

September 2011

Society of Biology and Member Organisation
Science Communication Project
Report and Action Plan



Biochemical Society
Advancing Molecular Bioscience



BRITISH PHARMACOLOGICAL SOCIETY

society for general
Microbiology



British Ecological Society



British Society for
immunology



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¹ Annie Geraghty has now left the British Pharmacological Society but her contribution to success of this

² Niamh Johnston has now left the Society of Biology but her contribution to success of this project was much appreciated

³ Justine Williamson has now left the Society of Biology but her contribution to success of this project was much appreciated

Foreword from Jenna Stevens-Smith, Chair



The Science Communication Project emerged out of an identified need for a media/ communications network between the Society of Biology and Member Organisations.

Communications are a key part of all our organisations; from communicating to the media, policy makers, the public, our membership or internally. By improving the communication within and between our organisations we will improve our ability to engage the public with the biological sciences. This project has brought together communications, media, policy and education representatives from 13 separate organisations. Through round-table discussions we have identified that we face many similar issues and obstacles on a daily basis. By sharing experiences, utilising resources and keeping each other informed we will advance our communications much faster than we would in isolation.

I would like to thank all the members of the project, especially Lucy Harper and Beck Smith who chaired sessions, and the external experts whose contributions have been very welcome. Special thanks to Tom Wells and Ruth Francis, whose attendance and advice throughout the process of this project has been invaluable. Thanks also to Stempra who supported this project through the attendance at the forum meetings of expert representatives.

I look forward to nurturing the network formed through this project and taking forward the actions with the Society of Biology, Member Organisations and more broadly across the science communication community through Stempra and other conduits.

Jenna Stevens-Smith
Media and Events Executive
Society of Biology

Executive Summary

Introduction

The Science Communication Project brought the Society of Biology and Member Organisations together to discuss themes of science communication. The four themes discussed were interacting with the media; communicating science policy; public engagement and the internet as a means of communication. The overall aim of the project was to form a network between the Society of Biology and Member Organisations developing a platform through which best practice and opportunities could be shared.

The key points from the four themes are highlighted below:

1. Interacting with the media

- Forge a relationship with the media
- Work with the Science Media Centre
- Share knowledge and expertise

2. Communicating science policy

- Establish a science policy network
- Provide guidance for policy engagement
- Communicate science policy via the internet

3. Public engagement

- Establish specialised working groups
- Provide training and opportunities
- Supply resources and contacts
- Establish a UK wide biology network
- Encourage the integration of biology into culture

4. Internet as a means of communication

- Create an Internet Working Group
- Establish a virtual community online
- Coordinate online resources
- Formulate comprehensive lists of websites and social media channels

Conclusion

This project highlighted the benefits of the Society of Biology and Member Organisations working together. Although individual identity and branding is important, working in coordination can be more efficient and can increase the reach of an organisation. The spin-out projects from this report such as the Public Engagement Working group and Internet Working Group will encourage the continued growth of networks created through this project.

Introduction

Context

Why is science communication important? For any organisation wanting to provide current and wide-ranging opportunities to its members, good communication and connections with other similar organisations are essential. The Society of Biology is in a unique position where it can call upon expertise from a variety of societies that utilise various forms of communication and offer a wide variety of opportunities to their members. By bringing together a group of Member Organisations for this project, we have been able to recognise good practice, acknowledge what works well and what works less well, and formulate an action plan and guidelines for the future of science communication in these organisations in partnership with the Society of Biology.

Aims

Science communication networks and connections are essential to taking projects forward and making them sustainable. The Society of Biology was formed from the merging of the Biosciences Federation and the Institute of Biology in October 2009. In its new role the Society of Biology is the umbrella organisation for over 70 biological societies such as The Physiological Society, British Pharmacological Society, Marine Biological Association, and Society for Applied Microbiology. In this six-month project we have aimed to coordinate and improve the science communication practice and opportunities available to members of the Society of Biology and Member Organisations referred to as MOs in the actions of the report.

Process

The Science Communication Project was carried out through two-hour round table forum discussions on four themes of science communication covering:

1. Interacting with the Media
2. Communicating Science Policy
3. Public Engagement with Children
4. Public Engagement with Adults
5. The Internet as a means of Communication

Following these five forums a sixth was held to focus on formulating the report and identifying the key findings and action points from the previous meetings.

Future developments

There are many future directions that this project could take. Most importantly a communication/media community has been formed between the Society of Biology and Member Organisations which will need to be nurtured and supported for it to continue and grow.

There have been a handful of spin-out projects from this report. These include the reestablishment of a festivals committee, known as the Public Engagement Working Group (PEWG) which will meet twice-yearly to discuss festival and public engagement plans across the organisations. Secondly the creation of a Biology of Sport Working Group (BOSWG) which will coordinate the events, resources and communications related to the Biology of Sport initiative for the London 2012 Olympics. Lastly the Internet Working Group (IWG) which will run useful seminars, discussions on areas of online communication which affect the organisations such as search engine optimisation (SEO) and virtual learning environments (VLE). The IWG will also link in with other Society of Biology members to further investigate the evolving role of new media in our organisations.

Vision

The vision for this project is to enable the Society of Biology to act as the single unified voice for biology. By coordinating communications of the Society of Biology and Member Organisations we will have a more effective voice and higher profile when communicating with the public, media and policy makers.

Key Findings

Interacting with the Media

Context

The public react in a variety of ways to science. The recent Ipsos MORI survey results for the Department for Business, Innovation and Skills (BIS) report “Public Attitudes to Science”⁴ concluded that the public’s attitude to science is not simple or one-dimensional and that individual views can change as their exposure to science increases.

The economic value of science was recognised in the UK Government’s most recent Comprehensive Spending Review (October 2010)⁵ and it is up to scientists, science communicators and organisations such as the Society of Biology to illustrate the value of this investment.

The BIS Science and the Media Expert Group report (Science and the Media: Securing the Future)⁶ published in January 2010, reported that the vast majority of the public get most of their information about science from the mass media.

The Society of Biology and Member Organisations recognise the importance of the media in communicating biology to the public, from controversial topics such as GM crops, human-animal hybrid embryos and climate change to conveying the excitement of science in showing us the wonder of the world around us.

Current practice

The Society of Biology and Member Organisations predominantly interact with the media in isolation. Some organisations do not have a member of staff dedicated to media or communications. Through a coordinated strategy, detailed in the actions below, we aim to work together to raise the profile and quality of content of biological science stories in the media.

We aim to do this by:

- Forging a relationship with the media
- Working with the Science Media Centre
- Sharing knowledge and expertise

⁴ <http://www.ipsos-mori.com/Assets/Docs/Polls/sri-pas-2011-main-report.pdf>

⁵ <http://www.bis.gov.uk/news/topstories/2010/Oct/BIS-CSR>

⁶ <http://interactive.bis.gov.uk/scienceandsociety/site/media/2010/01/21/comment-on-the-final-report/>

We recognise the importance of encouraging our members to engage with the media ensuring that they are sufficiently trained to do so. In collaboration with the public engagement initiatives (*Public Engagement Section*) we aim to raise the profile of biology to the public, media and government.

Actions

1.1 Forging a relationship with the media

Rationale: Learned societies are a hub of information and expertise for their specialist subject. The Society of Biology and Member Organisations cover a diverse range of biology and have many experts in these areas who are happy to talk to the media about their interesting research.

Action:

Who:

1.1.1 Media briefings: seasonally themed e.g. Autumn-Flu Jenna Stevens-Smith

1.1.2 Promotion of Society/ Organisation websites and resources to the media All Organisations

1.2 Working with the Science Media Centre

Rationale: The Science Media Centre (SMC) has gone from strength to strength since its formation in 2002. It works to promote the voices, stories and views of the scientific community to the national news media when science is in the headlines. The SMC is a good conduit for communicating with the national news media: the Society of Biology and Member Organisations should proactively look to work more with them.

Action:

Who:

1.2.1 Briefings at Science Media Centre and responses to calls for experts Media/Communications representatives

1.2.2 Promote the SMC's Introduction to the Media courses and proactively recruit researchers to attend All Organisations

1.3 Sharing knowledge and expertise

Rationale: Many Society of Biology Member Organisations lack media teams. Those teams that exist are small or are made up of individuals working alone. Working together we can make a much bigger impact than we would in isolation.

Action:

Who:

1.3.1 List of areas of interest or focus for organisations All Organisations

1.3.2 List of media/communications contacts for MOs or Media Enquiries Tree Included in this report

1.3.3 Media training: Suitable training for larger numbers to be found should include press briefing and interviews practice. Jenna Stevens-Smith

1.3.4 Strengthen and build links with magazines for feature articles All Organisations

Discussion

Forging a relationship with the media

By the nature of the number of specialist biological organisations it can be difficult for journalists to know who the best organisation or person is to call with regard to specific news items. Highlighting our strong links and expertise in specialist areas through media briefings and promotion of resources will help this. The Media Enquiries Tree will enable better communications between Member Organisations and could prove extremely valuable for handling media enquiries.

