



New directions for SCI-FUN

SCI-FUN Director Brian Cameron writes:

As schools and society change it is important that outreach organisations should also adapt to meet the needs of modern education. To that end, a number of changes have been made to the way in which SCI-FUN operates.

SCI-FUN, The Scottish Science & Technology Roadshow, is now a more flexible organisation, capable of tailoring its provision more closely to the needs of schools. This approach has been well received by the schools we have visited this year, with universal praise from teachers and pupils for the events that we organise. Our new team is dedicated to ensuring that SCI-FUN is delivered in a thoroughly professional manner with the minimum of disruption to the school day, and that school staff and pupils have a worthwhile and rewarding experience.

We are currently forging new relationships and collaborations with schools and colleges across the University, with Science Centres and other Universities across Scotland, and with regional Health Networks. New initiatives are being developed to refresh and widen what we offer to schools.

The demand for SCI-FUN is very strong, and we currently have more bookings than we can fulfil. We are determined that schools will benefit from the new direction that we are taking and gain from the new collaborations.

Alongside the 'traditional' aspects of SCI-FUN, we also provide an insight into current developments in science, and give information about research activities carried out within Universities. By doing this we aim to encourage pupils to become more aware of the impact that science has on their everyday lives, and also to



The Climate Change show is tailored to meet the requirements of individual schools

meet our obligation as science communicators, bringing science into the public domain.

Further information about some of the current and exciting new developments can be found later in this newsletter.

SCI-FUN remains committed to providing the best outreach for the pupils and teachers in Scottish schools, to ensure that Scotland not only retains its position as one of the world's great 'scientific' nations, but that there will also be a stream of young people enthusiastically seeking to learn more about the scientific world around them.

Find out more about our plans, shows and our current schedule at www.scifun.ed.ac.uk.

SCI-FUN remains the principal provider of high quality outreach activities to Secondary Schools in all areas of Scotland and Cumbria, visiting up to 100 secondary and 300 primary schools each year, encouraging young people to consider a career in science, and empowering teachers with new enthusiasm in science teaching. Our main activities are supplemented by SCI-FUN Primer – aimed specifically at P7 classes to aid in the transition to Secondary School – and evening sessions for P7 pupils and their parents, which attract audiences of around 120. Evening sessions give pupils and parents an opportunity to visit the secondary school, to learn some science, and to meet the staff of the 'big' school, often for the first time. We also offer careers workshops and advanced science workshops for senior pupils, and CPD sessions for teachers.

Science and the Parliament: SCI-FUN's fourth year

On 28th November 2007 at *Our Dynamic Earth* in Edinburgh, The Royal Society of Chemistry and the Royal Society of Edinburgh are presenting the seventh annual *Science and the Parliament* event, intended to foster links between parliamentarians and scientists of all disciplines. Having exhibited at each of the last three events, SCI-FUN is this year helping to organise the School of GeoSciences display for the evening session. The theme for the 2007 event is "Energy and Climate Change".

John Moncrieff, Professor of Micrometeorology at Edinburgh, writes: "I'm delighted with the support that SCI-FUN has given to myself and colleagues in the School of GeoSciences, in connection with this exhibition. The team turned our initial ideas into a set of display boards that will reflect well on both the School and the University, and the eye-catching design will hopefully attract a great deal of interest."



SCI-FUN: Health and Society

In the 2007/8 SCI-FUN session we have strengthened our commitment to our *Health and Society* programme. This involves the ongoing development of a series of talks and exhibits which help to explain issues surrounding our nation's health.

An exploration into the effects of our lifestyles upon our physical well-being provides us with a greater understanding of the scientific basis behind ill health. We are developing exhibits and shows in order to highlight health issues that are relevant to our young people in schools.

We hope that our programme will not only inspire interest in science, but will also enhance the lifestyle and health choices made by pupils and their families.

The *Health and Society* programme is being supported by members of the clinical skills team

of the University of Edinburgh medical school, whose responsibilities include training medical students, and helping NHS staff members to acquire the skills required within healthcare. Such skills range from the effective washing of hands right through to defibrillation.

SCI-FUN has developed a stand-alone hand washing exhibit, which will help to demonstrate the importance of effective hygiene in order to prevent infection, whilst highlighting the microbiology involved.

The medical school has also provided SCI-FUN with a wide range of computer-aided learning packages, using interactive software to cover topics in both biology and health.

