

The Department for Business, Innovation and Skills: Science and Society Review (phase 2)

Response by the Wellcome Trust

31 October 2012

Key Points

- The Wellcome Trust believes that BIS could usefully provide a leadership role for science and society in the UK. A proactive approach focused on what Government can offer, rather than seeking to address 'market failures', will allow the BIS Science and Society programme to have impact where other organisations cannot. This will require a coherent approach to science engagement across Government departments.
- We suggest the vision is amended to create a compelling statement that sets the agenda for our communities. This should be complemented by specific, measurable, achievable, realistic and timely objectives which give a sense of priority for allocating BIS resource.
- We suggest the selection for funding interventions be based on open competition and high quality.

INTRODUCTION

1. We welcome the open and transparent approach being taken in this review of the BIS Science and Society programme and are pleased to respond to this consultation on a draft vision and objectives.
2. We note the exceedingly tight timescales associated with this review and hope that our views expressed in phase 1 (see Appendix 1) are taken into account as part of this phase 2.

VISION

3. The vision for the BIS Science and Society programme should show ambition and leadership. The UK is an international leader both in science and in its public engagement work. We would expect this strong position to be reflected in the vision statement which is currently too passive and places emphasis on problems with society rather than the need for mutual reflection and understanding between science and society.
4. Accordingly, we suggest the vision statement acknowledges the UK's existing strengths and uses active, directional language to aim to maintain and strengthen this position. Positive examples can be seen in recent strategies and policy documents published by Science Foundation Ireland¹, the European Commission² and European Science Foundation³. BIS should reflect this approach.

¹ Communications International Review Panel Report. Science Foundation Ireland; 2012

5. Leadership for science and society needs to involve a joined-up approach to science engagement across Government departments (as per our response to phase 1 of this review). No single Government department can deliver on the vision as a whole and different departments have particular responsibilities to help achieve the overall vision. One role of BIS should be to ensure all these interests are brought together in a coherent way.
6. We would expect the vision to recognise the importance of intrinsic motivations (i.e. the inherent value and common or public 'good') and instrumental reasons (i.e. to achieve a desired outcome) for a healthy relationship between science and society. For example, intrinsic motivations might include to inspire, interest, enthuse and impart a sense of wonder for the public regarding science. Key instrumental motivations would be to create jobs, develop future scientists, improve research, help increase levels of trust between the scientific community and the public and support democratic decision making.
7. Given the current state of the UK economy, the importance of a good relationship between science and society to enable science to deliver economic growth should be stressed, though not to the exclusion of the intrinsic motivations outlined above.

OBJECTIVES

8. As currently stated, the objectives set out the 'desired' state of the relationship between science and society, but are not specific, measurable, achievable, realistic or timely (SMART) objectives as such. They do not provide a sense of priority or indicate where increased effort or resources might be directed. It is important to recognise that many of the objectives require a joined-up approach with other departments (particularly Department for Education and Department for Culture, Media and Sport) to be achievable.
9. Areas that we believe are priorities include the provision of good careers advice on science related employment within schools and colleges, promotion of diversity within scientific careers, and involvement of young people from disadvantaged backgrounds in informal science learning activities. One area where there is no immediate cause for concern, but requires sustained attention, is the relationship between science and the media.
10. For example, the recent MORI data⁴ also demonstrates that sustained commitment is needed to maintain public support for contentious issues, such as the use of animals in research. In face of evidence of falling public support, BIS should play a key role in demonstrating Government support and ensuring scientists are able to speak openly with the public about their work without fear from intimidation.

² Responsible research and innovation. Europe's ability to respond to societal challenges. European Commission; 2012

³ See recommendations within Science in Society: a challenging frontier for science policy. European Science Foundation; 2012

⁴ Views on the use of animals in scientific research. Ipsos MORI and Department for Business Innovation and Skills; 2012

CRITERIA FOR PRIORITISING GOVERNMENT SCIENCE AND SOCIETY INTERVENTIONS

11. We are particularly concerned that the overall programme aim is to address 'market failures' in current provision. We encourage BIS should take a broader leadership role including a range of functions such as:
 - ensuring that there is a shared vision for science and society and coherence across Government departments;
 - the ability to commission or seed national programmes of science engagement, linked to national priorities;
 - the continued provision of national data and evidence to monitor the state of the science and society relationship;
 - continued support for activities that require sustained attention (such as the science:media relationship)
 - acting quickly and appropriately in the light of evidence of public concern;
 - support to enable scientists to engage effectively with the public and policy makers, particularly in areas that are seen as difficult or contentious;
 - convening power – perhaps via a Funders Forum to share expertise, strategy and priorities or to help create partnerships or funding leverage.
12. With these points in mind, we suggest that future financial support for any activities is linked to these functions, the priorities of the Science and Society programme, and be based on open competition and high quality.
13. Further consideration of the priorities BIS could take forward is provided in our response to phase 1 of this review (see Appendix 1).

The Wellcome Trust is a global charitable foundation dedicated to achieving extraordinary improvements in human and animal health. We support the brightest minds in biomedical research and the medical humanities. Our breadth of support includes public engagement, education and the application of research to improve health. We are independent of both political and commercial interests.

APPENDIX 1

Response from the Wellcome Trust to The Department for Business, Innovation and Skills: Science and Society Review (phase 1) submitted 4 October 2012

Key Points

1. The Wellcome Trust believes that if science is to thrive, and to contribute as much as it possibly can to society, it has to be embedded in the cultural landscape of Britain. This ambition is reflected in our own initiatives: we do not just fund biomedical science, but also support activities that place that science more firmly at the heart of the national conversation. These activities include: grant-funded public engagement programmes; exhibitions and events at Wellcome Collection; film, television and games; and a growing social media and digital presence.
2. We are not convinced that the Government shares our view that these wider cultural and communication activities are essential and non-negotiable elements of strategic support for science. We are disappointed that more progress has not been made on a number of relevant recommendations within the Science for All and Science and the Media reports.
3. The Trust has long been a leading promoter of open access publishing initiatives, in part because we believe that good public engagement with science begins with good information. We therefore support efforts by the Science for All and Science and Trust Expert Groups to promote the opening up of science information. We welcome the Government's recent endorsement of the Finch Report and consider it important that BIS continues to be a major supporter of such developments.
4. The Wellcome Trust expects its major research groups to engage with the public about their work and we support them to do so. We believe it is reasonable to expect researchers who are funded from the public purse, or from charities in receipt of tax benefits, to act in this way. This is consistent with Science for All's focus on a professional culture that values, recognises and supports public engagement with the sciences. All research funders, including public funders, have now made commitments to public engagement, and it is important that these are maintained even in times of financial constraint.
5. We have partnered with the Government and others to take forward a number of the Science and Learning report's recommendations. In particular we have continued support for teacher continuing professional development through the Science Learning Centres, shared our research on initial teacher training with the Teaching Agency, and developed a programme of work to improve school governance.
6. On the issue of careers, we are pleased that the Government has taken forward the recommendation to improve labour market information through the UK Commission for Employment and Skills. However, we continue to be concerned at the poor progression of women in life science and their under-representation in leadership positions, and we encourage BIS to continue to develop and support programmes to enhance diversity in science.

7. We encourage the Government to advocate good-quality science journalism, a focus of the Science and the Media report. We have made recommendations to the Leveson Inquiry to tackle inaccuracy, misrepresentation and misinterpretation.

INTRODUCTION

8. Science offers benefits for our economy and society, yet, as we recognise in our Strategic Plan, it can challenge cultural norms and personal beliefs and choices⁵. Considerable progress has been made to embed and strengthen science's place in society, following concerns raised in the House of Lords report in 2000⁶; we believe that the UK is now at the forefront of public engagement internationally. We should celebrate this achievement, but it is also important to build on it.
9. We believe that a coherent Science in Society programme within Government remains critical if science is to deliver its full potential. This programme is important to building understanding of the wider social and cultural context of science, fostering mutual trust between researchers and the wider public, supporting the education of future generations, and ensuring a large and diverse workforce.
10. Scientific advances often create social or policy challenges, which are rarely possible to address with reference to science alone. Recent debates on the use of animals in research, badger culling and new techniques to avoid mitochondrial disease demonstrate the importance of strong Government commitment to public engagement and 'science in society'.
11. The Wellcome Trust strives to support outstanding researchers, to accelerate the application of research and to explore medicine in historical and cultural contexts. These three areas of focus to our work give us a distinctive approach to science in society issues by allowing us to reflect on the hopes and challenges from three different perspectives.
12. We welcomed the five Science and Society Expert Group reports when they were published in 2010, because of the helpful focus they provided on the range of issues that affect public engagement with science and the action-oriented approach. It is important to maintain the momentum of this work, not least through this Review exercise. We are pleased to respond to the Review, and to provide our views on the progress that has been achieved. We hope this exercise forms a useful starting point to reflect on science and society today and look forward to working with BIS and other colleagues as the Review continues.
13. We have provided updates about how the Trust's current priorities and commitments relate to the reports' recommendations, with more detail on activities and progress against the Expert Group Action Plans in Appendix 1. Appendix 2 notes actions in line with the recommendations of the Science and Learning Expert Group. This Group did not develop an Action Plan, but we recommend that BIS seeks input from other relevant organisations, which should certainly include the Department for Education.

