ages and backgrounds, and linking science with arts, heritage and even comedy.

*Events to engage even our youngest scientists:*

- during the **Early Explorers** event at Dundee Science Centre, the science centre was dedicated to children aged 3-5 years, with hands-on and inspiring activities to nurture the inquiring minds of children

*Events to excite primary schools:*

- the week-long TechFest-SetPoint **primary schools programme** ran in schools throughout the city. This programme also took real practicing scientists into schools to meet the pupils.

*Events to inspire young people at school:*

- Dundee College's **Life Science Sampler Day** gave secondary school pupils an opportunity to experience lab techniques used by real life scientists
- the University of Dundee's **'How to make a Robot Dance'** workshop travelled to secondary schools, giving pupils the chance to program a robot to dance to music

*Events to support industry and professionals:*

- the **BioDundee quiz night** was a networking opportunity for all those working in biotech industry in the city
- Go Dundee's event, **'What has Science ever done for Dundee?'** excited and inspired its audience about Dundee's past and future as a city of science

*Events for adults – showing that science can be part of culture, and that enjoyable learning isn't just for kids!:*

- Dundee Arts Café's informal talk **'Avatars have emotions too! The Art and Science of Believable Facial Animation'**, explored the process of animating facial expressions
- **Reclaim** at Dundee Science Centre dedicated the whole centre to adults for the evening, allowing them to reclaim the science centre from the kids, socialise, and enjoy the exhibitions and science-art activities

*Events for the whole family to learn and having fun together:*

- TechFest-SetPoint's **Family Fun Day** at Dundee International Sports Complex included fun, hands-on activities run by scientists from universities across the region, providing a full, fun, day out
- the family science show, **'You CAN play with your Food!'** at Abertay University offered families the wow factor, showing how to make ice cream in an instant, and how to make jelly babies scream
- the **Forensic Science Roadshow** took activities out to three of the city's community centres, for a fun, interactive evening of crime scene investigation
- at **Fantastic Fossils!** at The McManus, families will get hands-on and even made their own plaster cast fossil

*Events that linked science with our city's heritage:*

- at the **Science Discovery Day** at Discovery Point, visitors explored the science and technology of RRS Discovery's work
- **Archive tours at the University of Dundee and McManus Collections Unit** showed the richness of the city's scientific and natural history archives

*Events that linked arts and science:*

- the **Enlightenment** photography exhibition at Dundee Science Centre provided a creative and imaginative look at cutting edge research throughout Scotland
- comedian Helen Keen's show '**The Primitive Methodist Guide to Arctic Survival**' incorporated science in stand-up comedy, fresh from the Edinburgh Fringe

*Events that gave insight into current, cutting edge, and local scientific work:*

- **Sir Philip Cohen's festival opening lecture** explored drug discovery in Dundee and the impact on treatment of disease
- the University of Dundee's **Wellcome Trust building open day** gave visitors the opportunity to visit the iconic building and discover what happens inside

**Venues** across the city centre and suburbs included:

- Dundee Science Centre
- RRS Discovery
- The McManus museum and gallery
- various venues across the University of Dundee
- Abertay University
- Dundee College
- Dundee International Sports Complex
- Primary and secondary schools across Dundee
- Menzieshill, Douglas and Kirkton community centres
- Morrison's supermarket

## 5) Audience

In the first year of operating a broad programme incorporating adult, early years, and professional event strands, Dundee Science Festival reached a wide audience totalling 8820. Of these visitors the vast majority came from within Dundee itself (representing an estimated 70% of visitors); those who were from out with Dundee city, were predominantly from neighbouring Fife (although for some events, some visitors had travelled from as far as Glasgow and Edinburgh).

Most people heard about events via word of mouth, and the second most popular method of hearing about Dundee Science Festival was through our brochure. However, social media, the website and press coverage were also effective.

Attendance at individual event can be found in the final section of this report. Below are overall audience figures.

Children: 6034 (of which over 3100 as school pupils)

Adults: 2796 (of which over 120 attending for professional interest)

Total: 8820

Note: where events were not ticketed, some visitor numbers are close estimations based on observation.

Dundee Science Festival's programme also incorporated NEoN digital arts festival. However, visitor numbers for NEoN are not included in DSF visitor figures.

## 6) Economic impact

Dundee Science Festival took place due to the support of its funders and the commitment and enthusiasm of the many partners.

### Funders

The Scottish Government kindly contributed £10,000 in support of the Techfest-Setpoint Family Fun Day at Dundee International Sports Complex. Dundee City Council Education Department kindly contributed £10,000 in support of the Techfest-Setpoint primary schools programme. These funds were directly received by Techfest-Setpoint.

