Science in Society

Findings from Qualitative and Quantitative Research

Conducted for the Office of Science and Technology, Department of Trade and Industry

March 2005

Contents

Introduction

This report presents the findings of a programme of research carried out among the general public by MORI (Market & Opinion Research International) on behalf of the Office of Science and Technology (OST), Department of Trade and Industry. This research explores public attitudes towards a range of issues related to science (including engineering, medicine and technology); public engagement with science; trust in scientists; and awareness of, interest in and consultation on issues related to science and technology.

This report draws together the findings from three of the four elements of the research programme (2, 3 and 4 below). The findings from the first element – desk research – are contained in a separate volume (August 2004).

1. desk research summarising recent research – carried out in Britain and overseas – assessing public opinion on science and scientists;

2. a series of 8 general public discussion groups;

3. a large-scale survey of behaviour, attitudes and opinions among the general public in the UK;

4. statistical analysis of data to examine the population further ('Cluster' or 'Segmentation analysis').

This report integrates findings described in two previous reports: Desk Research (MORI, August 2004) and a Memorandum on the Discussion Groups (MORI, August 2004).

Background to the Research

In recent years, science and its social and ethical implications, communication of science, dialogue, public involvement and public engagement have become key aspects of science policy. The importance of encouraging dialogue between scientists and the public is now widely recognised.[1]

This research study builds on two previous general public research studies for OST, as well as University of East Anglia (UEA)/MORI general public work on risk, and MORI's work for The Wellcome Trust among over 1,600 UK scientists:

- 'The Public Consultation on Developments in the Biosciences' (MORI/OST 1998/1999);

- OST/Wellcome Trust 'Science and the Public' research (1999/2000);

[1] *Science and Society* report of the House of Lords Select Committee on Science and Technology, 2000; Investment framework for science and innovation 2004-2014, HMT,DTI, DFES, 2004

- UEA/MORI 'Attitudes to Social Issues' (2002);
- UEA/MORI 'Attitudes to GM Food' (2003).
- MORI/Wellcome Trust 'The Role of Scientists in Public Debate' (1999/2000).

To provide comparability with the previous work for OST, a similar combination of research methods was used (though with fewer discussion groups this time compared with the OST/Wellcome Trust research to reflect the fact that this is a repeat study, and a lot has been learnt both from the earlier work and various other programmes of research).

Since our work for OST in 1998/1999, MORI has tracked the emergence of a number of high profile issues, including: genetic modification, radioactive waste, radiation from mobile 'phones, genetic testing climate change, cloning, stem cell technology and nanotechnology.[2]

In this context, this *Science in Society* report for OST aims to shed light on public engagement with science, engineering and technology, and highlight possibilities for improving dialogue and mutual understanding between the science community, policy-makers and the public.

Structure of this Report

The report is divided into a number of sections. These comprise: a summary of key findings, sections on methodology and analysis, and a summary of the key findings arising from the qualitative research and quantitative survey.

A number of attitudinal and behavioural segmentations have been identified from statistical analysis of the survey results (so called 'Cluster' or 'Segmentation' analysis).

To examine the views of black and minority ethnic groups (BME), the research also included a 'booster' sample of 417 respondents, in addition to BME respondents interviewed on the main sample. The report describes the survey results among BME groups – noting any significant differences across the range of social groups. The report also looks at geographical differences by comparing results across both UK countries and English regions.

[2] Some of this tracking work has been in the UEA/MORI research of 2002 and 2003.

Objectives

The objectives of the research were to address public attitudes related to:

- science and engineering; scientists and engineers;
- a number of specific areas of science and technology;
- engagement with science and technology (e.g. sources of information; visits to science museums and centres; attendance at science festivals etc.);
- trust in scientists and the regulation of science and technology;
- needs, concerns, interests and priorities in relation to science and technology; and
- involvement in consultation on science and technology issues.

Summary of Findings

Overall Opinions on Science

Overall opinions on science are generally positive. Most people think science makes a good contribution to society (86%), and that on the whole, science will make our lives easier (82%). Looking at trends, more people now believe that science makes a good contribution to society, and that science will make our lives easier (up five and ten points respectively in the last two years). Also, strength of feeling has become more marked, with at least a quarter of adults now strongly agreeing with each statement (up from 20% and 15% respectively).

While science barely features as a top-of-mind important issue to the public, there are some clearly positive spontaneous associations with both 'science' and 'scientists' - and the two often convey quite distinct associations in the minds of the public. Positive associations of science with advancement and progress – particularly in the field of healthcare – and with laboratories far exceed negative images of science as a boring subject at school, and associations with war/bombs/destruction. Likewise, positive images of scientists as skilled people who are expert in their field, or academics, teachers and researchers are much more widespread than the stereotype of the scientist as an eccentric.

'Engineering' evokes quite different associations from 'science, as shown in both the quantitative and qualitative research. Associations with the former tend to be artefact-based, while those with the latter (except in the case of medicine/healthcare), more concept-based. Most commonly, engineering is linked with construction, design and machinery. Engineers are most readily thought of as machine operators/mechanics and, like scientists, are regarded as skilled people by almost a quarter, while 1 in 7 associates engineers with blue collar jobs.

Few say they see or hear too much information on science and far more people now than four years ago say they receive too little information on the subject. This is despite the fact that, science is now getting more media coverage than previously, and (general) news can now be obtained around the clock. The qualitative research indicates that the public are aware of many science stories having '*hit the media*' in the last few years which could have increased their desire for information (eg the MMR vaccination controversy, cited by a number of parents; cloning/'designer babies'; and issues/concerns over GM food). In the qualitative research it was felt that new science developments often emerge in the media after they have happened, not before, and participants commented that they should be given information earlier. This was strongly supported in the quantitative research.

There are significant differences between scientific developments in how widely they are seen as being beneficial for society. Health-related applications: medicines, transplants, surgery generally, cures for diseases and genetic testing – as well as computers/the internet - are widely seen as beneficial. Yet cloning,

radioactive waste, 'designer babies' and GM food are generally perceived in negative terms.

Looking at trends[3], it is evident that while computers are now regarded more positively than five years ago in terms of their perceived benefit to society[4], genetic testing, new operations and transplants are regarded less favourably[5]. However, genetic modification and GM food are regarded less negatively than before (at this question). These GM figures are consistent with longer-term trends[6] which reveal an increase in neutrality towards GM food (when asked as a 'support/oppose' question); with the last measure (in 2003) indicating that equal proportions were neutral, and opposed to, GM food.

However, when the public is asked a different question - about the relative benefits and risks of GM food - far more say that the risks exceed the benefits and this gap has widened considerably since measurements began in 2002[7]. This seeming discrepancy (between the benefits/non-benefits to society question and perceived risks/benefits) could reflect the fact that the GM debate first became mainstream in the UK in 1998/9 and feelings towards GM food at the time were very negative. Opposition subsequently eroded somewhat (as did support), and was replaced by increased neutrality. This could explain why GM food is regarded less negatively now in terms of its perceived impact on society, though it still gets a negative rating overall at this question - consistent with the feeling that the risks outweigh the benefits.

When asked whether they feel that GM food is a good or a bad thing, findings are similar to those on the risks/benefits question. The highest proportion is negative, and this represents an increase on 2002.

Looking at genetic testing and perceived benefits and risks, a majority of the public is positive towards this development, and far more now than two years ago[8] say the benefits of genetic testing outweigh the risks – perhaps as people become more used to, and aware of, the development

---

[3] Only some of these categories were trended, and asked of half the sample.

[4] Those aged 25-34 and 45-54 are the most likely to regard computers, the internet and email as having been beneficial to society, while those aged 65+ are the least likely to.

[5] In the case of genetic testing, this may be because this development has featured less in the media than in 1998/9 (which was also a time when the government was consulting on the regulatory aspects of genetics, leading to the establishment of the Human Genetics Commission). Also, while the proportion regarding genetic testing as having been beneficial to society has fallen, there has been no increase in the proportion saying this development has not been beneficial to society. This is also the case with all the other 16 developments tested. Please see the *Topline Results*, pages 150-151.

[6] MORI/Greenpeace 1996; MORI/Genewatch 1998; MORI Environment tracker 2003; UEA/MORI 2003.

[7] UEA/MORI 2002; and UEA/MORI 2003. See page 154. The UEA/MORI 2003 fieldwork was conducted immediately after the Government's "GM Nation?" consultation of summer 2003, at a time of much media coverage of, and debate about, GM foods. The Steering Board published the "GM Nation?" report in September 2003, indicating considerable opposition to GM food. The Government's response to the report was issued in March 2004, as were the results of the UEA/MORI 2003 work.

[8] UEA/MORI 2002. See page 154.

Regarding climate change, the same proportion now, as five years ago, feels that 'discovering global warming/climate change' is beneficial to society overall. While discovery of climate change is viewed positively overall, the public clearly feels that the risks around the issue of climate change itself outweigh the benefits.

'Radioactive waste' - which probably carries considerable negative connotations from having 'radioactive' and 'waste' in its name - is once again regarded by a huge majority as being a very or fairly bad thing. Also, strength of negative feeling is now more marked now than two years ago[9]. Similarly, a large majority now feels the risks of radioactive waste outweigh the benefits, representing a considerable increase in the last two years.

Concern has also increased sharply for radiation from mobile phone handsets - with almost twice as many now saying the risks outweigh the benefits, as the benefits outweigh the risks. This represents a complete reversal of the pattern of two years ago when more than twice the proportion believed the benefits exceeded the risks, than the risks exceeded the benefits. As in 2002, most people believe radiation from mobile phone handsets is a bad thing, though this proportion has fallen slightly in the last two years.

The findings then are suggesting that the public still feels radiation from mobile phones is a bad thing, and many more now feel that the risks involved in radiation from mobile phone handsets outweigh the benefits, compared with two years ago.

In the current survey, concern that the risks of radiation from mobile phones outweigh the benefits is equally high among those with and without children under 16. However, those with children aged 11-15 are the most likely group to feel that the benefits outweigh the risks (though they are still, on balance, more negative than positive).[10]

'Cloning', asked for the first time as a 'benefits versus risks' question[11] evokes predominantly negative feelings - with far more saying the risks outweigh the benefits than that the benefits exceed the risks. This result is very likely to have been influenced by concerns about both the safety and ethical issues surrounding possible human cloning.

Regarding nanotechnology, the qualitative research suggested (where the term was tested) that awareness of this development is extremely low - a finding which also emerged from the Royal Society/Royal Academy of Engineering study[12]. Consequently, although more people regard nanotechnology as a good than a bad thing in the quantitative survey, the known low awareness of the term suggests

[9] UEA/MORI 2002. See page 156.

[10] The research was carried out before the National Radiological Protection Board (NRPB) report in January 2005, which reinforced the precautionary message about minimising exposure to young people, despite a lack of hard evidence that the health of the public is being affected adversely by the use of mobile phone technologies.

[11] To our knowledge.

[12] *Nanoscience and nanotechnologies; opportunities and uncertainties. (2004) London, The Royal Society, Ch 7. http://www.nanotec.org.uk/finalReport.htm*

that the seemingly positive finding is reflecting inferences by respondents based on beliefs about technology in general (rather than about nanotechnology in particular). Indeed, nanotechnology received the highest 'no opinion' figure of all the 13 developments tested (28%).

Overall, a clear majority agrees that the benefits of science outweigh the risks. However, when asked the converse way (of the other half of the sample) as: 'the risks of science outweigh the benefits', the findings are less clear-cut. Many, though fewer than half, disagree with this statement. This could represent some difficulty in conceptualising a risk outweighing a benefit, particularly if people know little about the risk of science in general. It may also be revealing a methodological issue – namely that it may be difficult to disagree with the negative concept of 'risk'. There is also evidence to suggest that 'risk' in general is a very difficult concept to grasp (and this is an area where further research is likely to be fruitful).

Participation in and Information on Science

The importance of young people having a grasp on science is almost universally recognised, and most now feel strongly about this. While most people in the UK do not feel informed about science and scientific research or developments, it is notable that approaching 4 in 10 feel very or fairly well informed, particularly in a specialist area that most people do not need to be informed about.

Television (both news and documentaries) is the most commonly used source of information about science, and the most preferred method for science information in the future[13]. The print media – particularly (national) newspapers, followed by magazines, are the next most commonly used sources. Closely behind magazines are national radio and the internet as current sources. Of course, many of these sources draw off other sources for information – for example: TV, the print media and the internet could obtain or quote information from charities, campaigning groups, various types of scientist, government, industry, doctors, religious organisations and so on.

National newspapers and magazines fare a little worse than their current information scores would suggest, in terms of being future information media. Indeed, all sources are less often cited as future, than current information media, which in MORI's experience is a common finding, suggesting some natural difficulty predicting future needs. Science centres and talks at public meetings are among the least commonly used current (or likely future) sources, although between 1 in 20 and around 1 in 10 currently receive information via science centres or public meetings, or would like to in the future. It is likely that these media would be more appealing to a specialist audience, and indeed science centres and public meetings are considerably more popular among professional and managerial groups (ABs)[14].

[13] Television is almost always cited as the most commonly used source of information (on anything), and the preferred method.
[14] See Appendices for social class definitions.

Awareness of science festivals held across the UK is fairly low nationally, compared with awareness of high profile cultural events such as the Edinburgh Festival. However, there is generally good awareness of regional science centres and museums among the regional populations for whom they cater, and of the Edinburgh International Festival of Science in Scotland, the Wrexham Science Festival in Wales, and the Cheltenham Science Festival in the South West of England. Eight per cent nationally says they have heard of the BA Festival of Science. It is expected that awareness of a specialist forum of this kind will be lower than something more mainstream, though there is still an opportunity for awareness of this festival to increase.

Over half of UK adults (say they) have heard of National Science Week. This is high in comparison with other science events. However, for many respondents, rather than any real awareness of National Science Week, it is far more likely that many members of the public are responding to the familiarity of the words 'national', 'science' and 'week'.

There is broad participation in science centres and museums. A little over half have been involved in some science-related activity in the past year. Most commonly, this is through a visit to a museum or science centre, or a zoo – with the Natural History Museum and then the Science Museum being the most frequently visited.

Visits to science centres and museums tend to be rated highly by those who go. The main advantages are described in terms of learning and teaching – of adults and children. Science centres, however, are not often cited spontaneously as providing a forum for debate or discussion on science and engineering.

Trust

A clear majority places the same amount of trust in scientists as they did five years ago - and we know from MORI's long-standing work[15] that most people trust scientists (and that trust in scientists has been consistently positive since measurements began seven years ago). However, certain newspaper readers (the *Guardian/ Independent / Observer* readers) seem to have lost some trust in scientists.

Scientists are one of the most valued sources of information, support or advice about science (coming second after the media). However, there is significant variation in levels of trust in scientists working for different types of organisation. Scientists working for industry and for government are much less widely trusted than those working in universities or for charities. These findings are entirely consistent with MORI's long-standing work[16]. Scientists working for charities, and in universities, are far more likely to be valued as sources of information, and to be trusted to provide accurate information about scientific facts than those working for either government or industry. Indeed, more than 1 in 10 say they

[15] For the BMA and Cancer Research UK. *'No-one likes us, or do they? Recent research reveals that more people trust scientists to tell the truth than may have been suggested'*; Corrado, M; *Science Public Affairs,* August 2001.
[16] MORI *'Business & The Environment'* 1990-1999, and MORI/Scientific Alliance 2002.

would least trust Government scientists to provide accurate information about scientific facts – over twice the proportion that say this about scientists working for industry. Fewer than half a per cent say this of scientists working in universities or for charities.

Crucial factors for the public in determining trust scientists are: competence, credentials, experience and honesty. For a third of the public, it is important that scientists listen to or share their concerns.[17] These results are consistent with the academic literature on the subject, with three main components (competence/expertise, care, and shared values) having been identified as related to trust. By contrast, appearance – being smartly dressed or wearing a lab coat – is far less important.

Funding of science has an important bearing on levels of trust in scientists. Those working in universities are more trusted if they are funded by medical charities and, to a lesser extent, environmental groups than if they are funded by industry, government or campaign groups. A sizeable proportion (between 3 and 4 in 10) say the way in which scientists are funded has no bearing on the degree of trust that they place in those scientists.

The findings for (university) scientists in: medical charities, environmental groups; industry and government are consistent with many other measures on the commercialisation of science.[18] The figures for 'campaign groups' are closer to those for government and industry than for medical charities or environmental groups. This may be indicating a certain ambiguity in the phrase 'campaign groups'.

There is widespread feeling that the independence of scientists is often put at risk by the interests of their funders, and this feeling is considerably more marked now than two years ago[19]. Many feel too that the funding of science is becoming too commercialised – a sentiment which over half agreed with in 2002,[20] and which now sees a sharp increase in strength of feeling on this issue.

The view that the media sensationalises science is even more widely held than in 2000, and is now more strongly felt.[21] This is despite people's reliance on the media as a source of information on science. MORI's qualitative work, particularly MORI/OST 1998/9[22] has revealed that the public regards the media as a vital communications channel – despite recognising the '*spin*' that is often put on stories, particularly by the tabloid press.

---

[17] Johnson, B.B. (1999). Exploring dimensionality in the origins of hazard related trust. *Journal of Risk Research*, 2 (4), 325-354.
[18] MORI '*Business & The Environment*' 1990-1999, MORI/Scientific Alliance 2002, MORI/Royal Society 2002 and MORI/UEA 2002.
[19] UEA/MORI 2002.
[20] UEA/MORI 2002.
[21] OST/Wellcome Trust 2000.
[22] The Public Consultation on Developments in the Biosciences.

What emerges is a largely positive feeling about science and about certain types of scientist (notably those funded by medical or other charities, environmental groups, or those working in universities – where they are funded by these sources). However less trust is placed in government scientists, scientists working for industry, and university scientists where they are funded by industry and government. There is also considerable concern about funders' interests jeopardising scientists' independence, and some anxiety about science becoming too commercialised. This paints a difficult picture for university scientists seeking funding from a variety of sources if their independence could be called into question as a result of receiving funding from industry or government. This raises the question of what people understand by 'government' funding of science, and whether awareness of the indirect, arms-length funding via research and funding councils would affect levels of trust.

Regulation

Few people say they know anything about the way science is regulated. Indeed, MORI's other work has demonstrated that few people know much about regulation on anything[23]. When asked which - from a list of seven types of scientist - are regulated, only minorities select each type (except for 'the NHS', where just over half say these scientists are regulated). Most people who believe scientists are regulated say this is by Government - which is consistent with other MORI work demonstrating that 'regulation' generally implies government regulation (to the exclusion of any other form of regulation, such as self-regulation). Very few say scientists regulate themselves, suggesting limited awareness of the scientific peer review process[24] or the existence of any ethical codes for scientists. On balance, over half of people who say scientists are regulated[25] have confidence in the way science is regulated – but a third lack confidence, and a further one in ten or so are undecided.

Reasons given for trusting the regulation of science[26] more often stem from feelings that, because science is regulated, we have to trust the regulation – rather than from any real understanding of how science is regulated. The most common answers among those placing a great deal or fair amount of trust in science regulation are: 'I have trust/trust the regulators' (22% of those having confidence); 'There must be regulation/Can't not have regulation' (17%); and 'We have to trust the scientists' (8%).

Some people who do not have very much or any confidence in science regulation say this is because they do not know enough about the subject (19% of those not having confidence), suggesting that a lack of knowledge is a partial driver of

---

[23] MORI Local Government research; MORI Central Government research; MORI Political research.

[24] This is consistent with MORI's 2003 work for *Nature* magazine, which revealed that very few members of the public were aware of what the phrase 'scientific peer review in scientific publications' meant. 43% did not know; a further 28% said 'nothing', and 5% gave an incorrect answer. Twenty-five per cent correctly said that it is scrutiny of other scientists' work (generally, or in academic journals).

[25] Around two-thirds said at least one of the seven types of scientist is regulated.

[26] At this fully open-ended question, where interviewers recorded respondents' answers verbatim, which were subsequently coded into categories. Please see the bottom of page 170.

negative perceptions rather than the system itself, or a lack of faith in government. However, this may suggest that providing more information would be a necessary condition for these people to help build trust in government or government scientists, but it may not be the sole condition. There are also concerns among those lacking confidence in the way science is regulated that the truth gets concealed, about a lack of accountability, and that incidents have occurred: 'We are not always told the full story/whole truth' (20%); scientists are not always accountable (12%); catastrophes have happened (12%); and 'I do not trust who regulates them' (8%).

These findings about reasons for having confidence or no confidence in regulation are broadly consistent with the academic literature. This has also demonstrated that public confidence in regulation is not a black and white issue. It is not simply that people either have confidence or they do not, or that you necessary measure it on a simple linear scale that ranges from zero to 100% confidence. Rather, it appears that people's reasons for having confidence in regulation are often in tension with reasons for not having confidence[27]. It would, therefore, be useful to explore these reasons in more detail through further work, and to examine the causes, nature and strength of this dynamic tension.

Consultation

The vast majority feel they know nothing, or not very much about public consultation on science. This finding is what one might have expected, given that consultation is an abstract concept, and there has not been much public consultation on science at the national level.

However, a large majority (81%) feels the public should be consulted on decisions about scientific developments. However, more people feel there should be 'a fair amount' than 'a great deal' of consultation. [28] Perhaps this suggests a need to consult with the public on key science issues which have a direct bearing on people's lives, rather than on all matters about science. It should also be borne in mind that in reality, a lower proportion than indicated in the survey is likely to want to be personally consulted.[29]

---

[27] Walls, J., Pidgeon, N.F., Weyman, A. and Horlick-Jones, T. (2004). Critical trust: understanding lay perceptions of health and safety risk regulation. *Health, Risk and Society,* 6 (2), 133-150.
Poortinga, W. and Pidgeon, N. F. (2004). Trust, the Asymmetry Principle, and the Role of Prior Beliefs. *Risk Analysis*, 24 (6), 1475-1486.
Worcester, R.M. (2001). Science and Society: What scientists and the public can learn from each other. *Proceedings of the Royal Institution*, 71, 97-160.

[28] Around half (55%) say there should be 'a fair amount' of public consultation on decisions about scientific developments, whilst 26% say there should be 'a great deal'. See top of page 179.

[29] This has been indicated by previous survey work showing that intention to vote often over-reports actual voting behaviour, and willingness to pay more for an environmentally-friendly item and to act in a 'green' way can similarly over-report green purchases, or green behaviours: MORI Political Research; MORI/Business & the Environment Survey 1989-1999. Also, UEA/MORI 2002 found that whereas 7 in 10 or more of the public believed that the public should be involved in decision making about each of 5 science issues, only between a quarter and 4 in 10 wanted to be consulted personally on policy making decisions on those same 5 science issues.

Despite widespread support for consultation, few feel the Government listens to, or acts on, the outcomes from public consultation on science. This is probably more a reflection of feelings about government consultations on anything, rather than just on science[30]. Furthermore, few feel they personally have any influence on decision-making about science or scientific research, yet over half feel they should have such influence.

The importance of government consultation *early on* in the development of science is highlighted by the large proportion feeling that they ought to hear about potential new areas of science and technology before they happen, not afterwards. This finding is entirely consistent with MORI's qualitative work in the current study and in MORI/OST 1998/9.

There is fairly broad interest (from the quantitative research) in participating in a national debate on science-related issues. Notably, those who are among the most interested in taking part – readers of the *Guardian*, *Independent* and *Observer* newspapers – are also those who report a fall in their trust in scientists over the last five years. In the qualitative research it is noteworthy that while people expressed some interest in being involved in a government consultation event[31], they displayed very little awareness of the term 'consultation' or what it might involve, and queried just how representative the exercise might be. One young London participant felt it might appeal to '*the kind who looks at planning applications on notice-boards'*, deemed (by a number of participants in the qualitative research) to have strong and unrepresentative opinions.

The strong feelings of cynicism about the Government and public consultation generally, expressed in the qualitative research are supported by the survey findings. Far more feel that public consultation events are just public relations activities and do not make any difference to policy, than feel they do (50% vs 17% respectively). Similarly, far more say such consultation events are unrepresentative of public opinion than say they are not (50% vs 15%).

Those potentially interested in attending a national debate on science feel it is important that the views expressed there be acted upon by those seeking their views, and that those canvassing views show that the outcomes have been acted upon. These are among the most important factors in the minds of the public when deciding whether to take part in discussion groups to talk about science-related issues. The subject matter or issue in question is deemed to be the most important factor – demonstrating that the public is discerning about which particular science issues they wish to debate. This might be linked to the earlier finding that most people felt the public should be consulted a fair amount rather than a great deal on decisions about scientific developments. The actual location of the venue is the second most important factor, indicating that factors such as ease of getting there, and possibly comfort and security, are also key.