⁵ Extraordinary Opportunities: Strategic Plan 2010–20. Wellcome Trust; 2010.

⁶ House of Lords Select Committee on Science and Technology Science and Society (Third Report). HMSO; 2000.

SCIENCE FOR ALL

14. The Wellcome Trust was pleased to be closely involved in this Group. Our specific activities that relate to the Action Plan are described in Appendix 1. Below we consider the three areas of focus.

A wider understanding of why, when and how the public engages with the sciences

Establish a shared framework and vision for public engagement with the sciences (recommendation 1.1)

15. The framework produced by Science for All (Action 1.1.3) has provided a useful tool to enable organisations to consider the ‘why, when and how’ questions. Such reflection is a valuable step in the development of a strategic approach to engagement by universities and research institutes. We encourage the universities and research institutes we fund to think strategically about their engagement to strengthen these activities.

Improve understanding of the relationship between the public, scientific and policy communities (recommendation 1.2)

16. Government plays an important role to measure the ‘health of the relationship’ between science and society, and it is therefore important that BIS continues this work, through (for example) the MORI survey on public attitudes to science. Findings can be enhanced by insights from complementary research by others, including the Wellcome Trust Monitor, which focuses on the biomedical sciences.

Improve understanding of how the public perceives the place of the sciences in culture (recommendation 1.3)

17. We believe that it is important for science to be a part of the national conversation, integrated in a natural way with the issues and debates of the day. This ambition is reflected in our own initiatives. These activities include: grant-funded public engagement programmes; exhibitions and events at Wellcome Collection; film, television and games; and a growing social media and digital presence.
18. We are not convinced, however, that the Government takes such a view and we are disappointed that little progress has been made on the recommendation that “UK cultural institutions take a strategic approach to the sciences in culture” (recommendation 2.4). The Department for Culture Media and Sport has responsibility for many of the UK’s major cultural institutions yet does not always recognise science as part of culture. That there is not a joined-up approach across Government departments when considering science engagement is a concern.

Develop the potential for engagement through social media (recommendation 1.4)

19. The potential for engagement through social media is well recognised by the scientific community and should be encouraged. Young scientists in particular naturally use platforms such as blogs and Twitter. These social media platforms are particularly

valuable in public engagement because their interactivity allows for dialogue, in which people have the opportunity to comment and ask questions. We, too, are increasingly using such approaches through our new Communications Strategy (see Appendix 1).

Supportive networks and mechanisms for increasing effective engagement

Share and apply learning from public engagement (recommendation 2.2)

20. We support the good intentions of the British Science Association and others in taking this recommendation forward through Collective Memory. However, we are unsure whether the site meets the needs of the public engagement community and about the extent to which it is being used by them.
21. There is little peer-reviewed research funded on effective public engagement work – something that BIS may wish to develop in its future strategy.

Achieve better coordination between the many organisations involved in public engagement (recommendation 2.1)

22. The Trust has been involved in a number of strategic alliances and coordinating bodies for public engagement. In our view, these work best with a light-touch approach through a sharing of priorities, major challenges and strategies. This enables alliances to build in areas of mutual interest. It is, however, unrealistic to expect such groupings to set a national agenda for science and society, and there should be clear national leadership for this.

Provide accessible information on the sciences (recommendation 2.3)

23. Opening up scientific information for public engagement, understanding and scrutiny is a priority for the Wellcome Trust. Indeed, we have been a leading player in supporting open access to published research (see our policy at <http://www.wellcome.ac.uk/About-us/Policy/Spotlight-issues/Open-access/index.htm>), and we welcome the Government's support and implementation of the Finch Report. We are among the three founding partners of eLife, a new open access online journal for biomedical and life sciences research, which will include non-technical summaries of its papers. It is important that BIS continues its support of these developments.

Extend developments of collaborations between arts and sciences (recommendation 2.6)

24. We believe that science has a central role in our history and in contemporary culture, as exemplified by its portrayal in the Olympic and Paralympic ceremonies. As such, building collaborations between arts and science has long been a core part of our work. The success of Wellcome Collection shows that this is also a powerful way to engage audiences. Such collaborations continue to be a priority of our engagement activities; for instance, we are collaborating with the Barbican Centre and the British Neuroscience Association on a Festival of Neuroscience in Spring 2013.
25. It is unfortunate that the action (2.6.2) to implement a more joined-up approach across Government departments to support informal science engagement has been put on hold. We hope that the Trust's informal learning project will catalyse renewed discussions.

Promote active support for the sciences in broadcasting (recommendation 2.7)

26. For the past five years, the Trust has followed a strategic approach to working with the broadcast industry and has recently extended this approach to the gaming industry, fostering collaborations between game developers and scientists to enable science content to reach a new audience. This approach has proved highly successful in unlocking funding from these industries to invest in high-quality science programming. The actions in this area have been put on hold by the Science for All Expert Group, and have also not been taken forward from the Science and the Media Group. This is disappointing given that the Public Attitudes to Science Survey and the Wellcome Trust Monitor both highlight the importance of television as an important source of information about science.

A professional culture that values, recognises and supports public engagement with the sciences

Ensure all researchers and practitioners have access to training for public engagement (recommendation 3.2)

Ensure funders of the sciences have mechanisms in place to support and recognise public engagement (recommendation 3.5)

Demonstrate public engagement at an institutional level (3.6)

Recognise individuals who undertake public engagement (recommendation 3.7)

27. We believe all these recommendations are important. We expect all of our major research groups to engage with the public about their work and we offer them support and training to do so. The Trust is a supporter of the Concordat for Engaging the Public with Research; details of the mechanisms we have in place to support and recognise public engagement are outlined in Appendix 1⁷.
28. It is important that funders maintain their commitment to public engagement even in times of financial constraint.

Improve understanding of mechanisms to recognise public engagement activities (recommendation 3.4)

29. We note that the actions to develop the evidence base to better understand researchers' attitudes to public engagement (including recognition) have been put on hold. We suggest that a follow-up to the Royal Society Survey of Factors Affecting Science Communication by Scientists and Engineers should be a priority for the Science in Society programme in the near future, in part to understand the impact of new drivers such as the Research Excellence Framework, Pathways to Impact, and higher student tuition fees.

Support the growing cadre of science communicators/engagement specialists (recommendation 3.9)

30. There is a growing community of science communicators and Science for All should be commended for creating better access to training for them. Moving forward, these professionals should be supported to improve their practice, based upon research

⁷ See also <http://www.wellcome.ac.uk/Education-resources/Communicating-your-research/index.htm>

evidence, into the media, culture and society (this relates to recommendation 6.3 of the Science and Trust report).

SCIENCE AND LEARNING

31. The Wellcome Trust is committed to supporting science education. We work to ensure all young people develop the science skills and knowledge necessary to live and work in an ever more scientific time. We believe it is important to equip young people with the understanding necessary to make informed decisions about the impacts of scientific and technological developments on their lives, as well as engaging and inspiring some of them to continue with science and hopefully add to the next generation of scientists.
32. Much has been achieved since the publication of the Science and Learning Expert Group report (outlined further in Appendix 2) and we are pleased that BIS is reviewing this progress. However, work should not stop here and we urge the Government to continue pushing the reforms recommended in this document, for example embedding CPD in the accountability framework for schools.
33. The Wellcome Trust has argued for a number of the report's recommendations to be taken forward by the Government, including the following.

Continuing professional development (CPD)

34. The Wellcome Trust remains committed to high-quality CPD for science teachers and technicians in the UK. Subject-specific CPD should be a regular part of good teaching practice and is vital for increasing the quality of teaching in schools. It is particularly important for science teachers: to deal with shortages in teaching expertise so that they can cover the full breadth of the curriculum; to keep up-to-date with scientific developments; to equip themselves with skills to deal with curriculum change; and to learn innovative techniques to explain contemporary science in the classroom. We continue to fund the National Science Learning Centre for its delivery of CPD for science teachers and technicians, with the Department for Education and the Trust each allocating £10 million of matched funding from 2013.

