



Summary evaluation

March 2009 I'm a Scientist event sponsored by Bristol University

About the Event

I'm a Scientist gets school students talking to real scientists, online, for two weeks, and then lets the students decide which scientist gets £500. This really gets young people thinking about issues in science, and makes them feel that their opinions count.

We believe that giving young people the skills and, importantly, the confidence, to discuss their views will have a long term effect on public engagement with science. And that getting past stereotypes and giving students an insight into the excitement of working in science encourages them to consider studying and perhaps working in science themselves.

This, second ever, I'm a Scientist event was run as part of National Science and Engineering Week, with the kind sponsorship of Bristol University and the continuing support of the Wellcome Trust.

Activity levels

Dates	2 nd 13 th March 2009
Classes	20
Registered users	434
Questions asked	326
Page views	24,318
Total visits	1,913 visits by 1,007 unique visitors
Average visit	12.71 pages viewed during 13:25 minutes on the site
Live chat	8,108 lines by scientists 10,855 lines by students

To find out more, contact Sophia Collins, Event Producer, on 01225 869413, Sophia@gallomanor.com. Or visit the event site www.imascientist.org.uk.
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Commentary

This was another very active event. Most of the schools (9 out of 12) had taken part in the event before, but in several cases different teachers were involved, so overall, just over half of the teachers had taken part in the pilot. This gave a nice mix of teachers who knew what to expect and were perhaps using more parts of the event, and other teachers who were learning as they went along. None of the students or scientists had taken part before.

Students asked a huge variety of questions – ranging from questions on the scientist's work ("How is your research on tuberostemospironine going?"), to general science questions, ("Could a large dose of francium blow up a building?") and questions about social or ethical issues, ("Are you for or against other scientist like yourself, investigating whether or not embryonic stem cell and/or adult stem cells could be used to cure/prevent Alzheimer disease?"). There were also many questions about the scientists themselves. Students wanted to know about the scientist's feelings about science and their jobs, what their jobs were like, day to day, how they got into science and what the scientists were like as people (interests, favourite foods, most embarrassing moments).

This shows young people using the event exactly as intended – to really break down barriers and realise that scientists are people they can relate to. ("Before I just thought that scientists were really brainy and old. Now though, they seem more real as we got to find out what exactly they do, and that they are real people!"). You can see in some of the live chats how friendly the exchanges are and how much the students are excited about 'meeting' the scientists: -

Live Chat: Fri 6th March, 11.02am
Class: Long Eaton School Year 11s

Hayleee:	Hi Nizar we voted for you :)
Jazzy.P:	nizar your cool u dont need to win
Jake-luva123:	Gillian-- VOTING FOR YOU!!
RachSarahLol:	we love you christine (:

It's striking how being able to relate to the scientists in an informal way opens the door to young people to ask all sorts of questions. For example, having established a friendly relationship many young people took the opportunity to ask the scientists' careers and study advice: -

Live Chat: Monday 9th March, 1.20pm
Class: Woodkirk High School Year 9s

dancinglover:	was it good at oxford mark?
Mark Roberts:	amazing - really glad i went there!!! Also was full of normal people which was not what I expected
becky92:	mark, so if i went to Oxford, there could be a chance i would be in your class?

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Live Chat: Friday 6th March, 12.17pm,
Class: Riverside FE College BTEC Forensic Science

Christine Cooper: I went to York and did a masters in chemistry, and chose to do forensics as an option, I really enjoyed it and seriously thought about a career in it
IncySpid: i'm thinking about going to york uni now, just so i can say i know you :P

Some of these young people have never had the chance to talk to real scientists (or, for example, someone who's been to Oxford) before. You can see how this connection makes studying at University seem more tangible and less intimidating. Mark Roberts is involved with the Sutton Trust and made a point of telling students about their work and opportunities like summer schools. Most students had never heard of the Sutton Trust before but, again, now felt they had someone they could ask questions about it: -

Q: I'm very interested in applying for the Sutton Trust Summer school, i meet all the criteria needed apart from age, i will be 18 when it takes place. Would that affect my chances of being accepted and is it still worth applying?