Working with the Science Media Centre

The Science Media Centre has strong relationships with science journalists. It will be beneficial for the Science Media Centre and for Member Organisations if the Society of Biology utilises the contacts of the Science Media Centre and provides a coordinated biology community for them to call on for experts. The Media Enquiries Tree will aid our efficiency and success in responding to Science Media Centre enquiries. The Introduction to the Media seminar day is a useful free course run by the Science Media Centre for academics and press and media teams. The Society of Biology and Member Organisations will encourage members to attend these courses.

Sharing knowledge and expertise

Different organisations have different strengths and areas of expertise; this can be due to specialisms in biology and/or staff resources. The Media Enquiries Tree will allow Member Organisations to interact more freely with each other and the Society of Biology as well as becoming a useful network with which journalists and the Science Media Centre can interact. Encouraging members to gain media training will create a larger pool of expertise for Member Organisations to call upon when scientific experts are required. Strengthening and building links with magazines and feature articles will help raise the profile of the biology community in the wider public. Working together and sharing contact information will mean strengths and areas of expertise will be enhanced and used more efficiently.

Communicating Science Policy

Context

Science policy is an increasingly active area of science communication. As the Society of Biology mission states we aim to be *the single unified voice for biology: advising Government and influencing policy*. It is vital that science policy is evidence based and bodies such as the Society of Biology and Member Organisations utilise the expertise held within their memberships in this aim.

The coalition government has set in motion a great deal of change since they came to power. As policy develops and evolves it is even more important for us to establish our voice. From the science budget to education reforms the Society of Biology works with our members to promote evidence-based policy to government. The Society represents a broad range of members that vary in subject and size; collaborative working is essential to provide a strong, inclusive and unified voice across the biological sciences

Current practice

The Society of Biology responds to consultations by Government and other national and international bodies which are relevant to our members and where we think we can make an impact. Recent consultation responses have included Forestry Research, Spending Review 2010, Reform of the Common Agricultural Policy (CAP), and National Curriculum review. Society of Biology also produces position statements on areas of policy where biology plays a role and also sends a weekly Science Policy Newsletter⁷. A list of Society of Biology and Member Organisation contacts for science policy⁸ and education policy⁹ can be found on the Society of Biology website along with a list of Position Statements, Briefing Notes and Guidelines.¹⁰

The Natural Capital Initiative (NCI)¹¹ is a leading independent forum bringing together scientists, policy-makers, NGOs, business, industry and others, to discuss how the benefits people receive from nature – ‘ecosystem services’ – can be incorporated into decision-making at every level. The NCI identifies gaps in science, policy and practice and facilitates the debate about how to address these; liaising with, and informing, government, Research

⁷ If you would like more information or to receive the policy newsletter please contact Laura Bellingan on laurabellingan@societyofbiology.org

⁸ <http://www.societyofbiology.org/policy/mo-policy/member-organisations-policy-contacts>

⁹ <http://www.societyofbiology.org/policy/mo-policy/education-policy-officers-contact-details>

¹⁰ <http://www.societyofbiology.org/filegrab/documents/017e01ce4b4d1f1cead4d160ea35511b/mo-policy-document-database-april2011d.pdf>

¹¹ <http://www.naturalcapitalinitiative.org.uk>

Council and other initiatives. The NCI is a partnership between the Society of Biology, Centre for Ecology and Hydrology and British Ecological Society.

The Biochemical Society and British Ecological Society run the Policy Lunchbox¹² and Education Policy Lunchbox¹³ (with the Society for Experimental Biology) event series, which brings together those who work in science policy with experts for informal discussion of pertinent issues over lunch.

The Biochemical Society also organises Talkfest¹⁴ and Science Question Time¹⁵ (in collaboration with the Campaign for Science and Engineering and Imperial College) events which aim to open up discussions of science policy issues to a wider audience.

All the Society of Biology membership bodies with policy representatives prepare briefing notes, position statements consultation responses, engaging with their membership to best represent their views. You can find a repository of these on the Society website¹⁶.

We aim to further unify the voice of biology, advise the four Governments of the UK and influence policy by:

- Establishing a science policy network
- Providing guidance for policy engagement
- Communicating science policy via the internet

Actions

2.1 Establishing a science policy network

Rationale: Networks are an essential conduit of communication and the Society of Biology can enable a broader range of Member Organisations to get involved by promoting and creating these.

Action:

Who:

2.1.1 Set up a Society of Biology Science Policy Adviser Network

Laura Bellingan

2.1.2 Promote Policy Lunchbox (Biochemical Society and British Ecological Society)

All Organisations

¹² http://www.britishecologicalsociety.org/policy/policy_lunchbox.php

¹³ <http://www.biochemistry.org/PublicAffairs/Events/EducationPolicyLunchbox.aspx>

¹⁴ <http://www.biochemistry.org/PublicAffairs/Events/ScienceBloggingTalkfest2011.aspx>

¹⁵ <http://www.biochemistry.org/PublicAffairs/Events/ScienceQuestionTime.aspx>

¹⁶ <http://www.societyofbiology.org/policy>

2.2 Guidance for policy engagement

Rationale: As some of our Member Organisations do not have dedicated policy advisors we are developing guidance for them on how to engage with science policy. This will enable and encourage organisations and individuals to engage with science policy development and strengthen the biology 'voice'.

Action:

Who:

2.2.1 How to Influence Government: A guide to lobbying and consultation responses

Science Policy Adviser Network

2.3 Communicating science policy via the internet

Rationale: It is important from a science policy perspective that we add our views and our evidence to the body of information available on the internet. By better structuring our policy activity and networks online we will be able to reach out to a larger number of people.

Action:

Who:

2.3.1 Formulate a list of science policy hashtags (#)

Included in this report, to be expanded

2.3.2 Formulate Twitter list (Twist) of MO and SB twitter accounts/and others useful for science policy

Included in this report, to be expanded

Discussion

Establishing a science policy network

A core science policy network already exists, but we want to increase the representation of the biological sciences within this. A key member of the science and engineering policy network is the Campaign for Science and Engineering (CaSE)¹⁷. CaSE is a leading independent advocate for science and engineering in the UK and was launched in 1986 as 'Save British Science'. Member Organisations should be encouraged to work with and join organisations such as CaSE to further raise the profile of biology and science. By enabling smaller Member Organisations and branches to keep up to date with science policy they are more likely to engage when necessary. Two of our Member Organisations involved in this project, the Biochemical Society and British Ecological Society already run the successful and well-regarded Policy Lunchbox and Education Policy Lunchbox event series. In addition the Biochemical Society also organises Talkfest and Science Question Time. The Society of Biology Policy Network will not duplicate these activities, but instead provide a forum for policy professionals across the Member Organisations to come together, to discuss the policy priorities and areas of greatest concern to the Society of Biology.

Providing guidance for policy engagement

¹⁷ <http://sciencecampaign.org.uk/>

The Society of Biology plays a coordinating role in communicating science policy and compiling evidence for consultation responses. *How to Influence Government* guide will be a useful introduction to the process by which the Society engages with government, and will be further developed and updated by the Science Policy Adviser Network.

Communicating science policy via the internet

The internet is a great means of communicating science policy and engaging people with issues. The Science is Vital campaign¹⁸ is an example of a science policy issue which flourished through internet communications. The campaign presence was prolific, quickly spreading across Twitter, Facebook, engaging science communicators, researchers and whole universities. In just three weeks, thousands of peaceful protesters championing science rallied together outside the Treasury to demonstrate their belief in the importance of science in the run up to the Comprehensive Spending Review. Not all science policy issues provoke such a dramatic reaction from the scientific community. Science policy is wide-ranging, covering many issues and it is our responsibility as professional bodies to communicate to our members the diversity of policy issues which arise regularly.

¹⁸ <http://scienceisvital.org.uk/>

Public Engagement

Context

Public engagement with science is the umbrella term used to describe a broad range of initiatives aimed at promoting interaction and dialogue between members of the public and scientists. The term 'public engagement' stems from the 2000 House of Lords Select Committee report¹⁹, which concluded that for science and scientists to regain the trust of the public, an engaging dialogue was needed. This was prompted as a result of the increased polarisation of public support of science that occurred following coverage of controversial science in the media such as MMR and genetic modification.

Public engagement is an essential component of the role of the Society of Biology and Member Organisations. Science as an entity reaches the public through ethical, political, societal means and is embedded in the private and public sectors. The reasons for carrying out public engagement are as diverse as the different types of events the term describes. For Learned Societies such as the Society of Biology and its Member Organisations the main motivations for public engagement are:

- To win support for science
- To develop skills and inspire learning
- To fulfil their charitable remit
- To promote more efficient, dynamic and sustainable economies
- As a benefit for members, by providing opportunities to enhance their careers and the impact of their research

These reasons support the key motivations and purposes for public engagement identified in Figure 1 of the Science for All Expert Group Report and Action Plan²⁰.