University involvement in the design, development and monitoring of A levels

35. We welcome Ofqual proposals to return control over the content and standards of A levels to universities. However, we believe that the model proposed by Ofqual can be improved upon. In line with recommendation 9, we strongly recommend that National Subject Committees be established by learned societies with the involvement of universities to lead the development of A levels across all awarding bodies for each major subject. We hope that Ofqual will listen to this advice and implement this proposal appropriately.

Variation in the quality of training provided through Initial Teacher Training (ITT)

36. Following on from recommendation 4, Wellcome Trust-funded research found great variation in the amount of science-specific content knowledge and pedagogical skills covered by different ITT providers. Overall, trainees were left to learn much of this

material once they were in teaching. The Trust discussed these findings with civil servants and advisors, after which the Teaching Agency explored ITT in the sciences through a series of workshops. We recommend that the Government ensures that science teachers have access to funded CPD to build up expertise in science content and pedagogy, especially in the early stages of teaching.

Careers advice and guidance

37. A commitment from the Government to remit the UK Commission for Employment and Skills to pilot a 'Labour Market Information for All' project, giving access to live labour market information drawn from the existing Labour Force Survey and the Annual Survey of Hours and Earnings, is a positive step. However, with the removal of specific school budget for careers advice, it remains crucial that the Government ensure all students have access to the best advice from an early age.
38. The Trust has also sought to contribute careers information to schools, with the latest edition of our Big Picture magazine focusing on 'Careers from Biology'. Big Picture is a resource for A level teachers and their students and is circulated widely across the UK.

School accountability

39. The Wellcome Trust has taken forward work in the area of school governance, specifically taking forward part of recommendation 21. Working with the Department for Education, the National Governors Association, the National College for School Leadership and other stakeholders, we have drafted a Recommended Code of Governance for school governing bodies to effectively drive strategy and hold the school senior leaders to account. We are piloting this Recommended Code in up to 20 schools from Autumn 2012 and we look forward to continuing to work closely with the support of the Department in this area.

SCIENCE AND TRUST

40. Embedding mutual trust and understanding is a key priority for our engagement activities. Our focus is on reaching diverse audiences, catalysing informed debate, enabling public perspectives to inform policy, and providing support for researchers to engage (see Science for All paragraphs 14-30).
41. We note that the Science and Trust Expert Group report discusses **supporting public judgements on sciences and their uses**, and called for information sources to be made more widely available (recommendation 1.1). Transparency and access to information is necessary (although not sufficient) for trust in science. Beyond open access (discussed earlier in paragraph 23), the Trust plans to become a more active publisher of explanatory content about the biomedical sciences and medical humanities, aimed at a curious but non-specialist public. We will do this by developing a new digital magazine, scheduled for launch in 2013, which will cover the areas of science that the Trust supports in considerable depth, and build our reputation as a trusted provider of information for public audiences⁸.

⁸ The 2009 Wellcome Monitor found that university scientists and medical research charities are "the most trusted individuals and organisations to provide reliable and accurate information about medical research"

42. It is a concern that **evaluating science and society initiatives** (aim 7 of the report) is not mentioned in the update. While sharing evaluations has been taken forward by Science for All, no progress has been made on measuring long-term impact, nor on disentangling the range of influencers on policy, attitudes and behaviour. There is limited research in the UK in this area, yet it is one of the key challenges to science and society.

SCIENCE FOR CAREERS

43. The Science for Careers Expert Group report focuses on careers advice, information and guidance regarding science careers for young people. One particular recommendation calls for the improvement of labour market information to provide reliable and accessible information about employment opportunities to all. As touched on in paragraph 37, we are pleased that the Government has taken this recommendation forward through the UK Commission for Employment and Skills. However, as noted above, this initiative does not go nearly far enough to ensure that students have access to the best advice possible. With the removal of the ring fenced careers advice and guidance budget from schools, the Government must monitor how schools allocate funding for the provision of this service to ensure that all students have appropriate access.
44. We note the positive step from the Russell Group to produce a booklet, Informed Choices, which highlights the value of science qualifications to the top universities, supported by a recently launched film.
45. The Wellcome Trust is fully supportive of efforts to increase awareness of the range of careers open to students studying science. The Trust's resources for schools focus on bringing contemporary science to the classroom, but many also raise awareness of the breadth of careers to which science education can lead. These materials frequently provide current examples of accessible role models for students. An illustration of this is our recent Big Picture on 'Careers from Biology'.
46. The report also touches on equality in science careers. The Wellcome Trust continues to be concerned at the poor progression of women in life science and their resultant under-representation in leadership positions. We recognise that a more diverse and talented scientific workforce can only enrich ideas and approaches in scientific research and facilitate breakthroughs. As such, the Trust has led the way in many areas of its grant funding to promote equal opportunities. For example, we always take into account time spent outside the research environment when assessing grant applications and we explicitly request this information on all our application forms for senior-level awards. In addition, we developed and launched one of the first Career Re-entry Fellowship schemes in the UK, designed for individuals who wish to return to research after a break of over two years.

Available at

http://www.wellcome.ac.uk/stellent/groups/corporatesite/@msh_grants/documents/web_document/wtx058869.pdf

f. Scientists are also well trusted; 84% of people trust scientists working in universities (Public Attitudes to Science Survey. Ipsos MORI; 2011).

Wellcome Trust response to Science and Society Review: phase 2

31 October 2012

11

47. More recently, we developed a new 'Flexible Research Careers' web page⁹ which highlights all the opportunities and flexibilities that we offer in our grant funding. We also continually monitor and analyse our funding, and recently have also asked all of our top funded institutions how, as part of their science strategy, they support career development and equality and diversity in their scientific workforce, for example through accreditation such as the Athena SWAN Award or the European Commission's HR Excellence in Research Award. In addition, we try to ensure that role models presented throughout the Trust's work are as diverse as possible. We encourage BIS to continue to develop and support programmes to enhance diversity in science.

SCIENCE AND THE MEDIA

48. We recognise that the media is the main channel through which many people learn about science¹⁰, including many decision-makers. We thus regard it as important that the media covers science fairly, responsibly and accurately, especially where matters of public health are concerned. Some of our activities to promote this are highlighted below.
49. **Training for science journalism.** The Trust supports two bursaries for City University's MA in Science Journalism – one aimed at a UK student and one at a student from an overseas country where the Trust has significant programmes.
50. **Science programming in a changing landscape.** As highlighted earlier, the Trust has a Broadcast and Gaming Strategy to support biomedical content in programming of all genres (see for example the Gamify Your PhD project¹¹)
51. The Trust's response to the **Leveson Inquiry**¹² included the following recommendations to tackle inaccuracy, misrepresentation and misinterpretation:
1. News editors should be encouraged to seek advice from specialist correspondents to ensure that science stories are accurately and responsibly reported.
 2. The Press Complaints Commission guidance should be strengthened to allow any interested party to complain about inaccurate reporting.
 3. Corrections and clarifications should be given equivalent prominence to the original article when complaints are upheld.
 4. Links to additional sources of information should be included in online articles wherever possible.

We look forward to seeing the results of the inquiry.

⁹ <http://www.wellcome.ac.uk/Our-vision/Focus-areas/Supporting/Flexible-research-careers/index.htm>

¹⁰ Public Attitudes to Science Survey. Ipsos MORI; 2011

¹¹ <http://www.wellcome.ac.uk/News/Media-office/Press-releases/2012/WTVM055859.htm>

¹² http://www.wellcome.ac.uk/stellent/groups/corporatesite/@policy_communications/documents/web_document/wtvM054159.pdf

52. Finally, we continue to welcome the calls for greater openness and transparency in the communication of science to increase public trust. As discussed above (paragraphs 23 and 41), the Trust has made a number of commitments to try to deliver this.

APPENDIX 1

This table was provided as an update to the Science for All secretariat in July 2012 to highlight how the Trust's current priorities and commitments relate to the report recommendations.