---

[30] Particularly with trust in government (of any persuasion) having been consistently low since MORI's measurements began in 1983. MORI/*The Times*/Cancer Research UK/BMA: Trust in professions and types of people; 1983-2004.

[31] Which one might expect, given that they had already agreed to participate in an evening focus group.

There is a range of perceived barriers to greater public involvement in decision-making and discussions about science. Lack of information and knowledge about science are highlighted as relatively important. However, while necessary for informed debate, providing information or convening consultation exercises in themselves would be unlikely to be sufficient to build or maintain public trust in government, or government scientists. The evidence suggests that acting on the outcomes of consultation, and demonstrating that outcomes have been acted on are key to those interested in taking part in consultations.

Gender Differences

There are significant differences by gender on some issues but not others. There are differences between men and women in the proportions with higher levels of science qualification, attitudes towards some science issues, trust and consultation on science.

Men tend to be more highly qualified in science than women. Whilst there is little difference between men and women in the proportions with GCSE/'O'-level qualifications in science, men are almost twice as likely to have 'A'-levels or degrees in science, compared with women.[32]

Compared with women, men appear to be a little more positive about science overall and about *certain* science issues. Whilst there is no significant difference between men and women in those agreeing that science makes a good contribution to society, men are more likely to feel that science will make our lives easier.[33] Men are also more likely than women to think the benefits of science outweigh the risks[34]. Furthermore, men are more likely than women to say the benefits of GM food, radioactive waste and radiation from mobile phone handsets outweigh the risks.[35]

There are marked gender differences in the sources of information that are trusted to provide accurate information on scientific facts. Women are more likely to trust scientists working for charities and health campaigning groups; men are more likely to trust scientists working in universities and people working for the popular scientific press. There are no significant differences between men and women in trust in government scientists, scientists working in industry, government advisory bodies or Government ministers/politicians.

Men show greater awareness than women that the following scientists are regulated: those working for companies, universities, government and the NHS. However, there are no significant gender differences in the levels of confidence in the regulation of science.

---

[32] The proportions having GCSE/'O'-levels in science are: 39% for men, 40% for women; for 'A'-levels in science: 17% for men, 9% for women; for degrees in science: 9% for men, 5% for women.

[33] 85% of men agree that science will make our lives easier, compared with 80% for women.

[34] 75% for men, compared with 68% for women.

[35] For GM food: 19% for men, compared with 14% for women; for radioactive waste: 14% for men, compared with 10% for women; for radiation from mobile 'phone handsets: 27% for men, compared with 22% for women.

There is little difference between men and women in attitudes to whether the public *should* be consulted on science, although men are more likely to say the public *currently* has some influence.[36] Men are more likely than women to express interest in taking part in a national debate on science.[37]

Country / English Regional Differences

There are marked differences by UK country and English region in level of educational attainment in science, involvement in science and the visiting of science centres.

Views on public involvement in science[38] vary significantly between UK countries and English regions, with involvement highest in: London, the South of England (including East Anglia), the North-East and Yorkshire & Humberside. Involvement is significantly lower in: Northern Ireland, the North-West, and the Midlands (excluding East Anglia).

By comparison with the geographic variations in public involvement in science overall, there is greater consistency on attainment of science qualifications. Nonetheless, those living in England tend to be more qualified in science, compared with those in Wales, Scotland or Northern Ireland. Londoners are the most likely to be qualified in science.

There is significant variation in people's visiting of science attractions within their country/region, and this reflects the distribution of these attractions. The location of some of the UK's most popular attractions in London, is shown in large numbers of Londoners having visited them in the last five years. Outside London, a number of attractions – in the South-West, Yorkshire and the Humber, the North of England and Northern Ireland – have appealed to more than one in five from within their countries and regions.

Differences by Ethnic Origin

Looking at the findings by ethnic origin, there are no significant differences at all between BMEs and White people on some issues, whereas on others there are differences. On trust for example, White people are more likely than those from BME groups to say they generally trust people working for the popular scientific press, scientists working in universities or for charities, and health campaigning groups to provide accurate information about scientific facts. In contrast, BME groups are more likely than White people to trust government scientists. However, there is no difference by ethnic origin in levels of trust in the following

[36] 10% of men feel they have 'a great deal' or 'fair amount of influence' on decision making about science or on scientific research that is conducted, compared with 5% of women who say this.

[37] 54% of men and 47% of women say they are 'very' or 'fairly' interested in taking part in a national debate on a science-related issue.

[38] This question asked about a range of things including: being a member of a science organisation, buying or subscribing to a science magazine, working as a scientist or engineer, having educational qualifications in science or engineering, having met or being friends with scientists or engineers frequently, or looking up scientific information on the internet. The full question wording appears on the questionnaire in the Appendices (on page 184).

to provide accurate information about scientific facts: TV, people working for broadsheet or tabloid newspapers, scientists working for industry, environmental campaigning groups or Government advisory bodies.

BMEs are more likely to hold a science qualification than White people, although certain types of involvement in science – such as having scientists or engineers among their friends and relatives, meeting scientists or engineers frequently and working with scientists or engineers – are higher among White people. These differences are discussed in more detail in the main *Key Quantitative Survey Findings* section.

March 2005 Michele Corrado
MORI J21902 Andrew Norton

The Quantitative Research

The aims of the quantitative research were to explore further the key themes arising from the discussion groups[39], to understand how widely views are held, and to enable detailed analysis by sub-group to be conducted on public engagement with science.

Sample Breakdown

One important difference between the results presented in this report, compared with OST's previous research on science and the public is that it is UK-based, whereas both previous studies involved research undertaken in Great Britain only. Fieldwork was carried out across the United Kingdom, and 1,831 interviews were completed with adults aged 16+. The overall results for these studies can be compared with one another even though earlier studies did not include Northern Ireland. For those readers who wish to compare Great Britain with Great Britain, a 'GB' column of data appears on the computer tables.

Quotas were set by country and region to ensure that samples yielded sufficient numbers of interviews to allow conclusions to be drawn about public engagement with science in each country – England, Northern Ireland, Scotland and Wales – and region of England, and for comparisons to be made between the countries.

To analyse results by UK country, we ensured that a minimum of 100 interviews per country. This required us to 'boost' the number of interviews in the case of Northern Ireland[40] and Wales, compared with the number of interviews that would have been achieved had a UK sample of 1,831 people been selected to be in its correct proportions. (The results were then weighted back to their correct proportions at the analysis stage). This allows valid comparisons between countries and regions of England,[41] to determine how public attitudes towards science and technology, and engagement vary between UK countries, and across England.

Whilst providing OST with a UK-wide overview of science in society, this report also comments on GB trends, where these show significant changes since 1999.

[39] In all, eight focus groups were conducted to provide insight in their own right and to inform the design of the quantitative research. The key qualitative findings can be found from page 78 onwards.

[40] N.Ireland represents about 2.5% of the UK population, and Wales around 5%.

[41] Within 'margins of error', discussed in the Appendices under 'A Guide to Statistical Reliability'.

OST's previous study (OST/Wellcome Trust, 2000) included 400 interviews in Scotland to enable conclusions to be drawn about interest in, and access to, science activities in that country. This time 151 interviews were completed in Scotland (which is sufficient to make a valid comparison).[42]

A separate booster survey was conducted among black and minority ethnic groups, whose views historically on science (and other issues) have not been widely examined. This provides sufficient data for understanding the attitudes and concerns of these groups, and whether and how their views and behaviour differ from that of the population as a whole.

Booster interviews were carried out with 417 adults aged 16+ from BME groups – around twice the number interviewed in the previous study. Fieldwork was carried out in areas where there is at least a 10% penetration of Black and Minority Ethnic groups, as in the previous study.

The sample sizes for each country survey, and for the BME booster, are shown below:

Survey	***Target***	***No. of Interviews Conducted Not Including BME Booster***	***Sample (Unweighted) Including BME Booster***
England	1,123	1,117[44]	1,450[45]
Northern Ireland	100	101	101
Scotland	116	116	151
Wales	100	103	129
BME Booster[43]	400	417	495
Other BME respondents (from main sample)		*78*	
Total (UK)	*1,839*	*1,854*	*1,831*

Sampling

There has been a slight change in the sampling method since OST's previous study on 'Science and the Public' (1999/2000). Rather than using random location sampling with quotas set within enumeration districts, which was used in the previous study, we have used an alternative (but comparable) form of quota sampling, based on 'Super Output Areas', which are paired adjacent output areas.

[42] The difference required between samples of c.400 and 151 interviews in Scotland, to achieve significance, 95 times in 100, would be between 6 and 9 points.
[43] The BME booster was a GB-wide survey. This increases the overall samples for each GB country, to 1,450 in England, 151 in Scotland, and 129 in Wales.
[44] Of the questionnaires that were completed, 23 were lost in the post.
[45] 1,450 = 1,117 – 23 lost in post + 356

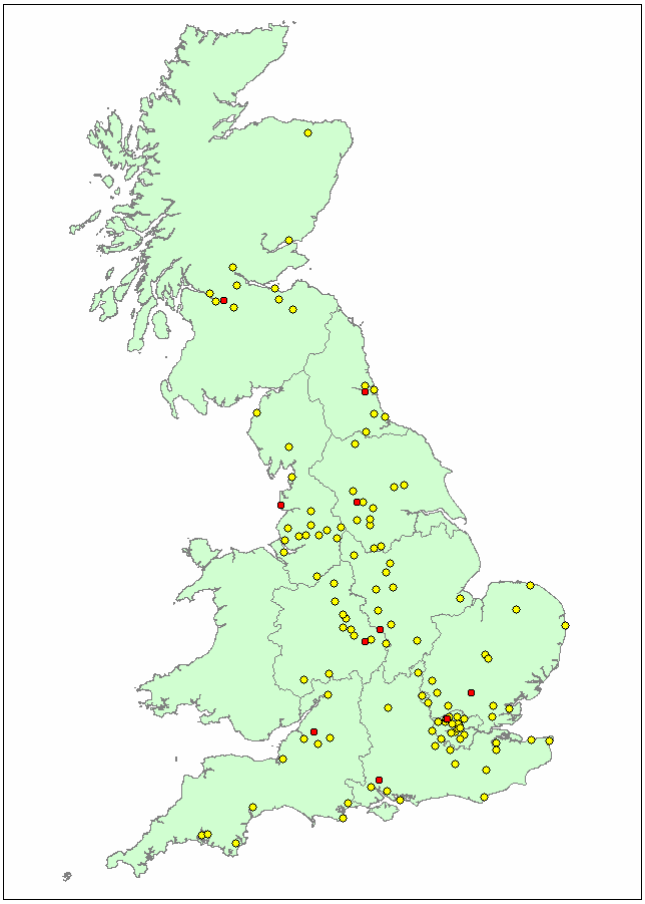
An output area is the smallest building block of the Census (since the 2001 Census), and is a unit that has replaced an enumeration district.[46]

Quotas

For each sampling point, quotas were set on gender, age and work status. For the BME booster (conducted in areas with a 10% or greater penetration of BME groups), no quota was set for different types of minority ethnic groups.

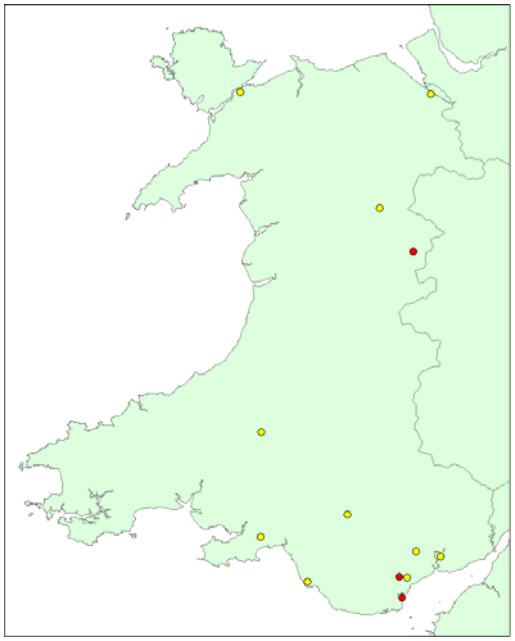
Maps of Sampling Points

England & Scotland

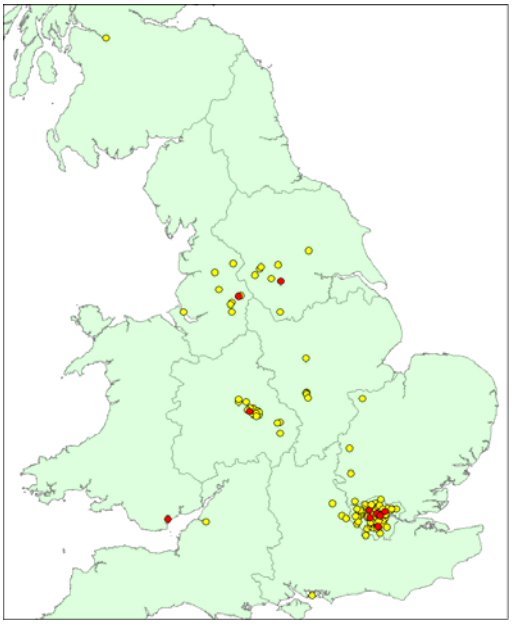


[46] Before 2001, Census data was provided in the form of 'enumeration districts', which corresponded to approximately 150-180 households. The 2001 Census data were broken down into 'Output Areas', comprising around 125 households. 'Super Output Areas' therefore comprise around 250 households, a slightly larger but comparable area to an enumeration district.

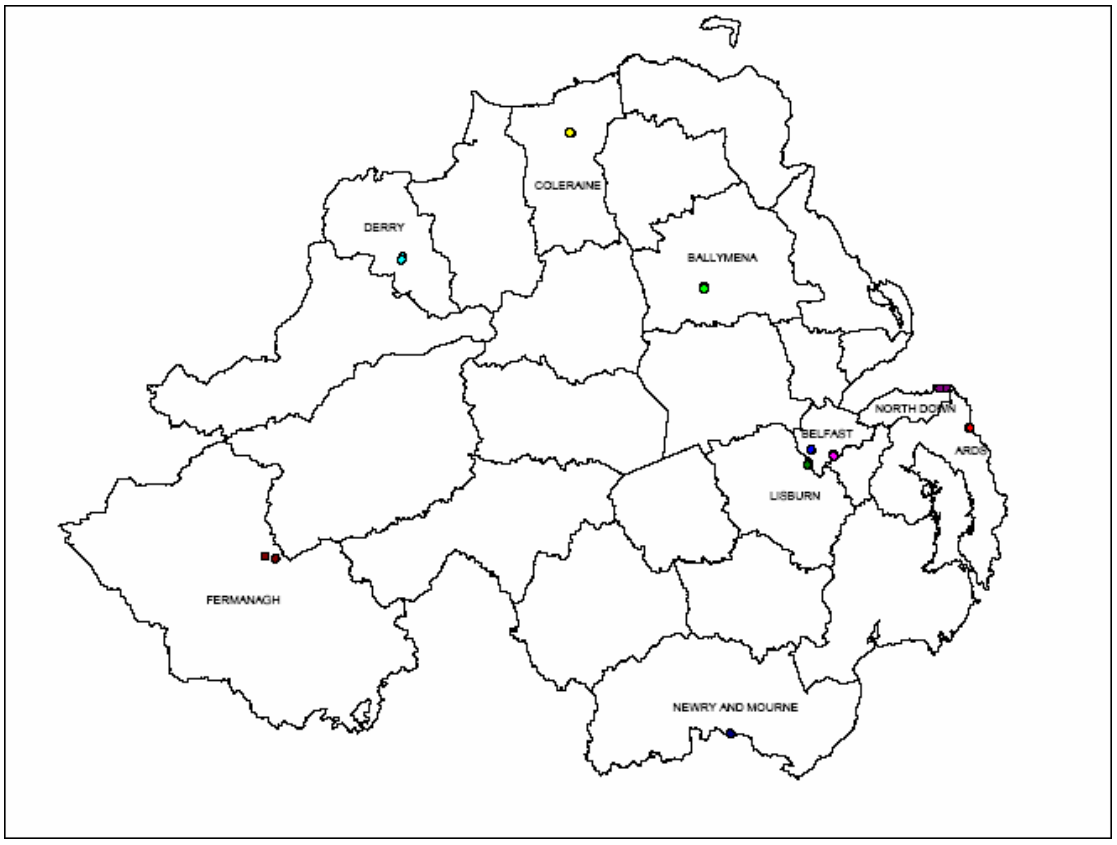
Wales



BME



Northern Ireland



Questionnaire Design

The questionnaire for the quantitative survey was designed by MORI and OST, in consultation with Professor Nick Pidgeon and Dr. Wouter Poortinga, at University of East Anglia (UEA), Centre for Environmental Risk, School of Environmental Sciences.

The quantitative research aimed to examine public attitudes and behaviour on OST's research objectives – regarding participation, trust and consultation – through asking questions that have been used previously and by developing new questions, whilst also allowing issues which emerged from the qualitative research to feed into the questionnaire design.

The questionnaire includes a number of questions from:

- UEA/MORI research (2002, 2003)
- MORI/Wellcome Trust (2000)
- OST/Wellcome Trust 'Science and the Public' (2000).
- OST/MORI 'Public consultation on the Biosciences' (1998/1999)

In addition, new questions were added to shed new insights on public engagement in science activities, public trust in scientists, and attitudes towards the regulation of science, reflect the nuances and points raised by respondents in the discussion groups, allowing assessment of how widely these views and experiences were shared. These included the following:

- Pre-coded answer categories were developed from issues of concern mentioned in the groups, and from MORI's broader tracking of issues of concern. This issue of anti-social behaviour and the need to tackle crime had featured prominently in the groups, and were therefore included in the quantitative survey to examine the degree of importance of these issues;
- The code-frames for the questions on image of science, scientists, engineering and engineers were developed from the answer cards handed round to, and completed by, group participants;
- Some codes on the question about advantages of visiting science centres were developed from points raised at the groups (e.g. 'Preservation of heritage' was specifically mentioned in the Manchester groups as important to people in their region, owing to its industrial heritage). Likewise, questions on the disadvantages of visiting science centres, and motivations for taking part in a consultation event were developed directly from the group discussion;

- A question addressing whether school put people off science was included in the survey to pick up an issue that was expressed in the discussion groups;

- Two questions on whether people feel they have "no option" but to trust science/those governing science reflect comments made at both groups in London.

Recruiting for the Quantitative Research

Recruitment for the quantitative research was intended to improve access to members of the general public, without a specific interest in science or an agenda on a particular science issue.

Interviewers were given instructions not to reveal the name of the client or the main subject area ('science and scientists') when introducing themselves. Instead, they were asked to say the research addressed various issues, and that more information about the topic would be given after the first couple of questions (i.e. where we say "And now I'd like to focus more on science").

Field Reports

Throughout the fieldwork process, MORI provided updates on progress on the numbers of interviews having been conducted in the field, and provided general feedback from the field to OST.

The interview length averaged 37 minutes, close to the anticipated 35 minutes. However, the range varied considerably from 20 to 65 minutes. Those aged 75+ and science graduates generally spent longer on the interview, compared with younger people and those less well educated in science.[47]

Additionally, some of the respondents from BME groups (where English was not their first language) found elements of the questionnaire difficult to understand.

The unprompted questions on the barriers to, and benefits from, greater public involvement in decision-making and discussions about science were found difficult to answer by some respondents from all groups (not just DEs and those BME respondents without English as their first language). Interviewers also experienced some difficulty in engaging young people (aged 15 to 24) to take part in the interview (though this tends to be the case on a wide range of issues, not just on science). However, the full quota of 15-24 year olds was achieved.

There was also a little difficulty achieving the quota of women. (Some of this was in BME areas where wives were unwilling to be interviewed unless their husband was present/gave prior permission).

[47] On average, those aged 75+ took 41 minutes to complete an interview, as did people with degrees in science. By comparison, those aged 16-24 years took around 35 minutes on average.

Interviews in Wales

Interviewers in Wales were provided with a Welsh translation of the questionnaire. However, no respondent in Wales requested an interview in Welsh.[48]

This may reflect the fact that many people residing in Wales are not fluent in Welsh, and the difficulty that some may find with a questionnaire of a technical and scientific nature.

Coding, Data Entry and Data Processing

The questionnaire contained one fully-open ended question, where respondents' verbatim answers were recorded in full, and 19 pre-coded questions where 'other' answers, not included on the pre-coded list of possible answers, were recorded.

For the open-ended question, answers were coded and presented in tabular form. The preliminary code frame was agreed by the Project Team.

Answers to pre-coded questions where 'others' were recorded were treated in one of three ways: coded as an existing pre-coded answer category, i.e. 'back coded'; classified as a new code; or left as 'other'. For these questions, each of the new codes was identified by the MORI Research Team, from verbatim listings of the 19 questions where 'others' were specified, based on the first 250 questionnaires returned to MORI. No new codes were subsequently identified.

Specifying Other Answers

The use of 'Other (specify)' as an answer code was used on 19 survey questions, allowing respondents to raise issues or concerns that were not included on the code frame. This allowed a number of new codes to be created, through backcoding of 'others'.

[48] This is consistent with MORI's previous work. For example, very few respondents requested Welsh interviews on the (much larger) Welsh Household survey conducted by MORI on behalf of the Welsh Assembly Government, the first and second tranches of which were among a total of 7,530 people.

Profile of Respondents

The table below shows the profile of respondents, compared with the UK adult population profile aged 16+.

	Respondents			UK Profile
		Unweighted	Weighted	
	n	%	%	%
Total	1,831	100	100	**100**
Sex				
Men	898	49	49	**49**
Women	933	51	51	**51**
Age				
16-24	276	14	15	**14**
25-34	322	19	18	**19**
35-44	351	18	19	**18**
45-54	270	16	15	**16**
55-64	239	13	13	**13**
65-74	217	10	12	**10**
75+	156	9	9	**9**
Social Class				
AB	389	24	21	**24**
C1	491	27	27	**27**
C2	357	21	19	**21**
DE	594	28	32	**28**
Work Status				
Working – full-time	878	45	48	**45**
Not working f/t	953	55	52	**55**
Country/Region				
England	1,450	83	79	**83**
London	206	12	11	**12**
South-East	234	14	13	**14**
South-West	133	9	7	**9**
North-East	74	7	4	**5**
North-West	217	10	12	**12**
Eastern	174	9	10	**9**
East Midlands	108	7	6	**7**
West Midlands	134	9	7	**9**
Yorks & Humber	170	9	9	**9**
Scotland	151	9	8	**9**
Wales	129	5	7	**5**
Northern Ireland	101	3	6	**3**
Ethnic Group				
White	1,336	94	73	**94**
BME	495 [49]	6	27	**6**

[49] Including both those from the main and booster samples.

Statistical Reliability

The sample of 1,831 UK adults aged 16+ provides robust overall findings and allows survey results from minority ethnic groups to be considered in isolation. The sample tolerances for overall results are shown below. This table shows the possible variation that might be anticipated because a sample, rather than the entire population, is interviewed. As indicated, sampling tolerances vary with the size of the sample and the size of the percentage results.

For example, on a question where 50% of the people in a sample of 1,831 respond with a particular answer, the chances are (95 in 100) that this result would not vary by more than 2 percentage points, plus or minus, from a complete coverage of the entire population using the same procedures.

Approximate Sampling Tolerances Applicable to Percentages At or Near These Levels (95% confidence level)

	10% or 90%	30% or 70%	50%
Base:			
All England, Scotland, Wales, Northern Ireland (1,831)	**± 1**	**± 2**	**± 2**
Black and Minority Ethnic groups (495)	**± 3**	**± 4**	**± 4**

Source: MORI

Tolerances are also involved in the comparison of results from different surveys – for example the results from the previous survey with this research study – and sample groups from the same survey. A difference, in other words, must be of at least a certain size to be considered statistically significant. The following table is a guide to the sampling tolerances applicable to comparisons.