In contrast to engaging with the media, engaging with the public provides an opportunity for scientists to promote the excitement of science alongside the results of the scientific process. The vision of the Science for All Expert Group in the Science for All report (Feb 2010) is that:

“All sections of society valuing the sciences and their methods as creative and empowering ways to ask questions, offer solutions and contribute to our understanding and improvement of the world in which we live.”

¹⁹ <http://www.publications.parliament.uk/pa/ld199900/ldselect/ldsctech/38/3801.htm>

²⁰ <http://interactive.bis.gov.uk/scienceandsociety/site/all/2010/09/24/science-for-all-updated-action-plan-2/>

This vision is in line with that of Learned Societies, and as a group, as respected cultural institutions within the UK, the Society of Biology and its Member Organisations are well positioned to promote this vision.

It is essential that the target audience is identified before the public engagement activity is started. The Ipsos MORI survey results for the BIS report “Public Attitudes to Science” identified six distinct groups in the population:

- Confident Engagers
- Distrustful Engagers
- Late Adopters
- Concerned
- Disengaged Sceptics
- Indifferent

The Confident Engagers were identified as making up one in seven of the population and tended to be aged 35-54 and affluent (ABC1s²¹). The Distrustful Engagers were identified as making up one in eight of the population and tended to be men aged 55+ and affluent (ABC1s). Late Adopters made up one in five of the population and tended to be women aged 16-34. Concerned made up one in four of the population and tended to be women aged 16-24, less affluent (C2DEs²²) and from black and ethnic minority (BME) communities. Disengaged Sceptics made up one in eight of the population and tended to be women, less affluent (C2DEs) and with fewer qualifications. Indifferent made up one in five of the population and tended to be retired older people often less affluent (C2DEs).

The importance of supportive networks and mechanisms for increasing effective engagement was a key focus for the Science for All Expert Group. This resonates closely with the underlying aims of this project: to establish a communications network between the Society of Biology and Member Organisations. The sustainability of this network and of the public engagement activity that is initiated through it is essential.

The importance of public engagement has been recognised in the higher education sector by the Public Engagement Concordat²³, and the research community are encouraged to submit a public engagement component within their grant proposals. The Royal Academy of Engineering in collaboration with BIS has undertaken research into the role of public engagement in business. Their report, entitled: *Motivations, Rewards and Barriers* -

²¹ [Social Grade demographic classification systems used in market research](#)

²² [Social Grade demographic classification systems used in market research](#)

²³ <http://www.rcuk.ac.uk/per/Pages/Concordat.aspx>

Engaging the public in science, technology, engineering and mathematics related businesses, will be published in autumn 2011.

Current practice

The societies involved in this project all carry out public engagement activities. The extent and form of these activities varies greatly depending on the motivations and funding behind them. The public engagement activities carried out by the societies was assessed using the Science for All – Public Engagement Conversational Tool²⁴. The majority of events carried out by societies were designed to transmit information with only a few falling into the categories of ‘collaborate’ and ‘receive’. The importance of defining the ‘public’ in public engagement has been widely discussed and is a key factor in determining successful engagement²⁵. For the purpose of this forum the public was split simply into children and adults- families overlapped this split and were covered in both forum meetings.

i) Public Engagement with Children

In this project, the motivations behind the involvement of Learned Societies with children were to inspire the next generation of scientists and to add value to the education of young people. Most Societies’ have a strong focus on informal STEM education, that which takes place outside of the classroom environment. Societies work alone as well as in collaboration with universities, science museums and national schemes to excite and enthuse students through hands-on, experience based activities that link to curriculum activities. A recent POSTnote on Informal STEM Education²⁶ acknowledges the benefit that these activities bring but also explores the difficulty of widening the reach of such activities and also of evaluating their impact.

Most societies interact with children through events at science festivals such as the Big Bang. Science festivals differ greatly in their scale and organisation, from weekends organised by friends to fortnight events run by not-for-profit organisations. Festivals that societies have been involved in include Big Bang Fair, Cheltenham Science Festival, Edinburgh Science Festival, British Science Festival and Brighton Science Festival among others. Several societies will be taking part in the inaugural London Science Festival this October. The audiences at these festivals are incredibly varied and are not restricted to children; see the *Public Engagement with Adults* section.

²⁴ <http://interactive.bis.gov.uk/scienceandsociety/site/all/files/2010/10/PE-conversational-tool-Final-251010.pdf>

²⁵ <http://www.publicengagement.ac.uk/what/who-are-the-public>

²⁶ POSTnote No382 June 2011

Several Member Organisations also have outreach programmes with schools. These programmes focus on supporting teachers through the provision of teaching resources and by supporting researchers to engage with students by visiting schools. In addition to individual society programmes there are a number of national platforms for outreach with schools. The National Stem Centre eLibrary²⁷ and Schoolscience²⁸ are two examples of national resource repositories, where societies can deposit their materials. The Society of Biology, together with the Nuffield Foundation and CLEAPSS, develop the Practical Biology website²⁹, a repository of biology experiments for primary and secondary schools to which organisations can contribute.

National schemes also exist that support researchers to engage with schools: 'I'm a Scientist get me out of here'³⁰ and the STEM Ambassadors programme³¹. For example the British Society for Immunology works with the STEM Ambassadors programme to promote the scheme and to encourage their members to engage with schools and colleges around the country through this.³²

Many informal STEM education projects focus on school or family audiences. The Marine Biological Association has expanded its programme to work with children in community groups through the Blue Sound project³³ which aims to connect local people (children and adults) with the marine environment of the Plymouth Sound. These community groups do not have a direct interest in science, and the project engages them with science that is relevant to them, by allowing them to choose how they want to experience the science: from scuba diving to eating seaweed.

ii) Public Engagement with Adults

Adults represent a broader and more complex audience than children, due to their greater diversity in knowledge, experiences and age, among other features. Despite this complexity, engagement with adult audiences has many benefits and a higher level of collaboration and information exchange can occur than with children. That said, of the Member Organisations in this forum, none used adult audiences in this manner. Most societies engaged adults through talks and discussion events at Science Festivals and meetings, focusing mainly on transmitting information. At the Cheltenham Science Festival and the British Science

²⁷ <http://www.nationalstemcentre.org.uk/elibrary/>

²⁸ <http://www.schoolscience.co.uk/>

²⁹ <http://www.practicalbiology.org/about-us/>

³⁰ <http://imascientist.org.uk/>

³¹ <http://www.stemnet.org.uk/content/stem-ambassadors>

³² For more information about working with the STEM Ambassadors Scheme as a society contact Hannah Hope (h.hope@immunology.org)

³³ <http://bluesound.org>

Festival, the Society of Biology already coordinates events for adults, organised by Member Organisations. The benefit to Member Organisations of this coordinated approach includes increased publicity and reduced event costs. Adults attending science festivals tend to be in family groups or have a pre-existing association with or interest in science. That said, not all adults in family groups are interested in science and attend events because of their children. However their presence at the event means that efforts should be made to engage with them.

Reaching so called 'hard to reach' adults who do not have a pre-existing interest in science or children who do not attend science festivals or talks, requires engagement events that remove the barriers that stop these individuals from engaging with science. Attempts to break down these barriers by Member Organisations include the previously mentioned Blue Sound project and 'MS: the big knit' run by the British Society for Immunology. This project explored science through the medium of knitting with community and knitting groups. Members of the British Association for Lung Research has run successful events at stations testing people's lung function, in an effort to identify undiagnosed asthmatics, and whilst providing information to everyone taking part about the lungs and the impact of smoking and pollution on them.

While science festivals do not necessarily reach this 'hard to reach' adult audience, other types of festivals do. There has been an explosion recently in the number of music festivals that take place each year. They represent an exciting opportunity to target new audiences as shown by groups such as Guerilla Science³⁴. Many music festivals including Glastonbury, the Green Man festival and Latitude, now have a science theme to them, such is the public demand for science. The Society for General Microbiology and the British Society for Immunology will be involved in the Green Man festival this year for the first time.

Similarly, as they do for children, national and regional networks exist that promote engagement of science to an adult audience, such as the Café Scientifique network³⁵ and Sceptics in the pub³⁶. Both of these schemes promote the discussion of science and pseudoscience, and involve one or several active researchers discussing their subject with the audience. These networks provide an excellent opportunity for scientists to engage with communities around the UK and have been used by several Member Organisations, but could perhaps be used more widely.

³⁴ <http://guerillascience.co.uk/>

³⁵ <http://www.cafescientifique.org/>

³⁶ <http://skeptic.org.uk/events/skeptics-in-the-pub>

We aim to build on the public engagement work already done by the Society of Biology and Member Organisations by:

- Establishing specialised working groups
- Providing training and opportunities
- Supplying resources and contacts
- Establishing a UK wide biology network
- Encouraging the integration of biology into culture

Actions

Discussion among the group identified several future activities which will benefit all Member Organisations in their public engagement.