COMPLETE					
	Action	Leader	Partners	Progress/Comments	July 2012 Update
1.0	A wider understanding of why, when and how the public engages with the sciences				
1.1	Establish a shared framework and vision for public engagement with the sciences				
1.1.3	develop a common framework to describe types/purposes of engagement	BIS lead/ Sciencewise to facilitate	RAEng RCUK NCCPE Sciencewise Wellcome BIS	<p>There are many different typologies for PE and a need for a core set for understanding. Is it possible to provide a common terminology?</p> <p>There are always going to be people disagreeing, output shouldn't be a 'Standard' but should be a resource people can draw from</p> <p>Should use framework developed during Science for All as a starting point</p> <p>This could be part of the scoping work for the mapping funded by BIS</p> <p>Draft plan circulated amongst interested members of the group for comment.</p> <p>Typologies questionnaire distributed at Science Communication Conference.</p> <p>Group has met and a draft version of the framework has been created, prototyped and revised</p> <p>Group is preparing to release the beta version of the framework to stakeholder groups</p> <p>Framework will inform mapping exercise</p> <p>NCCPE have adapted their website and practitioner toolkit to ensure it aligns with the proposed framework</p>	<p>A participative workshop was held in May 2011 for Wellcome Trust staff who practise or lead public engagement in the organisation. The workshop enabled participants to:</p> <ul style="list-style-type: none"> • Talk about different forms of PE - and different drivers for doing PE - across the Trust • Review a range of PE frameworks, including those in use in partner organisations across the UK and beyond • Consider how such frameworks can add value to the Trust's business processes and planning in relation to PE • Reflect on opportunities and challenges in PE going forward

COMPLETE					
	Action	Leader	Partners	Progress/Comments	July 2012 Update
1.3	Improve understanding of how the public perceives the place of the sciences in culture				
1.3.3	ensure questions relating to this are included in the next Public Attitudes to Science Survey to be conducted during 2010	BIS	PAS Steering group	BIS and PAS Steering group to ensure this happens To be considered as part of the PAS deliberative workshops	
2.0	Supportive networks and mechanisms for increasing effective engagement				
2.2	Share and apply learning from public engagement activities				
2.2.2	develop an evaluation database to share findings and methodologies – the “Collective Memory”	British Science Association		The Collective Memory was launched by the British Science Association at the Science Communication Conference This is linked into action 2.2.1 and the mapping exercise. Will be useful to base evaluation database on any mapping framework developed Following presentations and workshops at the Science Communication Conference and the BIG event, the database is currently under development following these recommendations using an external developer – due for release March 2011	Wellcome Trust is committed to sharing case studies of directly funded activities through Collective Memory (e.g. of 75 th anniversary celebrations once completed in Oct). We encourage our public engagement grant holders to become active members of the public engagement community. As such they will have received details of Collective Memory e.g. through Science Communication Conference and psci-com

COMPLETE					
	Action	Leader	Partners	Progress/Comments	July 2012 Update
2.6	Extend developments of collaborations between the arts and sciences				
2.6.1	build mechanisms to share more extensively the outcomes, best practice and evaluations of science and arts collaborations	British Science Association		Links in with the British Science Association evaluation database (collective memory) in Action 2.2.2	As above
3.0	A professional culture that values, recognises and supports public engagement with the sciences				
3.1	Embed public engagement within institutional structures and processes				

COMPLETE					
	Action	Leader	Partners	Progress/Comments	July 2012 Update
3.1.1	produce an overview of good practice in embedding public participation in organisations including suggestions of possible impacts, case studies and research papers based on learning from the workshop on embedding public participation and literature reviews on organisational change	DONE	DONE	Done in organisational change papers for Science for All NCCPE are continuing to gather case studies about embedding support for public engagement	
3.1.2	develop a toolkit of approaches to organisational development and public engagement including the role of science communicators/engagement specialists	NCCPE		NCCPE toolkits on track for launch. They target university managers and engagement coordinators; and also provide a 'beginner's guide' for staff and students new to engagement. They also encourage staff and students to collaborate with partner organisations with engagement expertise, such as science centres and museums/galleries. The toolkits were launched at NCCPE conference in December by David Willets and further content is being added during 2011	

COMPLETE					
	Action	Leader	Partners	Progress/Comments	July 2012 Update
3.1.3	organise a workshop at the Sci Comm Conference 2010, and at the Beacons and National Coordinating Centre for Public Engagement (NCCPE) conference in Dec 2010, to consider how the findings of our research may inform their toolkits, manifesto, framework and other resources	COMPLETE	COMPLETE	Session held at Science Communication Conference 2010	
3.3	Include public engagement competencies within continuing professional development frameworks				
3.3.1	work with Vitae to incorporate attributes and competencies for public engagement into the Researcher Development Framework that complements the concordat (3.5.1)	COMPLETE	COMPLETE	Complete, public engagement included in Researcher Development Framework. RCUK and NCCPE sit on steering group	

COMPLETE					
	Action	Leader	Partners	Progress/Comments	July 2012 Update
3.5	Ensure funders of the sciences have mechanisms in place to support and recognise public engagement				
3.5.1	to develop an RCUK-led public engagement concordat for funders of research to clarify expectations and improve coherence and impact	RCUK		Launched by David Willetts at the NCCPE conference on 7 December 2010	
3.5.4	funding councils to include public engagement within research assessment (i.e. at Unit of Assessment level)	COMPLETE	COMPLETE	Included within REF proposals Pilot results of REF due Autumn 2010	
3.7	Recognise individuals who undertake public engagement				
3.7.4	*RCUK to publish a brochure aimed at researchers demonstrating the benefits of public engagement to themselves and their research	COMPLETE	COMPLETE	COMPLETE	

ONGOING					
	Action	Leader	Partners	Progress/Comments	July 2012 Update
1.0	A wider understanding of why, when and how the public engages with the sciences				
1.1	Establish a shared framework and vision for public engagement with the sciences				
1.1.1	open up the action plan to others and develop new partnerships to develop and take it forward	Roland Jackson	BIS, Follow-up group	Report published and shared widely Interactive site allows comments/discussion Two meetings of follow up group held Sessions held at Science Communication Conference Action poster boards displayed and comments collected at the Science Communication Conference and British Interactive Group (BIG) Conference	

ONGOING					
	Action	Leader	Partners	Progress/Comments	July 2012 Update
1.1.2	use existing research and practice (including SSWSE) to move beyond reaching the 'usual suspects', helping to ensure that public engagement activities take account of diversity issues	ASDC and Science Festivals		Mapping needs to be done before this happens This would be easy if technology is already in place to collect data Has been combined with 2.2.3. to investigate 'alternative approaches' more generally as opportunities for improving diversity – see 2.2.3. for developments	
1.2	Improve understanding of the relationship between the public, scientific and policy communities				

ONGOING					
	Action	Leader	Partners	Progress/Comments	July 2012 Update
1.2.1	develop a set of indicators which would act as a basket of measures of the health of the relationship between society and the scientific and policy communities, building on public attitudes surveys, the attitudes of scientists and policy makers, and including measures of diversity	None identified	BIS	Public Attitudes survey needs to be considered as part of this Science and Trust group have Scoping of Scientists Attitudes Survey in their action plan which has been approved for BIS funding RCUK will be carrying out an 'Attitudes of Researchers' survey RJ to bring this up at Science and Society strategy Chairs meeting on 29.09.10	The Wellcome Trust Monitor is a unique survey of UK adults' and young people's views of medical research and seeks to develop a more systematic approach to describing and understanding trends in public interest in, knowledge of and attitudes towards medical research and its associated advances and applications. The Wellcome Trust Monitor will be repeated every three years to build a robust, high-quality evidence base to enable the collection of data to explore trends and variations across time on both general themes and specific issues. Wave 2 of the Wellcome Trust Monitor will launch later this year, building upon the findings of Wave 1 and enabling longitudinal comparison and analysis of its data.
1.3	Improve understanding of how the public perceives the place of the sciences in culture				

ONGOING					
	Action	Leader	Partners	Progress/Comments	July 2012 Update
1.3.1	include a set of questions exploring the extent to which the sciences are regarded as part of culture in the next wave of the DCMS 'Taking Part' Survey	Roland Jackson	BIS Nick Allum	RJ has opened up a conversation with Mike Dixon from the NHM about possible routes into DCMS Nick Allum was keen to help develop specific questions for the Taking Part survey IS to ask Stephen Axford to bring up at meeting with Jon Hoare/ Anita Charlesworth With ESRC, NCCPE have commissioned a literature review (by the Open University) looking at how public segmentation tools can help develop more effective engagement. The first draft will be submitted in January 2011.	
1.4	Develop the potential for engagement through social media				