Differences Required for Significance At or Near These Percentages

	10% or 90%	30% or 70%	50%
Overall GB-wide results from 2000 survey (1,839) vs overall UK-wide results from the 2004 survey (1,831)	2	3	3
Overall GB-wide results from 2000 survey (1,839) vs GB-wide results from the 2004 survey (1,778)	2	3	3
BME groups in 2000 (200) vs BME groups in 2004 (495)	5	8	8

Source: MORI

Key Quantitative Survey Findings

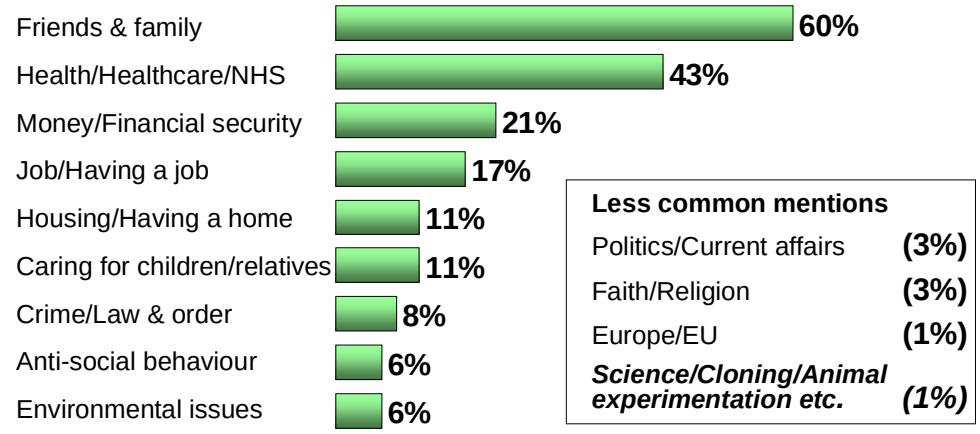
This section describes the main research findings from the quantitative survey of public attitudes and opinion on science and scientists, and participation in science activities across the UK.

Context: Public Concerns about Science and Technology

The quantitative survey confirms the finding from the qualitative research that science issues are generally not seen as important, compared with other issues. When asked to name the two or three most important issues, a wide range was mentioned, from international and global issues such as 'Iraq' and 'Sudan/Helping developing countries', to more immediate and personal concerns, such as 'My garden'. However, the most commonly cited are friends and family (60%), health/healthcare/NHS (43%) and money/financial security (21%). By contrast, few named science, cloning or animal experimentation, and this is consistent across social and demographic groups.

Issues of Concern

Q Which two or three issues in your life, if any, are most important to you personally?



Base: 1,831 UK adults aged 16+, September – November 2004 Source: MORI

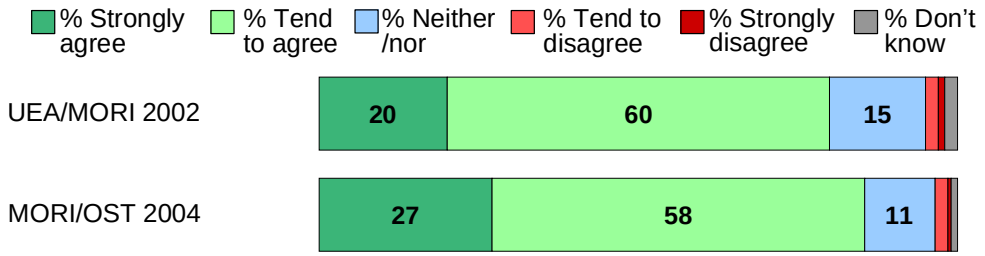
Overall Attitudes to Science

Most people think science makes a good contribution to society (86%), and that on the whole, science will make our lives easier (82%). There is little difference between social and demographic sub-groups in the proportions thinking that science makes a positive contribution, although those educated to 'A'-Level or degree level in science are even more likely to agree with this (91% and 93% respectively, compared with 86% overall).

Looking at trends, more people now believe that science makes a good contribution to society, and that science will make our lives easier (up five and ten points respectively in the last two years). Also, strength of feeling has become more marked, with at least a quarter now strongly agreeing with each statement (up from 20% and 15% respectively).

Overall Attitudes to Science

Q How strongly do you agree or disagree with the following statements…
…Science makes a good contribution to society



Base: 1,831 UK adults aged 16+, September – November 2004;
1,547 adults aged 15+, 6-31 July 2002

Source: MORI

Attitudes to Risks and Benefits of Science

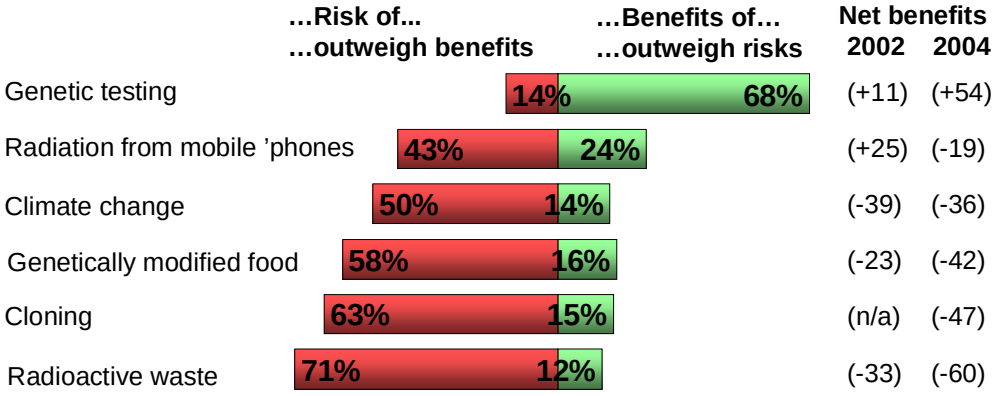
Public opinion on the benefits and risks of science and technology varies considerably between issues. Genetic testing is regarded by a majority (68%) as providing benefits which outweigh risks. This represents a considerable lift in the net score[50] since 2002 (up from +11 points to +54 points). By contrast, for radioactive waste, cloning and genetically modified food, the risks are much more likely to be seen as outweighing any benefits. This is also the case (to a lesser extent) for climate change and radiation from mobile phones.

There have been sharp falls in net scores (for benefits minus risks) on a number of areas since 2002. (Please see the chart overleaf).

[50] The net score is the proportion saying 'benefits outweigh risks' minus the proportion saying 'risks outweigh benefits'.

Attitudes to Risks & Benefits of Science

Q From what you know or have heard about… …on balance, which of these statements, if any, most closely reflects your own opinion?



Base: 1,831 UK adults aged 16+, September – November 2004; 1,547 adults aged 15+, July 2002 (MORI/UEA)

Source: MORI

Whilst on some issues, there is consistency between social and demographic groups on whether the benefits outweigh the risks, there are marked sub-group differences on other issues.

People's assessment of the risks and benefits of genetic testing shows consistency between sub-groups. The feeling that the benefits outweigh the risks is consistently high across all groups. There is little difference in how these are weighed up by gender, age group, social class, level of science qualification, country/region, whether people have children, ethnic group, newspaper readership, or involvement in science.

Whilst there is little difference in the assessment of the benefits and risks from GM food by gender, child rearing, ethnic group or country/region, the risks of GM food are *more* widely seen as outweighing the benefits among:

- ABC1s (62%, compared with 53% for C2DEs);
- Those who say they have lost confidence in scientists in the past five years (69%, compared with 53% for those who say they now trust scientists more);
- Those who are involved in science[51] (61%, compared with 59% for those who are 'semi-involved', and 54% for those who do not have any involvement in science).

[51] Those who are 'involved in science' – who account for 29% of UK adults – are defined as having done 3 or more from a list of activities. The 'semi-involved' have done one or two of these same activities (and make up 39% of UK adults). Those who are 'not involved' in science have done none of these (32%).

There are significant differences in the assessment of risk of GM food by age group. Those aged 16-24 years are *less* likely to think that the risks outweigh the benefits, compared with older groups, and this reflects generally higher risk taking behaviour among this group. Likewise, attitude to risk appears to fall among those aged 75+.

Readers of the Times and/or Sunday Times are much *more* likely to think the benefits of GM food outweigh any risks, compared with readers of other newspapers (26%, compared with 16% for newspaper readers overall). By contrast, readers of Daily Mail/Mail on Sunday or Daily Telegraph/Sunday Telegraph are much less likely to share this view (17% and 16% respectively).

The assessment of the risks and benefits from cloning follows a somewhat different pattern to GM food. In general, the risks are more widely felt among:

- Older people (75% for those aged 65+, compared with 53% for those aged 16-34)
- Daily Mail/Sunday Mail readers (73%, compared with 63% overall, falling to 58% among readers of the Times/Sunday Times).
- Those who have lost confidence in science in the past five years (70%, compared with 63% for those who now trust scientists more)

Conversely, the *benefits* of cloning are more widely felt among those with science qualifications (32% for those with degrees, compared with 15% overall). There is little difference by whether the respondent has young children, or by ethnic group.

Overall Assessment of the Risks and Benefits of Science

Half the sample was asked about the level of agreement and disagreement with the statement 'the benefits of science outweigh the risks'. This showed that a large majority (71%) agreed with this statement, whilst fewer than one in ten (9%) disagreed.

However, when the other half of the sample was asked about the converse statement – 'the risks of science outweigh the benefits' – the proportion who disagreed was far lower than the proportion that had agreed that the benefits outweigh the risks (44% compared to 71%). This may reflect some ambiguity around the notion of a 'risk outweighing a benefit' (can people conceptualise this as easily as a benefit outweighing a risk?), and what this may mean in practice – particularly if people know little about the issue of risk of science in general. It may also be revealing a methodological issue (that some people may find it difficult to disagree with the negative concept of risk). Nonetheless, it highlights the seriousness with which some people take the risks of science, with 26% agreeing that these 'outweigh the benefits'.

Science Developments: Beneficial or Not Beneficial?

The healthcare applications of science developments (namely: cures for illnesses/ diseases, medicines/surgery, transplants) are widely cited as having a beneficial impact on society (87%). Computers/the internet/email are also widely cited in this context (40%).[52]

However, a number of scientific developments stand out as being much more likely to be seen as 'not beneficial', rather than 'beneficial':

- Cloning/Dolly the sheep
- GM Food
- 'Designer' babies, and
- Radioactive waste

The table below shows the proportions rating each science development as 'beneficial' and 'not beneficial', the net scores, and the ratio of beneficial: not beneficial.[53]

[52] Two versions of this question were asked this year. The results from version two, the newly developed question, are reported here. The categories are consistent with MORI/OST 1998/99. The findings from version one and version two, for categories asked on both versions, are broadly consistent with one another. See pages 150-153.

[53] The table shows results from version two of the 2004 questionnaire.

	Beneficial %	Not Beneficial %	Net beneficial[54] (±)
Cloning/Dolly the sheep	3	45	-42
Computers/The Internet/Email	40	3	+37
Cures for or eradication of illnesses/diseases	40	*	+39
Genetic modication/engineering of animals and plants	3	12	-9
Genetically modified food	3	32	-29
Genetic testing or screening for particular things, eg diseases	17	2	+15
Discovering global warming/Climate Change/ Disruption to weather/Greenhouse Effect	17	3	+14
Faster/Cheaper travel	10	9	-*
Medicines/New drugs/Penicillin/ Antibiotics/Vaccines etc	46	*	+46
New and alternative sources of energy	16	1	+14
New operations/Surgery	24	*	+24
New telecommunications (fax machine/mobile phone/TV)	14	5	+9
Robots in industry and medicine	5	11	-6
Space Research/Sending people to the moon	3	15	-12
Splitting the atom	5	10	-5
Test-tube babies/In-vitro fertilisation	8	6	+2
Transplants eg of heart, liver, kidneys etc	37	*	+37
Brain science/Neuroscience	5	*	+5
'Designer babies'	2	27	-25
Energy/Electricity	11	*	+11
Mobile 'phones	7	8	-*
Nanotechnology/Miniaturisation	1	2	-*
New vaccinations for children (MMR/5-in-1)	13	1	+12
Nuclear power	4	6	-2
Radioactive waste	1	22	-21
The use of animals in medical research	5	12	-6

Compared with the findings from MORI's research for OST five years ago,[55] there have been some marked changes in attitudes to a number of science issues, and whether or not they are seen as beneficial. A number of significant changes should be noted:

- Computers/The Internet/Email are now *more* widely seen as beneficial (41%, compared with 28% in 1998/99);
- Genetic testing or screening for particular things, e.g. diseases are *less* likely to be seen as beneficial (14%, down from 24%);

[54] Those saying 'beneficial' minus those saying 'not beneficial'.
[55] Using version one of the 2004 questionnaire.

- Transplants eg of heart, liver, kidneys etc are *less* likely to be seen as beneficial (41%, down from 51%).

There appears to be a softening of attitudes towards genetic modification/ engineering of plants and animals, and genetically modified food, compared with the figures from five years ago. These are highlighted by the trends in those seeing these applications of genetic technologies as 'not beneficial' for society:

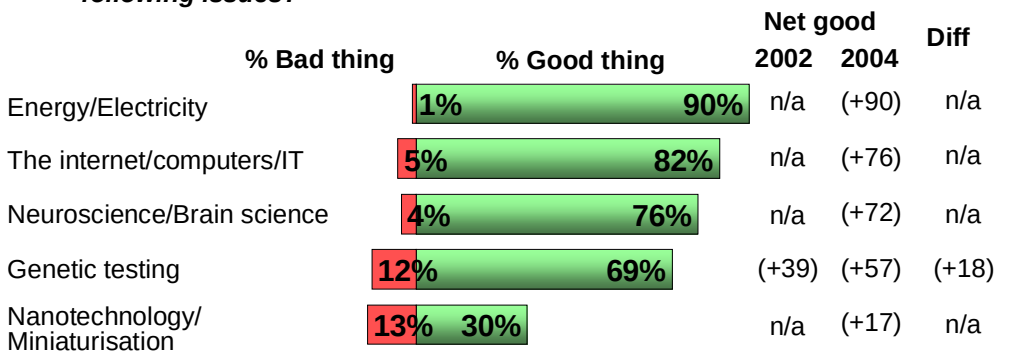
- GM food (36%, compared with 45% in 1998/1999);
- genetic modification/engineering of plants and animals (18%, compared with 28%).

This is broadly consistent with MORI's long-term trends on attitudes towards GM food, which reveal that over the period from 1998 to 2003 more people have become neutral towards GM food. Indeed in 2003, for the first time since MORI began measurements in 1996, as many people were neutral as opposed to GM food (39% neutral compared with 36% opposed,[56] 13% supported GM food).

As with attitudes to risk, there is considerable variation in the public's appraisal of whether scientific developments are good or bad. Whilst several issues are regarded as 'good', such as: energy/electricity, the internet/computers/IT, neuroscience/brain science and genetic testing, a number of issues are generally seen as 'bad', such as: radioactive waste, radiation from mobile phone masts and handsets, cloning, climate change, GM food and animals used in research.

Science Issues – Good or Bad?

Q On the whole, how would you describe your feelings about the following issues?



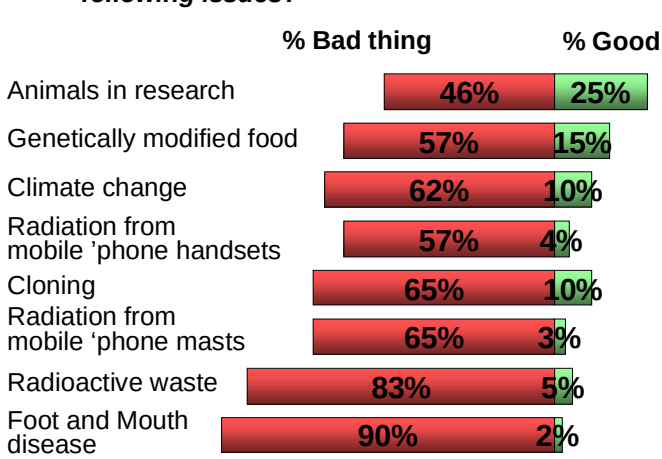
Base: 1,831 UK adults aged 16+, September – November 2004; 1,547 adults aged 15+, July 2002 (MORI/UEA)

Source: MORI

[56] The three point difference between 'neutral' and 'opposed' is not significant.

Science Issues – Good or Bad?

Q ***On the whole, how would you describe your feelings about the following issues?***



	Net good 2002	Net good 2004	Diff
Animals in research	n/a	(-21)	n/a
Genetically modified food	(-29)	(-42)	-13
Climate change	(-47)	(-52)	-5
Radiation from mobile 'phone handsets	(-57)	(-53)	+4
Cloning	n/a	(-54)	n/a
Radiation from mobile 'phone masts	n/a	(-62)	n/a
Radioactive waste	(-69)	(-78)	-9
Foot and Mouth disease	n/a	(-88)	n/a

Base: 1,831 UK adults aged 16+, September – November 2004

Source: MORI

Apparent Inconsistencies in the Way People Respond

These trends highlight two apparent inconsistencies:

- **GM Food** is increasingly seen as having 'risks outweighing benefits', and as being a 'bad thing', but is less likely to be seen as 'not beneficial' for society;
- **Genetic Testing** is increasingly seen as having 'benefits outweighing risks', and less likely to be seen as having 'risks outweighing benefits'; and more likely to be regarded as a 'good thing', and less likely to be seen as a 'bad thing'. However, it is less likely to be seen as 'beneficial' for society.

	Benefits outweigh risks		Risks outweigh benefits		Beneficial		Not beneficial		Good thing		Bad thing	
	2002 %	2004 %	2002 %	2004 %	1999 %	2004 %	1999 %	2004 %	2002 %	2004 %	2002 %	2004 %
GM Food	16	16	39	58	1	4	45	36	15	15	44	57
Genetic Testing	38	68	27	14	24	14	2	1	56	69	17	12

The apparent inconsistency in the trends on these issues may reflect the emphasis on the benefits to *society* only[57], whilst risks and benefits may be weighed up more broadly – for individuals *and* society. For example, people may be less inclined to think that GM food is 'not beneficial' for society, whilst being more likely to think GM food is a 'bad thing' and that the 'risks outweigh the benefits' to themselves.

Conversely, there may be greater awareness that the benefits of genetic testing individuals – in screening for particular things, e.g. diseases – outweigh the risks, and people are more likely to view it is a 'good' than a 'bad thing'. Again, this may reflect assessment of the impacts of the use of genetic testing on individuals. Yet, people are less likely to think the use of genetic testing is beneficial for society, and this may reflect concerns about the use of genetic information in society[58].

The survey findings show that concern about the pace of science – highlighted in the qualitative research – is broadly felt. For nearly half (47%), the speed of development in science and technology means that it cannot be controlled properly by government. This represents an increase since the OST/Wellcome Trust research finding (41%).

Feeling Informed About Science and Science Education

The importance of young people having a grasp on science is almost universally recognised (95%), and most people (59%) feel strongly about this. However, the importance of science appears rather less widely recognised among adults (with 70% saying it is important in their daily life).

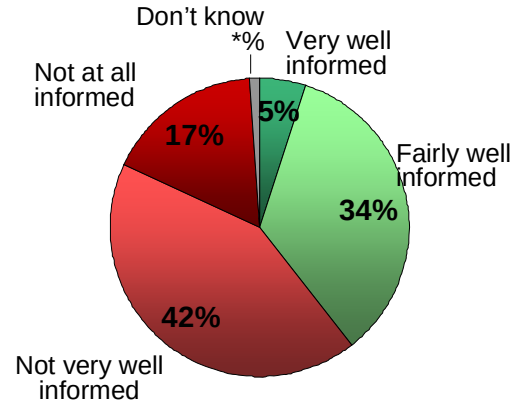
Most people in the UK do not feel informed about science and scientific research or developments (59%). This is particularly true among women (67%) and less affluent groups (71% for DEs).

[57] The question asked about 'benefits to society'. See pages 150-153.

[58] Concerns about a number of aspects of genetic information emerged in MORI's work for the HGC in 2000.

Awareness of Science & Scientific Developments

Q How well informed do you feel, if at all, about science and scientific developments?



	Very/ Fairly %	Not very/ Not at all %
Overall	*40*	*59*
Men	48	51
Women	32	**67**
AB	52	47
C1	42	57
C2	38	60
DE	28	**71**

Base: 1,831 UK adults aged 16+, September – November 2004

Source: MORI

Those who feel best informed tend to be:

- Highly educated (76% of those educated to degree level in science feel 'very informed' or 'fairly informed', compared with 49% of those educated to GCSE/'O' level);
- Professionals and those in senior managerial occupations (52% for ABs, compared with 28% for DEs);
- Men (48%, compared with 32% for women).

There is little difference in how informed people feel about science and scientific research by ethnic group.

However, there are marked regional and country differences. The South of England and particularly East Anglia stand out as regions where people are much less likely to feel poorly informed about science and technology (55% and 49% saying they feel 'not very well informed' or 'not at all informed' respectively, compared with 59% for the UK and GB averages). This partly reflects the social class differences noted above, and the geographical distribution of high tech industries (with the M4 and A10/Cambridge growth corridors having notable concentrations of high tech industries). By contrast, the figures for West Midlands (70%), Northern Ireland and Scotland (68% for each) show significantly lower awareness of science and technology.

It emerged from the discussion groups that some people had been deterred from taking or developing and interest in science because of the way that their school had approached science. The quantitative survey found that one in five shares the view that school put them off science (20%, or over 9 million adults across the UK).

The feeling that school put people off science is more common among the following groups:

- Women (24%, compared with 15% for men);
- Younger people, born between 1980 and 1988 (27% for 16-24 year-olds, dropping to 13% for those aged 65+, born before 1939);
- In Northern Ireland (29%, compared with 20% for Great Britain).

Involvement in Science and Engineering

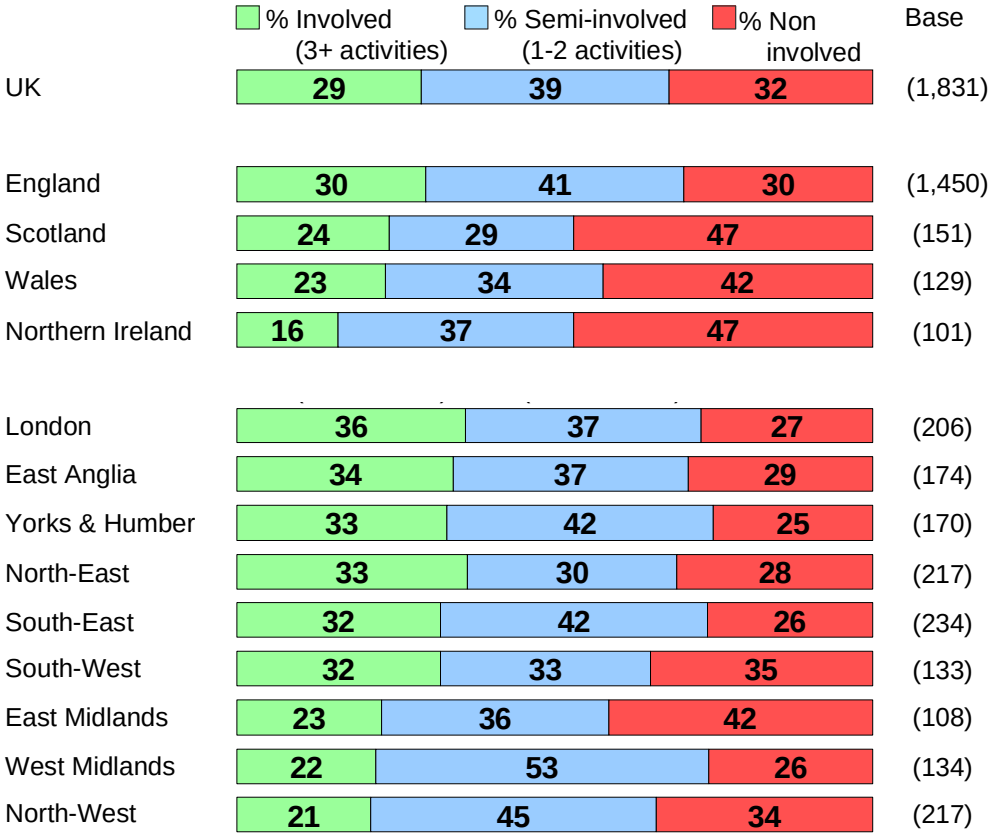
People's involvement in science and engineering is most often through studying science at school (40% having studied science to GCSE or 'O'-level), and through personal relations (30% considering scientists among their friends and family). Other reasons include looking up scientific information on the internet (27%) and purchasing science magazines (10%).

There are marked differences in public involvement in science[59] between UK countries and English regions, with involvement highest in: London, the South of England (including East Anglia), the North-East and Yorkshire & Humberside. Involvement is significantly lower in: Northern Ireland, the North-West, and the Midlands (excluding East Anglia).

[59] This question asked about a range of things including: being a member of a science organisation, buying or subscribing to a science magazine, working as a scientist or engineer, having educational qualifications in science or engineering, having met or being friends with scientists or engineers frequently, or looking up scientific information on the internet. The full question wording appears on the questionnaire in the Appendices (on page 184).