3.1 Establish specialised working groups

Rationale: The science communication project has created a network across the Society of Biology and Member Organisations. To continue the development of this network, some subgroups termed ‘working groups’ have been created.

Action:

Who:

3.1.1 Public Engagement Working Group

- Taking a coordinated approach to festivals
- Evaluation platform

Jenna Stevens-Smith/ Hannah Hope/
Louise Crane/ Jennie Evans

3.1.2 Biology of Sport (Olympic) Working Group

- Coordinated events programme
- Combined resources

Jenna Stevens-Smith

3.2 Provide training and opportunities

Rationale: Appropriate training and promotion of useful opportunities to Member Organisations, branches and members is a useful function that the Society of Biology and Member Organisations can fulfil.

Action:

Who:

3.2.1 Promote public engagement training for academics

Public Engagement Working Group

3.2.2 Evaluation workshops

Public Engagement Working Group
and Collective Memory

3.3 Supply resources and contacts

Rationale: There are a plethora of resources and groups that are involved in public engagement. By coordinating our resources and targeting key groups we will be able to disseminate useful information to a wider selection of the public.

Action:

Who:

3.3.1 Establish contact home educator network

Public Engagement Working Group

3.3.2 Contribute to existing resource websites, including:

All Organisations

- Practical Biology
- National STEM centre

3.3.3 Promote sign-up to STEMNET ambassador scheme Public Engagement Working Group and all organisations

3.4 Establish a UK wide biology network

Rationale: Public engagement with science is taking place across the UK and is organised by a variety of organisations and individuals. To begin to coordinate this, the Society of Biology and Member Organisations will identify the distribution of branches, Member Organisations, universities and members across the UK and encourage collaboration between the organisations and individuals. This will aid the next action to *encourage biology to be embedded in culture*.

Action:	Who:
3.4.1 Establish links with the branch networks of other scientific organisations	Jenna Stevens-Smith
3.4.2 Utilise branches to get into communities	Science for All Expert Group and Jenna Stevens-Smith
3.4.3 Identify local press contacts for promotion of SB and MO events	Jenna Stevens-Smith

3.5 Encourage the integration of biology into culture

Rationale: When considering culture, the arts, music and theatre are generally thought of before science. However, science plays an integral role in our daily and evolving culture and finding ways to embed biology in culture are very important.

Action:	Who:
3.5.1 Ecological/ biological walks around London	British Ecological Society
3.5.2 Promote Charles Darwin House as a bioscience hub	Organisations based in CDH
3.5.3 Biology of sport project	Jenna Stevens-Smith
3.5.4 Channel 4's 5minute slots during the week	Jenna Stevens-Smith

Discussion

Establishing specialised working groups

Previously there was a dedicated Festivals Committee that coordinated the involvement and activities run by the Society of Biology and Member Organisations at festivals around the country. However, this committee disbanded and a need for a group that served this function once again was recognised. Coordinating the approach to festivals will be one role of the Public Engagement Working Group, but the group will also bring together both staff and

active members of the organisations who have first-hand experience of public engagement. Another aim of this group will be to encourage evaluation of public engagement activities run by the Society of Biology, provide a platform for sharing ideas and raise the profile of biology and biological organisations to the general public.

Providing training and opportunities

Evaluation is increasingly important in reviewing the success of public engagement activities and optimising them for future use. The Society of Biology will encourage members and Member Organisations to engage with the Collective Memory initiative, which is a spin out project from the Science for All Expert Group. Collective Memory³⁷ is a database of evaluations of a diverse range of science communication initiatives, with the aim of bringing together the wealth of expertise from across the public engagement community to help individuals learn from their peers. The website enables users to explore, comment, ask questions and share your experiences of public engagement. There is the intention to feature expert tips and guidance on topics such as evaluation. A project such as Collective Memory will only work if the public engagement community participates.

In collaboration with The Physiological Society, the Society of Biology is looking to provide public engagement training for our members, beginning with a training session in Glasgow, and branching out around the country through our university representatives and branches. The Society of Biology will also formulate stronger links with Science and Discovery centres.

Supplying resources and contacts

At the Big Bang Fair we identified a large community of home educators that were enthusiastic and keen to do more practical biology at home. The resources and materials that the Society of Biology and Member Organisations have for hands on biology could be of a great assistance to this network.

The STEMNET ambassador scheme has recently had its funding for the next few years confirmed and continues to provide opportunities for STEM (Science, Technology, Engineering and Mathematics) ambassadors to gain experience communicating science and inspiring young people.

Establish a UK wide biology network

One of the priorities identified in the original Science for All Expert Group report was the importance of mapping. The Society of Biology also identified the benefits of a UK biology

³⁷ <http://collectivememory.britishtscienceassociation.org/>

network based on our regional branch structure³⁸ and on utilising our university representatives and Member Organisations³⁹ in the first instance. The network would then expand to connect branches of other scientific organisations such as British Science Association⁴⁰, Institute of Physics⁴¹, Royal Society of Chemistry⁴² and the Association for Science and Discovery Centres⁴³. The coordination of the sciences, scientists and science centres will enable the broader embedding of biology and science in culture.

Encourage the integration of biology into culture

Embedding science in culture is an ultimate aim of the Science for All Expert Group. The actions listed above will aid in the initial embedding of biology and science in culture through a national network. However, linking together those already enthused and engaged with science will not reach out to the groups of the population which we need to reach if science is to become truly embedded in culture. Initiatives such as the Biology of Sport project will engage with a sporting and potentially less scientific audience. Continuing to strengthen the link with the BBC Bang goes the Theory team will be beneficial across the biology community. As the biology community we look for opportunities to communicate to diverse audiences.

³⁸ <http://www.societyofbiology.org/branches>

³⁹ <http://www.societyofbiology.org/membership/organisational-membership/mo-list>

⁴⁰ <http://maps.google.com/maps/ms?msa=0&msid=104918653137960370787.00044fdc3849cbd9416b7&ie=UTF8&ll=54.863963,-2.570801&spn=8.567854,17.072754&z=6>

⁴¹ <http://www.iop.org/activity/branches/index.html>

⁴² <http://www.rsc.org/Membership/Networking/LocalSections/>

⁴³ <http://sciencecentres.org.uk/centres/>

The Internet as a means of Communication

Context

The internet can provide a relatively low-cost means of communication which can overcome geographical boundaries. It is changing the way scientists communicate with each other: the burgeoning area of open access peer review publication relies on the internet, and more scientists are using social media to communicate, such as Professor Brian Cox⁴⁴ on Twitter, periodic table videos initiative⁴⁵, and the iNaturalist.org⁴⁶ citizen science project. The internet is also changing the way other stakeholders, including Learned Societies, engage their member and non-member scientists and communicate science to a wider audience.

The internet is continuously evolving and has moved from Web 1.0, through which creators broadcast information and use hyperlinks to link to other online broadcasts, to Web 2.0 which is designed to facilitate interaction (engagement) between the creator and multiple users. Blogs and other forms of social media are good examples of this. Now, discussion is focussing on Web 3.0 (or semantic web), the definition of which is being debated as either:

1. A greater personalisation of online experience or
2. Non-human content generation

The importance of science information online was demonstrated by the Ipsos MORI survey results for the BIS report “Public Attitudes to Science” which found that 19% of members of the public who were surveyed, said that *“one of their two most regular sources of scientific information was the internet. To put this in context however, some participants in the workshops actively sought out information on health topics online, but did not always consider this information about “science” so the survey could underestimate the extent to which people find out about science, especially medical science online”*.

The role of the internet in science communication is discussed at conferences devoted to the subject, such as Science Online 2011⁴⁷ and the British Science Association’s science communication conference this year (2011)⁴⁸, the theme of which was “Online Engagement”. There are innumerable articles and blogs discussing online communication and engagement in science, for example a recent blog by the Guardian discussed the fact that YouTube is popularising science⁴⁹.

⁴⁴ <http://twitter.com/#!/ProfBrianCox>

⁴⁵ <http://www.periodicvideos.com/>

⁴⁶ <http://www.scientificamerican.com/blog/post.cfm?id=citizen-scientists-and-social-media-2011-05-28>

⁴⁷ <http://scienceonline2011.com/>

⁴⁸ <http://www.britishsociety.org/web/ScienceinSociety/ScienceCommunicationConference/ScienceCommunicationConference.htm>

⁴⁹ <http://www.guardian.co.uk/science/blog/2011/may/17/youtube-popularising-science>

The National Co-ordinating Centre for Public Engagement lists many ways in which scientists can communicate and engage with the general public⁵⁰. Many of these require the internet (e.g. online consultations, podcasts, videos and online factsheets).

This is just a selection of evidence that points to the fact that Learned Societies should be engaging with their stakeholders online, but why? When considering a strategy for online communications, Member Organisations should reflect upon what they are trying to achieve by investing resource in new technologies and social media.

Why communicate online?