ONGOING					
	Action	Leader	Partners	Progress/Comments	July 2012 Update
1.4.1	explore and promote the role of social media as a mechanism for engagement with the sciences	Science for All Officer	Wellcome Sciencewise	<p>In initial research, explore initiatives by science centres, museums, festivals and freelancers Session held on this at Science Communication Conference Dossier has been produced as a starting point (background information) This has developed into a 'wiki' format which is currently recruiting for collaborators Toby Shannon to update wiki and send out to social media contacts including a specific call to action. NCCPE are providing info about how to use social media for PE on new website A mini-working group has been assembled by TS and will meet to discuss possible actions on 1 February and decide on possible remit and/or products</p>	<p>Wellcome Trust is an active and successful user of social media networks, particularly Twitter and Facebook, which we use to promote our content and activities (such as funding rounds), and to engage responsively with key audiences. The @wellcometrust Twitter feed has over 21,000 followers.</p> <p>A key priority of a recently reviewed Communications Strategy is to exploit the power of online tools (apps, blogs and social media) to listen, to build communities, reach key audiences directly, and catalyse better communication by scientists.</p>
2.0	Supportive networks and mechanisms for increasing effective engagement				
2.1	Achieve better coordination between the many organisations involved in public engagement				

ONGOING					
	Action	Leader	Partners	Progress/Comments	July 2012 Update
2.1.1	develop, subject to some limited resourcing, a strategic and operational alliance between those organisations, nationally and regionally, which are responsible for the majority of the networks and support for public engagement with the sciences. We envisage this to be an <i>ad hoc</i> alliance, without formal constitution or bureaucracy, to share information and practice, enhance collaboration and seek more efficient use of resources	British Science Association		<p>Science for All Officer recruited and in place</p> <p>Three meetings of Science for All Follow-on group held</p> <p>This is good for National links but need to think further about regional links</p> <p>This could be informed by the mapping exercise</p>	

ONGOING					
	Action	Leader	Partners	Progress/Comments	July 2012 Update
2.1.2	explore how to encourage and support better local and regional networking for public engagement	ASDC/ Science Alliances		Mapping of the infrastructure needs to be carried out to inform this action. ASDC could coordinate as they have the infrastructure in place Science Alliances are also well placed and would be low cost Regional Science Learning Centres and Regional Big Bang Fairs also be involved How do universities and business link in? This could be a possible topic for discussion at the Science Communication Conference Potential role for Science Centres as accessible hubs, perhaps running regional symposia for science communicators/engagement specialists	
2.1.3	develop and extend the mapping work of public engagement across a variety of sectors, including identifying the key national and regional support systems and networks, assessing their impacts and highlighting any gaps in provision	Follow up group		BIS will provide funding for scoping of the mapping work Follow-up group consulted via email and tender document being developed by BIS Initial briefing work began before the September 2010 S4A meeting and aimed to send out the tender notice at the end of September (now postponed).	

ONGOING					
	Action	Leader	Partners	Progress/Comments	July 2012 Update
2.2	Share and apply learning from public engagement activities				
2.2.1	develop better systems for defining and measuring quality, impact and reach of engagement		British Science Association ASDC	ASDC have published a report on this This action is inherently linked to both the mapping and action 2.2.2 Science and Trust planning work on evaluation linked to this work NCCPE ran a session at the December conference looking at this topic, drawing on the experiences of the different beacon evaluators. NCCPE will also be offering guidance on new website	Wellcome Trust is developing a public engagement assessment framework to inform internal End of Grant assessments for PE awards.

ONGOING					
	Action	Leader	Partners	Progress/Comments	July 2012 Update
2.2.3	highlight and support 'social activist' grass roots approaches, such as DIY engineering at recent Climate Camps, Transition Towns, and Guerrilla Science at Arts and Music Festivals		Wellcome Science Festivals	<p>Science Festivals could build on links with Arts and Music Festivals</p> <p>There is a feeling that this is already happening but should continue.</p> <p>Research other public-led opportunities for scientists/ science communicators/ engagement specialists to become involved and contribute, and how these activities might be funded</p> <p>A research plan is being formulated to combine this and 1.1.2. to investigate 'alternative approaches'</p> <p>Case studies have been contacted and a document highlighting diversity in reaching 'harder-to-reach' groups will be published around February 2011</p>	<p>Wellcome Trust (WT) is committed to placing medicine within a cultural context.</p> <p>In our grants programme we have supported public engagement activities across science, art and music festivals (e.g. LabOratory with Cheltenham Festivals - a series of events with a biomedical theme linked across all four of our festivals).</p> <p>Wellcome Trust <i>In the Zone</i> exhibition and In the Zone pop up interactive experience have both targeted non science venues across the UK including agricultural shows, Olympic relay events and music festivals.</p>
2.3	Provide accessible information on the sciences (including lay research summaries) via a single web portal				

ONGOING					
	Action	Leader	Partners	Progress/Comments	July 2012 Update
2.3.1	develop the Science:[So what? So everything] website as a portal to reliable and publicly accessible information on science generally and on the science behind topical issues in particular. The process for selecting resources signposted should be transparent and open to challenge. The signposting should include clear links to public engagement websites (which are the subject of the following action)	BIS	Science Council	Science Council has started a policy portal on topical issues which could be taken into consideration 2.3.2 needs to be done before this can happen BIS to provide 'learning' from carrying out a Science PR campaign to share amongst the public engagement community	

ONGOING					
	Action	Leader	Partners	Progress/Comments	July 2012 Update
2.3.3	ensure that all scientific research papers with any public interest dimension have a plain English summary giving context and implications, for public and media consumption. In addition we commend the Royal Society report of April 2006 'Science and the public interest' , and propose that it be revisited to develop further concrete recommendations	Wellcome Trust / RCUK		Clare Matterson is exploring possible approaches through the Wellcome Trust. RCUK are also looking into it and will liaise with the Wellcome Trust. Alex Saxon from RCUK is looking into other options including plain English video casts. The current government wide marketing and advertising freeze has constrained the options available however RCUK are continuing to explore innovative and low cost options. A plan is expected by the end of the year. Links with the Royal Society will be explored	Wellcome Trust is supporting (with the Howard Hughes Medical Institute (HHMI) and the Max Planck Society) a new open access online journal for biomedical and life sciences research. Articles will be enhanced with non-technical summaries and commissioned content (such as further illustration, explanation, or video accompaniment) Further information can be found at http://www.elifesciences.org/
2.4	UK cultural institutions take a strategic approach to the sciences in culture				

ONGOING					
	Action	Leader	Partners	Progress/Comments	July 2012 Update
2.4.1	publicly funded national cultural institutions and DCMS to demonstrate their commitment to recognising science as part of our culture, by embedding it in their mission statements and follow-through actions and activities	Roland Jackson		Ongoing. RJ in discussions	
2.4.2	boards of these institutions to have representation from the scientific community and boards of scientific bodies to have representation from wider society	Science for All Officer/ BIS		Ongoing. RJ in discussions. Piece of desk research for Science for All Officer/ BIS Secretariat	
2.4.3	scientific organisations that engage with politicians and civil servants to stress the importance of science engagement as part of the cultural dialogue in the UK	Follow up group		Ongoing, especially important pre and post election RJ presented the case for public engagement at a Round Table of scientific organisations hosted by David Willetts	

ONGOING					
	Action	Leader	Partners	Progress/Comments	July 2012 Update
2.5	Establish public compacts on national issues				
2.5.2	consider and promote ways of prioritising key issues needing public participation and/or tackling some emerging technologies together	Sciencewise		Sciencewise are exploring this in relation to infrastructure Sciencewise have set up a public portal on their website which invites the public to discuss potentially controversial areas of Science and Technology Sciencewise has a plan in place for increased public promotion to increase use by the public of the site. One forum area is on the publics views on future science and technology topics for engagement	
3.0	A professional culture that values, recognises and supports public engagement with the sciences				
3.1	Embed public engagement within institutional structures and processes				

ONGOING					
	Action	Leader	Partners	Progress/Comments	July 2012 Update
3.1.4	improve mechanisms to share, promote and embed good practice in using public participation to inform decision-making across and within government departments, agencies, funding bodies, academia, business and charities	Sciencewise	RCUK	<p>Ongoing</p> <p>Research Councils UK (RCUK) to share learning from its panels</p> <p>Sciencewise continues to be active in building capacity for public engagement across Government Departments.</p> <p>Programme of public and stakeholder capacity building within DECC were initiated in October.</p> <p>Sciencewise is investigating the practicalities of establishing a public panel in order to increase public participation.</p> <p>Sciencewise is planning a series of strategic workshops that will bring together key influencers across Departments to discuss the issues around public engagement on a strategic issue.</p> <p>First workshop was planned for November.</p>	