The budget supporting overall festival marketing and support for other events was managed and administered by Dundee Science Centre, with the support of the steering group representing the Abertay University, University of Dundee, SCRI, Cyclacel and Techfest-Setpoint.

A wide range of partners kindly contributed to this budget.

<i>Partner</i>	<i>Contribution</i>
Abertay University on behalf of the previous Tayside STEM Partnership	£9749
Outreach and Public Engagement Network North East	£2000
Skills Development Scotland	£2000
MRC Protein Phosphorylation Unit (University of Dundee)	£2000
Abertay University	£1000
University of Dundee	£1000
SCRI	£1000
Techfest-Setpoint	£1000
Scottish Enterprise Tayside	£1000
Dundee College	£1000
Dundee Science Centre	£1000
BioDundee	£500
<b>Total held in central budget</b>	<b>£23249</b>
<b>Total including Scottish Government and Dundee City Council contributions</b>	<b>£43249</b>

### In-kind funders

DC Thomson Ltd kindly contributed all festival brochure printing: 20,000 full colour brochure copies.

Website build, design, maintenance and hosting were all kindly contributed by University of Dundee.

The vast majority of partners contributed staff time, venues, organisations, management and marketing of their own events at no or little cost to the festival partnership. This support cannot be underestimated, and it is the enthusiasm and commitment of these partners that enabled Dundee Science Festival to take place.

Across all partners, in-kind support is valued at a minimum of £100,000.

As chair and leader of the festival partnership, contribution by Dundee Science Centre is valued at £7500.

## Costs

The central festival budget was administered in order to support partners in need of financial assistance to hold events, and to manage central functions such as coordination, PR and marketing.

All partners were invited to request funds from this budget where their events may not otherwise be able to take place.

<i>Function</i>	<i>Recipient partner</i>	<i>Cost</i>
<i>Central functions</i>		
PR	External Dundee-based PR company managed by Dundee Science Centre	£1750.00
Festival programme launch event, September 2010	Dundee Science Centre	£1000.00
Coordination: secondment of part-time administration assistant	Dundee Science Centre	£2300.00
Marketing design	External Dundee-based designer managed by Dundee Science Centre	£4522.40
Marketing banner stand and flyer print	External Dundee-based designer managed by Dundee Science Centre	£1095.00
Advertising	Managed by Dundee Science Centre	£449.50
Brochure distribution	Managed by Dundee Science Centre	£605.00
<i>Event support</i>		
Contribution towards opening lecture	British Science Association	£500.00
Contribution towards Café Science Extra and Reclaim	Dundee Science Centre	£1000.00
Contribution towards DinoDig activity	Dundee Science Centre	£800.00
Contribution towards 'The Primitive Methodist Guide to Arctic Survival'	University of Dundee zoology museum	£400.00
Contribution towards 'What has Science ever done for Dundee?'	Go Dundee/Dundee Science Centre	£500.00
Contribution towards 'Think Ink!'	University of Dundee Paper Conservation Unit	£100.00
Contribution towards Science Discovery Day	Dundee Heritage Trust	£100.00
Contribution towards Science in the Supermarket	Dundee Science Centre	£400.00
Contribution towards DSC Family Fun Day	Dundee Science Centre	£1300.00
Contribution towards Primary School Programme	Techfest-Setpoint	£12000.00
Contribution towards DISC Family Fun Day and administration of Dundee Science Centre Family Fun Day	Techfest-Setpoint	£18000.00
<b>Total costs</b>		<b>£46821.90</b>
Closing balance		-£3572.90

## Staffing

Over 200 people were involved in running Dundee Science Festival's events.

Most were paid staff members, with their time committed as in-kind support by the many partner organisations.

## 6) Evaluation

### Methodology

To assess visitor learning outcomes, a national format created by the Association of Science and Discovery Centres was used across all adult and family events, in order to provide assessment of individual events as well as an overall view of outcomes. Allocating a numeric value to responses (1-5, as below) allows averages to be acquired, and the mapping of outcomes against the Generic Learning Outcomes.

	Strongly agree (=1)	Agree (=2)	Neither agree nor disagree (=3)	Disagree (=4)	Strongly disagree (=5)
<i>I enjoyed this event</i>					
<i>I learned something new</i>					
<i>I feel that science is more interesting than I did before this event</i>					
<i>I would trust science festivals to portray science more honestly than the media or government</i>					
<i>This event has made me want to find out more about science</i>					
<i>This event has made me feel that science is relevant to my life</i>					
<i>I feel today has made me a little more confident about approaching science in the future</i>					
<i>I would recommend Dundee Science Festival to others</i>					



## Overall festival results

Outcomes show that enjoyment was the highest scoring outcome across the whole festival, with high enjoyment in all events. A great majority 'strongly agreed' with the statement 'I enjoyed this event', with a very high average outcome of 1.09. This is again reflected in the very likelihood of visitors recommending Dundee Science Festival events to others (1.2).

