

science4u.info Schools Science Conference 2011

Science is the Future

Scientists and Healthcare Professionals showcasing exciting careers in science

Thanks to the following organisations and their staff for this year's event

Association for Clinical Biochemistry
British Society for Immunology
Bucks New University
Central London Community Healthcare NHS Trust
Great Ormond Street Hospital for Children NHS Trust
Guy's and St Thomas' NHS Foundation Trust
Imperial College Healthcare NHS Trust
London Ambulance Service NHS Trust
STEMNET
NHS Blood and Transplant (NHSBT)
NHS Improvement - Diagnostics
North Middlesex University Hospital NHS Trust
Royal Free Hampstead NHS Trust
St George's Healthcare NHS Trust
The Institute of Biomedical Science
The Royal College of Pathologists
The Royal Marsden NHS Foundation Trust
University College London Hospitals NHS Foundation Trust
Wellcome Trust Sanger Institute
West Middlesex University Hospital

Organising Group 2011

Kimberly Gilmour (Chairman)
Great Ormond Street Hospital NHS Trust

Don Henderson (Founder)
Imperial College Healthcare NHS Trust

Sue Alexander
The Royal Marsden NHS Foundation Trust

Manfred Almeida (Treasurer)
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Mike Carter
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Sharon Gage (Event Organiser)
SRG Project Management

The 8th Annual Schools Science Conference is presented by science4u.info in partnership with The Royal College of Pathologists



Correction! Apologies to The Association for Clinical Biochemistry who are incorrectly credited on page 3

Continuing Professional Development
This event is accredited with 10 CPD points for Scientists by the Institute of Biomedical Science



Chairman's Report

The 16th of March dawned bright and sunny as 90 programme volunteers prepared to show 250 secondary school students that Science is the Future.

Registration was swiftly followed by Don Henderson's opening address. This was our 8th annual conference and the second in this prestigious building. There was a real buzz of excitement and anticipation from the students and presenters. Throughout the day, the Royal College of Pathology hummed with discussion and laughter as the students talked to distinguished speakers, tried some science tricks and interacted with volunteer scientists.

There were four exciting sessions:

Science is the Future

Four leading scientists discussed their work telling the students about science in the future: Professor Dame Nancy Rothwell (President & Vice-Chancellor, The University of Manchester) discussed new discoveries in brain disease; Dr. Kevin Fong (Lecturer in Space Medicine, University College London and Consultant Anaesthetist, University College Hospital) talked about science as life's ultimate launch pad; Professor Iain Hutchinson (Consultant Oral and Maxillofacial Surgeon, St Bartholomew's and The Royal London Hospitals) demonstrated the advances in tissue repair and facial reconstruction; and post the Japanese earthquake and the troubles at the Fukushima nuclear plant Monica Mwanje (Senior Process Engineer, DBD Nuclear Institute's Young Generation Network) answered questions and provided examples of careers in the nuclear industry. The students were captivated by these speakers and following the talks, the students asked many intelligent questions.

Be Healthy Stay Healthy/Personalized Medicine

A session with the choice of two workshops: One facilitated by Healthcare Scientists discussing with students the components of a healthy lifestyle. This included demonstration by the students of various exercise regimes. Some of these (one handed push-ups and back flips) were beyond the ability of the healthcare scientists. The second was Café Scientifique, presented by a team from the Association of Clinical Biochemistry and Institute of Biomedical Science about personalized Medicine and how knowing about the expression of certain genes enables optimization of appropriate medication. The students participated enthusiastically and spent time discussing the ethics of genomics.

Interactive Science

A series of hands-on interactive displays showcasing what healthcare scientists do and giving the students a chance to meet the scientists, discover what they do and why, as well as trying some of the tasks for themselves. In this informal and fun session, the students were able to see the practical application of what they have been learning in the school classroom and gain an insight into the different career paths available to them. The activities ranged from blood transfusion, microbiology, transplantation, radiotherapy, resuscitation, physiotherapy, perfusion, immunology, histology, haematology, audiology, cardiology, genetics, pharmacy, nuclear medicine and much more. There were lots of opportunities to win prizes for taking part. The students asked lots of searching questions, including what the scientists enjoyed about their jobs and what qualifications were needed.

Science Trickery

This was a workshop consisting of a variety of tricks that could all be explained by science. The tricks the students performed included pulling a tablecloth with dishes on it off a table, making the same photo of the Queen appear happy and sad, a variety of physiological tricks including temperature sensations and drumming. Over 250, years 10 to 13, students (ages 13-18) and their teachers took part. They were split into groups of about 75 per session. The workshops and interactive science presentations were repeated 4 times, but each was very different because of the involvement, enthusiasm and questions from the different groups of students and the volunteer scientists. There were many things to collect and the students went home with bags full of pens, toys, sweets, rulers, pads, prizes and leaflets about careers. Importantly, many of the students who attended state that they will continue to study science at A level and beyond. Equally important, a number of students who plan to leave education at 18, are now considering careers in science and the NHS.



Several of the students wrote excellent reports of the day for the Reporter Competition and these along with photographs can be seen on the conference website: www.science4u.info.

Feedback has been very positive. One teacher wrote, "Thank you for an outstanding event. I am very proud to be part of the scientific world as demonstrated here". Another wrote, "This opened their (students') eyes up to other professions (and) increased their confidence about their prospects." Many of the volunteer scientists have made equally positive comments. One said "It was nice to educate students that there are more than just doctors and nurses in hospitals"

Most importantly the students had a great educational time with comments ranging from "Amazing" and "Awesome" to praise for the speakers and volunteers, "It's just a privilege being able to speak with them. They gave us a lot of useful info." Of the students who completed the evaluation after the vent, when asked whether they would recommend this event to their friends all said YES! Before this event 51 students said they were probably or definitely not considering a science career. When asked after the event, whether they would consider a career in science, 105 students said definitely, 53 said probably and only 1 student said probably not.

The Organizing Team and I are very grateful to all of our presenters for giving their time and for their inspirational displays, lectures and workshops. We are also indebted to the College and our many sponsors (listed on the programme and website). This event would not be possible without them. This was the second time that the College has hosted this event and it was wonderful to promote healthcare science to these students: our future pathologists and healthcare scientists.