This collaboration is at an early stage, and we will provide more information on our website in the New Year.

In addition to these new initiatives, we are addressing health issues within the existing hands-on sessions, by linking exhibits such as our Power Bike (measuring physical effort) with heartbeat monitors and reaction timers. New exhibits are also linking measurement of height and weight, illustrating the principles of Body Mass Index, with its advantages and disadvantages as a health metric. Health issues are also addressed in the *Senses* show, as we discuss (and illustrate) the effects of sustained loud noise on hearing.

SCI-FUN and the Scottish Centre for Regenerative Medicine (SCRM)

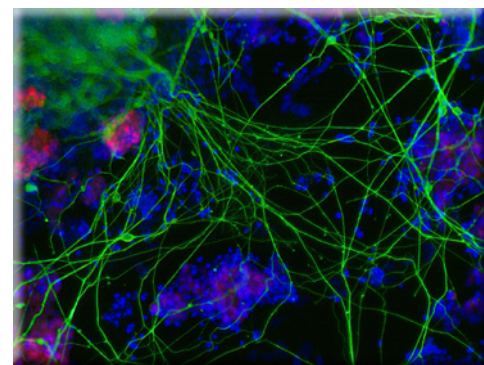
We are delighted to have the input of scientists from the Scottish Centre for Regenerative Medicine (SCRM) in support of the SCI-FUN *Health and Society* programme (described above). A series of exhibits and posters describing the work undertaken within the centre will be made available in early 2007 for the school visits organised in collaboration with WestWHAN (see the back page), and subsequently as part of the general Roadshow.

The Scottish Centre of Regenerative Medicine is at the cutting edge of research into stem cells and the important opportunities that they offer in clinical disease. Stem cell research is a fast-moving area of science, which promises

vast potential in increasing our understanding and treatment of many diseases. As such, it is important that there is an increased understanding of the work involved, and that there is an active engagement with people of all ages.

It is also important that scientists from the Centre have the opportunity to talk about their work, and to answer questions from a non-specialist audience. Professor Ian Wilmut is the director of SCRM and has always been very supportive of any programme which enhances public engagement with science. The director has himself a vast level of experience in explaining difficult and sometimes controversial issues to a wide-ranging audience.

There are advantages on many levels for both SCI-FUN and SCRM in this new collaboration. Projects currently under development include an adult stem cell exhibit, which provides a 3D set of models, with supporting explanatory media on the diseases that are the current targets of the research. Many of the terms used within regenerative medicine will also be made more



Fluorescent staining of stem cells

accessible. From January 2008 it is our plan to offer evening sessions to schools on topics within the field of stem cell research, giving us an opportunity to open the field up to the wider community.

For more information about SCRM and their involvement in outreach activities, contact Dr Gordon McLean: g.mclean@ed.ac.uk, or visit www.scrm.ed.ac.uk.

Stem cell image courtesy of SCRM



The Postgraduate Science Communication Team (PGSCT)

The Scottish Institute for Biotechnology Education (SIBE) and SCI-FUN are working together to provide opportunities for a small team of postgraduate students, helping them to gain skills in science communication, while strengthening the outreach activities of the University.

Members of the PGSCT will work alongside the SCI-FUN team in the development of hands-on exhibits, the writing of shows, refining careers workshops, and in helping to present the main Roadshow.

The team will be afforded the opportunity to enhance and put into practice the skills

obtained from science communication courses taken as part of the University's "transkills" programme. Having members of the PGSCT with us for short spells also augments our own team and offers us an increased knowledge base, as the PGSCT members hail from a wide variety of disciplines, each bringing their own diverse experience. The SCI-FUN team also benefit from the chance to share their own experience as science communicators, while learning key skills in the training of others, and in project management.

To find out more about the PGSCT please contact Jan.Barfoot@ed.ac.uk or visit the SIBE website at www.biology.ed.ac.uk/public/sibe.

Find out more about the "transkills" postgraduate training programme at www.transkills.ed.ac.uk.



This year's SCI-FUN Roadshow presenters



SCI-FUN presenters: Stuart Dunbar, Cynthia Chen and Catherine Ferguson

SCI-FUN employs a Roadshow manager and two full-time presenters, all science graduates with a keen interest in conveying to others their own enthusiasm for science. They present shows and careers talks, supervise the hands-on sessions, train senior pupils as Explainers, and are involved in the creation of new shows and exhibits.