Feedback shows positive outcomes for all statements, with the lowest average score at 2.31 for the statement 'I feel that science is more interesting than I did before this event'. This is likely to be due to the fact that those opting to attend science festival events do so due to an already positive view of science learning. However, 2.31 remains a positive outcome, in the 'agree' range.

Overall whole-festival average scores were as follows:

Statement	Average score across the festival (in which 1 = strongly agree, and 5 = strongly disagree)
<i>"I enjoyed this event"</i>	<b>1.09</b>
<i>"I learned something new"</i>	<b>1.29</b>
<i>"I feel that science is more interesting than I did before this event":</i>	<b>2.31</b>
<i>"I would trust science festivals to portray science more honestly than the media or government".</i>	<b>1.75</b>
<i>"This event has made me want to find out more about science."</i>	<b>1.76</b>
<i>"This event has made me feel that science is relevant to my life."</i>	<b>1.64</b>
<i>"I feel today has made me a little more confident about approaching science in the future."</i>	<b>1.92</b>
<i>"I would recommend Dundee Science Festival to others."</i>	<b>1.2</b>

These outcomes demonstrate that Dundee Science Festival was effective in raising interest in science, desire to learn more, and confidence to do so, therefore affecting future and longer term engagement with science. Visitors felt a high level of trust in science festivals, and felt that the science they engaged with was relevant to their lives. Moreover, visitors felt a keen enjoyment for the events and feeling that they would be enjoyed by others. All of these contribute toward the festival's overall aim to create a culture of engagement with science.

Where visitors state areas for improvement, the main themes arising show a desire to see more events, larger audiences, and more marketing, again showing a great positivity about the festival and its future, and a desire for 'more of the same'.

It is important to recognise also the outcomes for organisers. Some venues and organisers emphasised that the festival had enabled them to hold events that they would not otherwise have been able to hold, due to the partnership approach, and availability of support funding. Moreover, some organisers cited the importance of the professional development their staff had experienced by being involved in the festival.

## Individual event evaluation

Below is a breakdown of outcomes by event, where evaluation was carried out, showing specific event outcomes.

### **Discovery of New Drug Targets for the Treatment of Disease in the 21<sup>st</sup> Century A public lecture by Sir Philip Cohen; Thursday 28<sup>th</sup> October 2010**

The event was very well attended by 120 adults representing a broad demographic, including students, academics, and the general public. Most had come from within Dundee, hearing about the event mostly through local newspaper coverage or by word of mouth. Feedback was very encouraging, with most citing the lecture content and the speaker's delivery (as well as the speaker himself) as their highlight. Others also liked that they now were aware that '*Dundee was at the fore of biological research*' and the '*progress that was being made*' towards drug discovery in the city they live in. Responses show that all outcomes were very positive, however the feeling that visitors had 'learned something new' was the highest (average 1.04) as was the feeling that the event had made visitors 'want to find out more about science' (average 1.3). When asked what could be improved, the majority of visitors said 'nothing'. Others said that the event could have benefitted from more publicity to generate an even larger audience.

Most significant learning outcomes:

- Knowledge and understanding
- Activity, behaviour and progression
- Attitudes and values

### **TechFest-SetPoint Primary Programme Monday 1<sup>st</sup> November – Friday 5<sup>th</sup> November**

Building on last year's festival, this year's successful Primary Programme offered a wide variety of workshops for 2901 primary school pupils (plus 224 adults). Workshops included 'Animal Magic' which allowed school pupils to handle unusual and exotic animals; 'Bending it like Beckham' which explained the physics behind sport; 'Cosmic Dome' which taught pupils about astronomy and the night's sky and 'Capturing Renewable Energy' which taught pupils about the importance of renewable energy and how natural power can be harnessed for energy use.

Feedback from all the schools involved (all within Dundee City and surrounding suburbs) was overwhelmingly positive, from both teachers and pupils. Whilst the workshops were very different, feedback shows that pupils appeared to thoroughly enjoy learning in a new way, whether that be through a hands-on workshop (as with the 'Bridges and Schools' engineering workshop) or through an on-site visit (as with 'All at Sea' & Discovery Point' about marine science). 100% teachers agreed that their event was 'overall efficiently organised', 'well presented' and that they were of 'benefit to pupils'.