Learned Societies use the internet as a means of communication for a variety of purposes:

1. To inform and educate each visitor about the specialism of the organisation
2. To fulfil their charitable role in providing public benefit
3. To promote themselves as organisations and their activities whilst overcoming geographical boundaries for:
 - a. Membership recruitment
 - b. Publicity/marketing
 - c. As a resource for a variety of audience groups:
 - i. Teachers
 - ii. General public
 - iii. Scientists

Current practice

How are Member Organisations communicating online?

The online tools used by Member Organisations are summarised in the appendix.

Website

All Member Organisations have at least one website. This can be the first contact a user will have with organisations. With this in mind it is vital that useful information and resources are easy to find.

With website and all other online communication it is important that Member Organisations understand their objectives:

- What do they want to do?
- Why do they want to do it?

⁵⁰ <http://www.publicengagement.ac.uk/how/methods>

- What will be the aims/outcomes?
 - In general – e.g. broaden knowledge about the organisation’s specialism (without adding to uninformed “noise”)
 - For the organisation – e.g. increase reach/marketing/promotion/profile-raising

This can help Member Organisations to determine whether it is worth putting resource into developing communication facilities/tools online.

It is also important to find out what current users of Member Organisation websites want from any future developments, through surveying and interviewing stakeholders for example: members; non-member scientists; publishers; teachers; political figures; community groups; regional branches (if applicable) and staff.

Many Member Organisations’ use all or a combination of the following social media tools to communicate online:

- **Twitter** is a micro-blogging site where users can tweet what they are up to in 140 characters or less and follow and interact with other users. Twitter is also used as customer services and is a large network for compelling, timely and relevant news.
- **Facebook** is a social hub for a network of friends, but is gradually being used more and more by businesses to target the 20-25 age group.
- **Linked In** is useful for industrial links, and has a company profile, education and policy emphasis.
- **Blogs** give reach to an organisation if linked and tagged with the right words and other blogs, and can build a community and voice.
- **YouTube** is great for viral campaigns and is used increasingly by teenagers
- **Vimeo** is a video sharing platform.

Actions

Discussion among the group identified several future activities which will benefit all Member Organisations in their online communications. These included:

- Creating an Internet Working Group
- Establishing a virtual community online
- Coordinating online resources
- Formulating comprehensive lists of websites and social media channels
- Engaging trustees

4.1 Create an Internet Working Group

Rationale: There are many aspects of online communication about which Member Organisations (MOs) feel specialised training and/or further discussion is necessary. This group will identify key areas of training, discussion and collaboration.

Action:	Who:
4.1.1 Training sessions on: <ul style="list-style-type: none"> - Search Engine Optimisation - Podcasts - Video editing - Moodle - Licensing online 	Louise Crane & Laura Udakis Louise Crane & Richard Scrase Jenna Stevens-Smith Stempra
4.1.2 Forum or expertise/feedback on website functionality, content, navigation and aesthetics	Lucy Harper
4.1.3 Ideas and brainstorming of future developments	Internet Working Group (IWG)
4.1.4 Recommendations of website developers	All Organisations
4.1.5 Role of social media in our organisations See: British Science Association Social Media Dossier ⁵¹	All Organisations disseminate
4.1.6 Evaluation of online communications	All in IWG
4.1.7 Comprehensive lists of websites/resources for BBC	Jenna Stevens-Smith
4.1.8 Review of media pages on websites	All Organisations
4.1.9 Run a workshop to gain a better understanding of the Wikimedia Foundation platforms available in addition to updating relevant Wikipedia pages	All Organisations

4.2 Establish a virtual community online

Rationale: To maximise effectiveness using online communications, Member Organisation (MOs) are invited to interact online where appropriate and engage with each other on relevant subjects. To ensure easy access to MO online communication information for discussion, information sharing and to build a sense of community between MOs the Google group was created. Homepage: <http://groups.google.com/group/society-of-biology>

Action:	Who:
4.2.1 Update group with information from MOs including: <ul style="list-style-type: none"> 4.2.1.1 Website addresses 4.2.1.2 Twitter names 4.2.1.3 Facebook pages 	All Organisations, with current information included in report
4.2.2 MOs on Facebook to “like” each other’s pages	All Organisations
4.2.3 MOs on Twitter to follow each other and retweet each other’s tweets where appropriate/valid	All Organisations
4.2.4 MOs to comment on each other’s blogs where appropriate	All Organisations

⁵¹ <http://www.britishtscienceassociation.org/NR/ronlyres/905AFA62-7132-4EAE-B98B-061670DDBA09/0/SocialMediaDossier.pdf>

4.3 Engaging trustees

Rationale: MOs are governed by their trustees, so ensuring buy-in from these decision-makers is vital in remaining up-to-date and effective in all aspects of online communication.

Action:

Who:

4.3.1 Develop portfolio of case studies of success stories and tangible benefits from the use of online communications.

Lucy Harper to approach Henry Scowcroft

4.3.2 Share examples using the Google Group

All Organisations

4.3.3 Tap into information from the BIS Online Group which is also compiling a portfolio of case studies of successful online communications.

All Organisations

Discussion

Member Organisations should remain informed of the latest developments in online communication to ensure their best use feeds through to scientists at the bench-face and ultimately all stakeholders of the organisation.

Creating an Internet Working Group

This group will meet in person to make full use of internal expertise and interest to inform the members of all latest relevant developments in online communications. This will include running training sessions on a variety of topics from podcasting and video editing to Wikimedia. The group will also provide a forum of expertise for recommendations and advice. Dissemination of useful resources and guides as they arise will also be a useful function of this group, such as the British Science Association Social Media Dossier and the beginner guides to social media and twitter included in this report. Continuing discussions of metrics for evaluating online communications will also be valuable.

Wikipedia

Wikipedia comes top of most key word searches in search engines, due to a dedicated team of talented Wikimedians whose job is to search engine optimise key words and sections of Wikipedia. Wikimedia foundation⁵² is more than just Wikipedia, and is continually expanding.

The vision of the Wikimedia Foundation⁵³ is: *“Imagine a world in which every single human being can freely share in the sum of all knowledge. That's our commitment.”*

An interesting project for Society of Biology and Member Organisation to get involved with is **GLAM**⁵⁴ which is an acronym for **Galleries, Libraries, Archives and Museums**, but also

⁵² <http://www.wikimedia.org/>

⁵³ <http://wikimediafoundation.org/wiki/Vision>

incorporates other institutions such as theatres, zoos, botanical gardens, public broadcasters and others. The Society of Biology is also looking into organising a Wikimedia workshop for the Society of Biology and Member Organisations, with the aim of improving the biology content and links across the Wikimedia platforms and encouraging members to contribute content.

Establishing a virtual community online

It is essential that the Society of Biology and Member Organisations present a coordinated appearance online. Websites may well be the first interaction that members of the general public will have with organisations so it is important that these create a good first impression. The use of an online group, such as the Google group will enable discussion about internet communications for Member Organisations which is not limited by the timetable or geographical boundaries of face-to-face meetings.

Engaging Trustees

Trustees play a guiding role in many Member Organisations, formulating long-term strategies and goals. Therefore, it is important to engage trustees with projects and initiatives as they are the ultimate decision-makers. To engage trustees with social media a portfolio of case studies can be developed describing success stories and tangible benefits. These case studies can be disseminated using Google groups, BIS has an Online Working Group who are compiling a portfolio of case studies of successful online communication; this may also be of use to the Society of Biology and Member Organisations.

⁵⁴ <http://outreach.wikimedia.org/wiki/GLAM>

Taking this work forward

The Science Communication Project was a useful opportunity to get the Society of Biology and Member Organisations together to discuss different areas of science communication.

Summary of key points

The project recommends the formation of the following working groups:

- Public Engagement Working Group
- Biology of Sport Working Group
- Internet Working Group
- Science Policy Adviser Network

The project recommends the creation of the following resources:

- Media enquiry tree
- Media expert lists
- Media Briefings
- Branch networks
- Social media lists
- Website lists
- Timeline of events

Evaluation

The discussions and actions from this report were and could be very useful to all involved and the science communication community more broadly. Evaluation is an essential component to the prolonged success of this project, from evaluation of individual events to a review of the working groups formed following this report. In addition to evaluation procedures for each event or group, the success of the overall report will also be measured in September 2012.