Involvement in Science

Q Which, if any, of the following applies to you? [1]



Base: 1,831 UK adults aged 16+, September – November 2004

[1] A list of science activities was shown

Source: MORI

Science Qualifications: Demographic Analysis

There are significant differences in science qualifications by gender, social grade and age. Those with science qualifications are much more likely to be:

- Male (64% of those with 'A'-levels in science, compared with 49% of the UK population who are men);
- AB (46% of those with 'A'-levels in science are ABs, compared with 24% of the UK population which is AB);
- Young (23% of those with 'O'-levels/GCSEs in science are aged 16-24, while just 14% of the UK population falls within this age group).

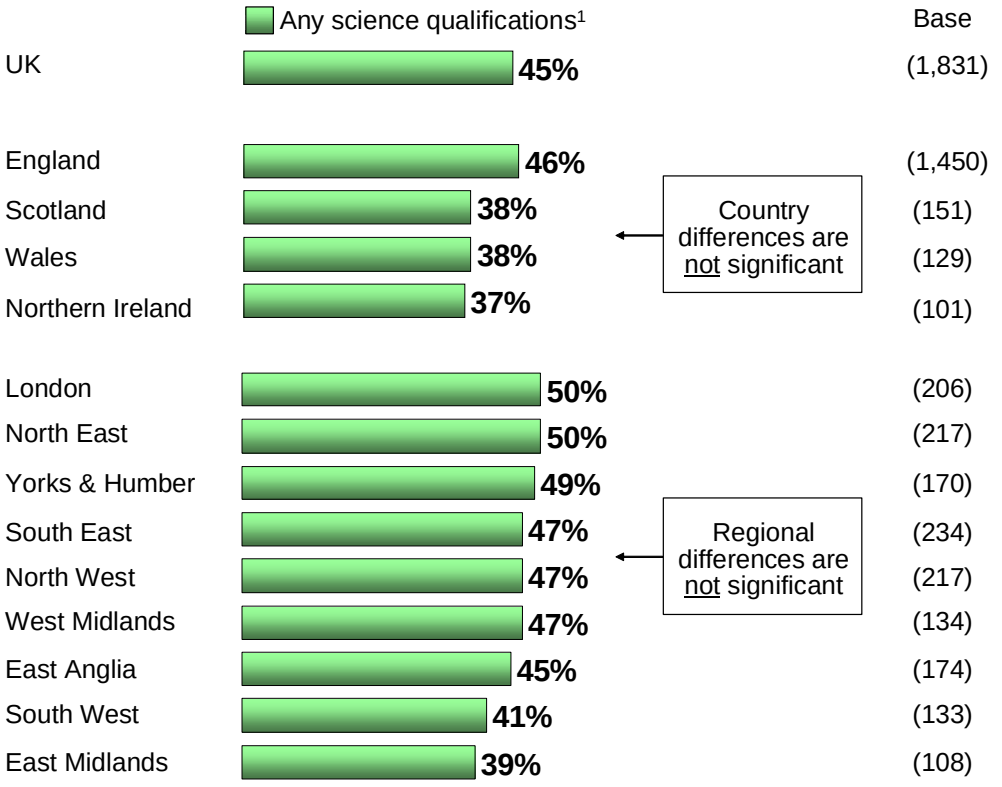
These differences are reflected in level of involvement in science, with men, ABs and younger people tending to have much greater involvement in science.

Younger people's greater level of educational qualification in science reflects changes to the education curriculum that have been made in recent years. Since the early 1990s, teaching of science subjects has become compulsory for all children in the UK.

There are no significant differences in science qualifications by country or region.

Science Qualifications

Q Which, if any, of the following applies to you?



Base: 1,831 UK adults aged 16+, September – November 2004

[1] A combination of: Having studied science to GSCE/O-Level, Having studied science to A-Level and/or Having studied science tol degree

Source: MORI

For further details of these demographic differences, please see the Profiles of the Sample in the Appendices.

Images of Science, Scientists, Engineering and Engineers

The image of science, scientists, engineering and engineers was spontaneously tested (see pages 142-147). The (unprompted) responses highlighted a range of associations. Engineering is commonly seen as a practical occupation involving assembly, construction or building (32%), and is often associated with machines or machinery (31%). By contrast, science is most commonly associated with laboratories, Bunsen burners, test tubes and chemicals (19%) and in terms of advancements in healthcare (17%).

Similarly, images of engineers are much more widely shared, compared with scientists. Engineers are widely seen as involved in practical trades, and are seen in a range of occupations from civil engineers to ship builders and car mechanics (45%). By contrast, scientists are most commonly seen as academics or researchers (27%), or in terms of their intelligence and education (22%). The

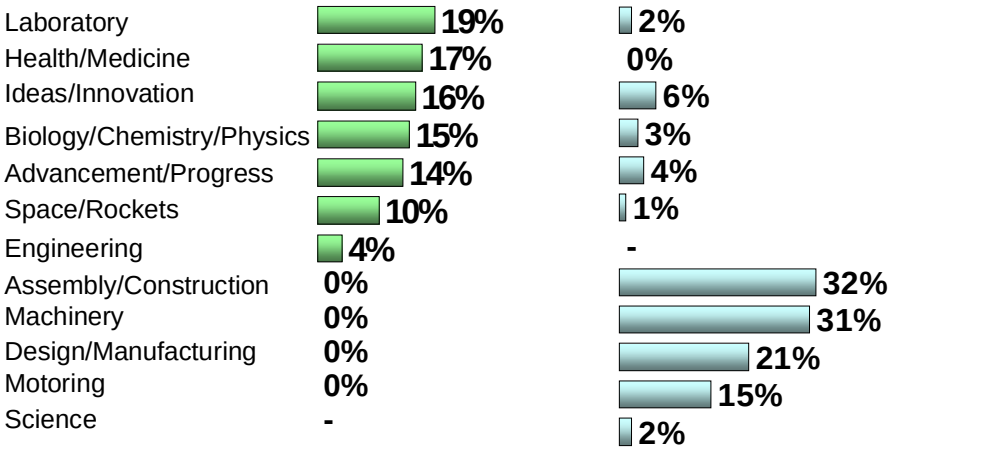
stereotype of the scientist in a white coat is held by 16%. The top associations with science and scientists are shown below.

Associations: Science & Engineering

Q When I say…

VERSION 1 ***…'science'*** *VERSION 2* ***…'engineering'***

…what comes to mind?



Base: 1,831 UK adults aged 16+, September – November 2004

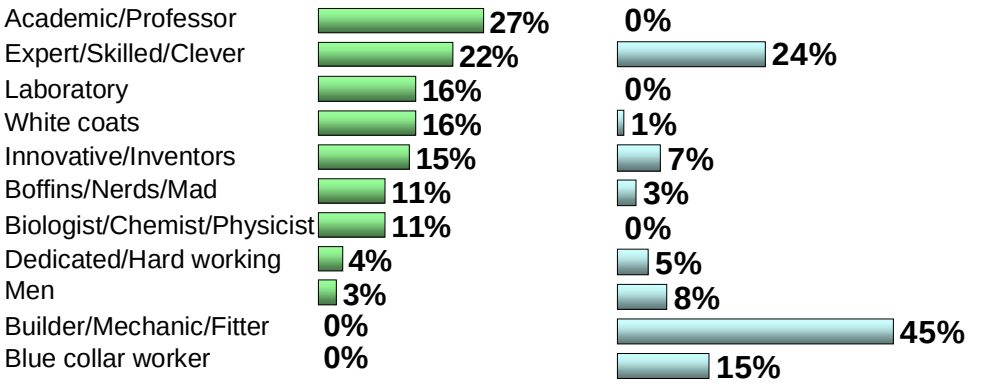
Source: MORI

Associations: Scientist & Engineer

Q When I say…

VERSION 1 ***…'scientist'*** *VERSION 2* ***…'engineer'***

…what comes to mind?



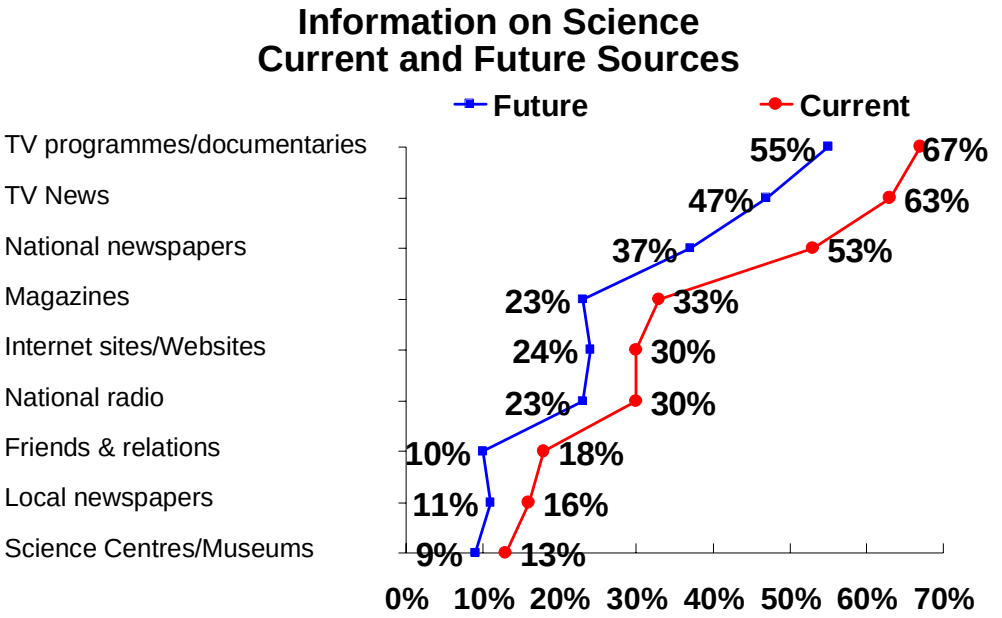
Base: 1,831 UK adults aged 16+, September – November 2004

Source: MORI

Finding Out About Science

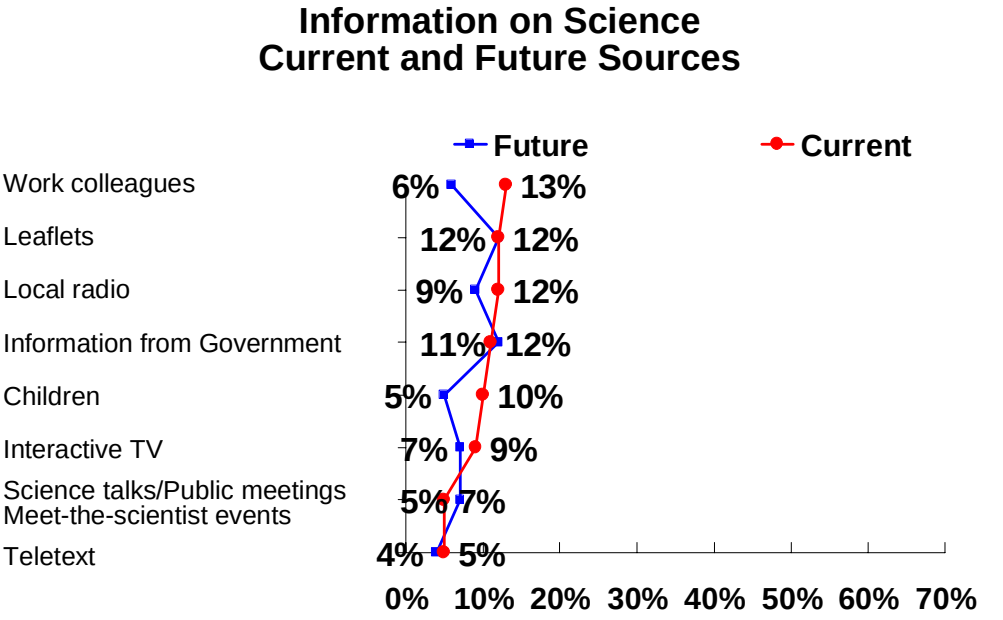
Around half (49%) of UK adults feel they hear too little information about science, whilst few (7%) say they hear too much. This represents a significant increase in the proportion saying they hear too little information about science (up from 24% in 1999/2000).

Television and newspapers are the most important sources of information on science – and by some margin. Around four in five (84%) currently receive information on science through TV documentaries, news and other programmes, whilst local and/or national newspapers are important for three in five (57%). The radio – national and local – magazines and the internet are less widely used, being important for around three in ten (35%, 33% and 30% respectively). Science centres and museums, and science talks, public meetings and meet-the-scientist events are not widely used as a source of information on science (13% and 5% respectively).



Base: 1,831 UK adults aged 16+, September – November 2004

Source: MORI



Base: 1,831 UK adults aged 16+, September – November 2004

Source: MORI

There is little difference between current sources of information on science and preferred sources of information in the future. In both cases, television and newspapers dominate. However, there is much *less* interest in using the most widely used channels – television, (national) newspapers, magazines, the internet, and radio – compared with their current importance. This is particularly the case for the print media: national newspapers and magazines fall most in proportionate terms.[60] This is *not* reflected in a corresponding increase in demand for less widely used sources, such as science centres or science talks/public meetings.

The media is widely valued as a source of information on science (57%), with television being the most important (42%). Scientists working for charities or in universities are also valued by many people (28% and 27% respectively). Although personal experience is not widely cited, friends and family, word-of-mouth and work colleagues are valued by one in four (25%).

Sources of information that are not widely valued include:

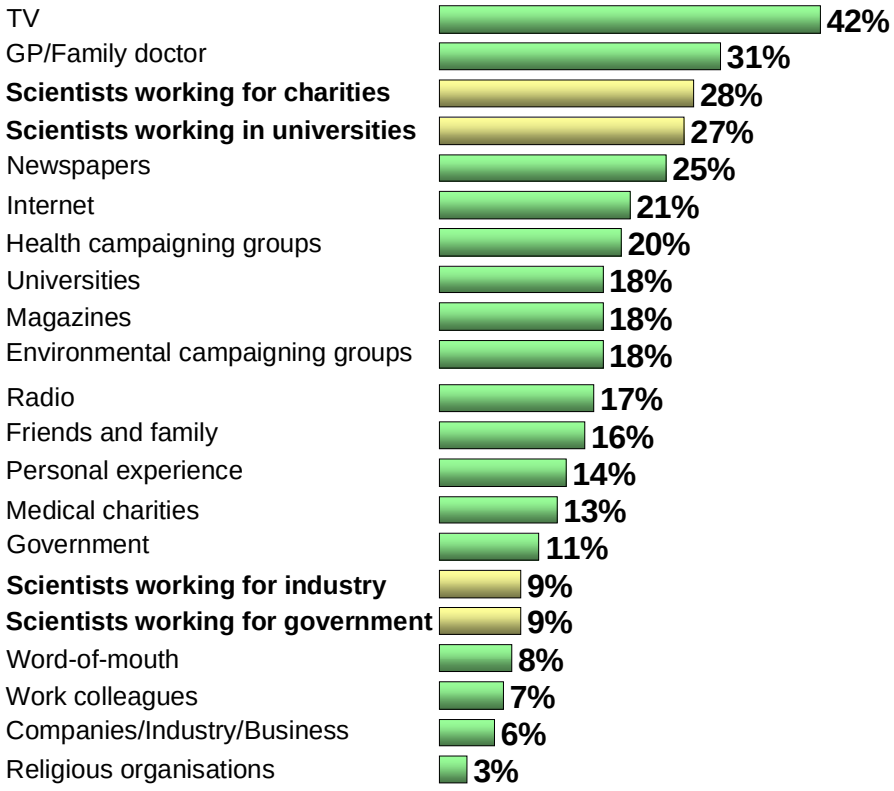
- companies/industry/business and scientists working for industry (6% and 9% respectively);

- Government and scientists working for government (11% and 9%).

[60] National newspapers from 53% to 37%; magazines from 33% to 23%.

Valued Sources of Information on Science

Q Which, if any, of the following do you value as a source of information, support or advice about science?



Base: 1,831 UK adults aged 16+, September – November 2004

Source: MORI

Whilst the media and television are valued highly by all groups, there are marked differences by *social class* in the value placed on other sources. Professional and managerial groups (ABs) are much more likely to value a number of sources of information, namely:

- scientists working for charities, industry, government or in universities (60% vs 37% for DEs);
- Newspapers (34% vs 20%);
- Friends and family/Word-of-mouth/Work colleagues (31% vs 19%);
- campaigning groups (for health campaigning groups: 28% vs 13%; for environmental campaigning groups: 24% vs 14%).;
- Internet/World-wide web (28% vs 15%);
- Magazines (27% vs 10%).

There are marked differences by level of science qualification, in the sources of information, advice and support on science that are most widely valued. Those with 'A'-levels or degrees in science are more likely to value:

- scientists working in universities (58% and 49% for those with 'A'-levels and degrees respectively, compared with 27% overall);
- Internet/world-wide web (48% and 40%, compared with 21% overall);
- magazines (41% and 34%, compared with 18% overall);
- personal experience (31% and 41%, compared with 14% overall);
- companies/industry/business (17% and 16%, compared with 6% overall).

Views of Scientists and Science Communication

Scientists are not widely seen as responding to public opinion. The idea that scientists often try new things without thinking about the consequences is shared by three-fifths (61%). Furthermore, three in four people think scientists should listen more to what ordinary people think, and 31% feel strongly about this. (See table below).

Q **How strongly do you agree or disagree with each of the following statements about science and scientists…**

…Scientists should listen more to what ordinary people think

	Strongly agree	Tend to agree	Neither agree nor disagree	Tend to disagree	Strongly disagree	Don't know
	%	%	%	%	%	%
OST/Wellcome Trust 2000	19	50	14	10	2	-
UEA/MORI 2002	17	50	19	10	2	3
MORI/OST 2004	31	43	15	8	1	1
Change	+12	-7	+1	-2	-1	+1

Q **How strongly do you agree or disagree with each of the following statements about science and scientists…**

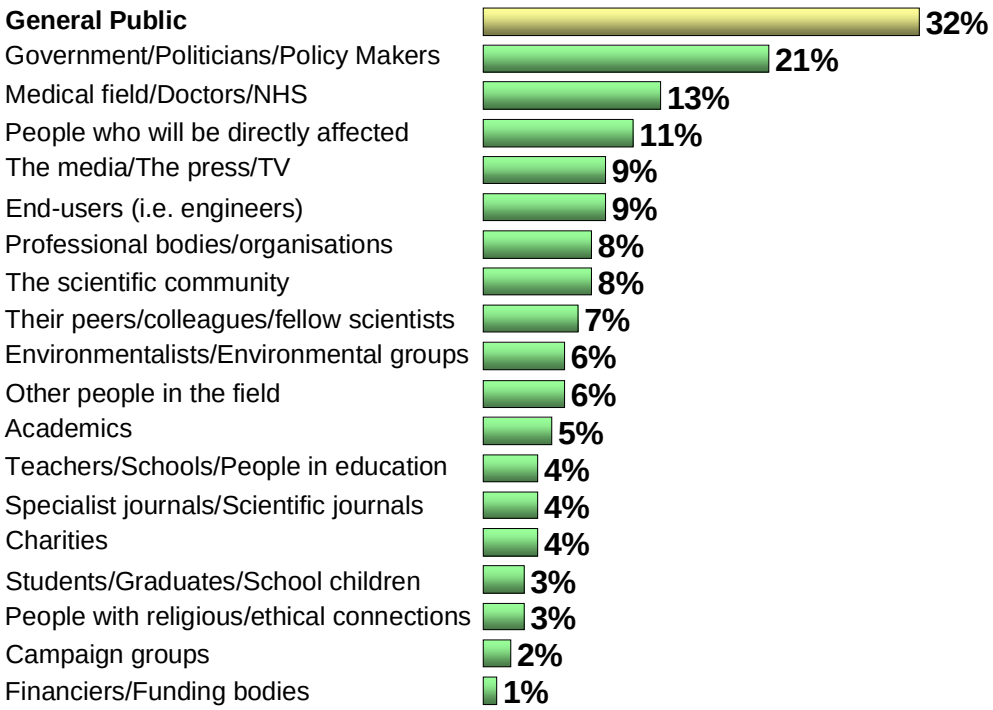
…Scientists often try new things without thinking about the consequences

	Strongly agree	Tend to agree	Neither agree nor disagree	Tend to disagree	Strongly disagree	Don't know
	%	%	%	%	%	%
UEA/MORI 2002	14	38	26	16	3	4
MORI/OST 2004	20	41	20	14	2	3
Change	+6	+3	-6	-2	-1	-1

Whilst there is wide appreciation of the range of groups with whom scientists need to communicate their research findings, the public considers itself to be the most important group (32%), followed by the Government/politicians/policy makers (21%).

Science Communication

Q If scientists have to communicate their research and its social and ethical implications, who do you think would be the most important groups to communicate with?



Base: 1,831 UK adults aged 16+, September – November 2004

Source: MORI

Comparison can be made with MORI's research among scientists for the Wellcome Trust (2000). This shows that the public is more likely to want to see scientists spending more time communicating their research and its social and ethical implications with the general public, than the proportion of scientists themselves who call for this. Furthermore, nearly two-fifths (79%) of the public feel that scientists should spend more time than they do discussing the implications of their research with the general public, and one in three (31%) feels strongly about this. By comparison, fewer than three-fifths (57%) of scientists say they would like to spend more time communicating the implications of their research among non-specialist audiences.

There is much greater accordance between the general public and scientists on funding for communicating research findings. Around four-fifths of each group agree that funders of scientific research should help scientists discuss research and its social and ethical implications with the general public.

However, the independence of scientists is often seen as being put at risk by the interests of their funders (72%), and this has important implications for the levels of trust in scientists. (See section on *Trust in Scientists*). This represents a 12 point increase since MORI's work for UEA in 2002.

Finding Out About Science: Activities

Awareness of science festivals is fairly low nationally, with fewer than one in ten having heard of the BA Festival of Science (8%) or regional/county/city-wide events such as Oxfordshire Science Festival and the Wrexham Science Festival (5% and 3% respectively). The Royal Society's Summer Science Exhibition is recognised by 12%.

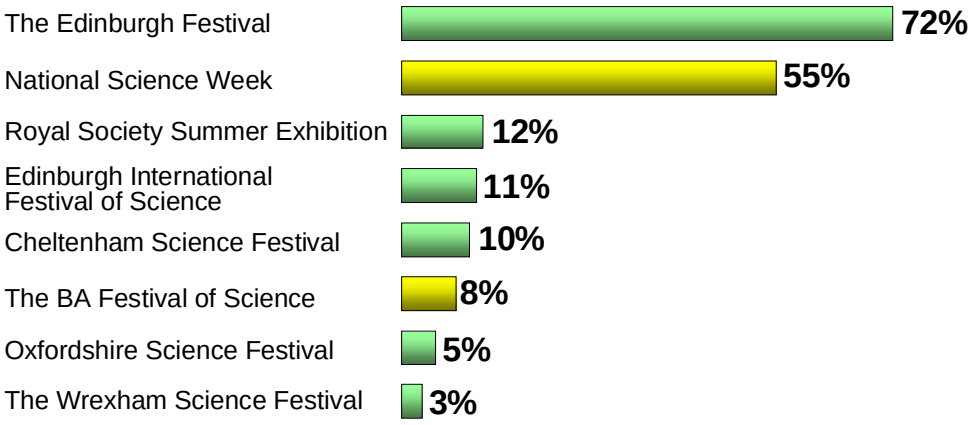
The Edinburgh Festival is much more widely known than the Edinburgh International Festival of Science (72%, compared with 11%).

By contrast with science festivals, there is much higher apparent awareness of National Science Week (55%). This may reflect its nationwide profile and media publicity, but also the likelihood that many members of the public are probably responding to the familiarity of the words 'national', 'science' and 'week', rather than any real awareness of National Science Week.[61]

[61] Research for the BA National Science Week in 2003 and 2004 shows that between 29% and 47% say they had heard of 'National Science Week', but between 48% and 62% of those did not know anything more specific about the week.

Awareness of Science Festivals

Q Which, if any, of the following have you heard of?