Below are just some of many comments received from pupils who attended the Primary Programme;

- "Had a brilliant time"
- "Enjoyed learning as part of a team"
- "I wish I could do it all again"
- "Extraordinary"

Below are some of the comments received from teachers about the workshops;

- '[staff were] *enthusiastic, engaging and entertaining*'
- '*Perfectly pitched at children's level in all aspects*'
- '*Prompted good class discussion*'
- '*The children loved it*'.

### **You CAN play with your Food!**

#### **Interactive science show, Abertay University; Monday 1<sup>st</sup> November 2010**

The opening event attracted a large audience (around 120 people), around 60% of which were aged between 5 and 12. Most families were from in and around the Dundee area with most finding out about the event through the brochure. The show demonstrated everyday kitchen science in a very fun and interactive way; most said their favourite part was the demonstration of the chip pan fire; however many said the presenters and their delivery really made the show for them. Again,

responses were very positive in all outcomes however enjoyment (average 1.14) and 'learning something new' (average 1.21) both scoring among the highest. Based on the event, many 'strongly agreed' that they would recommend Dundee Science Festival to others (average 1.07).

Many said 'nothing' could have been improved, while others suggested shows such as this one become a more regular occurrence.

Most significant learning outcomes:

- Activity, Behaviour and progression
- Enjoyment, inspiration and creativity
- Knowledge and understanding

### **Dundee Arts Cafe: Avatars have emotions too! The Art and Science of believable facial animation**

**Informal talk followed by discussion; Tuesday 2<sup>nd</sup> November 2010**

The event was very well attended, with 75 people attending (most from within Dundee City), around 90% of which were aged 18-30. Visitors seemed very engaged with the topic and feedback was very positive. The majority of people asked cited the speaker as the '*best thing*' about the event, but others said that the talk was '*relevant to their studies*', or perhaps most positively others said that they enjoyed '*everything*' about the event, which was very encouraging.

Again, most had heard about the event through word of mouth; those who were students of Abertay University had heard from teaching staff, as the speaker was a lecturer and postgraduate student of the university.

Highest value outcomes were found again in enjoyment (average 1.25) and in the feeling that they 'learned something new' (average 1.5). Visitors were less likely to 'feel more confident about approaching science in the future' (average 2.25) based on what they had seen at the event, however this is most likely due to the fact that the talk was more arts based and not overtly 'science' themed. Based on what they had seen at this event however, people felt they were likely to 'recommend Dundee Science Festival to others' (average 1.37).

Most significant generic learning outcomes

- Enjoyment, inspiration and creativity
- Activity, behaviour and progression
- Knowledge and understanding

### **What has Science ever done for Dundee?**

**Discussion and networking event, Dundee Science Centre; Wednesday 3<sup>rd</sup> November 2010**

Held at Dundee Science Centre by Go Dundee, the event was attended by 35 adults, many of whom were professionals working in science and the public sector and education. The majority of people who attended came from Dundee city (72%) while the rest came from Fife and Perthshire. Most had either heard about the event through word of mouth, through university email, or through Go Dundee itself. Feedback was excellent, with attendees citing the '*networking opportunities*', the '*interaction*' with scientists, as well as '*learning new stuff*' as their main highlights. Highest value outcomes were in enjoyment (average 1.1) and the feeling that visitors had 'learned something new' (average 1.1). Visitors also felt this particular type of forum provided an example of how science festivals could be trusted to 'portray science more honestly than the media or government (average 1.4). Most visitors commented that '*nothing*' could have been improved, or that they would like '*more of the same*' type of events held. Amongst other feedback was that the event could have benefitted from '*increased publicity*' in order to secure a larger audience for such as well-received event.

Most significant learning outcomes

- Enjoyment, inspiration and creativity
- Knowledge and understanding
- Attitudes and Values

### **Riddle of the Mast Cells**

**Public lecture, Ninewells Hospital; Thursday 4<sup>th</sup> November 2010**

The lecture attracted 30 people, aged between 20 and 60, both academics (predominantly from medical sciences) and general public. Most had heard about the event through word of mouth, and so were mainly from within Dundee city itself; although some had travelled from as far as Edinburgh and Glasgow. Enjoyment was high (average 1.15), with many commenting they enjoyed the content

of the lecture most of all, with some commenting that they found the lecture and the speaker *'entertaining'*. Scores were lower for statements that suggested the event made visitors feel that 'science is more relevant to my life' (average 2.07) however this is due to the high proportion of scientists and academics in the audience. When asked what could be improved, many said *'nothing'*; while one visitor said that events like this lecture should continue, in order to *'emphasise local scientific personalities'*.