Kimberly Gilmour

Kimberly Gilmour

Chairman of the Organizing Committee

Chairman's Report



Evaluation Report

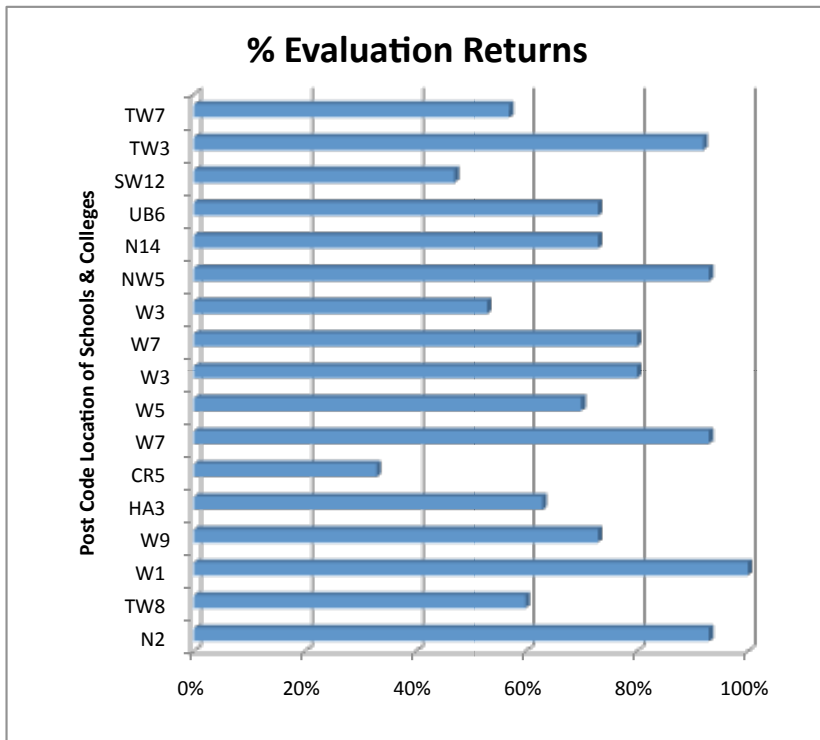
Some 244 London students from years 10 to 13 in secondary school and from A-level colleges, plus their teachers attended this year's annual schools science conference, entitled **Science is the Future**.

The conference was held at the Royal College of Pathologists. It was the 8th annual event organised by an enthusiastic group of healthcare scientists from various London hospitals and colleges.

Those attending were asked to complete an evaluation form and this is the summary of the responses.

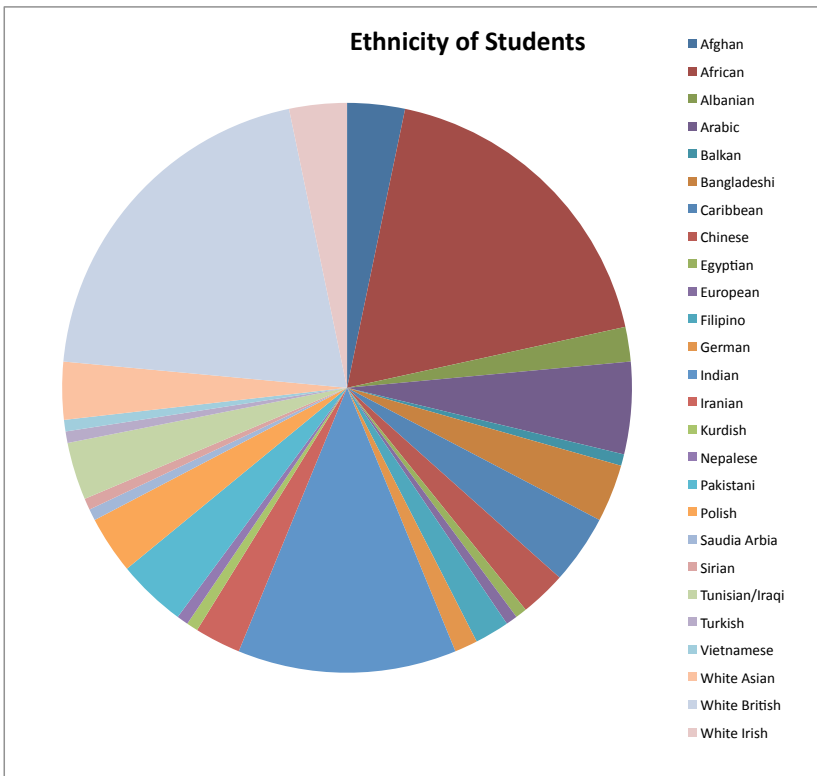
About the schools and colleges

This figure shows that the students attending came from schools and colleges in west, north and central London. Evaluation returns were obtained from a high percentage of students, with one school achieving a 100% return and others ranging from 30–90%. As an incentive, the returns were put into a draw for the students to win prizes.

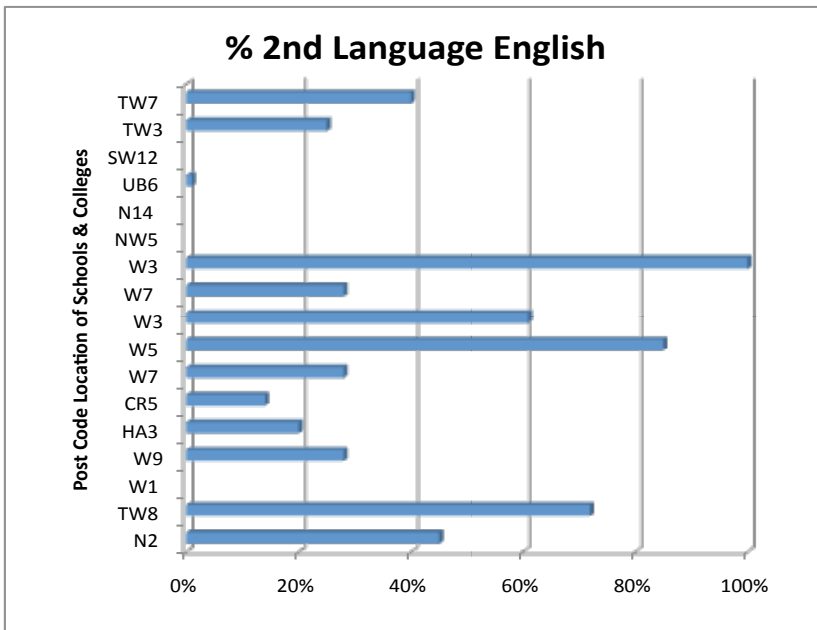


Evaluation Report

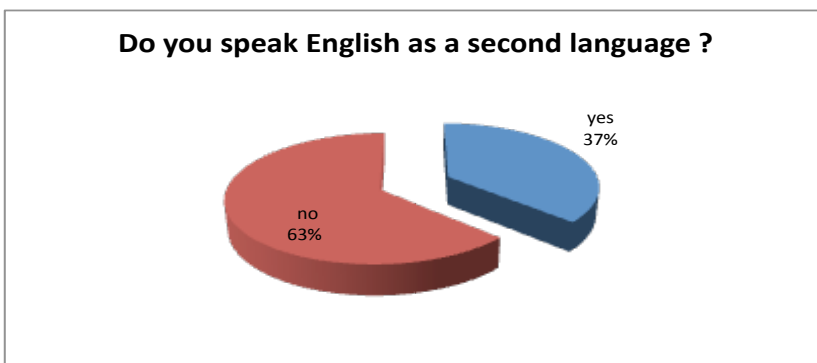
The next figure shows that the students were from a range of ethnic backgrounds.