Stuart Dunbar: Roadshow Manager

Stuart studied Physics at the University of Warwick, and then spent three years teaching year six pupils in a primary school in Coventry. "This was a tremendous experience: I worked closely with a tight-knit team to develop the knowledge and personalities of lively groups of children. I have been very fortunate to discover exactly the same determined spirit within the SCI-FUN team, having been appointed as a presenter at the start of the 2006/7 session.

"Working with SCI-FUN has not only given me

the opportunity to convey science knowledge to many pupils throughout the country, but also to continue my own learning within the many aspects found within science itself.

"In my new role as Roadshow Manager this year, and in addition to my extra responsibilities, I still hope to be able to bring the sciences to life for pupils throughout Scotland, which is vitally important to me personally. It is a great feeling when you see that you are making a difference, however big or small, in the opinions and beliefs of young people."

Cynthia Chen

Born in Malaysia, Cynthia obtained a degree in Genetics at Cardiff University, an M.Sc in Neuroscience at King's College London, and is just now completing her Ph.D, investigating the role of circadian clock genes in the ovary.

She worked briefly with SCI-FUN Primer, and

at the Science Festival in Edinburgh in 2007. She writes: "I'm really excited about science, and enthusiastic about sharing my interest with others. Science has so much to offer, and we should all know at least a little about it. After all, science for me is about life, the living world and the world in which we live: you only have to look a little more closely to find science in everything!"

Catherine Ferguson

Catherine's early life in the countryside of Northern Ireland sparked her fascination with the natural world, but it was when she studied A-Level Physics (and Particle Physics in particular) that she began to have a real desire to learn more about science.

She recently completed her Physics degree at Edinburgh, enjoying in particular the laboratory work, the chance to investigate and observe what she had been learning theoretically in lectures.

Catherine: "I joined the roadshow as a volunteer, early in 2007, and was surprised to find myself helping to present a show in Shetland on my second day, and loving it! I thoroughly enjoyed the experience with the team, which added to my enthusiasm for science. I gained in confidence in communicating to young students the importance of science and technology and am grateful for the opportunity to develop this skill further during the next few months."

Find more information on our presenters (and on all the other members of the SCI-FUN team) at our web site: www.scifun.ed.ac.uk

Feedback from Schools for Session 2007/8

As many outreach providers will know, it is difficult for groups such as SCI-FUN to find a suitable way in which to measure their success: raw numbers (school visits and pupil head-count) can only ever be part of the answer.

This is why feedback from teachers, pupils and parents is so important to us: it lets us know what parts of the Roadshow are working, and what parts to change. In addition, we are continually updating our 2007/8 Roadshow presentations – "The Senses", and most particularly "Climate Change" – in light of any topical developments.

We are grateful to those teachers and pupils who have sent us some of the following messages (also available on our website).

"Very many thanks for your fantastic trip to Peebles High School. We were highly impressed with both the quality of your lectures and the quality of the hands-on exhibits. The lecture last night to about 130 parents and pupils was the icing on the cake for me: a great event for both SCI-FUN and Peebles High. Your organisation in getting set up and getting out of the hall was impressive, to say the least."

Ken Taylor, Peebles High School, 1 Oct 07

"...SCI-FUN for Upper 4s" ... All the lectures and activities were enjoyed by everybody and gave a great insight into how science is important and can really be fun! SCI-FUN is one of the very few activity groups who cater for S2-S4 year groups and are one of the best at what they do.

Website excerpt: St. George's School, Edinburgh

"On behalf of Eastwood High I would once again like to congratulate you and your team on another superb Roadshow. The feedback from the pupils themselves was very positive as they not only thoroughly enjoyed the presentation and experiments but also recognised the importance of science as a whole in the school curriculum and society. Over the years this has proved to be invaluable and has contributed to the great success and popularity of all the sciences at Eastwood. We all appreciated the hard work put into the Roadshow and hope that we will have the opportunity of inviting you to inspire next year's S2 pupils.

Graeme Gardner, DHT Enterprise, Eastwood High

"Thank you for allowing me to attend a roadshow. SCI-FUN brings a little fun and excitement to pupils which I feel is often missing nowadays. Science teachers are constantly under pressure to cover the coursework which leaves little time to

"breathe the air and smell the flowers" and make the subject interesting and stimulating. This is of course a subjective view.