Most significant learning outcomes:

- Enjoyment, inspiration and creativity
- Activity, behaviour and progression

### **Think Ink!**

#### **Ink-making workshop, Dundee Science Centre; Saturday 6<sup>th</sup> November**

This small workshop provided visitors to learn about ink making, and the processes involved in maintaining an archive. Although it was part of a day of multiple events, and attracted a comparatively small audience (two adults, one teenager, and two children), those that did attend thoroughly enjoyed the event.

Everyone who attended strongly agreed that they enjoyed the event and all felt that they had 'learned something new'. Visitor comments were positive, with visitors mentioning the *'expertise of the staff'* and the hands-on approach as among the 'best things' about the event; there weren't many improvements suggested although one visitor suggested that, if anything, the workshop should last a little longer.

In addition, the conservators involved felt that they have experience a positive professional development opportunity, having had support from science centre staff to develop the activity as part of the festival.

Most significant learning outcomes;

- Enjoyment, inspiration and creativity
- Knowledge and understanding

### **Visit the Wellcome Trust Building**

#### **Wellcome Trust Building, University of Dundee; Saturday 6<sup>th</sup> November**

This event gave the public unique access to the Wellcome Trust building, the hub of scientific research in Dundee. The open day included detailed tours of laboratories, DNA-themed activities for children, and a new exhibit made to explain how scientists can interpret the human genome. The open day was part of a bigger day of events, therefore visitor numbers were not as high as other events in the festival (with around 20 visitors), however the visitors (both old and young) who attended appeared to thoroughly enjoy their visit. Visitors represented both those who worked within the Life Sciences, and those who had no background in science; the accessibility of the exhibits meant that there was something for everyone.

### **Science Discovery Day**

#### **Discovery Point; Saturday 6<sup>th</sup> November**

The event was well attended, reaching over 200 people from Dundee and surrounding areas. According to feedback, most visitors had found out about the event via the brochure.

Organisers reported that visitors seemed very engaged in the 'Science Trail' and 'Mystery Object Hunt' activities aboard RRS Discovery. The opportunity to handle historic objects (usually kept in display cases) from the ship also proved very popular. Having staff and volunteers on hand to explain the displays in greater detail made for a more personal interaction and was appreciated by visitors.

Organisers commented that they enjoyed being part of the festival, and couldn't have run an event like this without the financial support of Dundee Science Festival Partnership. They also said that they would look forward to being part of the festival again, next year.

### **Curator's Favourites**

#### **McManus Archives Tour; Saturday 6<sup>th</sup> November 2010**

The event had a small capacity due to the nature of the tour (10), however not only was the event fully booked, but extra visitors turned up on the day, leading to 13 attending in total. The majority of visitors had travelled from Fife especially for the event, hearing about the event through the brochure and through social media. Enjoyment was among the highest outcomes (average 1.0) as well as the feeling that they had learned 'something new' (average 1.5). Visitors commented that the tour was

'very informative' with a high feeling that the event had made them 'want to find out more about science' (average 1.5). Although outcomes were lower for feeling that science was 'more interesting than before the event' (average 2.5) this is thought to be due to the fact that those who attended already had an interest in science.

Most significant learning outcomes;

- Enjoyment, inspiration and creativity
- Knowledge and understanding
- Activity, behaviour and progression

### **Family Fun Day**

**Dundee International Sports Complex; Saturday 7<sup>th</sup> November 2010**

The day was a great success, attracting 1343 visitors, the majority of which were families from Dundee, and surrounding regions. The majority had heard about the event by picking up a brochure or leaflet, although others had heard about the day through their school, via word of mouth and through local press. Some visitors had commented that they had enjoyed the event last year and were keen to attend again this year. Comments were very positive; many remarked upon the variety of things to do and how interactive the exhibits were. Visitors were also impressed at how the whole event was free, helping to make science more accessible to the general public. Many commented on individual stands or exhibits, the most popular of which was 'Mr Bug': a demonstration which enabled children to handle exotic animals. Enjoyment scored very highly (average 1.23), and many also felt that as a result of attending the event, they had 'learned something new' (average 1.37). Many also agreed that this event made them feel that science festivals could be trusted to 'portray science more honestly than the media or government' (average 1.59). Suggested improvements included that the event should be '*even bigger*', whilst some suggested that the booking procedure could be improved, as some families missed out on attending some of the shows, and would have liked to attend more..

Most significant learning outcomes

- Enjoyment, inspiration and creativity
- Knowledge and understanding
- Activity, behaviour and progression

### **Forensic Science Roadshow**

**Kirkton, Menzieshill and Douglas community centres; 8<sup>th</sup>, 9<sup>th</sup>, 11<sup>th</sup> November**

The Forensic Roadshow was held at 3 different community centres across Dundee, allowing 250 people to learn more about DNA extraction, anthropology and forensic science. Despite the poor weather conditions, all of the roadshows were very well attended, with people of all ages attending. The roadshow was a great opportunity to bring science into the community, bringing university research to a new audience. The event was very hands-on, and offered a real variety of activities for visitors, from fingerprinting and crime scene investigation to graphology.