Appendix

1. Society of Biology and Member Organisation Media Contacts
2. Science Festivals 2011-2012
3. Example documents/ guides
 - a. Media- *How to give a media interview the Do's and Don'ts of TV and radio*
 - b. Policy- *How to Influence Government*
 - c. Public engagement- *How to run a stall at a science festival*
 - Including example hand-outs
 - d. Internet- *How to use social media (a beginners guide)*
 - e. Internet- *How to use twitter (a beginners guide)*
4. Online media resources
 - a. Twitter list including hashtag list
 - b. Facebook list
 - c. Blog list
 - d. Website list
5. Reference documents and reports
 - a. Science for All (February 2010)
 - b. Science and Trust (March 2010)
 - c. Science for Careers (March 2010)
 - d. Science and the Media (January 2010)
 - e. Public Engagement for Science and Society – a conversational tool
 - f. Public Attitudes to Science May 2011
 - g. Social Grade demographic classification systems used in market research
 - h. British Science Association Social Media Dossier
 - i. Public Engagement Concordat
 - j. Public Engagement: Who are the Public
 - k. POST NOTE No382 June 2011
 - l. House of Lords Science and Technology Committee Report 2000
 - m. MemNet
 - n. Research Information Network guide for scientists on communicating and disseminating their research
 - o. Research Information Network guide on the use of Web 2.0 for scientists

Appendix 1: Media and Communication contact details

This list details the main media contacts at the Society of Biology, Society for Applied Microbiology, Society for General Microbiology, British Ecological Society, Marine Biological Association, Scottish Association for Marine Science, Society for Endocrinology, British Pharmacological Society, British Society for Immunology, Biochemical Society, Nutrition Society, Society for Experimental Biology and The Physiological Society.

Biology

Society of Biology
Jenna Stevens-Smith
Media and Events Executive
jennastevenssmith@societyofbiology.org
Tel: +44 (0)20 7685 2554

Biochemistry

Biochemical Society
Amy Cox
Communication Manager
amy.cox@biochemistry.org
Tel: +44 (0)20 7685 2400

Ecology

British Ecological Society
Becky Allen
Press Officer
press@BritishEcologicalSociety.org
Tel: +44 (0)1223 570016

Endocrinology

Society for Endocrinology
Jennie Evans
Public & Media Relations Officer
jennie.evans@endocrinology.org
Tel: +44 (0)1454 642 230

Experimental Biology

Society for Experimental Biology
Sarah Blackford
Head of Education & Public Affairs
s.blackford@lancaster.ac.uk
Tel: +44 (0)1524 594850

Immunology

British Society for Immunology
Hannah Hope
Science Officer
h.hope@immunology.org
Tel: +44 (0)20 3031 9807

Marine Biology

Marine Biological Association
Guy Baker

Communications Officer

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Tel: +44(0)1752 633244

Scottish Association for Marine Science
Anuschka Miller
Head of Communications
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Microbiologist
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Society for General Microbiology
Laura Udakis
Press and Public Affairs
l.udakis@sgm.ac.uk
Tel: +44 (0)118 988 1843

Nutrition

Nutrition Society
Sarah James
Scientific Development & External Affairs Co-ordinator
s.james@nutsoc.org.uk
Tel: +44 (0)20 7605 6573

Pharmacology

British Pharmacological Society
Jonathan Brüün
Head of Communications & Development
jb@bps.ac.uk
Tel: +44 (0)20 7239 0184

Physiology

The Physiological Society
Claire Kingston
Head of Media and Communications
ckingston@physoc.org
Tel: +44 (0) 20 7269 57

Appendix 2: Science Festivals 2011-2012

September 2011	British Science Festival– Bradford	BBC Bang goes the Theory
	10-15 September 2011 http://www.britishtscienceassociation.org/web/BritishScienceFestival/	Cwmbran 3-4 September 2011 Bradford 9-10 September 2011 Manchester 22-23 October 2011 http://www.bbc.co.uk/tv/features/bang/aps/
October	London Science Festival	Manchester Science Festival
	19-26 October 2011 http://www.londonsciencefestival.com/	22-30 October 2011 http://www.manchestersciencefestival.com/
November		
December		
January	Association for Science Education Annual Conference- Liverpool	
	4-7 January 2012 http://www.ase.org.uk/conferences/annual-conference/	
February	Brighton Science Festival	
	February/ March 2012 http://www.brightonscience.co	
March	Cambridge Science Festival	The Big Bang Fair– Birmingham
	12-25 March 2012 http://cambridgesciencefestival.org/	15-17 March 2012 http://www.thebigbangfair.co.uk/
April	Edinburgh Science Festival	
	31 March-13 April 2012 http://www.sciencefestival.co.uk/	
May		
June	Cheltenham Science Festival	
	12-17 June 2012 http://www.cheltenhamfestivals.com/science	

Appendix 3a: Media

How to give a media interview The Do's and Don'ts of TV and radio

Introduction

It is important that scientists communicate their research to the media and there are avenues for this, such as newspapers, TV, radio, and online. Scientists can communicate what they want to say directly to the public now through social media such as Twitter, Facebook and blogs.

Top tips

Do

- 1. Prepare**
Always be prepared, if you are talking about a controversial subject then it's wise to utilise websites which give opposing views so you are ready for those tough questions
- 2. Answer the question**
If you don't the journalist may keep asking the same question until they get an answer
- 3. Three key points**
Know what key messages you want to get across, and communicate them early on in the interview, embedding them in an answer to a question if appropriate.
- 4. Use the right tone of voice**
Talk to one person not all the listeners
- 5. Be passionate**

Don't

- 1. Over-prepare answers**
It will come across like you are reading from a script, which will make you seem less trustworthy and real
- 2. Use acronyms and jargon**
You may well know what a commonly used acronym is, but the non-specialist audience you are communicating to will most likely not. Keep technical language to a minimum and if you do have to use jargon explain it concisely.
- 3. Be pedantic**
Accuracy is essential in science, and in communicating science you want to be accurate and correct, but rounding numbers sensibly up or down to the nearest whole number, or if accurate using 1 in 10 style statistics to explain the numbers or risk makes it easier for the public to understand.
- 4. Be condescending or patronising**
Just because your audience may not be experts in your area of biology, doesn't mean you should talk down to them. From young children to adults you should communicate science at a level appropriate to them. It can be useful to have knowledge of the demographic of the programme before you do the interview.

Questions to ask a journalist if you are contacted directly

For TV and radio:

1. What station (or newspaper) are they calling from?
2. What programme is it for and what time?
3. Who else will be on?
4. How long will the interview be?
5. Is it live or pre-recorded?
6. Who are the audience?

For TV:

1. What colour is the set? (*This will determine your choice of clothes, patterns should generally be avoided as they may appear too busy on screen*)
2. Who is the reporter?

Courses

The **Science Media Centre** runs an Introduction to the Media course for academics if you are interested in finding out more contact smc@sciencemediacentre.org

Sense about Science run a Standing up for Science workshop, this is an introduction to communicating science. <http://www.senseaboutscience.org/pages/workshops.html>

Boffin Media run personalised media training sessions for small groups
www.boffinmedia.co.uk/

University press office: some university press offices will provide media training for their academics, so it's worth enquiring to see whether there is any training available to you.

Funding bodies: e.g. BBSRC provide their researchers with free media training courses

Resources

Top tips for media work:

<http://www.sciencemediacentre.org/pages/publications/index.php?showAll=0&showSeries=13>

Standing up for Science guide:

<http://www.senseaboutscience.org/data/files/resources/13/Standing-up-for-Science-interactive.pdf>

You can listen to a podcast of the June 2011 event created by Laura Udakis from Society for General Microbiology

<http://www.sgm.ac.uk/news/podcast/VoYS%20media%20workshop.mp3>

Further information

If you have any further questions about doing media work please contact Jenna Stevens-Smith at Society of Biology.

Email: jennastevenssmith@societyofbiology.org Tel: 020 7685 2554

If you are a member of the Society of Biology and would be interested in doing media work, you can be added to the Media Expert List of scientific experts to be called upon when media enquiries arise.

Appendix 3b: Policy

How to Influence Government

The Science Policy Adviser Network is working together to create a common resource that will explain and encourage biologists to engage with public policy.

Organisations rely on expert opinion and evidence to provide government with sound policy advice. The membership holds a large reservoir of expertise and interest, which often goes untapped. It is important that members feel they can contribute to the policy arena, and we use their knowledge to better the influence of science in government.

The resource will highlight the importance of lobbying parliament, with a specific emphasis on how to influence the voting decisions of local MPs, the process of raising issues for parliamentary debate, and how to work with learned societies and member organisations to respond to government consultations.

For example, the resource will explain:

- Ministerial Statements
- Early Day Motions
- The Passage of a Bill through Parliament
- Contacting your MP
- Government Consultations; how to respond.

This will be a collaborative piece of work from the Science Policy Adviser Network. For more information, please contact jackiecaine@societyofbiology.org

Resources:

- www.TheyWorkForYou.com which includes a voting record on key issues and links to profiles and personal websites.
- Hansard; an edited record of what has been said in Parliament (searchable by date) www.parliament.uk/business/publications/hansard/
- Register of All Party Groups; informal group according to subject or country of interest. www.publications.parliament.uk/pa/cm/cmallparty/memi01.htm
- Consultation Code of Practice: <http://www.bis.gov.uk/policies/better-regulation/consultation-guidance>
- Tips for consultation responses: <http://www.nidirect.gov.uk/index/information-and-services/government-citizens-and-rights/government-1/public-consultations/tips-on-taking-part-in-consultations.htm>

Appendix 3c: Public engagement

How to run a stall at a science festival

Science festivals are a great way to engage people with science, there are now many science festivals around the UK throughout the year, as illustrated in appendix 2. In this Appendix we detail some top tips for running a stall at a science festival and provide a couple of hand-outs for hands on biology experiments used by the Society of Biology.