In quite a number of the schools, English is the second language for a high proportion of the student population. The blank values in this figure are either because the information was not given or was not appropriate for a college.

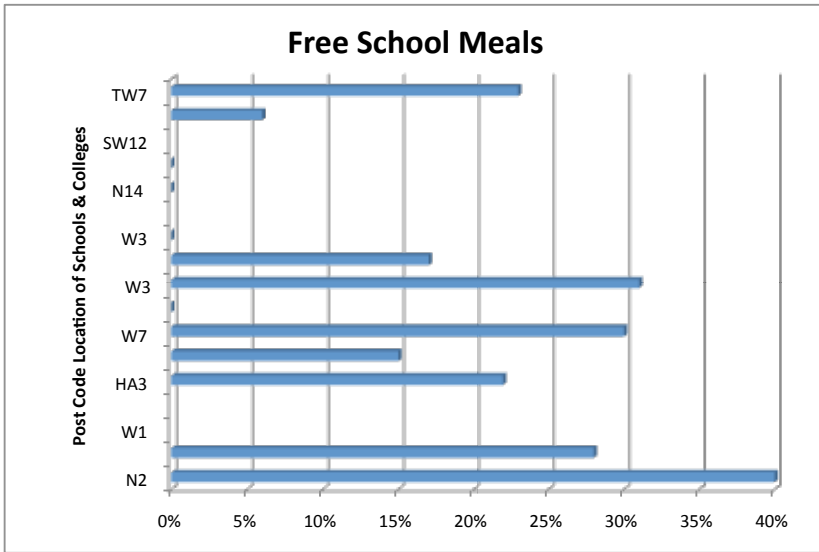


Of the students attending, 37 % spoke English as a second language,

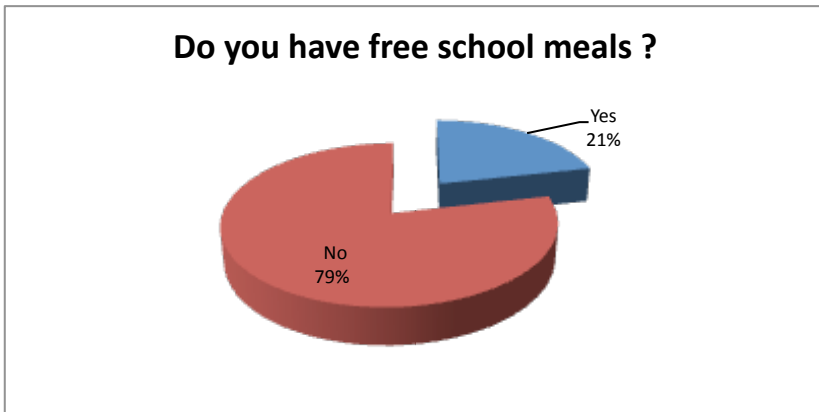


Evaluation Report

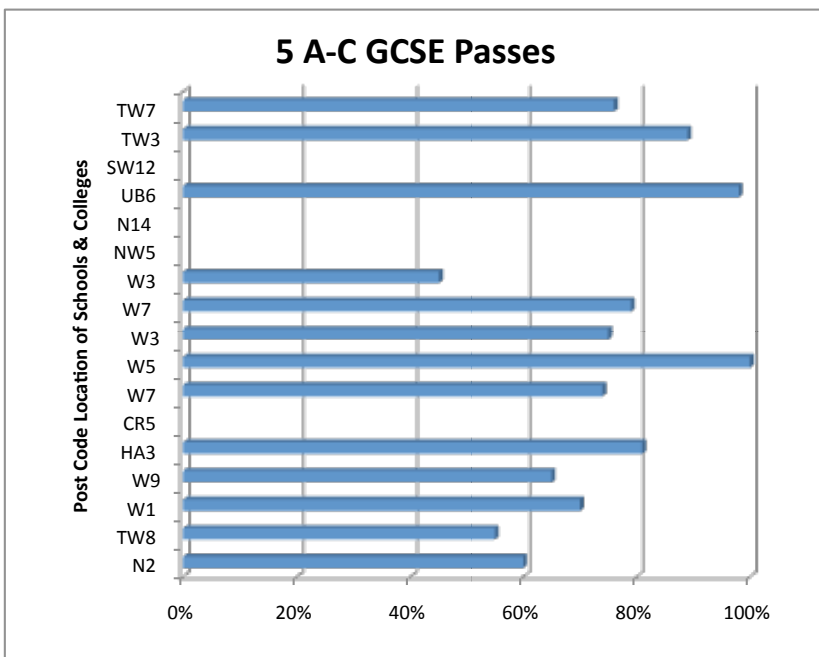
The next figure shows the proportion of students who receive free school meals, indicating that 5 to 40% of the students attending the conference come from less privileged backgrounds. The blanks in the figure are either because no information was given or because the students were attending College and were therefore ineligible. An objective of the conference is to showcase science to students from all backgrounds.



Of the students attending, 21% had free school meals.

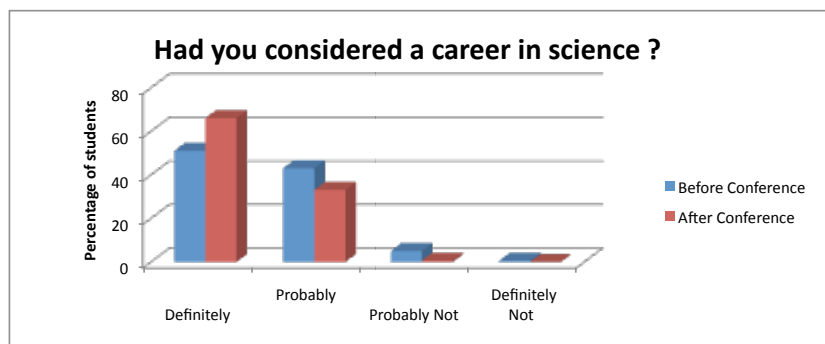


This figure shows the expected GCSE pass rates for the attending schools. This information is not given for the colleges.



About the students and what they thought about the conference

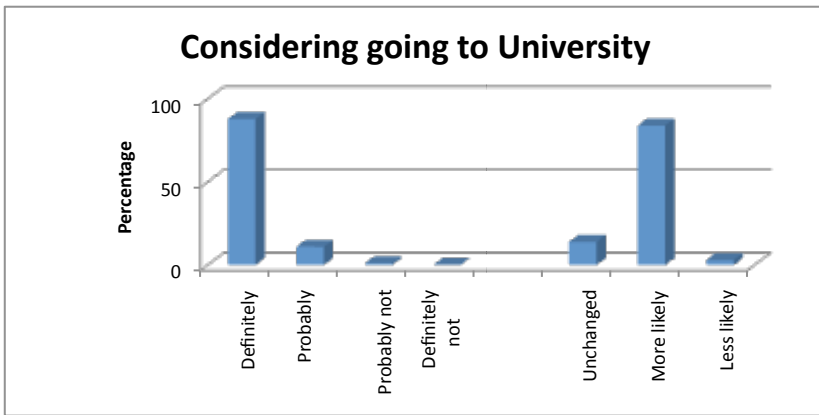
This figure shows that the conference re-enforced the students' intention to follow a career in science.