Feedback was excellent, with organisers commenting that the event '*brought a real feel-good buzz*' to the community. Scientists at the event also commented at the broad demographic; '*I helped people from age 4 to 84 extract DNA from their cheek cells!*'.

### **The Primitive Methodist Guide to Arctic Survival, by Helen Keen**

**Comedy show, University of Dundee zoology museum; Tuesday 9<sup>th</sup> November 2010**

This event was fully booked and attended by 40 people, aged from 13 to 70 (mainly aged 25+). Roughly two thirds were from Dundee, and others travelled from Perth, Fife and Abernethy. Most had heard of the event via word of mouth, and the rest mainly through picking up the brochure.

Feedback was excellent, with strengths cited largely as it being '*funny*', '*fun*', and '*a lovely break from the science*'. Many said that '*nothing*' could be done to improve this event.

Responses show that the highest value outcomes were in enjoyment (average 1.14) and willingness to recommend the festival to others (1.3). There was a high level of feeling that 'I learned something new' (1.42). Visitors were less likely to experience strong attitudinal change (average scores 2.3-2.5), though this is to be expected due to the fun and irreverent focus of the show.

Organisers' feedback emphasises that this event could not have taken place without being part of Dundee Science Festival.

Most significant generic learning outcomes

- Enjoyment, inspiration and creativity
- knowledge and understanding

- Activity, behaviour and progression

### **3 Things you need to know to live to 100**

**Lecture by Professor Marion McMurdo, West Park Conference Centre; Wednesday 10<sup>th</sup> November**

This informal lecture aimed to teach people about how best to live a long, healthy life, based on the research of Professor McMurdo. Although the lecture was scheduled in the afternoon, it received very high attendance figures (approximately 220 people) and very positive feedback overall. Like the lecture given by Sir Philip Cohen to open the festival, this event gave visitors the opportunity to learn more about the most up-to-the-minute research, which otherwise they might not have the access to.

### **BioDundee Quiz Night Wednesday 10<sup>th</sup> November**

This quiz night for the science industry demonstrated the variety of events on during the festival. Held by BioDundee (partly funded by ERDF), this event was attended by those working within the Life Sciences sector. Organisers reported that the event was well attended (90 people) and was very successful, not only as a quiz night, but also as an opportunity for participants to network and make professional contacts.

### **Cafe Science Extra: 'I am the boss of me...' Informal talk followed by discussion, Infusion coffee shop, Dundee Science Centre; Wednesday 10<sup>th</sup> November 2010**

The event was attended by a capacity audience, attracting 75 people aged 18-70. The event was attended equally by those from Dundee and those from outwith the city, of which most were from Fife. Most had heard about the event through University of Dundee emailings, whilst others had heard mostly via word of mouth.

Feedback was very positive, with most citing the speaker and the discussion that followed as the best elements of the event. Others mentioned the '*friendly atmosphere*' and '*the presentation of real research*' as highlights, with the majority saying '*nothing*' could be improved upon.

The highest value outcomes were found in enjoyment (average 1.36) and learning something new (average 1.36). Visitors were less likely to claim that they found 'science to be more interesting than before' (average 2.6), however this reflects that the majority were already science enthusiasts before attending the event. Most encouraging is the likelihood of visitors recommending the festival to others, which also scored highly (average 1.27).

Most significant generic learning outcomes

- Enjoyment, inspiration and creativity
- Knowledge and understanding
- Attitudes and values

### **Reclaim**

**Adults-only event at Dundee Science Centre, Wednesday 10<sup>th</sup> November**

The majority of visitors were from Dundee itself, whilst those who weren't were predominantly from surrounding Fife.

Reclaim followed directly on from Cafe Science Extra, and, again attracted a varied audience (aged 18-60). Although slightly quieter than Cafe Science Extra, attracting a further 30 visitors, feedback from those who attended was very positive. The event was varied also, featuring a local poet, a talk on the Enlightenment photography exhibition, as well as a Science, Arts and Writing Workshop (SAW). Enjoyment was rated highest among outcomes polled (average 1.4), as well as the feeling that they had learned something new from the event (average 1.5).

The vast majority of visitors had heard about the event through word of mouth (85%) whilst the rest had been made aware of the event through the brochure.