10 top considerations for running a Science Festival stall:

1. When is the festival?
2. When is the deadline for submitting a plan/ or idea for a stand?
3. Who is the target audience?
4. Why do you want to have a stall at this festival?
5. What theme do you want your stall to have?
6. Do you want to do hands on experiments?
7. What information do you want people to take away?
8. What freebies do you want to give out?
9. How many volunteers will you need?
10. What resources will you need, and how will you transport them?

These are a few considerations before embarking on the festival scene. Hands on experiments are fun and pull people to your stall. At the Society of Biology we aim to do hands-on experiments which people can do again at home. On the following pages are examples of the hand-outs for two common science festival experiments- *Extraction of DNA from Strawberries* and *Red Cabbage as a pH Indicator*.

It is good to have a balance between hands on biology experiments and other less messy and resource intensive activities, At the Society of Biology we have some Evolutionary Spot the Difference, Habitat: Where do they belong, and Human Body: Organs where do they belong activities which enable explainers to discuss biological topics such as evolution, adaption, habitats, human body, and disease. If you are recruiting volunteers ensure they are sufficiently trained and prepared for the volunteering as an explainer at your stall. It is a good idea to provide information about the activities on the stall, and crib notes about the underlying science of the activities. Before the public arrive at the stall induct volunteers, including run through the activities, indicate where resources are kept and can be refilled if needed, and run through any health and safety recommendations.

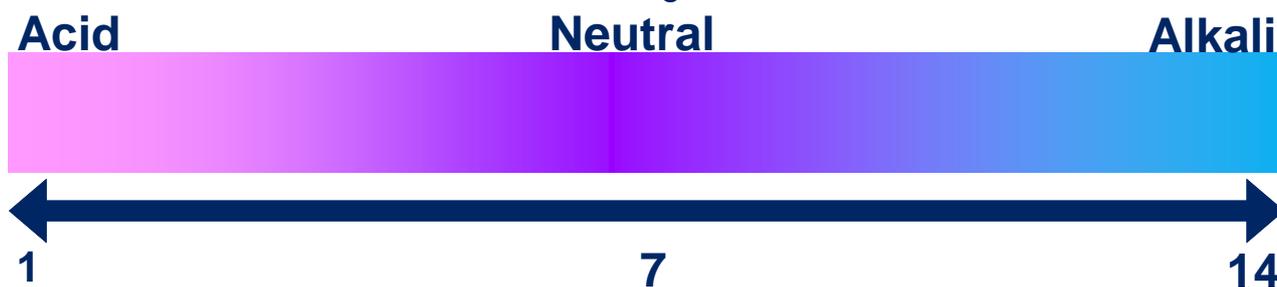
Acid or Alkali?

How to do it...

1. Chop up cabbage and soak in water
2. Once water has turned purple add some to 2 plastic cups
3. One of these cups is your control for comparison and the other is your 'experimental' cup.
4. Add a household substance such as *cola*, *lemon juice*, *ketchup*, *bicarbonate of soda*, *soap*, *vinegar*, or *toothpaste* to the cup.



5. Give it a stir and watch the colour change!



The Science Bit...

- Acids and alkalis change the number of hydrogen ions (H^+) in a solution. Acids produce more H^+ ions and alkalis produce lots of hydroxide (OH^-) ions. The hydroxide ions neutralise the H^+ removing them from the solution.
- Red cabbage is an indicator of acidity.
- The more acidic something is the more pink the red cabbage water will turn
- The more alkali it is the bluer it will go.
- Red cabbage contains a substance called Flavin a pigment responsible for the red, blue and purple colours in some plants.
- The more hydrogen ions there are the pinker the Flavin goes, but in alkali conditions the pigment breaks up and turns blue.

This is known as a pH test, in scientific laboratories pH testing is used to test the acidity of different substances.

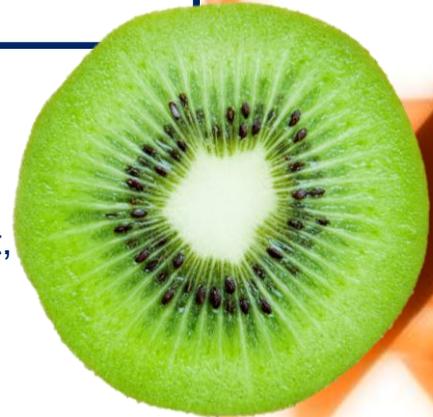
Extracting DNA



DNA is the blueprint for life. It spells out the instructions to all living things to tell them how to become what they are, and how their cells should work.

What you need:

Fruit (strawberries and kiwis work well), clear plastic cups, mini-sieves, extraction buffer: salt, washing-up liquid and water, funnels, alcohol (~70% and chilled for best results) and fork or spoon (for mashing)



How to do it:

1. Mash up strawberry with fork
2. Add extraction buffer and mash up some more
3. Filter strawberry mash to remove seeds and big lumps
4. Slowly add the alcohol down the side of the cup
5. The fluffy white DNA will appear at the top of the mixture.

DNA stands for deoxyribonucleic acid and is a string of units where each unit has a different letter, A, T, G or C that the cell reads. These strands form the infamous double helix structure.

Appendix 3d: Internet

How to use social media (a beginners guide)

Key things to consider when using social media:

- Who is your target audience?
- Where are your target audience active?
- What do they want/ need from you?
- What is the users journey/ experience?
- Is there a prize or incentive?
- What is the budget?
- What metrics are you going to use? E.g. social mention

Social media can be a very useful tool to enable an organisation to reach out to a wider audience. A key feature to remember is that social media is about conversations. Use social media to broadcast messages, but also listen, engage with followers and fans with conversations, respond to their questions and you'll make a much more useful contribution to the social media landscape.

Guide to different social media

There are many different forms of social media and they serve different roles such as:

- Facebook- social hub
- Youtube- great for viral campaigns
- Linked In- industrial links, company profile education and policy emphasis
- Twitter- social customer services, large network for compelling, timely and relevant news
- Blogs- gives reach

Key things to remember

1. Be consistent
2. Value your knowledge
3. Help and reach out
4. Be real, be sincere
5. Put a face to the social media
6. Meter yourself it's about quality not quantity (honesty and humility)
7. Focus efforts
8. Provide value
9. Educate yourself
10. **GOLDEN RULE...it's what you can do for others not what you can do for you.**

Best Practice

- personal
- incentivised
- learn, adapt, improve
- consistent

Appendix 3e: Internet

How to use Twitter: a beginner's guide

1. Create a profile:

- a. Visit <http://twitter.com/> and click the sign up button on the right hand side of the page
- b. Enter the required fields. You might have to be creative with your username as many are already taken.
- c. Click the create account button at the bottom of the page.
- d. You now have the option to search by topic to find twitterers to follow. Once you have completed this task or if you choose to skip it click the 'next step: friends' button at the bottom of the page.
- e. You now have the option of allowing Twitter to look through your address book for contacts that are on Twitter. Click the button at the bottom of the page once you have completed this step or if you choose to skip it.
- f. A confirmation e-mail will now be sent to your registered e-mail address. To complete the registration process, click the confirmation link in the e-mail.

2. Tweeting your first tweet:

- a. Whilst logged in to Twitter, enter your tweet into the 'what's happening' text box.
- b. Tweets are limited to 140 characters, so tweets must be concise.
- c. Include a 'hashtag' with # then the key word you want to tag the tweet with somewhere in the tweet e.g.: "Had an awesome biology lesson today #biology"
- d. The hash tag is used to group tweets by topic.
- e. To view posts about the hashtag search [#biology](#) using the search box at the top of the page.

3. How to follow:

- a. Whilst logged in to twitter search for [@Society_Biology](#) using the search box at the top of the page.
- b. Click on the 'people' link above the search results.
- c. Click the follow button next to Society Biology. All tweets from the Society of Biology will now be visible on your timeline.

4. The art of mentions:

- a. If you would like to direct a tweet at someone else on twitter then use their twitter name and place @ before it.
e.g. "Exploring Charles Darwin House the new home of [@Society_Biology](#)"

5. Direct messages:

- a. If you want to talk to someone privately on twitter then direct messages are the best way to do this, as they do not appear in your timeline and cannot be searched for like tweets.
- b. There is no need to add hashtags or @ mentions in a direct message treat it like a mini email, or text limited to 140 characters.

6. Links

- a. Adding links to tweets is a great way to share stories, websites, photos, videos etc.
- b. Due to the limited number of characters it can be useful to shorten links using a URL shortener such as Google's <http://goo.gl/>.