Base: 1,831 UK adults aged 16+, September – November 2004

Source: MORI

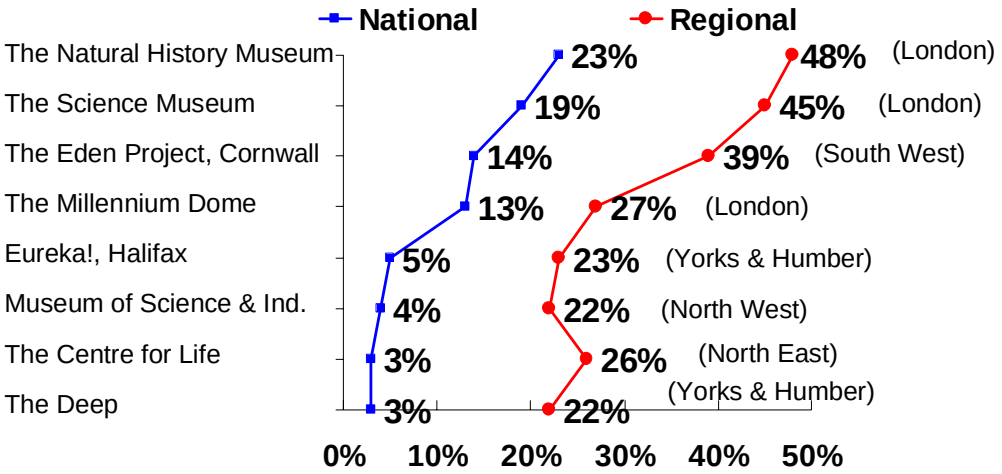
When we look at the profiles of science festivals among the *country* and *regional* populations for whom they primarily cater, awareness increases significantly, compared with the UK-wide figures. Awareness of the Edinburgh International Festival of Science rises to 32% in Scotland, for example, compared with 11% for the UK. Likewise, the Royal Society's Summer Exhibition and the Cheltenham Science Festivals are known by around one in five within London and the South West respectively (20% and 17%, compared with 12% and 10%).

With London's Natural History Museum and National Science Museum being notable exceptions, people's visiting of science centres and museums is low. These two national institutions have been visited by between one in five and one in four people from across the UK (23% and 19% respectively). By contrast, city-based and regional centres have attracted far fewer visitors (generally less than 5%). Even relatively well-known and highly-funded projects like the Millennium Dome and the Eden Project in Cornwall have attracted less than one in five people from across the UK (13% and 14% respectively).

However, science centres have much greater appeal among their regional audiences. (Please see charts overleaf).

Visiting Science Centres

Q Which, if any, of the following science centres have you visited in the last five years?

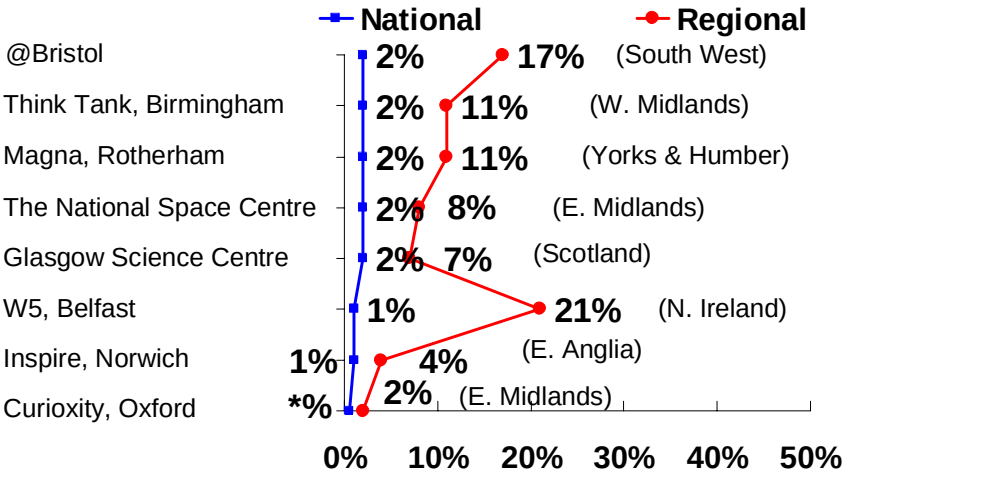


Base: 1,831 UK adults aged 16+, September – November 2004

Source: MORI

Visiting Science Centres

Q Which, if any, of the following science centres have you visited in the last five years?



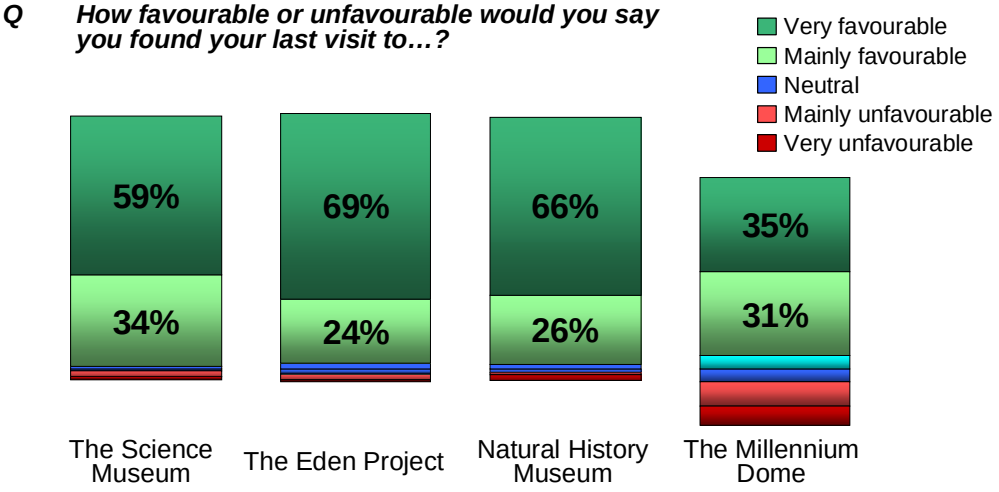
Base: 1,831 UK adults aged 16+, September – November 2004

Source: MORI

Overall, science-related events tend to be rated highly by those who visit them. Around four-fifths (82%) enjoyed their last visit either 'A great deal' or 'A fair amount', and this rises to 93% in Northern Ireland. There are consistent ratings by gender, age group, social class, country/region and ethnic group.

There are very high favourability ratings for the science centres measured in the survey, and for which we have sufficient sample sizes to draw valid conclusions. These range from 93% for the Science Museum and the Eden Project, and 92% for the Natural History Museum, to 66% for the Millennium Dome.[62]

Visiting Science Centres – Favourability



Base: Visitors to the Science Museum (328), The Eden Project (198), the Natural History Museum (376) and the Millennium Dome (227)

Source: MORI

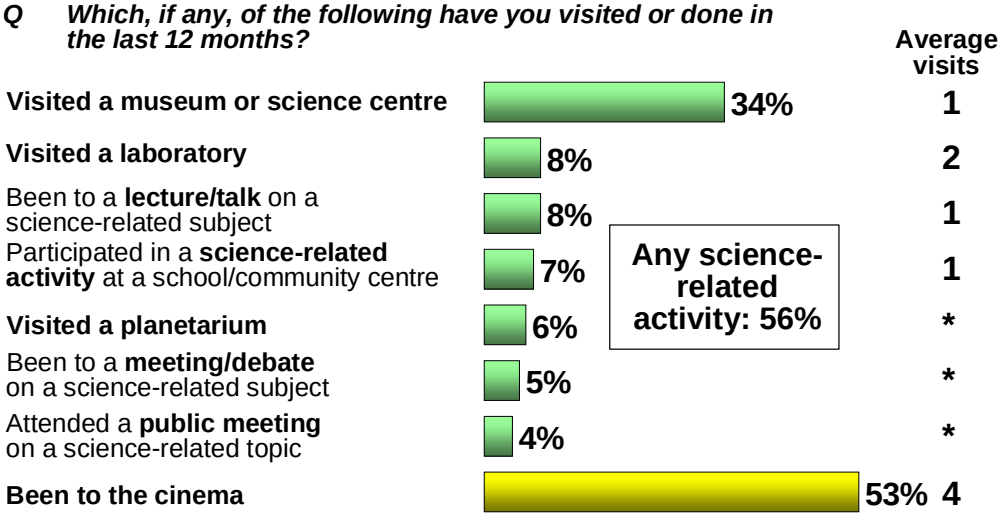
A little over half (56%) have visited, or participated in, a science-related activity in the past year.[63] Most commonly, this is through a visit to a museum or science centre, or a zoo (34% and 30% respectively). However, visits tend to be much less frequent than the cinema. On average, people say they have visited a museum or science centre once over the past year (1.03), compared with 3 visits to the cinema (3.84).

[62] Based on samples of visitors of 328 for the Science Museum, 198 for the Eden Project, 376 for the Natural History Museum and 227 for the Millennium Dome.

[63] Science-related activities, outside work, include: visiting a museum or science centre, a science festival, laboratory, zoo or planetarium, attending a public meeting on a science-related topic, participating in a science-related activity at a school/community centre, or going to a lecture/talk or meeting/debate on a science-related subject.

Science Activities

Q Which, if any, of the following have you visited or done in the last 12 months?



Base: 1,831 UK adults aged 16+, September – November 2004

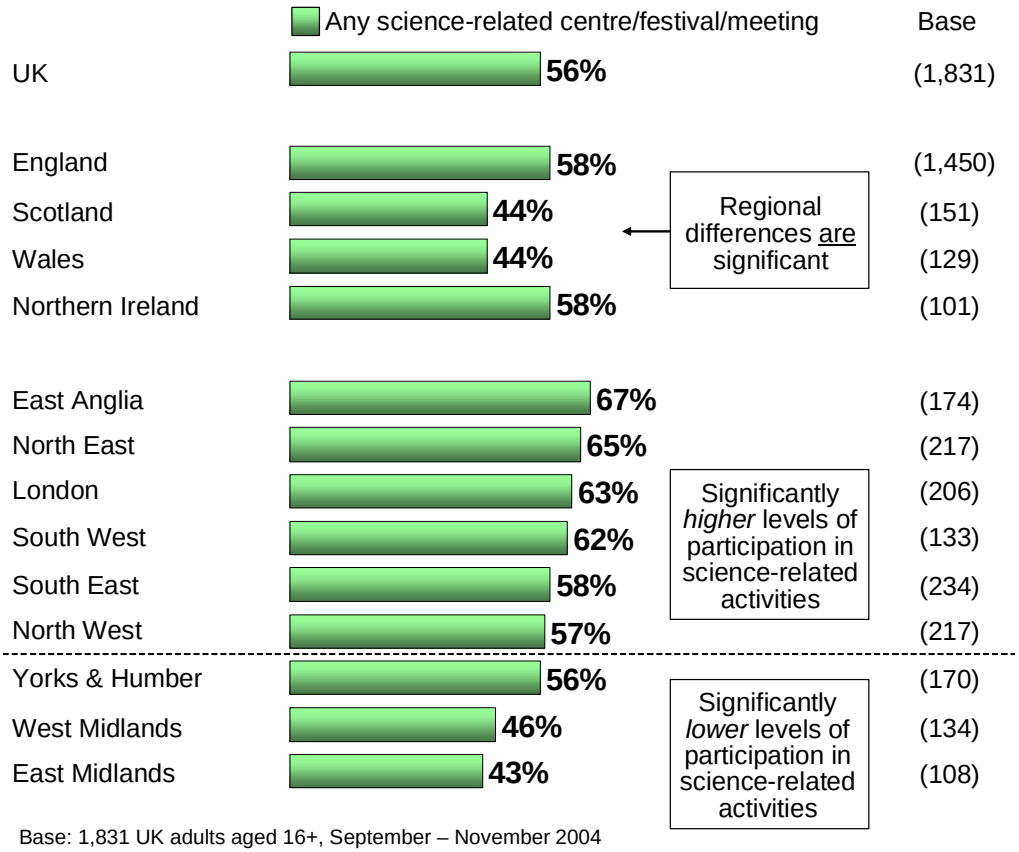
Source: MORI

Of those science-related activities and attractions that people have not visited over the past 12 months, there is most interest in planetaria, which one in five (20%) say they would be interested in visiting. This drops to around one in eight (12%) who would like to visit a museum or science centre. Fewer than one in ten expresses an interest in each of the following: visiting a science festival or laboratory (8% for each), going to a lecture or a meeting/debate on a science-related subject (5% and 4% respectively), and participating in a science-related activity at a school/community centre (3%).

There are significant differences by country and region in the proportions who visit science-related centre/festival/meetings. Those in England and Northern Ireland are more likely to have visited a science-related centre/festival/meeting in the past year, compared with those living in Wales and Scotland. Those living in the East Midlands and the West Midlands are less likely to have done so than those living in other English regions.

Science-Related Activities

Q Which, if any, of the following have you visited or done in the last 12 months? [1]



Base: 1,831 UK adults aged 16+, September – November 2004

[1] A list of science-related and other activities was shown

Source: MORI

The main motivations for visiting a science centre are for enjoyment/recreation and taking children (27% for each). By comparison with enjoyment and recreation, taking part in a discussion on a science-related topic and meeting others with a similar interest are less important for motivating people to visit these centres (2% and 3% respectively).

Science centres and museums are also recognised as centres of learning. The most commonly cited advantages are teaching adults and children (32% and 30% respectively), followed by: encouraging children to take an interest in science and technology (23%); and enjoyment (23%).

The main disadvantages of visiting science centres or science museums are described in terms of convenience, with distance and/or difficulty of getting to these centres cited by around one in four (23%), and cost (15%). Functional and operational disadvantages (cited by 19%) include: entry costs, crowds/queues, being tiring to walk around, and difficulty/cost of parking. By contrast, few see the main disadvantages in terms of lack of interest or information (8% and 3% respectively), or not being interactive or enough fun (3% and 2% respectively).

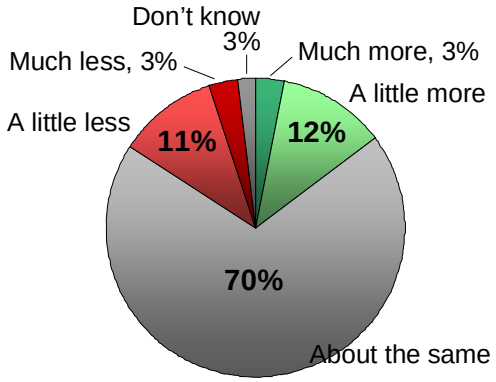
Trust in Scientists

MORI's long-standing work on trust in scientists[64] reveals that a clear majority (around two-thirds) trust scientists to tell the truth, and far fewer (around one in five) do not. Furthermore, trust in scientists increased on this question in 2004 (from 65% in 2003, to 69%).

The current survey for OST asked people whether they felt their trust in scientists had changed over the last few years. Seven in ten (70%) say they trust scientists 'about the same' as they did five years ago, whilst 14% feel they trust them 'more', and 13% trust them 'less'.

Trust in Scientists – Trends

Q Would you say you personally trust scientists more or less, or about the same as you did five years ago?



	More %	Less %
Overall	*14*	*13*
Daily/S. Mail	16	16
Times/S. Times	13	18
Daily/S. Telegraph	9	16
Guardian / Independent / Observer	**8**	**21**

Base: 1,831 UK adults aged 16+, September – November 2004
Readers of Daily/S. Mail (335), Times/S. Times (211), Daily/S. Telegraph (121), Guardian/Independent/Observer (176)

Source: MORI

There is little difference between sub-groups in those who say they now trust scientists less than previously, although readers of the *Guardian*, *Independent* and/or *Observer* are more likely to now feel they trust scientists less than they did five years ago (21%, compared with 13% for tabloid readers/overall).

Though scientists are collectively one of the most valued sources of information, support or advice about science (coming second after the media), there is significant variation in levels of trust in different types of scientist. Scientists working for industry and for government are much less widely trusted than those working in universities or for charities. Scientists working for charities, and in universities, are far more likely to be valued as sources of information, and to be trusted to provide accurate information about scientific facts than those working for either government or industry. Indeed, more than 1 in 10 say they would least trust Government scientists to provide accurate information about scientific facts – over twice the proportion that say this about scientists working for industry (while just fewer than half a per cent say this of scientists working in universities or for charities).

[64] For Cancer Research UK and the BMA.

Trust in different forms of the media varies considerably, from television documentaries, which (at 45%) is the most widely trusted source of scientific facts, and people, to people working for tabloid newspapers, who are the least trusted to provide accurate information about scientific facts (34%).

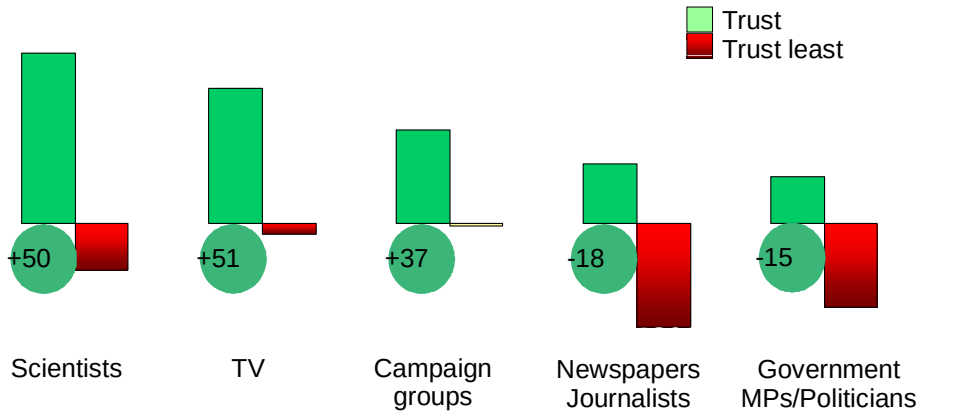
The low level of trust in the media on science issues reflects the view that the media sensationalises science, which is felt by around seven in ten (72%). This feeling is commonly felt among:

- White adults (72%, compared with 56% for BME groups);
- Professionals and senior managers (79% for ABs, compared with 65% for DEs);
- Readers of the Times/Sunday Times and Daily Telegraph/Sunday Telegraph are most likely to hold this view (80% and 77%);
- Those with science qualifications (84% for those with science 'A'-Levels or a science degree, compared with 72% overall).

Trust in Information on Science

Q Looking at this list of sources of information, which, if any, would you generally trust to provide accurate information about scientific facts?

Q Which do you trust least?



Base: 1,831 UK adults aged 16+, September – November 2004

Source: MORI

Government ministers/politicians are the second least trusted group (18%), after people working for tabloid newspapers.

Competence, credentials and experience are crucial factors in determining whether the public trusts scientists, with around three in four (77%) saying that at least one of these is important in determining whether to trust scientists. Honesty is another key factor, cited by almost six in ten. For a third of the public, it is important that scientists listen to, or share, public concerns. By

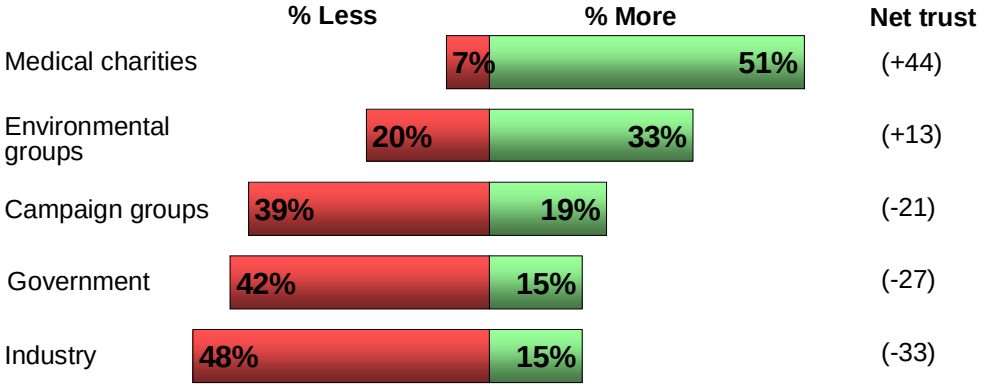
comparison, other factors such as appearance – being smartly dressed or wearing a lab coat – gender, being older and ethnic origin are much less important.

Funding sources for scientists working in universities have a significant impact on trust. Whilst university researchers are much more likely to be trusted if they are funded by medical charities and, to a lesser extent, environmental groups, they are less likely to be trusted if they are funded by government, industry or campaign groups.

This is the first time that this question has been asked in exactly this way[65] and the findings for (university) scientists in: medical charities, environmental groups, industry and government are consistent with many other measures on the commercialisation of science. The figures for 'campaign groups', while closer to those for government and industry than for medical charities or environmental groups, may be indicating a certain ambiguity in the phrase. It is noteworthy, however that university scientists funded by environmental groups (many, though not all, of which are campaign groups) are regarded more positively than those funded by campaign groups. This may reflect a feeling that environmental groups are working for the general good, while 'campaign groups' is either too general a term to be descriptive, or suggests a body working for a specific cause. A fairly high proportion – between 3 and 4 in 10 – say the way in which scientists in universities are funded has no bearing on the degree of trust that they place in those scientists.

Funding and Trust in Scientists

Q How much more or less do you trust scientists working in universities if they are funded by…



Base: 1,831 UK adults aged 16+, September – November 2004

Source: MORI

[65] This year, the question asked 'Using this card, how much more or less do you trust scientists working in universities if they are funded by…?' and five sources of funding were read out in turn: government, industry, medical charities, environmental groups and campaign groups. See bottom of page 168. Previous work (e.g. for the Scientific Alliance, 2002) tended to ask questions like 'Which, if any, of the following scientists do you most trust to give reliable information about the environment?' This list covered the following: Scientists working for universities, Scientists working for environmental groups, Scientists working for government and Scientists working for industry.

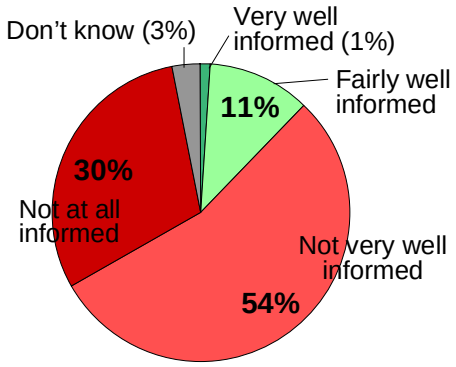
Many feel that the funding of science is becoming too commercialised (56%), a sentiment which a similar proportion agreed with in 2002.[66] However, strength of feeling on this issue has increased markedly this year. One in five (22%) is ambivalent about whether science funding is becoming too commercialised, and a further 11% disagree. Nonetheless, disclosing sources of funding is an issue which is widely seen as important. A large majority – around four-fifths (79%) – agrees that scientists should always state how they are funded, when publishing research, with only 7% disagreeing.

The Regulation of Science

Few people say they know anything about the way science is regulated. Indeed, MORI's other work has demonstrated that few people know much about regulation on anything[67].

Awareness of Regulation

Q How well informed do you feel, if at all, about the way science is regulated?



	A great deal/ A fair amount	Not very much/Nothing
	%	%
Overall	*12*	*84*
Men	17	80
Women	7	**88**
AB	19	77
C1	13	83
C2	6	**90**
DE	9	**87**

Base: 1,831 UK adults aged 16+, September – November 2004

Source: MORI

When asked which - from a list of seven types of scientist - are regulated, only minorities select each type (except for 'the NHS', where just over half say these scientists are regulated). Most people who believe scientists are regulated say this is by Government - which is consistent with other MORI work demonstrating that 'regulation' generally implies government regulation (to the exclusion of any other form of regulation, such as self-regulation). Very few say scientists regulate themselves, suggesting limited awareness of the scientific peer review process[68].

---

[66] UEA/MORI, 2002

[67] MORI Local Government research; MORI Central Government research; MORI Political research.

[68] This is consistent with MORI's 2003 work for *Nature* magazine, which revealed that very few members of the public were aware of what the phrase 'scientific peer review in scientific publications' meant. 43% did not know; a further 28% said 'nothing', and 5% gave an incorrect answer. Twenty-five per cent correctly said that it is scrutiny of other scientists' work (generally, or in academic journals).

On balance, more people (who say scientists are regulated)[69] have confidence than not in the way science is regulated - but a third lack confidence, and a further one in ten or so are undecided.

Only 3% of those thinking scientists are regulated say they have 'A great deal' of trust, whilst 48% say 'A fair amount'.

This may reflect low awareness and understanding of how science is regulated in practice – around four-fifths (84%) say they know 'Not very much' or 'Nothing at all' about the way science is regulated.

Awareness of the regulation of science is particularly low among:

- Women (88% say they do not know 'very much', or 'nothing at all', compared with 80% of men);
- Skilled and unskilled manual workers and those reliant on state benefits (90% for C2s, 87% for DEs, compared with 80% for ABC1s).