Highlights for visitors were Mindball and the Planetarium show, although others mentioned that they enjoyed the hands-on activities featured in the SAW workshop. Suggested improvements were also positive, with the majority stating '*nothing*' could be improved (64%) and others stating they wanted '*more of the same*'.

### **Recording the Past, Present and Future: Science in the University Archives Thursday 11<sup>th</sup> November 2010**

One of the festival's smaller events (with 6 visitors), this event allowed visitors the unique opportunity to go 'behind the scenes' of the university archives, learning more about the research that the University of Dundee has been involved in over its history. Although tours were on a small scale, organisers commented that visitors were very engaged in the tour, and they seemed very interested in the materials they had on display.

### **Mills Observatory – Family Fun Night Thursday 11<sup>th</sup> November 2010**

Attended by over 70 people, largely in family groups, the family fun night was a real success. Organisers commented that, despite the very bad weather, it was much busier than any open day held previously, attracting approximately three times the usual number of visitors. Enjoyment was among the highest outcomes (average 1.0), as well as the feeling that they had 'learned something new' (average 1.0). While fewer felt the event made them feel that 'science is relevant to my life' (average 2.0) this is most likely due to the nature and topic of the event. Most cited the activities available for the children as their highlight, which included a planetarium show (which one visitor commented had a good mix of '*information and lots of humour*'). Suggested improvements were that shows should last longer, whilst one visitor suggested that the night should be held again, but perhaps on an in-service day, perhaps to attract a wider audience. Again, suggestions for improvements show a desire for more of the same.

Most significant generic learning outcomes;

- Enjoyment, inspiration and creativity
- Knowledge and understanding
- Activity, behaviour and progression

### **Physics in Dundee: Past and Present Tour, University of Dundee, Friday 12<sup>th</sup> November 2010**

Organisers commented that although numbers were smaller than they had hoped (10), the visitors they had were very enthused and interested in the tour and in the exhibition. The event attracted mostly older adults, aged between 40 and 60, one of whom had a relative who worked previously in the department and was interested in what was happening there now. Although some had attended specifically to go on a tour of the department, others were there to look at the exhibition on the history of physics in Dundee. Both aspects of the event attracted great interest, and the questions asked of the organisers show a great interest and engagement.

### **Life Science Sampler Day Dundee College; Friday 12<sup>th</sup> November**

The 'Life Science Sampler Day' allowed 15 secondary school pupils to learn more about laboratory skills and what they could expect if they chose to pursue a future in science. The workshop helped to supplement classroom learning by allowing pupils to experience and practise techniques used by life scientists, including electrophoresis and spectrophotometry. As the workshop was small (limited places were available) pupils had the opportunity to fully interact with scientists and have a real 'hands-on' experience. Feedback was very positive, with one teacher commenting that all pupils who attended would wish to take part in similar activities again in the future. Very encouragingly, one pupil also commented that, having attended the event, they now wish to apply to Dundee College to pursue a qualification in biology.

### **Fantastic Fossils Interactive family workshop, The McManus; Saturday 13<sup>th</sup> November 2010**

This workshop proved a huge success, with organisers commenting that it could have been booked 'many times over'. Although the workshop was part of a larger day of events, it was still fully booked with 20 attending, and received very positive feedback from those that attended. Many stated they liked the hand-on nature of the workshop and the clay modelling of the fossils children could take home with them. The feeling of 'learning something new' was high (average 1.2) and many felt this event had made them 'want to learn more about science' (average 1.4). Many stated 'nothing' could have been improved.

Most significant learning outcomes

- Knowledge and understanding

- Activity, behaviour and progression

### **How clean are your hands?**

#### **Drop-in sessions, Dundee Central Library; Saturday 13<sup>th</sup> November 2010**

The event was well attended, with approximately 100 people 'dropping-in' to learn more about hand-washing. As the event was held at the library, it enabled people to 'stumble upon' the demonstration, attracting an audience that perhaps had not planned attend a Dundee Science Festival event. A very small sample of those that attended were polled, however it was clear that they had enjoyed the session (average 1.5), and had learned more about the importance of good hand hygiene ('learning something new', average 1.75).

Most significant learning outcomes

- Enjoyment, inspiration and creativity
- Knowledge and understanding
- Activity, behaviour and progression

### **Time for Nano – Continuing Professional Development Session for Teachers and Educators Dundee Science Centre, Saturday 13<sup>th</sup> November**

This event allowed teachers (and others working within the education sector) to learn about the field of nanoscience, as well as giving them the tools (in terms of knowledge and educational resources via a complimentary 'Nano-Kit') to transfer their knowledge to the classroom. The session was attended by 16 delegates including secondary teachers, undergraduate teaching students and a university researcher. The majority were from Dundee, although some came from Glasgow and Aberdeen. Feedback was very positive, with delegates commenting most on the interactive nature of the session, and the access they had to such a wealth of resources. Others commented on how the session enabled them to learn from others (including fellow teachers) and gave them the ability to share ideas and methods on how best to engage pupils with the skills they had gained on the day. One delegate described the event as "*one of the best [training sessions] I have had on nano technology*".