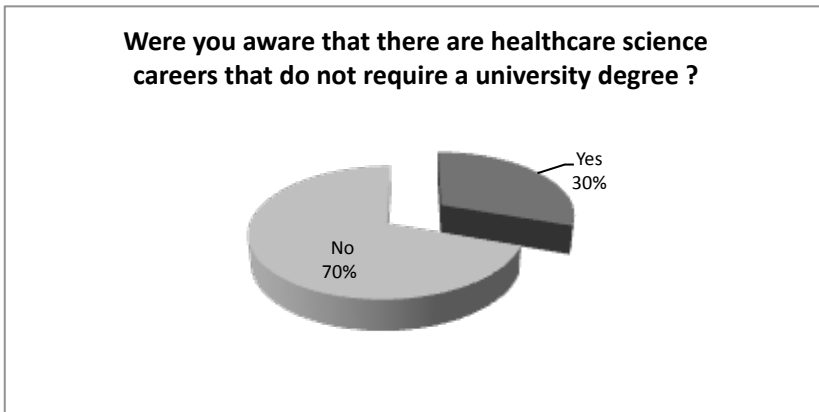
This table shows that the conference broadened the number of different science based careers that the students would consider.

| What science based careers have you considered ? | | | |
|---|----------|-------------------------|----------|
| Before Conference | % | After Conference | % |
| Biology | 35 | Medicine/Doctor | 21 |
| Chemistry | 17 | Biology | 12 |
| Research | 11 | Biomedical Science | 10 |
| Pharmacy | 9 | Engineering | 8 |
| Engineering | 9 | Chemistry | 5 |
| Physics | 8 | Dentist | 4 |
| Environment | 4 | Forensic | 4 |
| Industry | 4 | Pharmacist | 3 |
| Teaching | 3 | Ophthalmology | 3 |
| Medicine | 1 | Pathologist | 3 |
| Forensics | 0.3 | Research | 3 |
| Materials | 0.3 | Radiology | 2 |
| | | Nurse | 2 |
| | | Micro Biology | 2 |
| | | Haematology | 2 |
| | | Peaditrician | 2 |
| | | Aeronautical Science | 1 |
| | | Mathematics | 1 |
| | | Immunology | 1 |
| | | Physics | 1 |
| | | Nuclear Science | 1 |
| | | Environmental | 0.6 |
| | | Sports Science | 0.6 |
| | | Computer science | 0.6 |
| | | Physiologist | 0.6 |
| | | Dietetics | 0.6 |
| | | Midwifery | 0.6 |
| | | Physio | 0.6 |
| | | Biology | 0.6 |
| | | Podiatry | 0.6 |
| | | Anesthetist | 0.6 |
| | | Marine Bilogy | 0.6 |
| | | Geography | 0.6 |
| | | Fabrics | 0.6 |
| | | Astronomer | 0.6 |

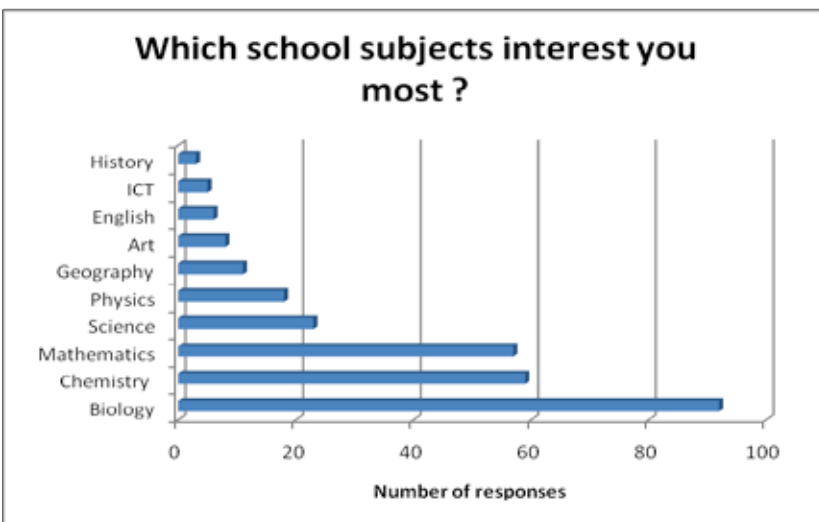
The conference re-enforced the students' intentions of going onto University



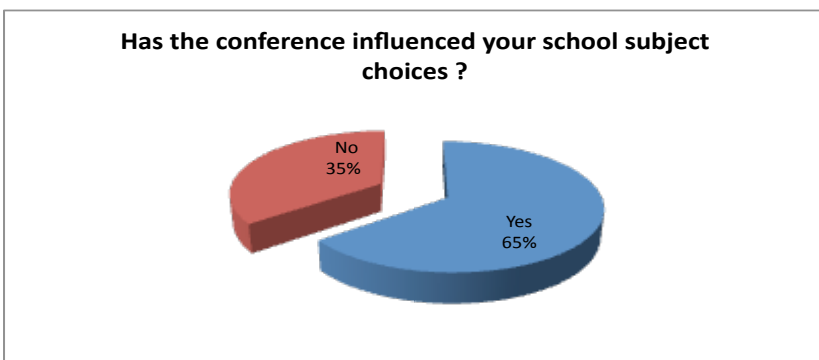
The conference made students aware that there are science based careers and pathways into science that do not require a university degree.



Biology was the most popular school subject of those attending the conference, followed by chemistry, mathematics and science.

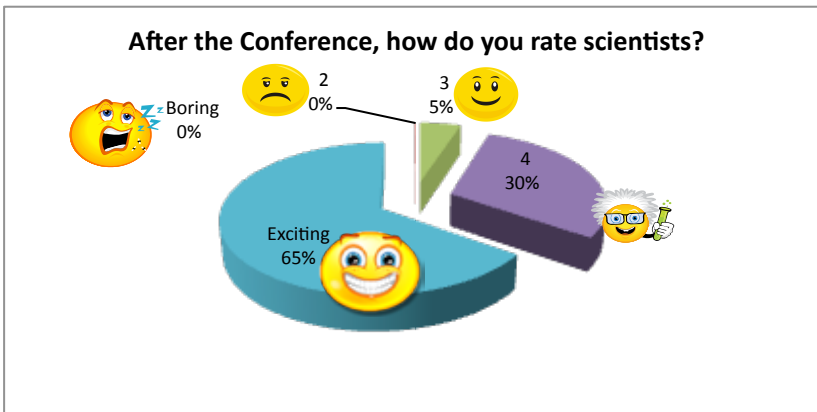


The conference had a positive impact on the students' subject choices.