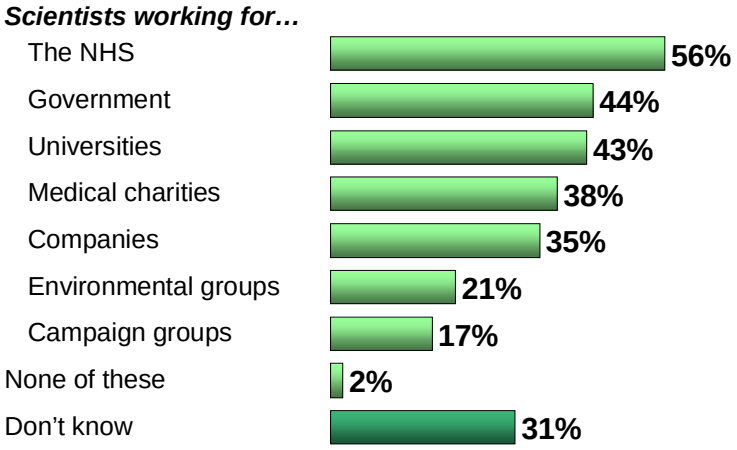
Reflecting the variation in awareness of science and technology by level of educational qualification, there is much higher awareness of regulation among more highly educated people (45% of those with science degrees know 'a great deal' or 'a fair amount', compared with 17% of those with GCSEs/'O'-Levels in science subjects).

Around three in ten (31%) do not know which scientists are regulated, or if any are regulated at all. Only around one in three (35%) believes that scientists working for companies are regulated, and this drops to less than one in five for scientists working for campaign groups (17%).

[69] Around two-thirds said at least one of the seven types of scientist is regulated.

Awareness of Regulation of Scientists

Q Which, if any, of the following scientists are regulated…?



Base: 1,831 UK adults aged 16+, September – November 2004

Source: MORI

The most widely known regulator of scientists – cited by two in three (66%) of *those thinking scientists are regulated* – is the Government, government agencies or government departments. This translates into 44% of the public as a whole. This means that more than half (55%) of the UK public does *not* know that scientists are regulated by government bodies or agencies.

Reflecting some of the feelings that came through in the qualitative research, several key themes emerge from the coding of the open-ended question on the reasons for trust or lack of trust in the regulation of science. Among those who have a 'great deal' or a 'fair amount' of confidence in the regulation of science, the most widely given reasons tend to imply that <u>because</u> science is regulated we must trust the regulation – rather than suggesting any real understanding of how science is regulated. These responses were:

- I have trust/trust the regulators (22%)
- There must be regulation/Can't not have regulation (17%)
- We have to trust the scientists (8%)

Some people who do not have very much or any confidence in science regulation (19%) say this is because this is because they do not know enough about the subject, suggesting that a lack of knowledge is a partial driver of negative perception. However, this does not necessarily suggest that providing more information would be a sufficient condition to build trust in government, or government scientists. There are also concerns among those lacking confidence in the way that science is regulated that: the truth gets concealed, there is a lack of accountability, and that incidents have occurred:

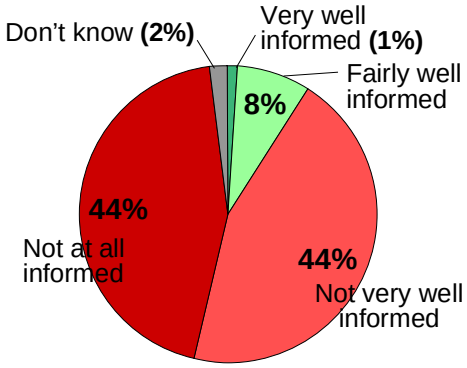
- Not always told full story/whole truth (20%)
- Scientists are not always accountable (12%)
- Catastrophies have happened/Look at… (12%)
- I do not trust who regulates them (8%)

Attitudes to the Governance of Science

As might be expected, there is low awareness of public consultation on science. Nearly nine in ten (88%) say they know 'not very much' or 'nothing at all' about public consultation on science. Around two in five (44%) say they know 'nothing at all', and a similar proportion say they know 'not very much'. This finding is what one might have expected, given that there has not been much public consultation on science at the national level.

Awareness of Consultation

Q How well informed do you feel, if at all, about public consultation on science?



	A great deal/ A fair amount %	Not very much/Nothing %
Overall	*9*	*88*
Men	**13**	84
Women	**5**	92
AB	**12**	87
C1	10	87
C2	6	91
DE	7	89

Base: 1,831 UK adults aged 16+, September – November 2004

Source: MORI

Public consultation on science is most commonly associated with public health consultation and/or the Department of Health (8%), and GM food or genetic engineering (5%).

Awareness of consultation on science is consistently low between sub-groups, although levels are lower among women (92% know 'Not very much' or 'nothing at all', compared with 84% for men). There is, however, little difference by age, social class, or country/English region.

Again, awareness and understanding of public consultation on science appears to be stronger among:

- More highly educated people (26% of those with science degrees say they know 'A great deal' or 'A fair amount' about it, compared with 10% for those with GCSEs/'O'-Levels);

- Professional and senior managerial occupations (12% for ABs, compared with 7% for C2DEs).

Overall differences between ethnic groups are small, though there are some that are statistically significant:

- White adults are more inclined to say they know 'not very much' or 'nothing at all' about public consultation on science, compared with BME groups (but are not significantly less likely to say they know a 'great deal' or 'fair amount').

- However, White adults are *more* likely to say they know 'not very much' or 'nothing at all' about the way science is regulated, compared with BME groups (85%, compared with 77%), and conversely, BME groups are marginally more inclined to say they know a great deal or fair amount, than White adults (16%, compared with 12%).

Public Involvement in Consultation

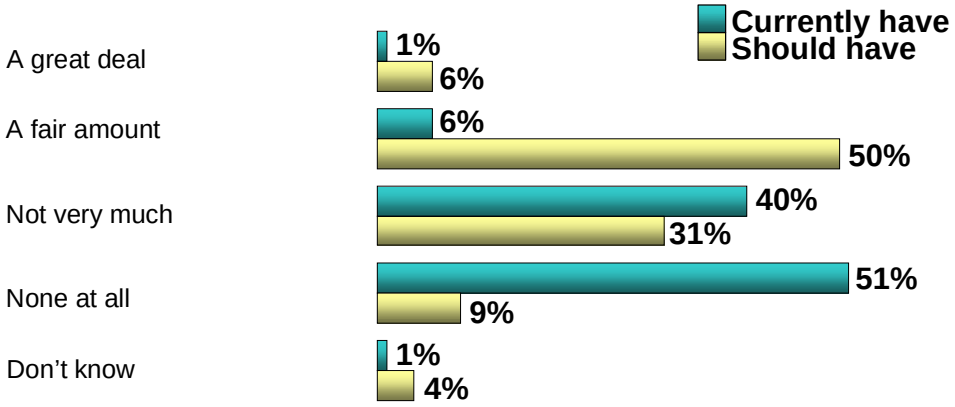
A huge majority (81%) feels the public should be consulted on scientific developments, with more saying a fair amount (55%) than a great deal (26%). Perhaps this suggests a need to consult with the public on key science issues which have a direct bearing on people's lives, rather than on all matters about science. It should also be borne in mind that in reality, a lower proportion than indicated in the survey is likely to want to be personally consulted.[70]

There is much wider demand for influence on decision-making about science or scientific research, compared with how much influence people *currently* feel they have. As the chart overleaf shows, half feel they personally have no influence at all on decisions on science and scientific research, and a further two-fifths say they do not have very much influence. Yet a plurality (56%) feels they should have 'a great deal' or 'a fair amount' of influence on such decision-making.

[70] This has been indicated by previous survey work showing that intention to vote often over-reports actual voting behaviour, and willingness to pay more for an environmentally-friendly item and to act in a 'green' way can similarly over-report green purchases, or green behaviours: MORI Political Research; MORI/Business & the Environment Survey 1989-1999. Also, UEA/MORI 2002 found that whereas 7 in 10 or more of the public believed that the public should be involved in decision making about each of 5 science issues, only between a quarter and 4 in 10 wanted to be consulted personally on policy making decisions on those same 5 science issues.

Influence on Science – Current and Preferred

Q How much influence, if any, do you feel you personally have/should have on decision-making about science or on scientific research that is conducted?



Base: 1,831 UK adults aged 16+, September – November 2004

Source: MORI

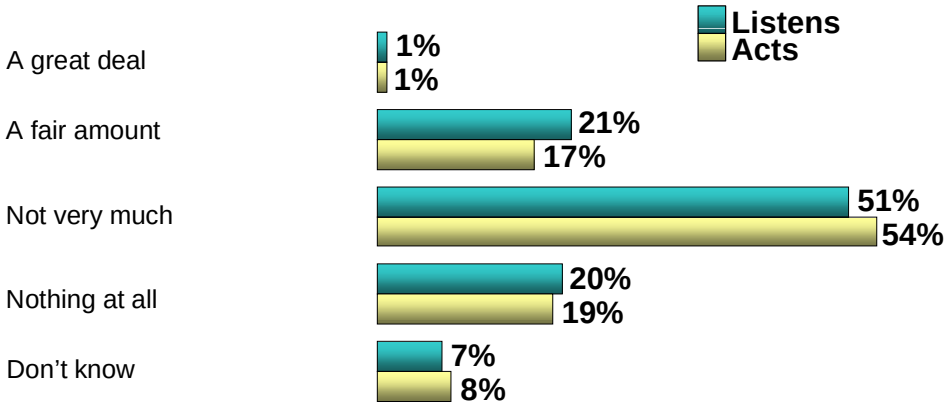
The view that the Government should listen to public concerns about science and technology is even more widely shared, with over nine in ten agreeing with this.

Despite general interest in matters of consultation, relatively few feel the Government listens to, or acts on, the outcomes from public consultation on science - which is probably more a reflection of feelings about government consultations on anything, rather than just on science[71]. Furthermore, few feel they personally have any influence on decision-making about science or scientific research, yet a plurality feels they should have such influence.

[71] Particularly with trust in government (of any persuasion) having been consistently low since MORI's measurements began in 1983. MORI/*The Times*/Cancer Research UK/BMA: Trust in professions and types of people; 1983-2004.

Listening & Acting

Q How far do you think the Government listens to/acts on the outcomes from public consultation on science?



Base: 1,831 UK adults aged 16+, September – November 2004

Source: MORI

There is broad support for public consultation on decisions about scientific developments, with around half (55%) saying there should be 'a fair amount', and a quarter (26%) saying 'a great deal'. This is consistent across social and demographic sub-groups.

The importance of government consultation *early on* in the development of science is highlighted by the large proportion saying that they ought to hear about potential new areas of science and technology 'before they happen, not afterwards'. This finding is entirely consistent with MORI's qualitative work in this area, both in the current study and in MORI/OST 1998/9.

There is fairly broad interest (from the quantitative research) in a national debate on science-related issues – involving time at a discussion group to talk about these issues. Around half say they are 'fairly interested' or 'very interested' in spending time at a discussion group as part of a national debate on a science-related issue (8% and 43% respectively).

There appears to be a stronger willingness to take part in such an event among:

- Men (54%, compared with 47% among women);
- Professional and senior managerial groups (64% among ABs, compared with 40% among DEs);
- Those with 'A'-Levels and degrees in science (81%, compared with 51% overall);
- Readers of *Guardian*, *Independent* and *Observer* newspapers (77%, compared with 47% for readers of tabloid newspapers).

There are no significant differences between ethnic groups, those with children compared with those without, and by region, with the exception of London, where there is a significantly greater willingness to take part (67%).

Notably, those who are among the most interested in taking part in a consultation event – readers of the *Guardian*, *Independent* and *Observer* newspapers – are also those who report a fall in their trust in scientists over the last five years. In the qualitative research it is noteworthy that while people expressed some interest in being involved in a government consultation event[72], they displayed very little awareness of the term 'consultation' or what it might involve, and queried just how representative the exercise might be. One young London participant felt it might appeal to '*the kind who looks at planning applications on notice-boards'*, deemed (by a number of participants in more than one discussion group) to have strong and unrepresentative opinions.

The strong feelings of cynicism about the Government and public consultation generally, expressed at the discussion groups are supported by the survey findings. Far more feel that public consultation events are just public relations activities and do not make any difference to policy, than feel they do. Similarly, far more say such consultation events are unrepresentative of public opinion than say they are not. If public dialogue and engagement are to continue it is critical then that the public be shown that outcomes are to be acted upon, and how they are acted on.

Those potentially interested in attending a national debate on science feel it is important that views expressed there be acted upon by those seeking their views, and that those canvassing views show that the outcomes have been acted upon. These are among the most important factors in the minds of the public when deciding whether to take part in discussion groups to talk about science-related issues. The subject matter or issue in question is deemed to be the most important factor – demonstrating that the public is discerning about which particular science issues they wish to debate. This might be linked to the earlier finding that most people felt the public should be consulted a fair amount rather than a great deal on decisions about scientific developments. The actual location of the venue is the second most important factor, indicating that factors such as ease of getting there, and possibly comfort and security, are also key.

There is a range of perceived barriers to greater public involvement in decision-making and discussions about science. Lack of knowledge, appreciation and understanding about science was highlighted as relatively important. However, providing information or convening consultation exercises in themselves would be unlikely to be sufficient to build public trust in government, or government scientists. The evidence suggests that acting on the outcomes of consultation, and demonstrating that outcomes have been acted on are key (to those interested in taking part in consultations).

[72] Which one might expect, given that they had already agreed to participate in an evening focus group.

The main benefits of greater public involvement in science are described in terms of a number of areas:

- the system of regulation of science and technology – that is, improved decision making, greater accountability and less media manipulation;
- the individual – seen in terms of providing information, public understanding and lessening public mistrust and fear of science;
- benefits to science itself – which includes benefits for scientists, such as career opportunities and job satisfaction, increased funding for science, and scientific progress.

Results by Ethnic Origin

Involvement in Science

Ethnic background has no measurable impact on people's involvement in science, and there is no difference between Whites and BME groups in how informed they feel about science and scientific research and development. However, there is a difference by ethnic origin on some of the individual activities, namely that White people are more likely than BMEs to say they have scientists or engineers among their friends and relatives, that they meet scientists or engineers at least once a month, or that they work with scientist or engineers. Conversely, on qualifications, BMEs are more likely than White people to say they have studied science to 'A' level, or to have any science qualification (GCSE/ 'O' level, or/and 'A' level or/and degree).[73]

There are also significant differences by ethnic group in visits to, and attendances at, science-related activities. White people are more likely to have visited or attended a science-related centre, festival or meeting in the last 12 months, and specifically, are much more likely to have visited science centres and museums in this period.[74]

This may partly reflect the locations of some of these centres in the countryside, and the fact that BME groups are less likely to reside in these areas. For example, there is no significant difference between Whites and BME groups in visits to the Science Museum or the Natural History Museum, but White people are much more likely to have visited The Eden Project. However, the overall differences in visits and attendances between White and non-White people may also reflect some social exclusion of BME groups, or lack of appeal, or lack of ability to embrace cultural dimensions at science-related activities.

Attitudes to Science

White people are much more likely than BMEs to agree that 'Overall, the benefits of science outweigh the risks' (72% vs 57% respectively), with BMEs more inclined than Whites to be neutral (28% vs 17%).[75] Looking at specific applications of science and technology, White people are *more* likely to see health-related applications as being beneficial to society (94% vs 87%), but are *less* likely to see computers/the internet/email as beneficial (39% vs 49%).[76] However, White people are more likely to say 'the risks outweigh the benefits' on a number of issues:

[73] It is possible that young BME group people may be the ones more likely to have studied science at 'A' level, and may therefore not yet have established social circles of scientists and engineers. However, sample sizes are too small to be able to examine this.
[74] 35% of White people have visited a museum or science centre in the last 12 months, compared with 23% of those from BME groups.
[75] At the converse statement: (the risks of science outweigh the benefits', White people are more likely than BMEs to disagree (44% vs 37%).
[76] Taken from Version 2.

- Climate change (51% for White people vs 39% for BMEs); BMEs are more inclined than White people to say the benefits of climate change outweigh the risks (19% vs 14%);

- GM food (58% vs 46%); BMEs are more inclined than White people to say the benefits and risks of GM food are about the same (21% vs 15%).

- Radioactive waste (72% vs 59%);

- Cloning (63% vs 52%)

With the exception of cloning, these differences are reflected in the proportions seeing these science developments as 'bad':

- Climate change (63% for White people vs 48% for BMEs); With BMEs more likely than White people to say climate change is a good thing (20% vs 9%).

- GM food (57% vs 50%);

- Radioactive waste (84% vs 72%) with BMEs more likely than White people to be neutral about radioactive waste (12% vs 8%).

- On cloning, there is no difference between White people and BMEs in the proportions who regard it as a bad thing. However, White people are more inclined than BMEs to perceive cloning as a good thing (11% vs 7%), or as neither a good nor bad thing (20% vs 15%).

White people are much more likely to say the benefits of genetic testing outweigh the risks, compared with BMEs (70% vs 50%), while BMEs are more inclined than White people to say the risks of genetic testing outweigh the benefits, and that the risks and benefits are the same (18% vs 14%, and 18% vs 11% respectively). White people are much more likely to see genetic testing as a 'good' thing (70% vs 54%), which is in line with their perception that the benefits of genetic testing outweigh the risks. Conversely, BMEs are more likely than White people to say genetic testing is a band than a good thing, or that it is neither a good nor a bad thing.

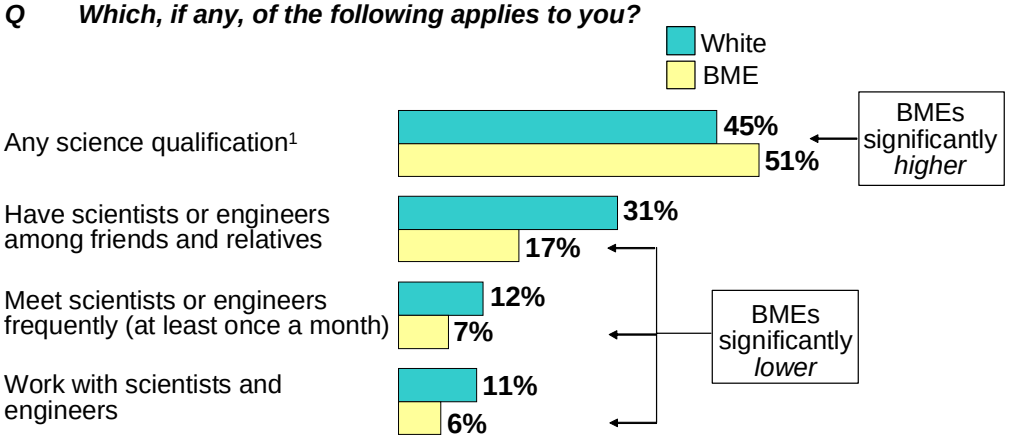
These findings reflect MORI's work for HGC (2000), which highlighted Black and Asian respondents as being significantly less likely than White respondents to agree that new genetic improvements will bring cures for many diseases (78 per cent and 76 per cent respectively, compared to 89 per cent among white respondents).[77] This research found that Asian people are more likely to think human genetic information is unethical than Black or White respondents. Around three-fifths (58%) of Asian respondents agreed that research on human genetics is tampering with nature and is therefore unethical, compared with two-fifths (40%) of Black respondents and 31% among White respondents.[78]

There is little difference in how BMEs and White people weigh up the benefits and risks of radiation from mobile phone handsets, although BMEs are more likely than White people to say that the benefits and risks are about the same (23% vs 19%).

It is notable that a number of differences do exist between White people and BMEs in attitudes towards the benefits and risks of science. Other observable differences are in science attainment (with BMEs more likely to hold a science qualification than White people), and certain forms of science involvement, with White people more inclined to: have scientists or engineers as friends and relatives, meet scientists or engineers frequently, and to work with scientists or engineers.

Involvement in Science – Ethnic Origin Analysis

Q Which, if any, of the following applies to you?



Base: 1,831 UK adults aged 16+, September – November 2004

[1] A combination of: Having studied science to GCSE/'O'-Level, Having studied science to 'A'-Level and/or Having studied science to degree level

Source: MORI

[77] The MORI report 'Public Attitudes to Human Genetic Information' is available on the HGC's website at http://www.hgc.gov.uk or free from PO Box 777, London SE1 6XH, by faxing: 01623 724524, or by emailing: doh@prolog.uk.com.

[78] These findings are based on 1,038 interviews conducted with members of the People's Panel from across the UK, supplemented with additional 'booster' interviews among Black and Asian respondents to ensure sufficiently large base sizes for separate analysis. Ethnic Minority finds are based on 113 completed interviews with Black respondents and 107 completed interviews with Asian respondents.

Trust in Science

There are important differences between White people and those from BME groups in those they would trust to provide accurate information about scientific facts. White people are more likely than those from BME groups to say they generally trust the following in this respect:

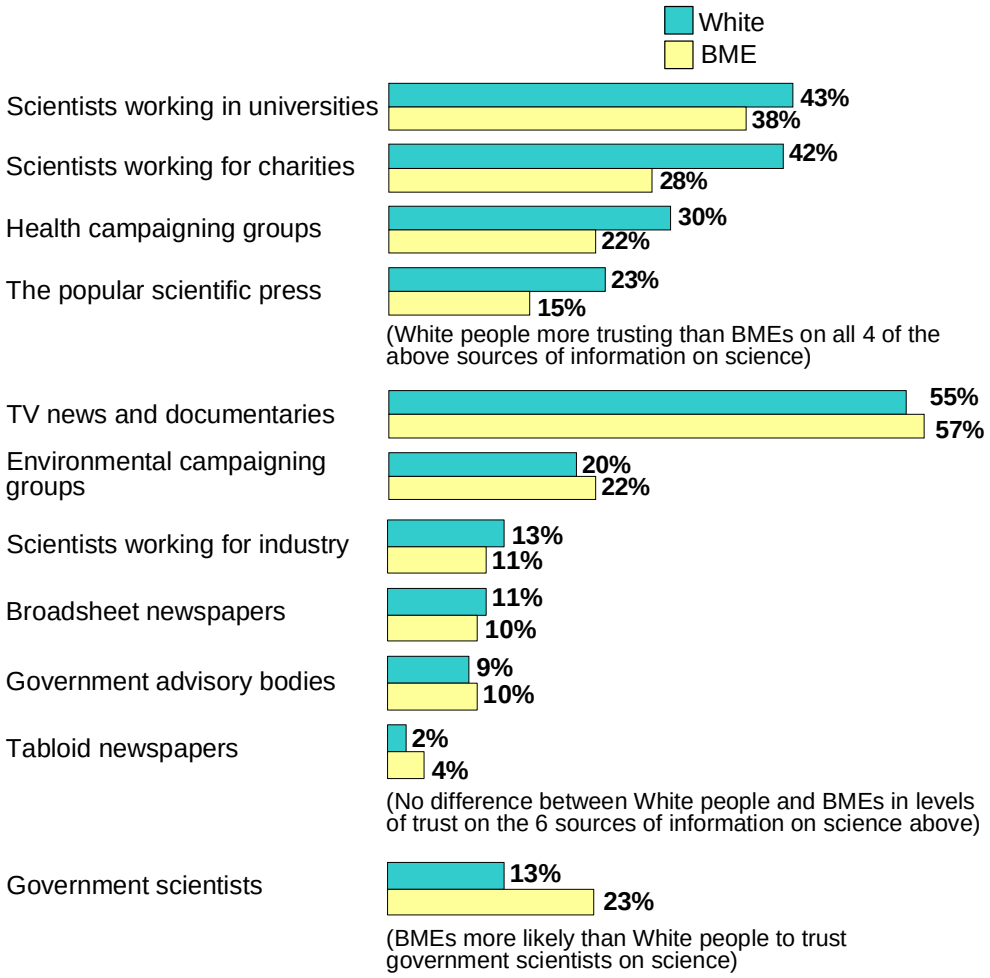
- people working for the popular scientific press e.g. New Scientist (23%, compared with 15%);
- scientists working in universities (43%, compared with 38%);
- scientists working for charities (eg Cancer Research UK: 42% compared with 28%);
- and health campaigning groups (eg Alzheimer's Society: 30% compared with 22%).

In contrast, BME groups are more likely than White people to trust government scientists to provide accurate information about scientific facts (13% among White people and 23% among BME groups).

However, there is no difference by ethnic origin in TV (documentaries or news & current affairs), people working for broadsheet or tabloid newspapers, scientists working for industry, environmental campaigning groups or Government advisory bodies to provide accurate info about scientific facts.