ONGOING					
	Action	Leader	Partners	Progress/Comments	July 2012 Update
3.1.7	<p>ensure Sciencewise builds on and continues to support government departments and agencies in making effective use of public dialogue to inform decision-making, through:</p> <ul style="list-style-type: none"> having greater bite, profile and impact continuously monitoring public perceptions and attitudes around emerging scientific issues <p>improve capturing of outcomes and learning from public dialogue and increase sharing of these with other sectors including on organisational change and embedding public participation in decision-making</p> <p>improve capturing and sharing evidence on impact of public participation in decision-making across departments and sectors</p>	Sciencewise		<p>Sciencewise has prepared six indicators of impact, these are to be finalised with BIS and will provide the basis of a monthly update on impact.</p> <p>Sciencewise public panel will enable routine monitoring of public perceptions and attitudes.</p> <p>Sciencewise is supporting an evaluation workshop with Involve which will discuss the assessment and evaluation of public engagement activities. The aim is to identify current best practice.</p> <p>The workshop was planned for November.</p>	

ONGOING					
	Action	Leader	Partners	Progress/Comments	July 2012 Update
3.1.8	encourage funders/government/policy makers to embed public engagement in their own activities and work with science communicators/ engagement specialists to achieve this			It was agreed that all parties present would capture ways in which embedding was happening within their organisation Sciencewise is supporting RCUK initiated activities with AHRC and ESRC to provide strategic training on public engagement to key influencers within these Councils Workshops RCUK and ESRC planned for October / November. Activities with AHRC to be detailed.	
3.2	Ensure all researchers and practitioners have access to training for public engagement				
3.2.1	promote engagement training as part of continuing professional development for scientists	RCUK		ASDC have done a lot with training for public engagement of science RCUK are leading on embedding PE as part of CPD for scientists NCCPE are currently working with RCUK to develop a set of training resources covering social and ethical dimensions to research. These will be piloted in Feb and Mar and launched in April	Wellcome Trust currently offers Narrative Skills training for our researchers. All Wellcome funded PhD students are also strongly encouraged to attend the Vitae GRAD schools which all include an introduction to public engagement.

ONGOING					
	Action	Leader	Partners	Progress/Comments	July 2012 Update
3.2.2	encourage Professional Bodies to recognise and adopt public engagement skills and competencies into their frameworks and then to provide the appropriate training	Science Council	RSC IOP	Roland Jackson meeting Science Council on 1 February IOP are working on this	
3.3	Include public engagement competencies within continuing professional development frameworks				
3.3.2	develop a competency framework for public engagement, and explore how these competencies might be embedded into existing or developing professional development frameworks e.g. Modernising Careers' and CEng	NCCPE		NCCPE have developed an attributes framework for university staff, building on the work commissioned for Science for All. This underpins the practitioner toolkit. NCCPE are creating guidance and case studies to show how such a framework can be used to develop informal and formal CPD. Framework is now published on NCCPE web site and NCCPE are working with Vitae, AURIL and JISC to embed in CPD in HE. May need further support to spread out to other sectors NCCPE due to talk to Science Council about embedding in CPD frameworks	

ONGOING					
	Action	Leader	Partners	Progress/Comments	July 2012 Update
3.4	Improve understanding of mechanisms to recognise public engagement activities				
3.4.1	commission research to build a better understanding of motivations, rewards and barriers for public engagement in business and how they relate to the third/public sectors	BIS/RAEng		BIS and RAEng co-funding this piece of work Tender document developed and advertised Contract Awarded Results due February 2011.	
3.5	Ensure funders of the sciences have mechanisms in place to support and recognise public engagement				

ONGOING					
	Action	Leader	Partners	Progress/Comments	July 2012 Update
3.5.2	funders of the sciences to consider how grant applicants can demonstrate that public engagement activity associated with their research is consistent with their institution's policy and practice		RCUK Wellcome Trust (Chris Stock) ASDC	RCUK Pathways to Impact Guide up and running Wellcome Trust has changed strategic plan to incorporate this action HEFCE has responded including PE in REF proposals ASDC would be keen to help researchers who now need to include public engagement in grant proposals. Included in RCUK Concordat	Wellcome Trust Strategic Plan states that 'We will expect all of our major research groups to engage with the public about their work and will offer them support and training to do so'. This action is incorporated in advice given to submissions for public engagement with research activities as part of the Wellcome Trust Institutional Strategic Support Fund
3.5.3	all funders to include public engagement as an eligible cost (including staff time) within grants		RCUK Wellcome Trust	Already happening with Wellcome Trust and Research Councils. Is there the possibility of bringing a range of issues from the strategy in front of the Research Funders Forum? Addressed in Concordat?	Wellcome Trust Investigator Award applications ask for public engagement plans which can be resourced within the grant.
3.5.5	research funders to explore potential unintended consequences of formalising public engagement to inform the implementation of the previous action			HEFCE is talking to the RCUK Public Engagement with Research Team	

ONGOING					
	Action	Leader	Partners	Progress/Comments	July 2012 Update
3.6	Demonstrate public engagement at an institutional level				
3.6.1	members of the research, higher education (HE) and wider scientific communities (including businesses of all sizes) to consider how they can embed public engagement so that it is recognised as an integral part of a scientific career		NCCPE Science Council IOP RSC	NCCPE to share the framework currently under development for universities and research institutes, to self-assess their own 'level' of embedding, and the associated tools. These were launched at the end of the year. This framework aligns closely with the principles being promoted in the Concordat Professional bodies are interested in being involved – would be good to bring in experience outside of academia Need to discuss with Science for Careers Expert Group	

ONGOING					
	Action	Leader	Partners	Progress/Comments	July 2012 Update
3.6.2	fundors of the sciences to encourage and support HE and research institutions in receipt of funding to develop their own public engagement strategies			<p>This is already ongoing with PE an integral part of most funders application processes</p> <p>Wellcome Trust are about to launch a public engagement fellowship scheme which aims to create role models in public engagement</p> <p>Two Research Councils already have public engagement fellowship schemes and another is looking into starting one.</p> <p>RAEng have a public engagement fellowship specifically to look at Societal and Ethical aspects of the researcher's work</p> <p>part of the RCUK Concordat?</p>	<p>Wellcome Trust Engagement Fellowships now in second year.</p> <p>Wellcome Trust Institutional Strategic Support Fund is to enhance institutional strategies for the biomedical sciences (to include public engagement).</p>
3.7	Recognise individuals who undertake public engagement				

ONGOING					
	Action	Leader	Partners	Progress/Comments	July 2012 Update
3.7.1	employers of researchers and staff who participate in public engagement activities (such as Higher Education institutions, research institutes and industry), to consider how to include public engagement within professional advancement of their staff through promotion and recruitment criteria and provide support for implementation			Included in RCUK concordat for Public Engagement The NCCPE new website will contain practical guidance and case studies to illustrate how different universities have approached this (see 3.7.3)	<p>The Wellcome Trust (WT) has developed a portfolio of reputable prizes and competitions over the past three years including the WT Book Prize, the WT Science Writing Prize and the recently launched WT Screenwriting Prize.</p> <p>We use these initiatives to help reach new audiences and industry sectors, explore different communications platforms and partner with different organisations that complement our brand.</p> <p>For more information please see:</p> <ul style="list-style-type: none"> WT Book Prize: www.wellcomebookprize.org (MEDICINE AND LITERATURE) WT Science Writing Prize: www.wellcome.ac.uk/swp (RESEARCHERS AND PUBLIC) WT Screenwriting Prize: www.wellcome.ac.uk/screenwritingprize (FICTION AND FILMS)

ONGOING					
	Action	Leader	Partners	Progress/Comments	July 2012 Update
3.7.2	professional bodies to accredit the skills acquired through public engagement within the criteria for obtaining professional status (e.g. Chartered Chemist)	Science Council	RCUK IOP RSC	There is some overlap with 3.2.2 Updated needed from Ali Orr	
3.7.3	the NCCPE to disseminate the findings from a workshop held by the Recognition Working Group on learning from the Beacons for Public Engagement on reward and recognition mechanisms and the results from an Economic and Social Research Council (ESRC)/NCCPE research synthesis on academic promotions criteria	NCCPE		Report is now almost complete – subject to final revisions. NCCPE have prepared resources that provide practical guidance on how to tackle reward and recognition, to be launched in the first quarter of this year.	