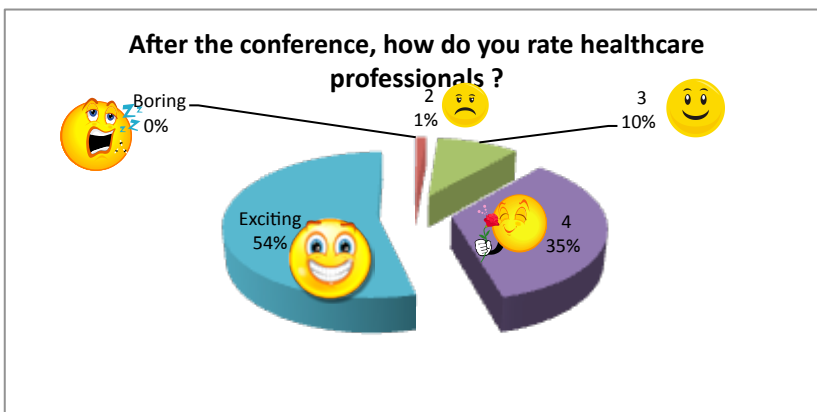


Evaluation Report

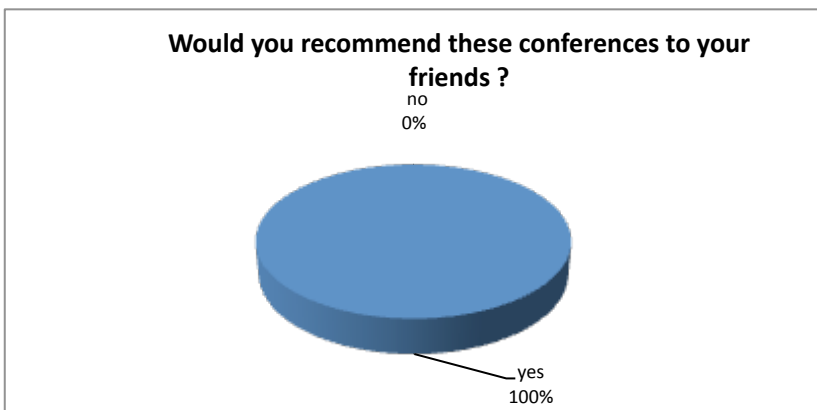
The majority of students found scientists exciting.



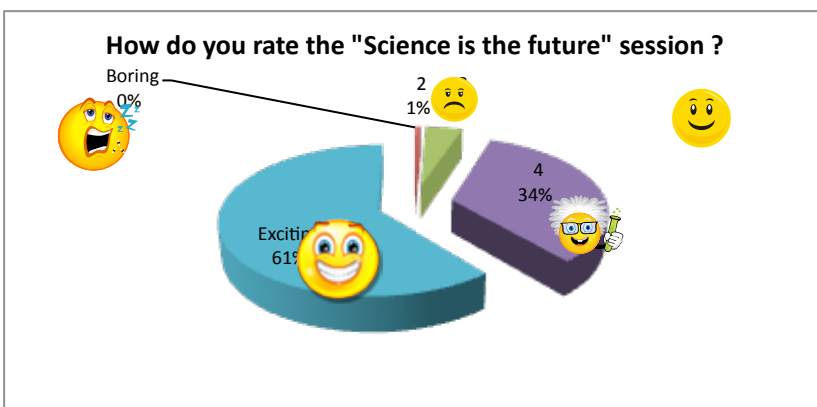
The students thought that healthcare scientists were caring and exciting.



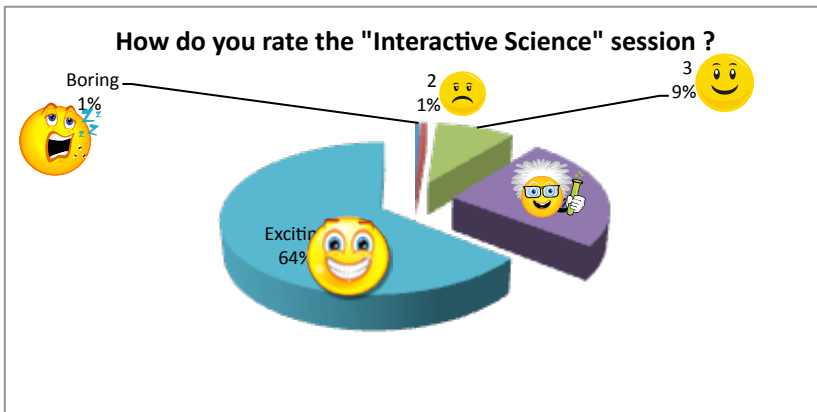
All of the students said that they would recommend that their friends should attend these conferences.



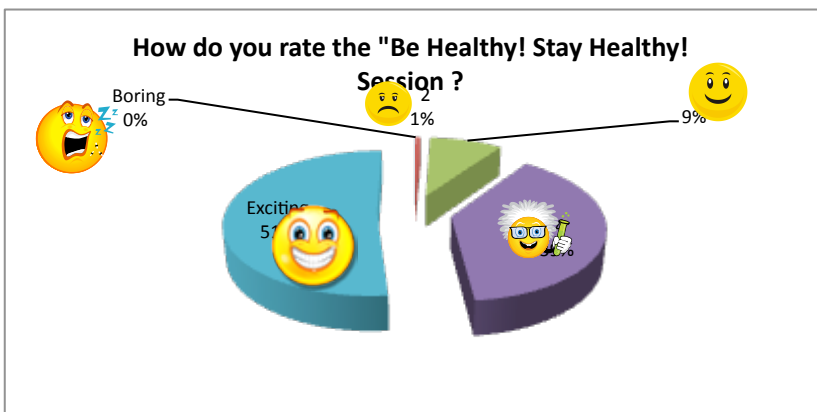
The students found the [Science is the Future](#) series of lectures to be exciting, enjoyable and informative.



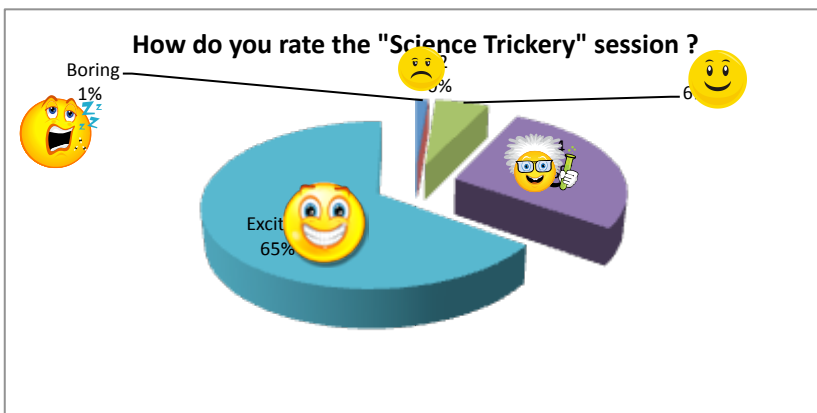
The students enjoyed the hands-on **Interactive Science** and the opportunity of meeting professional scientists.