I particularly liked the talks which caused the pupils to engage with wider issues in science such as global warming and hearing loss in young people. There is certainly not much time to dwell on such matters in school.

The hands-on exhibits were excellent and really seemed to stimulate the pupils – particularly the ones which involved physical input from the pupils.

On the subject of hearing loss, I wondered if in certain spaces with a poor acoustic or background noise if the speakers might benefit from using a microphone. Again this is very subjective and I am a few years beyond your target audience!"

David Johnstone, Network Liaison Officer, WestWHAN

Roadshow 2007/8: the new programme

The current success of the SCI-FUN Roadshow is as a result of many years of development. The experience and expertise gained over this time allows us to provide an exciting event for secondary school pupils, with the minimum of disruption to the school itself. With three new shows for 2007/8, and several new exhibits (including our collaboration with WestWHAN, described below), SCI-FUN continues to improve the delivery and content of the Roadshow during its visits to schools throughout Scotland.

Each session, for up to 80 pupils, is split into four distinct sections: three shows and one hands-on element. This year, there are three very different shows. The first looks at various aspects of the senses in both humans and animals, focusing at present on sight and hearing. This presentation describes interesting and little-known facts regarding our senses, as well as optical illusions that always get a positive reaction from the pupils. The show encourages interaction and participation from the entire group. We are also performing different experiments with the senses during the show – the results of which are compared on our website: www.scifun.ed.ac.uk.

Our “Choosing Science” presentation leads pupils into thinking seriously about the choices that they will be making concerning their Standard Grades or Intermediates. It focuses on the aspects of science that they will be covering, and on how this information – along with vital thinking skills – will be useful to them immediately and, more importantly, in many possible future careers.

For the final show we decided to choose a topic which would have a direct impact on every member of every audience. Currently there is much debate surrounding the issue of Climate Change, and we feel it is important that we convey some of this information to pupils in a



SCI-FUN Primer, evening sessions and the SCI-FUN Roadshow

manner that they can clearly understand. The style of this presentation is very different from that in previously employed in SCI-FUN shows and has successfully raised interest in this topic with the pupil groups we have visited. The subject of climate change is constantly evolving, and we reflect this in our show by including the most recent developments.

During the hands-on part of a session, pupils are divided into small groups and assigned a pre-trained senior pupil to guide them through each of the activities. The exhibits combine to allow the pupils to discover more about the world and what it contains, using ideas which add to those currently explored in schools. The senior pupils are extremely important for the safe and efficient running of this part of the session and they are given a certificate to show

our appreciation for their help.

The Roadshow is only one part of the activities conducted by SCI-FUN. Another key strand is SCI-FUN Primer – a condensed version of the Roadshow. SCI-FUN Primer is aimed at the P7 cohort and again builds on the topics taught within schools through a series of exhibits that can be set up in any primary school classroom. We have now reached the point where pupils in watching this year's Roadshow remember our visit to their primary school class a couple of years previously.

The visits completed this year have been very well-received, and we hope to update and improve the experience we provide to secondary and primary schools throughout Scotland in the months ahead.

WestWHAN in partnership with SCI-FUN

We are delighted to announce a new collaboration with *Working in Health Access Network West* (WestWHAN), an organisation which promotes careers within the health sector. They also aim to encourage a greater number of Scottish pupils to consider continuing their studies into higher education, particularly in schools with a lower-than-average transfer level.

This new relationship follows on from our previously highly successful link with FifeandtaysideWHAN in March 2007, which is continuing in this academic year.

On behalf of the WestWHAN group, Dr Alan Foster writes: “We are delighted to be working alongside SCI-FUN, as a basic interest and

ability in scientific approaches is essential for any one of the healthcare professions. Part of our awareness-raising work in the national WHAN (Working in Health Access Network) project is about involving school pupils in a hands-on way with the business of health care.

“We try to do this in an imaginative and stimulating way, something which SCI-FUN already does, providing a benchmark for those interested in engaging and inspiring work with school pupils. It is natural, therefore, that our groups should work together. Furthermore, it is an opportunity to underline the essential intertwining of science and healthcare concerns.”

SCI-FUN and WestWHAN will be working

together to actively promote science and health professions in around twenty schools during this academic year.



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