ONGOING					
	Action	Leader	Partners	Progress/Comments	July 2012 Update
3.8	Promote successful knowledge exchange between the sciences, policy and business				
3.8.1	review existing best practice in buddy schemes in public engagement (such as the Engineering and Physical Sciences Research Council (EPSRC) Partnerships for Public Engagement mentors and NCCPE Ambassadors programme) and the support service provided by the NCCPE, and explore need for a national/regional buddy scheme for public engagement	NCCPE	STEMNET	NCCPE hosted a review meeting with our first ambassadors later in the Autumn which should inform this. NCCPE arranging meeting with STEMNET. EPSRC have announced the closure of their PPE scheme	

ONGOING					
	Action	Leader	Partners	Progress/Comments	July 2012 Update
3.8.2	use secondments, job shadowing, consultations and workshops more extensively to facilitate the transfer of people, information and ideas between the sciences, policy-making and business communities		RAEng	The RAEng Scheme with the Government Science and Engineering Network is a good example of where this is happening	
3.9	Support the growing cadre of science communicators/ engagement specialists				
3.9.1	explore, in discussion with existing providers, the provision of CPD for science communicators/engagement specialists. This could include summer schools and weekend symposia to discuss practice and current issues. Such courses could be accredited.	RJ	ASDC, Science Festivals, Imperial College BIS British Science Association	Research led by Dom McDonald has begun with initial scoping questionnaire which has shaped recommendations Subsequently discussed on Psci-Com to form more specific recommendations which will be explored in a meeting near the September 2010 general SfA meeting A model for CPD for Science Communicators has been developed and will be discussed in the January 2011 meeting with a view to presenting it to various possible partners to accredit and administrate	

PARKED					
	Action	Leader	Partners	Progress/Comments	July 2012 Update
1.0	A wider understanding of why, when and how the public engages with the sciences				
1.3.2	compare UK perceptions of culture with other European countries by including a question in the next Eurobarometer on Science and Technology	BIS	Martin Bauer	IS investigating options within BIS and via Martin Bauer Eurobarometer on Science and Technology published in 2010 so there won't be another Eurobarometer done in this area until 2015.	
2.0	Supportive networks and mechanisms for increasing effective engagement				
2.3	Provide accessible information on the sciences (including lay research summaries) via a single web portal				
2.3.2	review and pull together information on public engagement websites/portals and explore ways of improving the links between them	Science for All Officer		Desk research for Science for All Officer Mapping framework could be applied here Currently parked until the mapping exercise takes place in order to inform direction and shape of useful research	

PARKED					
	Action	Leader	Partners	Progress/Comments	July 2012 Update
2.5	Establish public compacts on national issues				
2.5.1	set up a pilot 'public compact', to enable concerted action on national issues by government, public sector bodies, businesses and members of the public	Sciencewise		Tenders have been received for a new initiative on Science, Trust and Governance. This will include series of investigations into innovative engagement activities	
2.6	Extend developments of collaborations between the arts and sciences				
2.6.2	implement a more joined-up approach across Government departments (BIS, Department for Children, Schools and Families (DCSF), DCMS) to support informal science engagement, in particular the cultural dimensions of science, in ways that are coherent	PARKED	PARKED	PARKED	

PARKED					
	Action	Leader	Partners	Progress/Comments	July 2012 Update
2.7	Promote active support for the sciences in broadcasting			Paul Manners has agreed to join the working group that Fiona Fox has set up to take forward the media report recommendations	
2.7.1	provide publicly-funded broadcasters (BBC/Channel 4) with continued support as a priority for public access to high-quality science broadcasting in the UK			The BBC Trust is currently carrying out a review of impartiality in science broadcasting. Wellcome are responding and it was felt that it was opportunities like this that the public engagement community should respond to Stephen Webster involved in the BBC Trust review, providing content analysis. This will cover who speaks about science (greater role for science communicators/intermediaries alongside science stars?)	The Wellcome Trust Broadcast Strategy encourages increased quality, quantity and visibility of biomedical content in programming of all genres. Please see http://www.wellcome.ac.uk/Funding/Public-engagement/Funded-projects/Major-initiatives/Broadcast-media-strategy/index.htm
2.7.2	establish mechanisms to bring together scientists, science communicators/engagement specialists and broadcasters to bridge the gap between them and to recognise the requirements and skills of each sector, building on the proposal to develop BBC 'Buddy Scheme'	Science and Media Group Lead	BIS/BBC	Pilot Buddy Scheme due to finish in December 2010. It will then be evaluated by the BBC and BIS and a decision made about continuation of the scheme. The NCCPE is currently running a collaboration with the BBC to link beacon academics to the Bang Goes the Theory website – answering questions raised by the public.	Wellcome Trust encourages collaborations between the research community and broadcasters. See Broadcast Strategy above for more information

PARKED					
	Action	Leader	Partners	Progress/Comments	July 2012 Update
2.7.3	work with the BBC College of Journalism to develop science training for journalists	Science and Media Group Lead	BIS/Royal Statistical Society	Science Journalism Training Coordinator recruited. Post hosted by the Royal Statistical Society and funded by BIS	
3.0	A professional culture that values, recognises and supports public engagement with the sciences				
3.1	Embed public engagement within institutional structures and processes				
3.1.5	create a forum for business to support, incentivise, build on and share existing good practice in the way business is involved in public participation and dialogue on key issues			This action could follow on from 3.4.1 Need to get more people from industry involved. BIS Secretariat to contact CBI Hilary Sutcliffe mentioned as a possible contact As part of business motivational work (action 3.4.1) contractors encouraged to develop contacts to start such a forum	
3.1.6	ensure greater commitment from government and other stakeholders to act on the results of public engagement activities and be transparent about the way in which issues raised are being addressed	Science and Trust		It was agreed that the Science and Trust group were best placed to take forward this recommendation	

PARKED					
	Action	Leader	Partners	Progress/Comments	July 2012 Update
3.2	Ensure all researchers and practitioners have access to training for public engagement				
3.2.3	explore the establishment of a qualification for evaluation of public engagement (e.g. a Diploma)	PARKED	PARKED	This needs to be left until evaluation database is up and running and we have liaised with Science and Trust Science Communication working group could look into this Such a qualification already exists at London Metropolitan University – a Post Graduate certificate in Evaluation with an intense week long introductory module to evaluation techniques	
3.3	Include public engagement competencies within continuing professional development frameworks				

PARKED					
	Action	Leader	Partners	Progress/Comments	July 2012 Update
3.3.3	advocate that all undergraduate and postgraduate studies in the sciences, together with early career training, contain an element on public engagement / communication/ ethics, building on GCSE, A-level, Diploma and other vocational courses in the sciences which should all contain an appropriate element	PARKED	PARKED	PARKED	
3.4	Improve understanding of mechanisms to recognise public engagement activities				
3.4.2	commission in 2010 a representative study of all academic researchers (all disciplines) to investigate the motivations, rewards, barriers and training needs of individual researchers involved in public engagement	RCUK		Need funding from BIS for this to happen Mapping may feed in to some extent	

PARKED					
	Action	Leader	Partners	Progress/Comments	July 2012 Update
3.4.3	commission in 2014 a follow-up representative study of all academic researchers, to look at the impact of new policies such as changes to the Research Excellence Framework (REF); this could then be repeated every four years to track attitudes	RCUK		Need funding from BIS for this to happen	
3.5	Ensure funders of the sciences have mechanisms in place to support and recognise public engagement				
3.5.6	all government R&D contracts and grants to the private sector to require delivery of an appropriate plan for public engagement	PARKED	PARKED	PARKED	

APPENDIX 2

This table notes actions in line with the recommendations of the Science and Learning Expert Group. This Group did not develop an Action Plan, but we recommend that BIS seeks input from other relevant organisations, particularly from the Department for Education.

Priority 1: the STEM workforce		
	Recommendation (shorthand)	Action since publication
1	Recruitment of science and maths specialists to teaching	The government has changed recruitment practices to encourage and incentivise highly qualified graduates into teaching, prioritising physics, chemistry and mathematics specialists. It will be essential to monitor the impact of these approaches and ensure that any increased recruitment of highly qualified graduates is not counter-acted by any decline in less qualified teachers. Furthermore rising uptake of science and maths qualifications mean that teacher need will only increase. Given these developments and the new ability of schools to recruit unqualified staff to teach, the Government will need to conduct detailed monitoring of the workforce teaching in schools. Government also extended its funding commitment to Teach First
2	Recognition for STEM technicians	The Gatsby Charitable Foundation may be well placed to respond to this question.
3	Reward and retain effective science and maths teachers using pay flexibilities	Schools now have more autonomy, especially Free Schools and academies, and have flexibility in terms of payment and retention mechanisms for staff. The use and impacts of these flexibilities have yet to be seen, and have had limited impact in the past, but should be closely monitored. There is evidence that high quality science specific CPD enhances retention among teachers.
4	Investigate consistency between ITT providers - subject-specific training as high priority	A report by Roger Lock, commissioned by the Wellcome Trust, found great variation in the amount of science specific content knowledge and pedagogical skills covered by different ITT providers. Overall, trainees were left to learn much of this material independently and once they were in teaching. The Trust discussed these findings with civil servants and advisors, after which the Teaching Agency explored ITT in the sciences through a series of workshops. With the additional rise of teaching schools as providers of ITT it is imperative that variation between all providers is minimised. In addition, continuity between ITT and CPD is vital and the Government should ensure that early stage teachers have access to and funding for high quality science specific CPD as a matter of course.