A: Cool - glad you're interested. I don't deal with the application process as I just run the school when you arrive so I'm not 100% sure of the answer. As far as I know it's not how old you are - just that you have to be in year 12 at the time of applying. If you are and are still not sure try e-mailing sutton.trust@admin.ox.ac.uk and asking them what to do. Hope that helps and hopefully see you in the summer!

Similarly, students were taking the opportunity to ask advice on what to study: -

Q: did you do maths at A level? would you say a degree in maths is too broad for when i graduate and look for a job? or would you say it covers many areas? as i want to be a pilot in the army air corp and i considered doing a degree in aeronautical engineering but i was scared that when i come out of the army there would not be a lot of job opportunities? what would you suggest? thanks

A: Yes, I did maths at A-level and I would say doing a degree in maths is an excellent thing to do. One of the great things in maths is that it teaches you to think in a very logical consistent way and - even if you don't go into a career that's directly involved in doing mathematics - that way of thinking is something that's very valued by employers. There are lots of career opportunities for people that are good at maths and thinking through problems - some of which might surprise you! Of course I might be a bit biased here so you should talk to other people and hear their opinions too :)

Another striking thing is how the online interaction can change class dynamics, teachers often find quieter students can be more forthcoming.

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"One student who seems to have little personality in class and is *extremely* quiet was the focus of the class chat - he really did get into it & the others were directing all sorts of questions / points to him! I really do need to get more online discussions into my lessons."

And it can capture the attention of normally disengaged students and allow teachers to see a different side to their students.

"I saw an enthusiasm from some I've never seen before! And my weakest AS student has desires to be a marine biologist, well I never! Will have to make sure she passes this year then. She is coming to my support session today for the 1st time ever."

We believe that it is this combination of factors which makes for a real depth of engagement with science.

- Exciting and intimate medium for interaction
- Real scientists and real science
- Taking young people seriously and giving them actual decision-making power
- Supported by thought-provoking classroom discussion activities

Which scientists took part?

WINNER: Gillian Hamilton
University of Edinburgh

I am looking at the genetic differences between people and whether these can result in a person developing Alzheimer's disease.

RUNNER UP: Mark Roberts
University of Oxford, Lincoln College
I work on the bacterial sense of smell.

Caroline Grainger
University of Bristol
I'm an organic chemist. We work out the recipes to make new medicines.

Nizar Drou
John Innes Centre
I am a Bioinformatician working on the B.rapa genome sequencing project , which is an international genome sequencing effort.

Scott Grandison
University of East Anglia
I am interested in thinking about living organisms as if they were mechanical devices and studying the changes that they go through as they grow and develop.

Christine Cooper
University of Bath
Research into catalysts to force molecules to take a highly specific 3D structure.

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Which schools took part?

School	Location	Number of classes	Age group	Ability
Addey & Stanhope	Lewisham	2	Year 9	top
Heanor Gate Science College	Heanor, Derbs	1	Year 9	top
Hetton School	Sunderland	2	Year 9	middle
The Ridings High School	Winterbourne, Bristol	2	Year 9	top
The Samworth Church Academy	Mansfield	1	Year 9	top
Werneth School	Stockport, Greater Manchester	2	Year 9	mixed
Woodkirk High Specialist Science School	Tingley, Wakefield	1	Year 9	middle
Bury St Edmunds County Upper	Bury St Edmunds	1	Year 10	lower
Oak Lodge Special School	London	1	Year 10	lower
The Long Eaton School	Long Eaton, Derbs	1	Year 11	top
The Samworth Church Academy	Mansfield	2	Year 11	top
Longsands, St Neots	St Neots, Cambs	2	Year 12	top

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What did participants get out of taking part?

There's little point in repeating the same analysis we have already done for the pilot event, in the same depth¹. However, we have gathered feedback data, both to check that the event is still achieving its aims and to contribute to future evaluations of the whole project. The following is a brief summary of that feedback.

- Student feedback questionnaires from 53 students (out of 434 users, 12% return rate)
- Teacher feedback questionnaires from 9 teachers (out of 14 teachers taking part, 64% return rate)
- Scientist feedback questionnaires from 5 scientists (out of 6 scientists taking part, 83% return rate)

Feedback from Young People

Most young people (46 of 53) thought the event was very or quite interesting.