The students were fully engaged in the **Be Healthy! Stay Healthy!** workshop, including Café Scientifique.



The students were excited, entertained and educated by the **Science Trickery** workshop.



The students were asked to record what they thought about scientists.

| What students said about scientists after the conference | |
|--|--|
| Exciting, interesting and very clever | Very knowledgeable people |
| They are cool, never knew that they did so much | They interested me |
| Fun, funny, knowledgeable | They know what they are talking about |
| There are a variety of specific careers in science which is good when choosing | It was a privilege being able to speak with them. They gave a lot of useful information |
| Good, very good and some are nice | They rock, they are great |
| Awesome nerds | They work hard |
| They have a great influence in the development of science | It is a very diverse subject and is very exciting as new technological advancements are made |
| Interesting and diverse | They don't do dull activities |
| They are smart | They do interesting things in their jobs |
| Varied bits of different interests | They are absolutely brilliant |



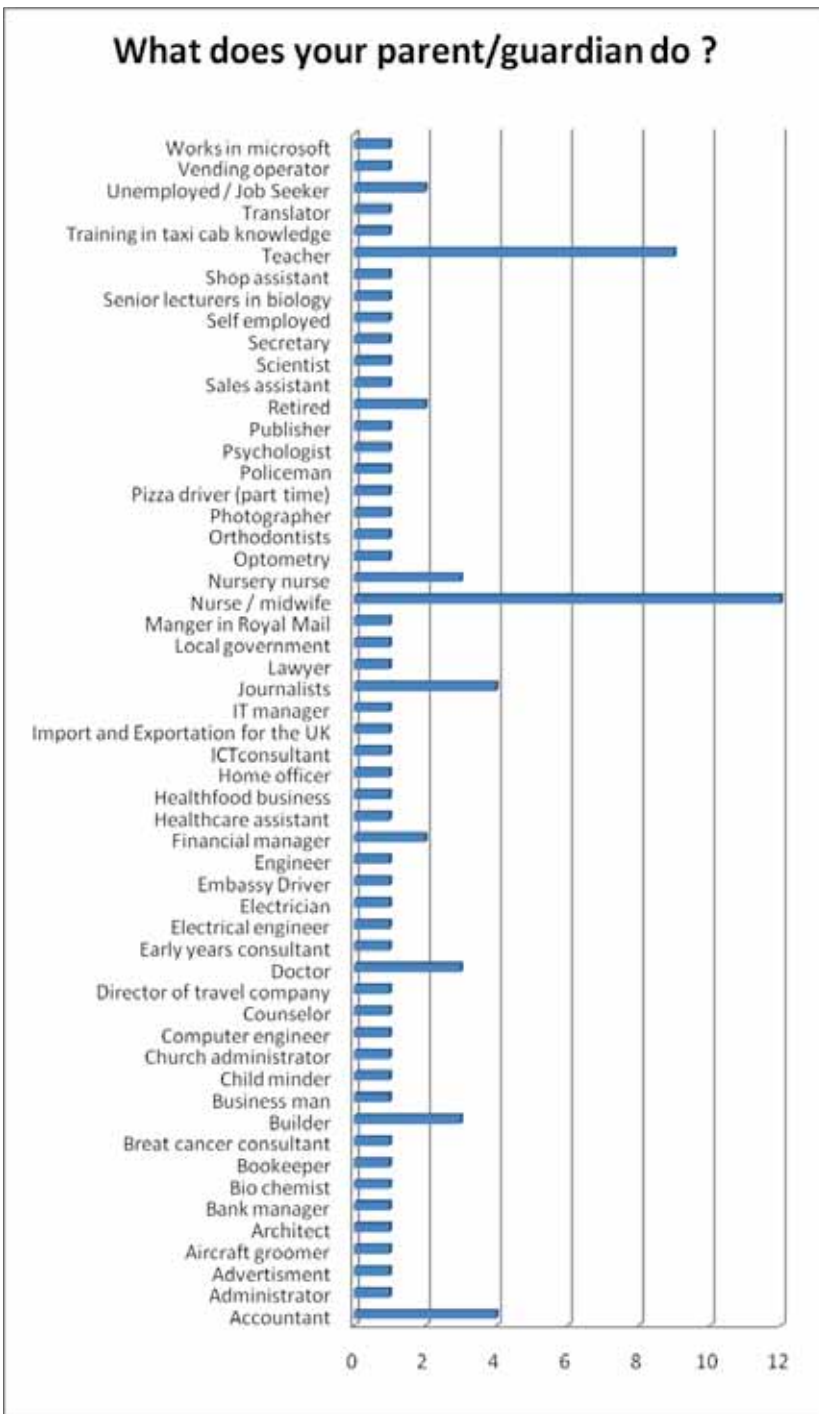
| | |
|--|---|
| They have lots of knowledge and also they have good communication skills | Amazing because they help to save lives |
| Serious people | Extremely fun and helpful |
| There are many interesting aspects | They are determined and willing to achieve |
| 100 per cent | Have respect for them |
| Very clever, serious people | They really enjoy what they are doing |
| Very interesting activities and explanations | Answered all my questions |
| They helped us decide about future careers | Exciting, inspiring, clever, amazing, motivated |