Appendix 4a: Online media resources- Twitter list

Society of Biology

@Society_Biology https://twitter.com/Society_Biology

@bio_news https://twitter.com/bio_news

Biochemical Society

@BiochemSoc <https://twitter.com/BiochemSoc>

British Ecological Society

@BESPolicy <https://twitter.com/BESPolicy>

British Pharmacological Society

@BritPharmSoc <https://twitter.com/BritPharmSoc>

Linnean Society

@Linnean Society <https://twitter.com/LinneanSociety>

Science and Plants for Schools

@SAPS_News http://twitter.com/SAPS_News

Society for Applied Microbiology

@SfAMtweets <https://twitter.com/SfAMtweets>

Society for Endocrinology

@Soc_Endo https://twitter.com/Soc_Endo

Society for General Microbiology

@SocGenMicro <https://twitter.com/SocGenMicro>

SCI Horticulture Group

@SCIHorticulture <https://twitter.com/#!/SCIHorticulture>

Society for Reproduction and Fertility

@SRF_Repro http://twitter.com/#!/SRF_Repro

The Physiological Society

@PhySoc <http://twitter.com/ThePhySoc>

Zoological Society of London

@zslondonzoo <https://twitter.com/zslondonzoo>

Useful hashtags

#scipolicy

#scicom

#biology

Appendix 4b: Online media resources- Facebook list

Society of Biology

<http://www.facebook.com/societyofbiology>

Biochemical Society

<http://www.facebook.com/pages/Biochemical-Society/99242639743>

British Ecological Society

<http://www.facebook.com/pages/British-Ecological-Society/101064631942>

British Pharmacological Society

<http://www.facebook.com/pages/British-Pharmacological-Society/99860469636>

British Society for Immunology

<http://www.facebook.com/pages/British-Society-for-Immunology/102151599844139>

Science and Plants for Schools

<http://www.facebook.com/pages/Science-and-Plants-for-Schools/182080865140100>

Society for Applied Microbiology

<http://www.facebook.com/sfamfb>

Society for Endocrinology

<http://www.facebook.com/SocietyforEndocrinology>

Society for General Microbiology

<http://www.facebook.com/pages/Society-for-General-Microbiology/188529991077>

Society for Reproduction and Fertility

<http://www.facebook.com/pages/Society-for-Reproduction-and-Fertility/136774726340392>

SCI Horticulture Group

<http://www.facebook.com/group.php?gid=112692862079369#!/group.php?gid=112692862079369&v=info>

The Physiological Society

<http://www.facebook.com/physoc>

Zoological Society of London

<http://www.facebook.com/pages/Zoological-Society-of-London/112394875441743>

Appendix 4c: Online media resources- Blog list

Society of Biology

<http://societyofbiology.blogspot.com/>

Biochemical Society

<http://biochemicalsociety.wordpress.com/>

British Ecological Society

<http://feeds2.feedburner.com/EcologicalAndPolicyBlog>

Royal Society of Chemistry

<http://prospect.rsc.org/blogs/rsc/>

Appendix 4d: Online media resources- Website list

Society of Biology <http://www.societyofbiology.org>
Anatomical Society <http://www.anatsoc.org.uk/>
Association for the Study of Animal Behaviour <http://asab.nottingham.ac.uk/>
Association of Applied Biologists <http://www.aab.org.uk/>
Biochemical Society <http://www.biochemistry.org/>
Breakspear Hospital <http://www.breakspearmedical.com/>
British Andrology Society <http://www.britishandrology.org.uk/>
British Association for Lung Research <http://www.balr.co.uk>
British Association for Psychopharmacology <http://www.bap.org.uk/>
British Biophysical Society <http://www.britishbiophysics.org.uk/>
British Crop Production Council <http://www.bcpc.org/>
British Ecological Society <http://www.britishecologicalsociety.org/>
British Lichen Society <http://www.thebls.org.uk/>
British Microcirculation Society <http://www.microcirculation.org.uk/>
British Mycological Society <http://www.britmycolsoc.org.uk/>
British Neuroscience Association <http://www.bna.org.uk/>
British Pharmacological Society <http://www.bps.ac.uk/>
British Phycological Society <http://www.brphycsoc.org/>
British Society for Ecological Medicine <http://www.ecomed.org.uk/>
British Society for Immunology <http://www.immunology.org/>
British Society for Matrix Biology <http://www.bsmb.ac.uk/>
British Society for Medical Mycology <http://www.bsmm.org/>
British Society for Neuroendocrinology <http://www.neuroendo.org.uk/>
British Society for Plant Pathology <http://www.bspp.org.uk/>
British Society for Proteome Research <http://www.bspr.org/>
British Society for Research on Ageing <http://www.bsra.org.uk/>
British Society for Soil Science <http://www.soils.org.uk/>
British Society of Animal Science <http://www.bsas.org.uk/>
British Toxicology Society <http://www.thebts.org/>
Experimental Psychology Society <http://www.eps.ac.uk/>
Fisheries Society of the British Isles <http://www.fsbi.org.uk/>
Genetics Society <http://www.genetics.org.uk/>
Heads of University Biological Sciences <http://www.lifesci.dundee.ac.uk/other/hubs/>
Heads of University Centres of Biomedical Science <http://www.hucbms.org/>
Institute of Animal Technology <http://www.iat.org.uk/>

International Biometric Society <http://www.tibs.org/Interior.aspx>
Laboratory Animal Science Association <http://www.lasa.co.uk/>
Linnean Society <http://www.linnean.org/>
Marine Biological Association <http://www.mba.ac.uk/>
Nutrition Society <http://www.nutritionociety.org/>
Royal Entomological Society <http://www.royensoc.co.uk/>
Royal Microscopical Society <http://www.rms.org.uk/index.shtml>
Royal Society of Chemistry <http://www.rsc.org/>
Science and Plants for Schools <http://www.saps.plantsci.cam.ac.uk/>
Scottish Association for Marine Science <http://www.sams.ac.uk/>
Society for Applied Microbiology <http://www.sfam.org.uk/>
Society for Endocrinology <http://www.endocrinology.org/>; <http://www.yourhormones.info>
Society for Experimental Biology <http://www.sebiology.org/>
Society for General Microbiology <http://www.sgm.ac.uk/>
Society for Reproduction and Fertility <http://www.srf-reproduction.org/>
Society for the Study of Human Biology <http://www.sshb.org/>
SCI Horticulture Group <http://www.soci.org/Membership-and-Networks/Technical-Groups/Horticulture-Group>
Society of Pharmaceutical Medicine <http://www.socpharmed.org/>
The Physiological Society <http://www.physoc.org/>
UK Environmental Mutagen Society <http://www.ukems.org/>
University Bioscience Managers' Association <http://www.ubma.org.uk/>
Zoological Society of London <http://www.zsl.org/>

Appendix 5: Reference documents and reports

- a. Science for All (February 2010)
<http://interactive.bis.gov.uk/scienceandsociety/site/all/2010/09/24/science-for-all-updated-action-plan-2/>
- b. Science and Trust (March 2010)
<http://interactive.bis.gov.uk/scienceandsociety/site/trust/2010/03/08/new-science-and-trust-expert-group-report-starting-a-national-conversation-about-good-science/>
- c. Science for Careers (March 2010)
<http://interactive.bis.gov.uk/scienceandsociety/site/careers/2010/03/03/new-science-for-careers-report-published/>
- d. Science and the Media (January 2010)
<http://interactive.bis.gov.uk/scienceandsociety/site/media/2010/01/21/comment-on-the-final-report/>
- e. Public Engagement for Science and Society – a conversational tool
<http://interactive.bis.gov.uk/scienceandsociety/site/all/files/2010/10/PE-conversational-tool-Final-251010.pdf>
- f. Public Attitudes to Science May 2011
<http://www.ipsos-mori.com/Assets/Docs/Polls/sri-pas-2011-main-report.pdf>
- g. [Social Grade demographic classification systems used in market research](#)
- h. British Science Association Social Media Dossier
<http://www.britishtscienceassociation.org/NR/rdonlyres/905AFA62-7132-4EAE-B98B-061670DDBA09/0/SocialMediaDossier.pdf>
- i. Public Engagement Concordat
<http://www.rcuk.ac.uk/per/Pages/Concordat.aspx>
- j. Public Engagement: Who are the Public
<http://www.publicengagement.ac.uk/what/who-are-the-public>
- k. POST NOTE No382 June 2011
- l. House of Lords Science and Technology Committee Report 2000
<http://www.publications.parliament.uk/pa/ld199900/ldselect/ldsctech/38/3801.htm>
- m. MemNet – <http://www.memnet.biz>
MemNet is a membership organisation for membership organisations, trade bodies, professional bodies which runs useful workshops on all aspects of membership and has a useful online forum where members can ask each other's advice on any aspect of membership.

- n. Research Information Network guide for scientists on communicating and disseminating their research (<http://www.rin.ac.uk/our-work/communicating-and-disseminating-research/social-media-guide-researchersref>).
- o. Research Information Network guide on the use of Web 2.0 for scientists (<http://www.rin.ac.uk/our-work/communicating-and-disseminating-research/use-and-relevance-web-20-researchers>).



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