Most (48 out of 53) said their understanding of what scientists do is better or much better than before taking part in the event.

Most (37 out of 53) said their understanding of How Science Works is better or much better than before taking part in the event.

Most (34 out of 53) said they now feel more confident, or much more confident, in debating science issues.

Most (49 out of 53) liked the format of the project.

Most (41 out of 53) would recommend it to a friend.

You can see that the students' response to the event is overwhelmingly positive.

Some of their text responses give an idea of why this is, what students liked about it and what they got out of it.

Interacting with scientists

It's often assumed that young people don't want to talk to scientists. Actually, it seems they do. By far the most popular answers to the questions 'Which activity did you learn the most from?' and 'What did you like about the event?' were simply about the fact that students got to talk to scientists: -

"Talking to the scientists and finding out what they do"

"The way students can get involved with the scientists."

"It was something different and new to try, I've never talked to real scientists before"

¹ Please feel free to read the 126 page evaluation report on the pilot if you wish to know more (<http://www.imascientist.org.uk/?lid=6129>)

33 out of 51 responses to 'what do you like about the event?' were direct references to live chats or to interacting with scientists.

Students particularly liked the fact that they were being taken seriously: -

"They answered our questions"

"Being able to vote as a child and make a difference."

"I liked the fact that the activities were also for us, and that we played a really big part in it."

And the familiarity and semi-anonymity of the medium makes a big difference: -

"Getting to talk to them was great as we got to really ask the questions we wanted them to answer."

"i think that is was good because when we had a live chat because we could ask questions and they answered them and they we very honest and answered all the questions."

Challenging stereotypes

Just by 'meeting' some real scientists, students have their ideas about science challenged.

"Before I just thought that scientists were really brainy and old. Now though, they seem more real as we got to find out what exactly they do, and that they are real people!"

"It surprised me that these scientists were just like real people!"

Giving power to young people

It's moving how responsive young people are to being taken seriously and given a say about something.

"[What surprised me was] the time the scientists had for younger children."

"[What surprised me was that] the pupils were allowed to choose who they wanted and no-one could stop you."

What did young people learn?

Young people learnt some key How Science Works (HSW) concepts and skills

"I have learnt that many issues in science are debatable and science is important in everyday life."

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And their answers make clear how learning How Science Works ideas is often intertwined with the rest of the curriculum

"I learnt the most from the IVF debate. This is because I learnt more facts about what it is and what the treatment offers. I also learnt more about the different opinions that people had for this treatment. *It made me think more about everyone's opinion.*" (my italics)

How did young people choose the winner?

Some students were perhaps not taking it that seriously: -

"Christine cos she had a frog on her head."

"Cause he had cool hair"

Others had a mixed approach: -

"Nizar has cool hair, scientific name and good ideas for science."

But many had earnestly taken the responsibility very seriously: -

"To decide on a scientist I read through their pages carefully, and tried to balance my own personal opinion of their experiments with the importance of them and how they would help things in the present and future. I also tried to understand who had the most passion for science and their experiment as this would show me that with the money they would do well and hopefully have a success."

"I thought it would be more value to science and the world."

This kind of utilitarian reasoning was most common (where reasoning was given). The other common kind of reasoning was about the personality of the scientist, particularly how they'd interacted with the students: -

"I voted for Caroline because i think what she studied was amazing and she seemed really nice and was very good at her area."

"Answered our questions truthfully and made sure that we understood what they did and such."

"The one who seem the most interested in us as well as their results"

This may be useful information for future participants, and other scientists engaging in public engagement work.

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Feedback from Scientists

NB One scientist has not filled in the feedback survey. For the sake of convenience I will refer to 'all scientists', rather than 'all scientists who completed the survey', but please bear in mind that the remaining scientist may have given a different answer.

All scientists:-

Thought Live Chat was the best part of the event for communicating with students

Enjoyed taking part in the event

Would take part again and would recommend it to a colleague.

What did scientists get out of taking part?