Trust in Information about Science – Ethnic Origin Analysis

Q ***Looking at this list of sources of information, which, if any, would you generally trust to provide accurate information about scientific facts?***



Base: 1,831 UK adults aged 16+, September – November 2004

Source: MORI

Differences between White people and BMEs on trust in science were also observed in MORI's research for the Human Genetics Commission[79] in 2000. This study found that Black and Asian people were significantly less likely than White people to trust the police to be responsible users of DNA databases (37%, compared to 59%). Black and Asian people were also found to be less likely to agree that the police should take DNA samples from anyone charged with murder or sexual offences. Black people were also less inclined to support the idea of DNA samples being taken from those charged with shop-lifting offences. Asian people, however, were more in favour than White or Black people to

[79] The HGC was established following the Government's Review of the Advisory and Regulatory Framework for Biotechnology in May 1999 and incorporates the former roles of the Advisory Committee on Genetic Testing, the Advisory Group on Scientific Advances in Genetics and the Human Genetics Advisory Commission.

support the police taking DNA samples from people charged with drink-driving offences.[80]

Consultation on Science

White people are more cynical about Government consultation on science. A higher proportion of them than BME groups say that Government listens or acts 'not very much' or 'not at all' to the outcomes from public consultation on science.

There is, however, no significant difference between the proportions of White people and those from BME groups who feel the government listens 'a great deal' or a 'fair amount' (22% vs 20% respectively).

There are few differences in willingness to take part in a national debate on a science-related issue. The same proportions of White people and those from BME groups would be 'interested' and 'not interested' (around half interested, and 4 in 10 not interested in each case), although White people are more likely than BME groups to say they would be 'not very interested'.

[80] This research followed the publication by the HGC in November 2000 of a discussion document 'Whose hands on your genes?', as part of its review on the storage, protection and use of genetic information. MORI conducted 1,038 interviews with members of the People's Panel between 6 October and 17 December 2000. This sample was supplemented with additional 'booster' interviews among Black and Asian respondents to ensure sufficiently large base sizes for separate analysis. BME findings are based on 113 interviews with Black respondents and 107 with Asian respondents.

The Qualitative Research

The Qualitative Methodology

The qualitative research comprised a series of 8 discussion groups among the general public, each lasting between one-and-a-half and two hours. These group discussions were convened in a number of locations across the UK, between 21 and 29 July 2004. Groups were held in: Belfast, Cardiff, Edinburgh (2), London (2) and Manchester (2).

The qualitative research followed on from the desk research, and fulfilled a number of important objectives, which were to:

- **provide a depth of insight** into public experiences, understandings and attitudes towards science and science activities, and to act as a 'stand-alone' piece of research;

- **play an important role in the development of the quantitative survey** by assisting with the design of new survey questions – used in addition to those repeated from the previous studies;

- **demonstrate OST's continued commitment to engaging with the public**. Discussion groups, as with other types of qualitative research, offer public events where the research process can be seen in action. In addition, qualitative research, by its very nature, tends to be less structured and enables more dialogue than quantitative research.

The qualitative research provided an invaluable means of understanding public priorities, values and experiences and helped shape questionnaire design, question categories and codes. Without such exploratory research, later attempts to quantify opinions may have been founded on inappropriate assumptions about the correct questions to ask, and may have failed to understand people's motivations and behaviour.

When designing the qualitative research, MORI was conscious of the need to balance two potentially conflicting objectives:

1. **addressing OST's main research objectives**, namely: to examine participation, trust and consultation in science and technology; and drawing these areas together, to understand the inter-relations between behaviour, attitudes and opinions;

2. **remaining open to public concerns and interests** and allowing these to have some role in the design and analysis of the research.

We ensured that a broad range of public views and experiences were expressed, through:

- Discussion group recruitment and the use of quotas to provide a broad range of participants in terms of gender, age, etc;

- The design of the topic guide and the use of a combination of unprompted questioning, followed by probing;

- The development of the quantitative research and design of survey questions, and the inclusion of an open-ended question and 'Other (specify)' questions.

Discussion Group Recruitment

When recruiting people for the discussion groups, the research was described in fairly broad terms, and no specific science issues were mentioned. The recruiters were instructed to ask people if they would like to take part in research on "people's general views about science and society." (Please see the *Recruitment Instructions* in the Appendices). The purpose of this was to encourage a range of people to be involved, irrespective of their views about science and society, or their interests in specific science issues or debates.

Quotas and Group Participants

Quotas were set on the participants in the groups to ensure that a broad cross-section of people was included from a range of science-related and non-science related backgrounds. For each group, restrictions were set on the number of people currently working in science, and the number of people who had a broadly defined science background.[81] This was designed to act as a safeguard against any discussion group becoming dominated by people with a vested interest in science.

A recruitment questionnaire was designed and quotas set for: gender, age, socio-economic group and BME group. Quotas were designed to ensure that at least 1 BME person attended each of the London and Manchester groups (which is an over-representation compared to the proportion of BMEs in the UK population). This followed a recommendation from MORI's work for OST in 1998/1999 that more BME participants be included in future research, in order to be able to explore the views of this distinct group.

Recruitment took place face-to-face, on the doorstep, by MORI's experienced team of recruiters.

[81] This was defined as having been a member of a science organisation in the last 5 years; having a science degree; having (ever) worked as a scientist or/and having taught a science subject.

Groups were structured by age, socio-economic group and area, with all being mixed gender (as in the previous study).

Group Profile

Group	Date	No.	Gender	Age	Social Class	BME
London 1	21 July	8	(All	55+	C1C2	1
London 2	21 July	9	Mixed)	18-34	ABC1	4
Cardiff	22 July	5		35-54	C1C2D	
Manchester 1	27 July	9		55+	C2DE	1
Manchester 2	27 July	9		35-54	ABC1	1
Belfast	27 July	8		18-34	C2DE	
Edinburgh 1	29 July	9		35-54	C2DE	
Edinburgh 2	29 July	9		55+	ABC1	

Design of the Topic Guide

A topic guide (which was used as an aide memoire) was drafted for the discussion groups by MORI, in consultation with OST and UEA.[82] This addressed OST's key research objectives, to examine: public attitudes to science and technology, trust in science and scientists, and engagement with science and technology – whilst also allowing us to listen to participants' experiences, ideas and concerns, and ensure that the research programme responded to these findings in the development, analysis and reporting of the project.

The topic guide covered a number of areas:

- Science and society issues
- Feelings and concerns about science
- Information on science
- Participation in science and society activities
- Trust in science and scientists
- Regulation of science
- Science communication
- and Public consultation on science

[82] UEA was appointed by OST as an independent academic advisor

Though the topic guide ensured there was some structure to the discussion group proceedings, the format of the groups was designed to be open to the issues that mattered to respondents themselves. For example, at the start of each discussion group, the discussions were opened out by allowing respondents to talk in their own words – and without being prompted – about 'the main issues to do with society that you think about in your day-to-day lives'. This gave respondents an early opportunity to set the tone of the discussion, and raise issues of personal concern and interest, without being unduly influenced by the question areas and probing introduced by the moderator subsequently. 'Science and society' was discussed (at Section 3 of the topic guide) after the section on society generally (Section 2). The vast majority of the topic guide focussed on gauging spontaneous thoughts and using probing questions (such as 'Why do you say that?') rather than prompted questions (which were used only occasionally).

The opening question areas, at the start of each group, comprised:

- A discussion of the main issues in society that people think about in their day-to-day lives;
- Associations with the term 'science and society', with respondents giving their top-of-mind responses and discussion of people's feelings and concerns about science again, and exploring the meaning and importance of science for people's lives, any benefits and risks/problems, and the contribution of science to society;
- Associations and understandings of 'science', 'scientists', 'engineering' and 'engineers', with respondents individually writing down their top-of-mind responses on A5 cards, and handing them to the moderator before group discussion.

Only *after* respondents were given the opportunity of raising particular science issues did the moderator then mention other issues – namely, climate change, the space programme, MMR vaccine, genetic modification, cloning, and the use of animals in research – to explore the variation in concern about science issues.

On the recruitment questionnaire (and interviewer instructions), participants were invited to a discussion group about 'science and society', but no specific science issues were mentioned at this stage.

Analysis of Qualitative Findings

This section describes how the research material coming from the eight discussion groups was analysed, in the interests of reproduceability. The key findings from the discussion groups were derived using the following systematic method of analysis.

Methodology and Research

MORI used the core team members to run six of the eight discussion groups. Both attended the first two groups in London,[83] each moderating one group while the other observed. In addition, these groups were also observed by two people from the OST.[84]

A senior MORI qualitative specialist ran the group in Cardiff, whilst another senior (Associate Director) ran the group in Belfast.[85] An observer from AEA Technology was present at the two groups in Edinburgh.[86]

The methods of recording the discussions were:

- notes written by the moderator/observer at the time, and immediately afterwards;
- digital/tape recordings from the groups themselves;[87]
- transcriptions from six of these recordings (all, except the two London groups, where two people from MORI were present, and where one of these listened afterwards to embellish notes).

The four members of the research team discussed among themselves the main points to have emerged from the discussion groups, and to identify the similarities and differences between the groups. All four moderators discussed the topic guide before moderating the groups, and the main points that had emerged afterwards: on 22 July after the London groups and before the Cardiff group; on 23 July after the Cardiff group; on 28 July after the Manchester and Belfast groups, and after the Edinburgh group on 29 July.

---

[83] The MORI Executives present at the two London groups were Michele Corrado (MORI Director of Medicine and Science Research) and Andrew Norton (MORI Senior Research Executive).

[84] The two observers from OST present at the London focus groups were: Gary Kass and Rahimah Elaheebucus.

[85] The discussion group in Belfast was moderated by Darryl Cummins (Associate Director at MORI MRC in Belfast). The group in Cardiff was moderated by David Craig (Senior Research Executive and qualitative specialist at MORI).

[86] The two Edinburgh groups were moderated by Andrew Norton and observed by Sarah Macnaughton of AEAT.

[87] The groups in London, Cardiff, Edinburgh and Manchester were recorded digitally. The group in Belfast was recorded on an audio tape.

Following the first groups in London, the two core team members met in London to go through their notes, compare impressions and observations, and to agree the basis of a report to OST, to provide feedback on these groups.[88]

The Memorandum on the discussion groups was drafted following detailed analysis of handwritten notes and verbatim transcripts.

As a quality check, the Memorandum was provided to the MORI moderators in Belfast and Cardiff, so that they had an opportunity to highlight any inconsistencies. The Qualitative section of this report has been independently checked for accuracy and interpretation by one of these moderators (David Craig, a qualitative specialist).

Form of Analysis

The analysis of the qualitative information coming from the discussion groups was *systematic*. Analyses were structured according to the key research themes that were identified by the research team (comprising MORI, OST and UEA) and set out in the topic guide. Each of the transcripts and notes was analysed.

At the same time, we looked for new points to emerge (that were either not on the topic guide, or not in as much detail), local examples were noted, connections were made, and subjects or issues brought into the analysis, reflecting the open-ended and free-flowing nature of the discussion.

[88] MORI *Lee, South London (Group 1) – 21/7/04*; MORI *Lee, South London (Group 2) – 21/7/04*

Key Qualitative Findings

The eight discussion groups provided lively discussions on a range of science-related issues. In general, respondents seemed interested in the discussion, and pleased to take part. Some thanked the moderators afterwards for providing an interesting and enjoyable evening.

In each group, respondents were seated in a semi-circle, to encourage a feeling of inclusion and promote discussion. Respondents tended to be polite, and avoided causing offence to others in the groups, even when they disagreed with others about the nature of the issues. Whilst some respondents naturally had more to say than others, all tended to remain alert and interested in the discussion. Those who were less outgoing and gregarious in nature seemed to find the conversation interesting, even if they were less inclined to contribute themselves.

The high level of interest in the subject was confirmed by the 'exit' questionnaires that were distributed at the end of the group discussions. All the participants in the discussion groups who completed a questionnaire found the discussion in their group interesting: 41 people (62%) said it was 'very interesting,' and 23 people said 'fairly interesting' (35%).[89]

At times, respondents became animated when talking about personal experiences and describing their emotions and concerns about science issues that affected them personally. Some seemed reassured that others in their group shared their concerns, for example about the need to safeguard children's health, given apparent uncertainty about new healthcare developments. This promoted feelings of solidarity and shared interests.

Many were cynical about government's involvement in science and its regulation, and consultation activities/events. This came through in people's language and body language. When thinking about the risk from science and technology, and when talking about issues where levels of knowledge were lower (e.g. the regulation of science), people sometimes became a little guarded and couched their language in qualifications and parentheses (e.g. when talking about nanotechnology).

Again, these feelings of cynicism and uncertainty were confirmed in the 'exit' questionnaires, which found that few people thought the government would take the findings of this MORI research study seriously. Only 3 people (5%) felt it will take the findings 'very seriously'; 23 (35%) thought it will take them 'fairly seriously'; 30 (45%) said 'not very seriously'; and 7 (11%) not at all seriously. Furthermore, there was little confidence that government will act on the research findings. Only 13 (20%) said government would act 'a great deal' or 'a fair amount' on the research findings. Around two-thirds (64%) felt government will not act very much; and 6 (9%) said 'not at all'.

[89] Of the 66 people who took part in the 8 focus groups, 64 completed an exit questionnaire.

Some of the key findings to emerge from the discussion groups are described below, and grouped under the main areas of interest to OST.

1) Public Concerns and Science

People's main interests and concerns are about quality of life issues which they see as being personally relevant – to themselves, their local area, or their friends and family. A number of themes emerged as being important: crime and anti-social behaviour, financial security, housing, terrorism, healthy living, jobs/employment, transport, and the environment/pollution.

> *We are all looking for a decent quality of life in every aspect; whether it's finance, your surroundings, your neighbours… quality of life, which at our age, you deserve.*
>
> – Male, 55+, C2DE, Manchester

Becoming a parent was seen by some as having a significant impact on the issues perceived to be important. ("The next generation really matters," Female, 35-54, C2DE, Edinburgh). Many parents expressed concern about their children's welfare and future opportunities, whilst some middle-aged and older people (aged 35+) mentioned caring for elderly relatives as being important.

International issues like the War in Iraq, humanitarian aid/genocide in Sudan and international development were also mentioned, though far less often than more local issues.

2) The Role of Science in Society

There is a generally positive view of the role of science in society. Science was widely praised by respondents in all groups as providing opportunities for improving quality of life, particularly in terms of medical research/human health, and for promoting technology that will "make life easier".

> *It's a good thing, science. It's given us a better quality of life.*
>
> – Female, 55+, C2DE, Manchester

Many, though, did not necessarily relate to the word 'science' (discussed later). Benefits of science in society mentioned included a range of technological and scientific developments, including new technology and consumer goods (e.g. washing machines, shampoo, computers and digital music players), developments in medicine/drugs (e.g. painkillers and antibiotics) and broader improvements in society (e.g. communications and transportation).

Science is widely credited for its role in medical advancement, and providing cures for diseases, particularly among those who have had medical treatment. One older person who had had five heart operations recognised the importance of science for his healthcare.

> *Without science, I'd be brown bread.*
>
> – Male, 55+, C1C2, London

One young person talked about science with almost religious devotion and thankfulness:

> *I am on antibiotics and painkillers (for my tooth). So, I am happy. And I am happy for the scientist who has made the ham to make the sandwich that I can eat today. And for the juice. Thank you very much to all those people, the scientists everywhere.*
>
> – Female, 18-34, ABC1, London

Older people tended to be positive about the technological improvements and scientific progress that they have witnessed in their lifetimes

Science is sometimes seen to have an important role in improving the quality of life of those in less developed countries. One respondent mentioned aid work in Zambia, and talked enthusiastically about scientists going there to help tackle diseases that hadn't been seen before:

> *It's good to know there are people who are bothered to do it [aid work in Zambia], tinkering around and trying new things and developing new drugs.*
>
> – Male, 18-34, ABC1, London

3) Feelings (and Concerns) About Science

Word Associations

People's associations with 'science' and 'scientists', and 'engineering' and 'engineers' are diverse.

Many people associated 'science' with school, and described science at school as being primarily concerned with the physical sciences (e.g. Bunsen burners and chemistry), and not about the application of science in the real world. For some, this has left an impression that science is boring, theoretical and has little relevance to them. Consequently, they have since taken little interest in it. ("If I'd known what it entailed, I'd have paid more attention").

There was a prevailing belief that science is 'above people's heads', and that scientists are 'geniuses'. This image tended to dominate some parts of the discussion until it was substituted with the associations which participants had used themselves (e.g. 'improved health', '*progress*'). When participants' own phrases were used they felt more of a connection with, and less deferential, about science.

Many people have respect and admiration for scientists. A number of positive associations with 'scientists' were given, including: 'brainy', 'clever', '*geniuses*', 'heroic', 'visionaries', 'pioneers', 'solution-finders', 'expert', 'intelligent', 'hardworking', 'committed', and 'well-paid'.

However, other associations were more negative, namely: 'boffins', 'eccentric', 'nerds', 'mad' and 'meddlers'. This may reflect the presentation of scientists in the media. ("*The media portray scientists as crazy guys*"; Male, 35-54, C2DE, Edinburgh).

The stereotype of scientists as 'men in white coats' is fairly widespread, although most people accepted (when probed) that this is a stereotype and that, in practice, a range of people become scientists.

Few people associate technologists, psychologists and sociologists with 'science'.

- Technologists are primarily regarded in a positive light, and are associated with computers and 'cutting edge' technology, 'creativity', 'new ideas', 'future discoveries', 'invention' and 'advancement'.

- Psychologists are associated with understanding human behaviour and people's state of mind. There is a link made with mental health problems (and 'nutters'), and also criminal psychology ('criminals'). 'Big Brother' and 'Americans' were also mentioned.

- Sociologists are connected with understanding people's behaviour and lifestyles; and society and social structures. They are sometimes seen positively, as helping people or communities. However, sociologists are also seen negatively as 'do-gooders' and 'time wasters'. One person described them as 'liberals'.

Science in Society: Risks & Benefits

A large majority feel that scientific developments are essential.

> *We need science to update everything. We can't stop in the Dark Ages. We have to come forward. We need science for that.*
>
> – Female, 55+, C2DE, Manchester

Recognition of the positive social and personal benefits from science include major scientific discoveries, some of which were made some years ago. A number of well-known scientists were mentioned in this context, including Darwin, Newton and Pasteur – as more recent technological developments, which are "nice to have but probably easy to do without".

Many people seem to have somewhat ambivalent views about science. Science is seen as contributing to society, but also creating problems and difficulties, although these may depend on how science is used and not necessarily a result of the scientists themselves. For many, it was the implementation of scientific knowledge – how science is used by governments, big business and those with 'vested interests' – that caused most concern.

There is a feeling among many that the relationship between science and society is double-edged, and that many scientific and technological developments have brought both positive and negative impacts:

- computers and the internet were generally welcomed by most as a source of information. They were, however, described by some as being "dangerous" for children due to the time spent using them, and the potential threat of online encounters with strangers, and of exposure to pornography)

- additives/chemicals in food (mentioned occasionally as improving the taste and preserving freshness of food, but sometimes representing a risk to human health through junk food)

- the effects of pesticides on the countryside (mentioned in one group as increasing the yields from farming, but damaging to wildlife)

- GM food (again, seen as improving yields from farming, but prompting doubts among many people – in several groups – about health impacts and impacts on Third World)

- Cloning and human genetics/'designer babies' (prompted debate in some groups, with some people fearful of how this technology would be used, whilst others accepted that parents would want to try to use this technology to save children/siblings)

- war/weapons (cited in two groups as a negative impact of science)

- atomic energy (a positive force, e.g. environmentally, but concerns about decommissioning/nuclear waste, which was a concern in two groups)

- animal testing (mentioned occasionally, and seen as justified if tightly controlled and used for the development of medicines/vaccinations, but deemed unnecessary/abhorrent when used for testing cosmetics)

- mobile 'phones (cited by a number of groups as a positive development in communications, although some people expressed concerns about radiation from mobile 'phone masts, and health impacts on users).

> *Science can work both ways – it can help us, but it can also destroy us.*
>
> – Male, 35-54, C2DE, Edinburgh

There are concerns about when science 'goes wrong', and Thalidomide was mentioned in this context in several of the groups.

People mentioned a number of worries: radiation from mobile 'phones and masts, and electricity pylons, new drugs, radiation, pollution, GM crops and 'designer babies'.

There is a range of responses to risks from science. Some people showed awareness of the risks from science, and are comfortable with the risks associated with scientific developments in health care. ("You take a risk *every* time you take a paracetamol", Male, 55+, C1C2, London). In the older groups, several people mentioned the warning given on medication that the side effects "could kill you". This was seen as a necessary and unavoidable risk of taking medication.

A couple of people recalled changes in opinion on medical/health issues, and this was associated with a feeling of powerlessness. The use of milk products for breastfeeding was given as an example of a scientific development where views had changed over time.

> *Science changes all the time. You know, we are at their mercy… We are just listening to the doctors and doing whatever they say.*
>
> – Female, 35-54, C2DE, Edinburgh

The pace of social change is becoming too quick for some – and there was mention of our 'throw-away' society, consumerism, 'must have' culture, Americanisation, 24/7 thinking, 24-hour lifestyle.

Significantly, some people viewed science as aiding and driving this process of consumerism (for example, in providing 'next generation' videos and DVDs). In this context, scientific progress was seen as double edged – as both improving people's quality of life, and also as contributing towards some of the negative aspects of consumer culture (e.g. environmental degradation and waste).

There is concern about the pace and direction of science. Some people – a couple of people in each group – expressed concern about the pace of social change and the risks from future scientific developments. This was described as "frightening" and a particular concern for older people.

> *Where is it going? Where is it all heading? In some ways, it's quite scary.*
>
> – Female, 35-54, C2DE, Edinburgh

> *It's a bit scary in a way. In the last 20 years, we've come this far, what's going to happen in the next 20 years?*
> – Female, 18-34, ABC1, London

In one group, one person initially wondered whether science is "going too far", and Dolly the Sheep was cited as an example of this. Yet on reflection, they felt that Dolly had been cloned 'for DNA' and seemed more positive – shortly after giving a 'knee jerk' negative comment.

It is the speed of implementation of science that causes most concern. Some people felt that new discoveries are introduced ('fast tracked') too quickly, and that technological developments are occurring without proper consideration of the after-effects or side-effects (and there is recognition of the risks of radiation from mobile 'phones, though this was not coupled with any commentary about what should be done about this).

A number of issues were raised where people sometimes felt that the implementation of new technology is taking place without sufficient scrutiny of the possible impacts. Those cited were:

- GM food/crops
- brain damage from mobile 'phones
- electricity pylons and mobile 'phone masts
- Cloning
- Radiation from nuclear power stations
- Anthrax
- Nanotechnology
- climate change
- MMR
- 'designer babies'
- new drugs.

However, some feel that science is not moving quickly enough in other areas, and medical / health advances were mentioned in this context, although such views were uncommon.

Overall, when the risks and benefits of science are weighed up, there is almost unanimous agreement that the benefits outweigh the risks. There is a high level of confidence, particularly among the older age groups, that science will deliver future benefits.

4) Information on Science

People did not feel well informed about science. Only one person across the eight discussion groups felt well informed, saying that they occasionally read New Scientist and read a daily newspaper.

Public access to information on science is widely regarded as being a good thing.

There is a broad sense that the public only finds out about the regulation of science when things "go wrong". Thalidomide was mentioned as an example in three of the groups. In one of the groups, 'Mad Cow Disease' was mentioned as an example of "technology gone mad", and described as an issue where awareness of risk was not communicated to the public until it was too late. The risks from mobile 'phones were mentioned in a number of the groups:

> *We'd only know [that mobile phone masts are giving out radiation] after something happened, like about 5 years after. Then, the public get to know.*
>
> – Female, 55+, C2DE, Manchester

There is a broad perception of the Government as not disseminating information freely. One person felt the Government had 'hidden' information on the MMR vaccination, which meant it was necessary to look up information in the United States. Other issues cited where the Government had held back information included: BSE/'Mad Cow Disease' and cancer.

> *The culture of our Government seems to be one of secrecy and keeping things to themselves.*
>
> – Male, 35-54, C2DE, Edinburgh

> *There is so many things hidden from us.*
>
> – Female, 35-54, C2DE, Edinburgh

> *In the Government, you don't have a Minister for Scientology [sic]. He doesn't stand up and say "I'll tell you about the cutting edge of technology. We've got this centre doing this, this centre doing that, and in ten years' time you'll be able to do that".*
>
> – Female, 35-54, ABC1, Manchester

TV is an important source of information on science. ("You learn more off the telly than in books.")

> *When I am watching Discovery upstairs, my wife is watching East Enders and Coronation Street downstairs.*
>
> Male, 55+, C1C2

The main sources of information on science are:

- TV programmes (the *Discovery Channel* was mentioned in several of the groups)
- broadsheet and tabloid newspapers (*The Times*, *The Guardian*, *The Observer* and Daily Mail were mentioned by a couple of people) Sunday supplements, and local papers
- magazines (*New Scientist* and *Nature* were mentioned by a couple of people from a range of social classes; *New Statesman* and *The Spectator* were mentioned by one person in an ABC1 group; and *Focus* was mentioned by someone from a C2DE group)
- the internet (a couple of respondents had used the internet to find out information on GM, health issues and MMR, whilst another person mentioned downloading pictures from the Hubble telescope)

TV programmes appear to act as a stimulus for discussions with friends and colleagues on science issues.