5	Local schools and FE collaborations and clusters with HEIs and employers for science and maths delivery and teaching	<p>The government's proposed Teaching Schools now act as a local hub of teaching and teacher training. These clusters must include at least one HEI.</p> <p>Schools, including Academy chains, are increasingly working in partnerships and clusters. However more data are needed to verify that an appropriate level of science and maths expertise exists or are accessed within each cluster, not least through working with Science Learning Centres.</p>
6	Reinforce the link between updating subject specialist skills and career development and progression for science and mathematics teachers	<p>Subject-specific CPD should be an intrinsic part of all teachers' career paths, especially for the sciences.</p> <p>The courses run by Science Learning Centres have proven impact on teacher and student performance, and improve teacher retention and progression thus showing a good return on investment (e.g., National Audit Office report, 2010; also see the Report of the Quinquennial Review of the National Network of Science Learning Centres commissioned by the Department for Education and the Wellcome Trust, 2012). The latter review highlighted that 57 per cent of teachers who had participated in five days or more of National Science Learning Centre or regional Science Learning Centres' CPD said that this training had increased their likelihood of staying in teaching.</p>
7	Embed CPD into a clear governance framework at school level	<p>The Science Learning Centres, supported by the Wellcome Trust, Government and Industry partners, are an established brand with proven success. However many schools are still not sufficiently prioritising science CPD despite its potential to train up teachers in subjects in which there are shortages, and the ongoing need to update scientific knowledge and pedagogical skills. All science teachers and technicians should be entitled to science specific CPD. In order to ensure funding is allocated, Government should fund the providers directly. Furthermore, schools should be held accountable (by their governors and Ofsted) for the participation of their teachers in CPD. Opportunities for CPD should therefore be embedded in the accountability framework for school performance.</p>

8	DCSF continue supporting and funding SLCs and NCETM	<p>Given the strength of the case for science CPD as an integral part of science teaching, the need for public funding is compelling. Such funding is currently securely delivered in a ring-fenced manner, through the funding of National and Regional Science Learning Centres and bursaries for course participants. An independent evaluation found that two thirds of participants reported that they would have been unable to attend courses without these bursaries.</p> <p>In his Autumn Statement in 2011, the Chancellor announced the Government's intention to invest £10 million in Project ENTHUSE to support bursaries for course participants at the National Science Learning Centre from 2013 with matched investment from the Wellcome Trust (contingent upon the outcome of the NNSLC's Quinquennial Review).</p> <p>The government has yet to announce its plans for the Regional Science Learning Centres from 2013 which is an essential element of current provision.</p>
Priority 2: Curriculum, qualifications and assessment		
	Recommendation (shorthand)	Action since publication
9	HE and stakeholders engaged in design and development of qualifications and assessment with respect to accountability and quality	<p>The government, through Ofqual, is in the process of reforming A levels. It is considering greater involvement of HEIs in the design, development and monitoring of the qualifications.</p> <p>The Wellcome Trust and a number of other science organisations have called for the establishment of National Subject Committees, to be convened by learned societies, to oversee expert HEI input into A level design and development.</p>
10	Strengthening the mathematics content of STEM pathways	<p>Understanding of these issues have developed but little action has been taken as yet. The Nuffield Foundation, SCORE and ACME would be best placed to answer this question due to their work in exploring the evidence around the type and amount of mathematics that is required in order to access the science in the current A-level specifications. There is considerable variation across awarding bodies with regard to mathematics content, with HEIs reporting that many undergraduates have not covered core mathematical content. The Nuffield Foundation, SCORE and ACME would be best placed to answer this question due to their work in exploring the evidence around the type and amount of mathematics that is required in order to access the science in the current A-level specifications</p>

11	Examinations: assessment of students' in-depth problem solving and deeper understanding of subject concepts, use of English in answers, mathematics	Current reform of the examination system for KS4, as proposed by the Government, is seeing a greater emphasis on testing deep learning. However, this must not be at the expense of appropriate assessment of practical skills.
12	Regulatory framework currently being developed by Ofqual for awarding bodies should be strengthened	Recent government proposals are to move towards a franchise model of working, where one awarding body would win the contract to run a set of core subjects, e.g. the sciences. This is an attempt to remove the competitive nature of awarding bodies and any risk of a "race to the bottom". The practice of awarding bodies endorsing textbooks has not been stopped. However the current consultation on KS4 qualifications reform includes a motion towards Ofqual producing guidelines around support materials (e.g. text books, past papers) that do not encourage 'teaching to the test'.
13	Reduce the modular burden of summative assessment at A level	Ofquals current proposals to reform the A levels include a reduction in the modular nature of A levels and a limit to the number of resits available to students. In addition, the government recently announced proposals for GCSEs which would remove modularity.
14	Scope for in-depth and exploratory learning in science and mathematics should be increased	The number of students undertaking the Extended Project Qualification (EPQ) has risen in recent years to 28,500 in 2012. However, concerns remain about the under-representation of STEM subjects as part of the EPQ cohort, especially when the subject lends itself so well to the nature of the qualification. Also it seems that the potential for in depth practical work in the EPQ is not being fully realised.
Priority 3: Coherent STEM programmes, pathways and enrichment		
	Recommendation	Action since publication

15	Science community and HEIs should provide clear STEM careers information and advice	<p>The Russell group now promotes the value of science and mathematics qualifications through its <i>Informed Choices</i> booklet.</p> <p>There is growing awareness that good provision of careers advice brings immense value to student's qualifications choices and many organisations, including the Trust, have sought to provide resources. This may be reflected in the increasing uptake of STEM A-levels.</p>
16	Advanced Science Diploma needs to be defined	This was abolished by the current government.
17	More support, guidance and CPD for science teachers on delivering effective practical learning	Please see response to recommendation 6,7, and 8.
18	Entitlement to good quality enrichment for all science and maths students	<p>BIS is continuing to support STEMNET and the Big Bang Fair (alongside Wellcome's ongoing funding).</p> <p>We recommend that these initiatives must be accompanied by solid evaluation and testing to ensure successful impact. It is more beneficial to focus funding on fewer robust initiatives in partnership across the STEM sector, rather than many smaller enrichment activities.</p>
Priority 4: Pull mechanisms		
	Recommendation (shorthand)	Action since publication

19	All young people should receive planned systematic information, advice and guidance on STEM careers from KS2	<p>The government has given the UK Commission for Employment and Skills remit to pilot a 'Labour Market Information for All' project to give wide access to live labour market information drawn from the existing Labour Force Survey and Annual Survey of Hours and Earnings.</p> <p>The Wellcome Trust's recent edition of <i>Big Picture</i> focuses on careers from biology. <i>Big Picture</i> is a resource for A level teachers and their students and is circulated widely across the UK.</p> <p>The National STEM Centre is building a collection of STEM careers guidance material that will be freely available to all teachers and careers advisers.</p> <p>However, while information may have improved, the government must do more to ensure that all students have tailored and appropriate advice at throughout their education. Provision has been watered down in recent years.</p>
20	Continue to develop HE's links with schools and colleges	Please see response to recommendation 9.
Priority 5: School and college ethos		
	Recommendation (shorthand)	Action since publication
21	The governance mechanisms for STEM education should be transformed	<p>The Wellcome Trust has taken forward the concept of a Statement of Recommended Practice for governing bodies through developing a Recommended Code of Governance. This Recommended Code will be piloted in up to 20 schools over the next 2 years. We are also working with RM to improve governor access to relevant data. All this work has been discussed with DfE and we hope to work with them on data access. In addition, Ofsted has announced a renewed focus on the quality of school governance. This part of school performance will now have a stronger place in their inspection regime.</p>
22	Strengthen the capacity for well-planned, coherent science and mathematics education within schools and colleges through developing local clusters	Please see response to recommendation 5.

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