Scientists usually give the following three reasons for wanting to take part in the event.

- 'Give something back'
- Improve their communication skills
- Have fun

Were any of these achieved?

- 'Give something back'

"I think it humanised scientists and perhaps made some of them realise it's a viable career option when they might not necessarily have considered it before."

"The students found out more about the different science related jobs that are out there. When I was at school I thought that science led you to being a doctor or a teacher and not a lot else."

"Great event and one that I felt can have an impact for a change. There were no targets set to us scientists and this way we all focused on communicating with young people, and their response was exceptional, original and highly motivating, more importantly, it felt that they gained a lot from the experience."

- Improve their communication skills

"It was good experience learning how to pitch the science at the right level for the students to understand."

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"It's made me think about my work more in layman's terms to try and explain it properly."

[I gained] the ability to explain and communicate what I do to other people who are not related to my field."

- Have fun

"Just getting the opportunity to interact with students was very informative and a lot of fun"

"I thoroughly enjoyed it and it was great to chat to the students."

We've also found, both with this event and our sister event, I'm a Councillor, Get me out of Here!, that there are other, unexpected, outcomes for participants.

- Develop greater enthusiasm for public (or youth) engagement

"I haven't done any sort of public engagement activity before... It's certainly encouraged me to do more in the future."

"I have a new sense of respect for young people. I think they are very intelligent and highly perceptive."

- Found it thought-provoking and inspiring

"I got a tremendous amount out of it, and I think I probably learnt a lot more from the students than they learnt from me! The questions they asked were challenging and stimulating and in some cases they have made me think about science in a different way."

"A new sense of enthusiasm about what I do."

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Feedback from Teachers

All teachers thought their students now have a more nuanced view of science
All teachers thought their students now have a more positive view of science
Most teachers (7 out of 9) thought their students now feel more able to debate and discuss science issues

Most teachers (7 out of 9) thought the event was good, or excellent, at making their life easier as a teacher
Most teachers (8 out of 9) thought the event was good, or excellent, at inspiring and engaging students
Most teachers (7 out of 9) thought the event was good, or excellent, for teaching "How Science Works"

Every teacher would take part again and recommend the event to a colleague.

What did teachers like so much about the event?

Enthusiasm from students

"Enthusiasm for science and hearing that some pupils were considering science at college and beyond."

"Pupils keen to come to science and take part"

"The students loved it!"

Real engagement from students

"The live chat was the most effective thing to make them engage i think because it is a medium they are familiar with and because they weren't physically face to face with the scientists they didn't feel intimidated and felt they could ask questions."

"I've had some other kids stop me in the corridor to ask who got evicted on a particular day! The fact that the students can relate to some of the scientists really helped - students found scientists who lived here in Yorkshire, who liked the hobbies they did eg dancing etc!"

"a different approach to learning which was really enjoyable"

Scientists were 'humanised' for pupils

"They really enjoyed the live chat session. They couldn't believe that real scientists were taking time to talk to them. They were also very surprised that scientists can be young people!"

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"The idea that scientists are real people, not just boffins in a lab."

"They realised that scientists are human beings just like them."

Effective at teaching How Science Works and developing students skills and confidence to debate science issues

"[My students gained] the opportunity to meet real scientists and discuss their research and progression routes. Skills of debate. Insight into some 'hot topics'."

"The pupils were more inclined to question and will ask about things they have seen in the news."

"They realised that their ideas and opinions are valid"

"speaking to "real scientists" was a great experience for them and I felt the level of some of their questions higher than those which they might normally have asked"

Effective supporting materials made their jobs easier

"Several lessons worth of material! Seriously, an enthusiasm boost at a difficult time of year - run up to exams, coursework pressure etc. It's good to do something a bit different."

"Opportunity to focus on HSW, not content."

"my 6th form did the IVF debate today ... their response..... can we do another just as successful as least year! I love it ... it is so simple to use and the kids love the role play."

Teachers appreciated that they have been included in the development of the project

"I love IAS, and drink from the mug daily. I feel like I'm a part of it, and not just a participant. Thanks for taking teacher's comments so seriously!"

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