In terms of improvements, some delegates suggested simply that they would like a longer session, to allow more discussion and practice.

### **NanoDay**

#### **Dundee Science Centre, Saturday 13<sup>th</sup> November 2010**

Run in tandem with the 'Time for Nano' training, NanoDay gave visitors to Dundee Science Centre the opportunity to learn more about nanoscience through hands-on experiments and demonstrations. Although it was one of many events that were held on the Saturday, NanoDay was well attended with over 200 visitors. Staff feedback shows that visitors engaged well with the experiments, and were very interested in how nanotechnology is used and applications in everyday life.

### **Science in the Supermarket, Morrison's Science demonstrations, Sunday 14<sup>th</sup> November 2010**

The event reached a large number of people (approximately 130) and organisers felt it succeeded in encouraging the public to get involved in science and try some experiments at home with everyday materials and household equipment. People appeared enthused in the science experiments, with one family coming to the event after attending the Family Fun day at Dundee Science Centre (held on the same day) so as not '*to miss out on anything!*', which is very encouraging.

### **Family Fun Day at Dundee Science Centre Sunday 14<sup>th</sup> November**

The second free family day, Dundee Science Centre's Family Fun Day incorporated hands-on demonstrations and workshops, as well as allowing visitors a final opportunity to try DinoDig and see the Enlightenment photography exhibition.

The fun day proved very popular, with 831 visitors, mainly in family groups, and the majority of whom had come from Dundee (other visitors were mostly from Fife or Perthshire). Most had found out about the event through word of mouth, however some had also heard about the event by picking up our brochure, and also through visiting the Family Fun Day at DISC held the week before. Enjoyment was among the statements scoring most highly (average 1.5), with most visitors also feeling that they

'learned something new' from the event (average 1.9). Most visitors said that they would be likely to recommend Dundee Science Festival to friends and family (average 1.19).

When asked about the 'best thing' at the event, visitors appeared to enjoy the interactive, hands-on element of the centre and the demonstrations available, as well as the range of activities on offer. Visitors also liked that the event was admission free, when there was so much to see and do.

In terms of improvements, of the most popular comments was that, because the event proved so popular, it should be held more frequently. Other comments were based more on the organisation of the day, with some visitors suggesting additional workshops could be scheduled, to enable the maximum number of visitors to participate.

Most significant learning outcomes:

- Enjoyment, inspiration and creativity
- Knowledge and understanding
- Activity and Progression

### **Enlightenment**

#### **Photography exhibition, Infusion coffee shop, Dundee Science Centre; throughout the festival**

This exhibition was another example of the breadth of events and exhibits on offer at Dundee Science Festival. The exhibition was a collection of science-inspired photographs, by photographer David McIntyre, who aimed to show the 'Art of Science'. Open throughout the full festival, with free admission, it is conservatively estimated that 500 adults experienced the exhibition.

Feedback from visitors was very positive (a selection of which can be found below) with many commenting not only on the quality of the photographs, but also how thought-provoking the exhibition was. During Reclaim (an adults-only evening held at Dundee Science Centre), one of the creators of the collection gave a talk on the inspiration behind the photographs and how the collection was brought together. The talk received very positive feedback, with some claiming this was their highlight of Reclaim. Below are some of the comments received;

- *'Fantastic way to bring science research to a new audience'*
- *'Amazing collaboration of science and art; stunning photographs'*
- *'I love the way ideas are juxtaposed to create meaning'*

### **DinoDig**

#### **Children's activity, Dundee Science Centre; throughout the festival**

This exhibit ran throughout the festival, as a drop-in workshop, giving young visitors the opportunity to learn about palaeontology. DinoDig was visited by approximately 650 visitors. Feedback was again very positive, with many visitors commenting on the interactive nature of the exhibit, with children learning independently, by unearthing the dinosaur skeleton. That said however, whilst children were discovering about dinosaurs independently, other parents commented that they enjoyed helping their children and having the opportunity to get involved too.

Most significant learning outcomes:

- Enjoyment, inspiration and creativity
- Knowledge and Understanding

For further information:

Hannah Crookes

Director of Science Learning and Public Engagement

Dundee Science Centre

[hannah.crookes@dundeesciencecentre.org.uk](mailto:hannah.crookes@dundeesciencecentre.org.uk)