The students were asked to say what they thought about the conference

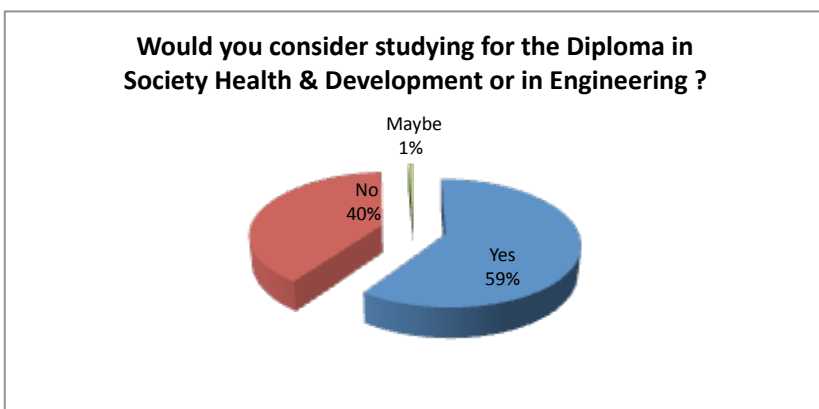
| What students said about the Science is the Future conference | |
|---|---|
| Good overall | Actually a bit less central loading, please |
| It was interesting | Should do it more often |
| Please make another one soon. It was great, entertaining and most informative | It has been very useful, but if you can make it more often and more specific that would be very good |
| It was enjoyable and informative | Great. Very good, better than school |
| You have influenced me, thanks | It's been fun |
| Fab. Good opportunity, thanks | It was fun and I would like to come next year |
| It was great. Excellent | Science, yay! |
| It was brilliant. I wish it was open to older students and I think that it would have been nice to have longer to walk round the interactive stalls | This is a great event for students like us to learn about science, and a great opportunity to talk to the professionals |
| It was an interesting event – different and exciting | If I could, I would come every year |
| Today's event was very informative about the future of science and the technology too | I want to thank everyone who was involved in this event |
| Fantastic | Perfect |
| The event has given me detailed information about science and opened a lot of gates in science careers for me to look up | It was really helpful, I gained more knowledge about science |
| Excellent day. I would do it all over again. I got to practise CPR | Very new and had a lot to learn, may take a big role in career decision |
| The experiments were fun | It was good |
| I fully enjoyed the day. It has definitely given me the insight I needed | Continue to conduct conventions as they are. Very informative and helpful |
| Keep improving | More chairs |
| Great experience and I learnt a lot. There were very many interesting events | I found the day very informative. It has really inspired me. I am very glad I got this experience |
| We thoroughly enjoyed it and helped us decide about future careers. It made us think how we can't live without science | The day was excellent and I really enjoyed the free things. I also enjoyed the science tricks. Overall it was a fantastic day |
| Today's event was absolutely brilliant | Helpful |
| It was very interesting and I learnt a lot about science careers | It was a really exciting and eventful day. I learnt so much and I've been inspired by the professionals |
| Everything was great | Very useful event |
| I really enjoyed this event | Really helpful |
| This event has given me a whole new perspective of the pathways available to me | Thank you so much for the opportunity. I go with a wealth of knowledge |
| Maybe make the lectures more relatable to children | Thank you very much for everything, it was incredible |
| Very enjoyable. Thank you | It has been very enjoyable and fun |
| It was really good, fun and lots of free stuff | Thank you |
| Liked it, but I would add a brain test to know which profession you like more | I enjoyed the day, throughout I learnt a lot of new things |
| Thank you | Lacking food |
| Very useful and fun | Am coming next year |
| Much more interesting than I expected | |

Evaluation Report

The students were asked what their parent/guardian does for a living.



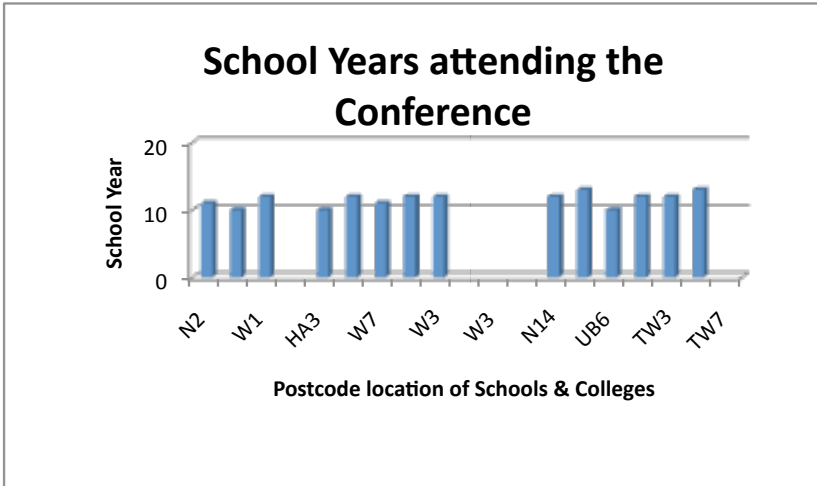
To gauge interest in the new Diplomas in education, the students were asked if they would consider studying for either the Diploma in Society Health & Development or the Diploma in Engineering.



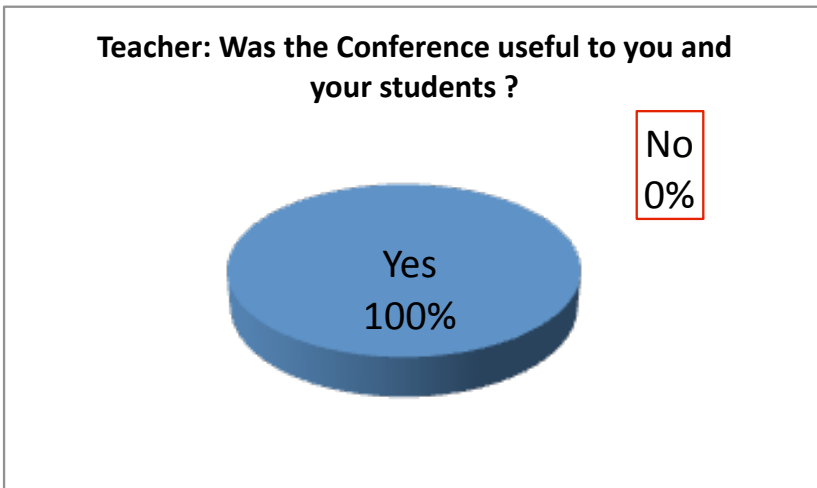
Evaluation Report

The teachers were asked what they thought about the conference?

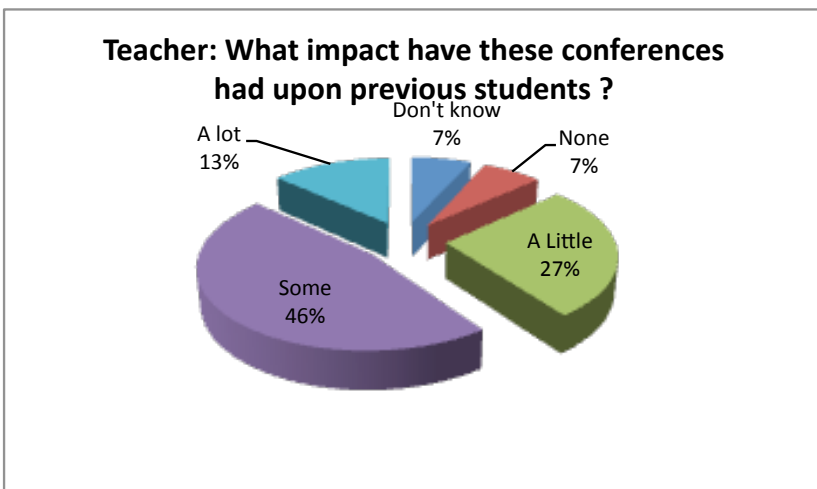
The teachers were asked in which school years were the students that they brought to the conference. The blanks in this figure represent the A-level colleges.



All of the teachers found the conference useful for themselves and their students.



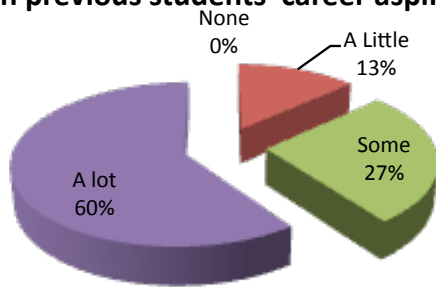
The teachers stated that these conferences had influenced the students that they had brought this year and in previous years.



The conferences have had a positive impact upon the career aspirations of their students.

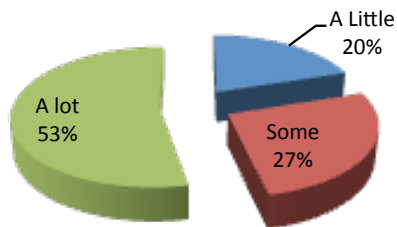


Teacher: What impact have the conferences had on previous students' career aspirations ?



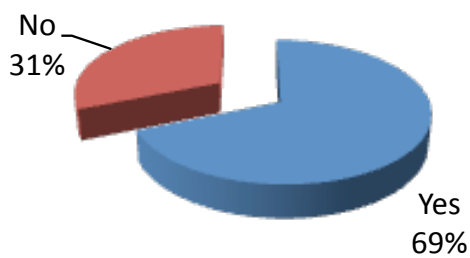
The conferences motivated their students to study science.

Teacher: What impact have these conferences had on previous students' motivation to study science?

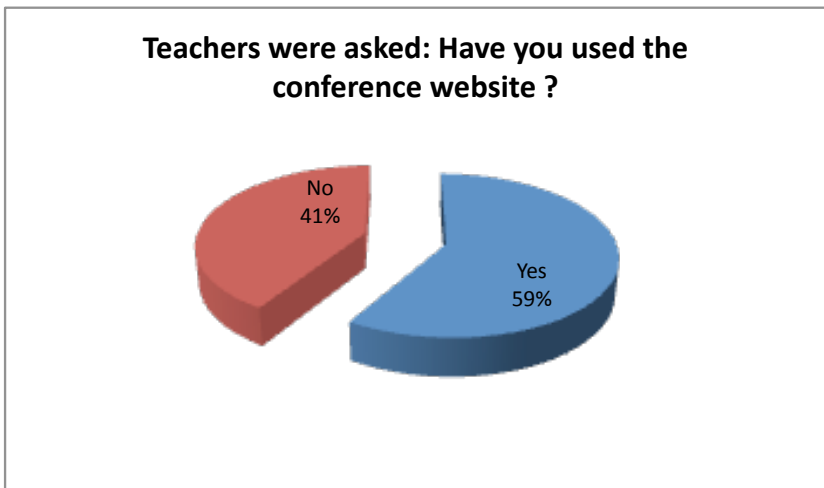


The conferences have encouraged their students to choose subjects and career pathways into science.

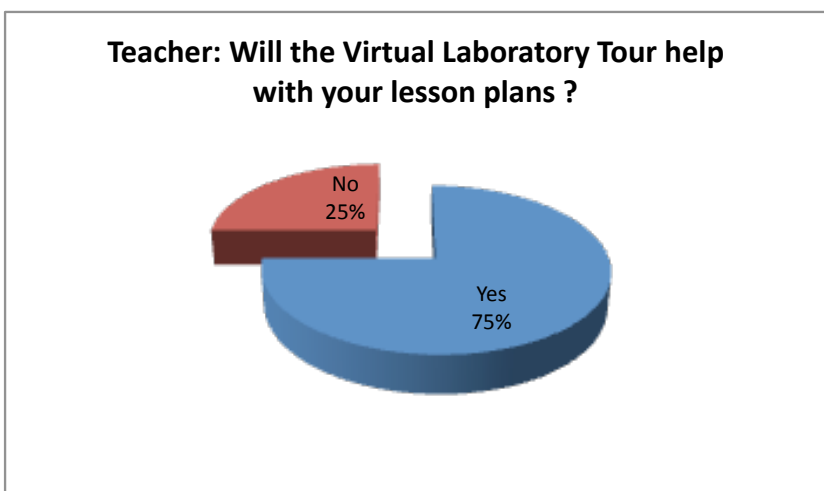
Teacher: Have these conferences encouraged previous students to chose a career pathway into science?



Just over half of the teachers attending had used the conference website www.science4u.info



75% of the teachers thought that the Virtual Laboratory Tour on the website would be useful for their lesson plans.



The following specific comments about the benefits of the conference and how to improve in the future were obtained from the teachers.

| Teacher | |
|--|---|
| What was of most benefit to you and your students? | What was of least benefit to you and your students? |
| Opened their eyes up to other professions. Increased their confidence about their prospects | Felt the day was not very organised |
| Science is the Future | Be healthy workshop |
| Chats/interactive displays from different health workers. Talk from nuclear engineer | Be healthy simply replicated many school lessons |
| Gathering lots of information and speaking to experts about their jobs | Nil |
| Dr Kevin Fong | Nil |
| Exhibits and all science career information. All of it useful | Lecture on being healthy just like classroom teaching |
| Activities | None |
| Interactive activities (hands on stuff) | None |
| The lecture: "What is a face ?" | Nothing |
| Interactive session | None |
| Talking to people in the different fields | Be Healthy |
| Meeting professionals from different fields | Be Healthy |
| Motivates students | Nothing |
| Enthusiastic scientists and opportunities to discuss career options | Healthy eating programme, as our students do this in PE |

| | |
|---|-------------------|
| Motivation to work hard in their studies | None |
| Thank you for an outstanding event. I am very proud to be part of the scientific world as demonstrated here | Nothing |
| Hands on exhibitions etc | The “fun” session |
| Hands on activities and facial transplant | |
| All of it | Nothing |
| The interactive session - talking to scientists | None |



| |
|--|
| How could we improve this event for you and your students? |
| Better structure/preparation. Exposure to everything available. They didn't get to see it all. |
| Hands on area needs more space |
| More of the same! |
| Provide lunch! |
| Nothing - a really enjoyable and informative day |
| More scientists to give lectures |
| More time should be reserved to hands on stuff |
| More time spent on the interactive sessions |
| Organisation in terms of directions, when/where to go to different areas |
| Lengthen the interactive session or double this session |
| More places for students |
| Too little space for the students to really enjoy and do the various stalls |
| Time spent on each stand |
| A lot of movement in such a small space was not ideal, however we were delighted to attend |
| Offer more spaces to students who have not yet chosen subjects? |
| May-be two hands on sessions and split them on levels at the venue |
| One major session and one session with speakers |
| Organisation - fair comment |

Volunteers

This year too few responses were obtained from the volunteers for analysis.