Radio seems less commonly used as a source of information on science.

There was a feeling that newspapers should have science sections in them more often.

For those with a home computer, the internet is sometimes an important source of information on science, and some feel empowered by the ability to look up information on-line.

> *If you've got a question, you turn on your computer and log onto Google.*
>
> – Male, 35-54, C2DE, Edinburgh

There was a feeling expressed that whilst there is a lot of information available on science, people need to be pro-active to find out about it. ("In this day and age, you can find out anything you want, if you are prepared to look for it").

One person felt that information is only available to a "specific part of the population" – "the educated people, the cheese and wine people" – because information on science is only disseminated through certain channels (e.g. *New Scientist* and medical journals).

5) Participation in Science

Almost all of the participants in the discussion groups described themselves as not actively searching out information on science, but waiting for information to come to them. This meant that access to information was generally sporadic and haphazard. ("If anything comes on, then you'll listen to it"). Few were proactive in finding out information on science. Those that were proactive had generally been prompted by a life experience or need (e.g. having a child needing vaccination against mumps, measles and rubella).

> *The information is out there, there's just absolute apathy about finding it out. I am not going to wade through some blurb about new reforms and such and such [on science]. It is just boring.*
>
> – Female, 18-34, C2DE, Belfast

Many are not interested in knowing more about science, unless it affects them personally (for example, a member of their family or local area).

> *Unless it is affecting me, you don't really give a damn. You aren't concerned. You have your own problems anyway… I have my own stuff to do.*
>
> – Male, 18-34, C2DE, Belfast

There is a lack of confidence in the media as a source of information on science. ("*Statements in the media don't leave you any the wiser*").

Schools were mentioned as a source of information on science, but this was mainly described in negative terms. Some said that school had put them off science.

> *After dissecting a frog and a bull's eye, that was it.*
>
> – Female, 35-54, C2DE, Edinburgh

There is an interest in information on science per se, and also where to go to access information on science.

Science Activities

Science centres and activities play an important role in providing information on science, particularly for families with children, although this role appears to vary by region.

Participation rates varied between groups, and was highest in Edinburgh (where around half had visited a Science Centre) and among ABC1 groups. By comparison, fewer than half had visited centres in Manchester, Cardiff or Belfast, and only one person in London (of 8 people) had visited a centre – The Science Museum – with his grandchildren (five years ago).[90]

People had visited a number of centres:

- W5 in Belfast
- The Armagh Planetarium
- Ulster Museum
- Techniquest in Cardiff
- The Museum of Science and Industry in Manchester
- The Manchester Science Gallery
- Eureka! in Halifax
- Jodrell Bank in Cheshire
- Edinburgh International Science Festival
- Glasgow Science Centre
- The Science Museum, London
- The Millennium Dome, London.

Whilst most visitors to science centres and attractions had taken their children or grandchildren, or had visited as a child themselves, no-one had been a parental helper on a school trip or with a youth group.

Impressions of Science Centres and activities were generally favourable. Visitors had generally found them fun, interactive, practical, interesting, "Bringing things to life", and allowing them to learn about science.

The main advantages were framed in terms of allowing parents and children to enjoy finding out about science. ("Keep kids amused"; "Good for teaching kids", "See science in action"). These exhibits also play a role in the preservation of industrial heritage. For older people, science and technology attractions can remind them of how people used to live ("brings back memories"; Female, 55+, C2DE, Manchester).

However, a number of factors limiting people's visiting of Science Centres and activities were identified:

- **Gearing towards children** Many people would not think of going to a Science Centre on their own, or without children. This feeling was sometimes based on experience of visiting centres that were interesting for children, but soon became tedious for parents. However, in other cases, adults appeared to benefit as much, if not more than, children. One person admitted to having enjoyed the activities "more than the kids", and explained that sometimes children are bored if the activities are not interactive enough.

- **Distance and time** Few are prepared to travel outside their region to visit science centres (although some people may visit a centre whilst on holiday or staying away from home).

[90] Participation in science activities and centres was covered in 7 of the 8 groups.

- **Lack of interest** People's likelihood of visiting a Science Centre or activity reflects their level of personal interest in the exhibit or activity.

- **Cost** Some mentioned cost as being prohibitive. This was mentioned by a couple of people in C2DE groups, but in general this was not seen to be an important factor limiting people's interest and participation in these activities.

Science centres may raise their appeal by advertising more, and aiming more at an adult level.

There was low awareness of National Science Week and the BA Festival of Science. Whilst some thought they may have heard of these, no-one knew what they entailed.

In Edinburgh, the Edinburgh International Festival of Science was much better known than National Science Week and the BA Festival of Science. Feedback on the Edinburgh International Festival of Science was positive, and some people had been more than once ("Loads of times"; "It was fantastic"; "It is exciting").

6) Trust in Science and Scientists

Participants described 'trust' as something that can be earned and lost. ("You trust them until something goes wrong"; "You trust something that works"; "You trust something that is proved, tried and tested").

Often, participants referred to the third person ("You trust them"). When asked who 'they' are, they either say 'government' or tend not to know.

When asked about the criteria for trusting someone about science, there was widespread agreement that credentials and experience are the most important factors. A couple of people said that being apolitical is important.

There is a widespread feeling of distrust about a range of organisations and institutions, from media to government, and also about types of people, particularly politicians and journalists. Two respondents said: they trust "me and only me", and "I trust me, me, me".

When asked to give a league table on trust for government, industry, the media, academics and environment groups, they lacked trust on all groups and were pushed to choose a leader. However, it was felt that academics would probably take the lead, as they are regarded as displaying commitment in their work, with less of an agenda. However, others were more sceptical, saying "it depends who is paying them."

People were also likely to trust their doctor, though for some, this was a matter of necessity and there being no other choice.

There is wide cynicism of the Government's role in regulating science, and this is particularly true among older people and ABC1s. This was expressed as part of a general distrust of government (of any persuasion). ("They do things without telling you"). In one of the groups, the example was given of testing fluoride in water in Wales, where people were being used as "guinea pigs".

A number of issues stand out as being particularly damaging to trust in the Government, and a number were mentioned in several of the groups:

- WMD/David Kelly and War in Iraq
- BSE / 'Mad Cow Disease'
- Thalidomide

> *Trust the Government? I would rather trust Father Christmas.*
> – Female, Aged 35-54, C2DE, Edinburgh

The Government was seen by some people as benefiting financially from science and open to influence from lobbying. The example of tax on cigarettes was given ("Why don't they just make cigarettes illegal?"). Monsanto was mentioned in two groups as exerting undue influence on the Government.

In one group, some questioned the Government's motivation for issuing a leaflet on what to do in the event of a terrorist attack ("Are they expecting an attack?", Female, 55+, C2DE, Manchester).

There was also a low level of trust in scientists working for business. The funding of science by business is seen as corrupting science, by compromising scientists' independence. Many see scientists working for companies as having a vested interest in the findings, and as motivated to "get the right result" for their employer.

> *The problem with science is that it is controlled by monetary values.*
> – Male, Aged 35-54, C2DE, Edinburgh

There was some concern expressed in a number of groups that scientists' dependence on funding will mean that they do not always consider the ethical implications of their research. A number of issues were mentioned, including GM, pharmaceutical research and research involving animal experiments.

Despite low levels of membership of campaign organisations, there was a high level of trust in these groups. Many people assumed that campaign organisations speak from a position of neutrality on scientific issues, and are not tainted by a

profit motive, unlike pharmaceutical companies and the Government. ("I'm a great believer in Greenpeace… I believe Greenpeace before I believe the Government," Male, 55+, Manchester). However, others were doubtful that campaign organisations can be trusted, as everyone has "an angle".

There is a low level of trust in the media, particularly newspapers, as there are often not seen as independent, and as having a 'hidden agenda', and being motivated to sell news stories.

> *The media are all liars… There's a basis of truth, but I take most of it with a pinch of salt.*
>
> – Female, 55+, C1C2, London

> *[The media] are not interested in a solution, just a headline.*
>
> – Male, 35-54, C2DE, Edinburgh

Given the lack of trust across the range of individuals and organisations involved in science, personal experience and word-of-mouth are valued sources of information.

A couple of people were confident about being able to access information on the internet ("In this day and age, you can find out anything you want, if you are prepared to look for it").

However, there is some doubt about whether information accessed through the internet can be trusted, although some of the better known sites (e.g. bbc.com) are more likely to be trusted.

> *How do you know whether to trust the internet? Anyone can put up a website.*
>
> – Female, 35-54, C2DE, Edinburgh

Those who are proactive in searching for information are faced with the problem of weighing up this information ("Deciding which sounds best"), and this can be difficult. Examples given, where it was difficult to decide who to trust, included the MMR vaccination and GM food.

It may be a combination of different views that convinces a person about a scientific development, rather than a decision based on trust in a sole source or one specific body. For example, one person described consulting a number of sources of information on GM food before deciding whether she would eat it. She could not remember who she has trusted on this issue:

> *I don't really know who convinced me [on GM food] but when you balance it all up, it's what makes sense to you in the end.*
>
> – Female, Aged 35-54, C2DE, Edinburgh

7) Regulation of Science

Reflecting earlier MORI work (e.g. OST/MORI, 1998/9; MORI/MRC, 1999), there was a low awareness of science regulation. Some people questioned whether science is regulated at all, but most people assumed that there is some regulation, and some presumed regulation is governmental. Some doubted whether science can be regulated, because of its progressive nature:

> *You can't put a regulation on science because science is all about going forward.*
>
> – Female, Aged 35-54, C2DE, Edinburgh

This lack of awareness and understanding of regulation meant that many people could not give a view on their confidence in regulation of science.

There was a perception held in one of the groups that if a scientist is working for a cosmetics company, then that company regulates the scientist. Others felt that there *is* regulation, but that this is not evident to the public ("*There's more regulation than we know*").

There is an acknowledged need for regulation. Regulation of science is seen as important by most people, even though few know what this entails. Some talked about science used 'in the wrong hands' without proper regulation.

> *You see on the television the 'mad scientist' but you could actually get someone like that, who took it too far. There has to be some laws, some governing of [science].*
>
> – Male, 55+, C2DE, Manchester

Awareness of regulation often follows negative publicity in relation to a scientific or medical scandal.

> *Until something goes wrong, you never hear about them.*
>
> – Female, 55+, C2DE, Manchester

Some talked about scientists merely being responsive to the demands and priorities of business. Dependence on funding from companies was sometimes seen to compromise the independence of scientists, whilst some felt that competition between science companies can mean that information on science is held back.

In one of the groups, some felt that the UK is too cautious about scientific developments, and that regulation is too slow and pedantic. ("They regulate with petty things.") Someone who had travelled on the Continent described 'chip and pin', which is only just starting to be introduced, as an example of regulation proceeding too slowly in Britain. There was discussion of how scientific developments in Britain take 15 years to be approved, whilst discoveries in America are approved much more quickly. The "Medical Council" was deemed to be "extremely cautious".

Some accept that regulating science is difficult ("an almost impossible job"). The "frontier" of scientific development is seen, almost by definition, as an area that is difficult to regulate. Some identify a risk that the Government will not be able to keep up with scientific development, and that drug companies will "bend the rules".

> *It's an impossible job. How can you stop somebody from doing something in a lab somewhere that you don't know about?*
> – Male, 35-54, C2DE, Edinburgh

Some questioned the strength of regulatory bodies on science, and there was a feeling among some that regulations need to be tightened.

> *I don't know whether they [regulation bodies] are any use, or not, really. We need them, but I don't know whether they actually have any teeth.*
> – Male, 55+, C2DE, Manchester

> *There are regulations but it doesn't seem they are that effective. It must be difficult because there are a lot of advances and you have to keep up with them all the time. But it doesn't feel like there is enough regulation, or enforcement of regulation.*
> – Male, 35-54, C2DE, Edinburgh

8) Science Communication

There is a widespread feeling that the communication of science needs to be improved and that the public would like more information on science issues.

There was criticism in some of the groups that information on science is not presented in layman's language, and this can make it more difficult to understand science issues.

> *Talk on our level. Not everyone is a scientist. They [scientists] don't seem to understand that sometimes. They will be on the*

> *news talking in big words that you can't even spell. You just want to be told, 'Does it work, does it not?'*
>
> – Female, 18-34, C2DE, Belfast

The level of contact between scientists and non-scientists appears to be limited. Few people are conscious of having met a scientist.

> *I did meet one [a scientist] last year, a nuclear scientist, who was a friend of somebody's from Middlesbrough, and he was a nice guy.*
>
> – Male, Aged 35-54, C2DE, Edinburgh

There is some interest in hearing or reading information on contentious science and society issues. Some said they did not understand why animal rights extremists are prepared to go to such (terrorist) lengths, and were repulsed by such groups. However, there was some interest in having more information on these animal issues.

In one group, the use of public service broadcasts on science issues was mentioned as a means of improving public understanding of science, but others doubted whether people would be interested in finding out more about science.

There is some evidence that TV can be an effective medium for providing information on science issues. Some people display a wide understanding of the application of science and technology to solve real world problems, based on their experiences of watching documentaries on these science issues.

9) Public Consultation on Science

Though there was little awareness about public consultation, there was a reasonable amount of support for it, in principle. One person said there should be consultation on science issues affecting human health. Another said there should be consultation on all issues that are important, and cited environment and transport.

Some people sense that the public lacks influence over scientific development.

> *Do we have control over [science]? We are just the workers. It's people like Bush and Blair, and the hierarchy who are controlling everything… We don't really have any say in the matter.*
>
> – Male, 35-54, C2DE, Edinburgh

There is a wide feeling that the Government needs to be more open, and let people know more about the regulation of science.

There is little belief that Government listens or responds to what people think generally.

Many people said that the Government should listen more ("We just get told what's happening").

Some feel patronised:

> *We are only told what they think we are intelligent enough to understand. But we understand a lot more than they think.*
> – Female, 55+, C2DE, Manchester

Some feel a sense of powerlessness:

> *You are just one person. You could stand on the street corner and shout your head off, but no-one's going to listen.*
> – Male, 55+, C2DE, Manchester

Few people were aware of consultation on science. Only a couple of people in the 8 groups (comprising 66 people in total) had heard of the GM Nation consultation exercise, and one of these had not felt part of it. ("They didn't consult anybody over GM crops" – Male, 35-54, C1C2D, Cardiff).

Some were cynical about government consultation, believing that the Government works to a political agenda and has already made up its mind on science issues, and that the consultation is a public relations activity ("just for show"), and "tells you what you want to hear".

> *We don't believe that the Government would act on what we say. So, there's little point in going along to a consultation exercise to say we all think this.*
> – Male, 35-54, C1C2D, Cardiff

There was mixed opinion on public involvement in the regulation of science. Some people are favourable to the idea of public consultation, and assume that consultation must, by definition, be a good thing. Some wanted consultation on "everything" and felt that politicians should be more accountable.

There was some uncertainty as to how the public can be consulted on science. There was some support for face-to-face meetings as this is seen to provide greater accountability and less opportunity for politicians to avoid issues.

In two groups, it was suggested that writing to your MP was an alternative means of expressing your view on science.

Many express doubt about the utility of public consultation on an issue, owing to their perception that levels of public understanding of science are low, and the possibility that consultation will be unrepresentative.

A number of people felt low public understanding of science would limit people's ability to be involved in constructive dialogue.

> *We all want to know what's going on but we actually don't know enough about it.*
>
> – Male, 35-54, C2DE, Edinburgh

This feeling may be more common among older people and ABC1s, compared with younger people and C2DEs. Less affluent groups appear more inclined to favour participation in regulation.

There is a lack of confidence that people will be interested in consultation on science, and that consultation events will only appeal to a certain kind of person – 'the kind who looks at planning applications on notice-boards' – and that these people would have strong (and unrepresentative) opinions. Some felt that older people might have more time to take part, but there were doubts as to whether they would provide the balanced views needed.

When a group of young people was asked whether they would be interested to have control over the way the exercise is carried out, and use this power to call in a range of experts from government, industry and academia, the response was lukewarm.

Most people said they lacked the time for involvement in public consultation, although some said they might be interested if the issue was relevant to them. Some favoured consultation on issues affecting them personally or their local area (the example of consultation on nuclear power was given in one of the Manchester groups, owing to the relevance of this issue within the region[91]). However, others did not express interest in involvement in public consultation on science, and would rather leave the regulation of science to experts.

10) Conclusions / Key Messages

There is widespread feeling that the public is finding out about scientific developments too late, and this contributes to a sense that the pace of science is moving too quickly on a number of issues.

> *Let the public know what they are experimenting with. You never know until it's actually there.*
>
> – Female, 35-54, C2DE, Edinburgh

[91] This importance stems from nuclear power production at Heysham, a nuclear waste reprocessing plant at Sellafield, and transportation of nuclear waste through Cheshire, Cumbria, Manchester and Lancashire.

Some question the purpose of scientific developments.

> *Why was that sheep cloned?*
>
> – Female, 55+, C1C2, London

However, whilst most people say they want more information on science and where to go to get information on science, few are proactive in finding out about science issues.

Interest in science relates to issues that are seen as **relevant** and affecting people personally. Hence, there is a need to **personalise the message** and bring it home; science needs to be seen to be personally (and/or locally) relevant for people to show interest.

> *[Science] would get you more interested if you thought it was going to affect you. Locally as well, you would get more people interested and then you would have a wider audience.*
>
> – Female, 18-34, C2DE, Belfast

Trust in government is low and more needs to be done to give reassurance to people on science issues. According to one person, the Government needs to "repay our trust… We have nothing but blind faith in what they present to us. But we need to know more".

There is low awareness and understanding of how science is regulated, and some doubted whether science is regulated at all.

Yet, regulation is seen as important, and people need reassurance that the government is doing enough. At present, people only become aware of regulation when things go wrong.

There is a need to balance public concern about adequate regulation of science with demand for the development of new and improved medical and healthcare advances. Whilst there is strong support for better control of scientific advancements, some feel that regulation in the UK is slower than in other countries, and the UK is quite often seen to lag behind the US.

Opinion on public consultation on science is mixed. There is concern about who would get involved, and how representative they would be.

Awareness of Sir David King and OST is very low. Only one person in the 8 discussion groups correctly identified Sir David King when given his (and OST's) name and asked who he was. Two others (out of 66) said when told he was the Government's 'Chief Scientific Advisor', that that sounded "familiar". One or two others felt they might have heard of Sir David King, but one of these was confusing him with a singer (Dave King).

Some thought that the OST needs to raise its profile, as a first step towards increasing public involvement in science, and improving public confidence in its regulation:

> [After telling participants that MORI's client was OST]
>
> *The Government has got to take this seriously and make this Office [of Science & Technology], this quango or whatever it is, much more obvious, much more transparent to the general public*
>
> – Male, 55+, ABC1, Edinburgh

Segmentation of Views on Science

The views on science collected in the survey can be segmented, based on responses to various behavioural and attitudinal questions. This provides an additional way of examining views at each question – over and above other analyses such as demographics, or responses from other questions.

This section describes the 'clusters' that have been examined in the survey. The analysis is intended to increase understanding about people's relationship with science.

The Process of Factor and Cluster Analysis

1) Factor Analysis

An exploratory factor analysis was run on the survey results to identify the main themes (or factors) on the questionnaire. A theme is a group of questions that tends to be more correlated with one another than with other questions (in other factors/themes). Eleven were identified:

1	Communication and Consultation
2	Perceived knowledge
3	Communicating science in daily life
4	External influence over scientists
5	Scientific optimism
6	Placing trust in science
7	Anxiety about science
8	Scepticism about public consultation
9	Receptivness of Government to the Public/Consultation about science
10	Empathy over learnt skills
11	Credentials over honesty

2) Cluster Analysis

Once the eleven factors in the questionnaire had been identified, cluster analysis was run, to examine how each respondent scored (high, medium, low) on each of these eleven main themes. Cluster analysis therefore provides an additional way of examining the survey results - beyond looking at demographics, behaviour, and responses to attitudinal questions.

Science in Society Cluster Solution

This analysis reveals that there were six clusters of attitudes expressed from within the population, each with characteristics that can aid our understanding of how people view science and scientists. They were cluster: A (18%), B (15%), C (27%), D (15%), E (10%) and F (16%). These clusters are summarised below.

Segmentation of Views on Science

Cluster A

- Least likely to place trust in science, and the group where trust in science has fallen most over last 5 years (on the self-reported question)
- Highest proportion of ABs; a large percentage educated in science

Cluster B

- Strong feeling that science communication and consultation with the public is not important or necessary
- Less likely to be anxious about scientific developments, although they say they trust scientists less than five years ago
- Highest proportion of those aged 35-44 years and most likely to have children in the household

Cluster C

- No strong views on any science themes
- Tend to think government does not listen to, or act on, public consultation, although not against consultation per se
- High percentage of women; more likely to be C2DE; least likely to be educated in science; group least involved in science; a high percentage of tabloid readers

Cluster D

- Needing scientists to understand their concerns is the most important factor in determining their trust in scientists
- Most likely to be retired; high percentage of over 54s and C2DEs; least likely to be formally educated in science

Cluster E

- Far more likely than average to trust scientists more than they did five years ago
- Most likely to feel well informed about science, public consultation on science and science regulation. Tend to think they have some influence over decision-making
- Most likely to be male, AB and broadsheet readers; more likely to have formal education in science; twice as likely to be current students; more likely to be involved in science

Cluster F

- Strongly believe the Government listens to, and acts on, the outcomes from public consultation
- Tend to have mixed views on benefits and risks from science
- Younger age group, from social grade C1

Among the key differences are that Cluster E and Cluster F were more likely to trust government scientists to provide accurate information about scientific facts, while Cluster A and Cluster D were less likely to do so[92]. On perceptions about consultation on science, Cluster B[93] was far less likely than any other typology to feel the public should be consulted on decisions about scientific developments. Cluster F was the only typology where a majority felt that government listens to the outcomes from public consultation on science; for all the other clusters no more than a quarter believed this. Similarly, Cluster F was the only cluster where a majority felt Government acts on the outcomes from public consultation on science. In the remaining five cases, no more than a fifth believed this.

There were considerable variations by cluster on visits to science-related activities, centres or festivals. Cluster E was easily the typology most inclined to have visited a museum or science centre, laboratory or science festival, or to have attended a public meeting on a science-related topic. Cluster D was the least inclined to have visited a museum or science centre.

In terms of information sources which are valued for support or advice about science, Cluster E was the most inclined to value the internet or magazines, but the least likely to value television. Cluster A was the most likely to value radio as a source of such information.

---

92 Cluster F is more likely to be younger (aged 16-34) than average, and are more often from social grade C1. A large proportion of Cluster A have been educated in science. Cluster D are the most likely to be retired and contain a high proportion of C2DEs, and are least likely to have been formally educated in science. Needing scientists to understand their concerns is the most important factor in determining trust in scientists for this group.

93 Cluster B contain the highest proportion of those aged 35-44 years and are the most likely to have children in the household.

Cluster C, who were more likely to be C2DE and contain a high percentage of women, had no strong views on any science themes. They tended to think government does not listen to, or act on, public consultation, although they were not against consultation per se.

Appendices

Qualitative Research Materials

Interviewer Instructions for Discussion Group Recruitment

Background

Thank you for agreeing to work on the recruitment for these groups. We have been commissioned to conduct research for The Office of Science & Technology about science & society. We are interested in examining perceptions and concerns about science issues, participation in science and society activities, and barriers to engagement with science and technology.

All of these groups will take place on July 21 - July 29.

Group Composition

Group	Date	Time	Location	Quotas
Older C1C2s	21 July	6pm	**London 1** (Group 1)	All aged 55+ All C1C2 1 or 2 from BME groups Half men, half women
Young ABC1s	21 July	8pm	**London 2** (Group 2)	All aged 18-34 All ABC1 1 or 2 from BME groups Half men, half women
Middle-aged C1C2D	22 July	6:30	**Cardiff** (Group 3)	All aged 35-54 All C1C2D Half men, half women
Older C2DEs	27 July	6pm	**Manchester 1** (Group 4)	All aged 55+ All C2DE 1 or 2 from BME groups Half men, half women
Middle-aged ABC1s	27 July	8pm	**Manchester 2** (Group 5)	All aged 35-54 All ABC1 1 or 2 from BME groups Half men, half women
Middle-aged C2DEs	29 July	6pm	**Edinburgh 1** (Group 6)	All aged 35-54 All C2DE Half men, half women
Older ABC1s	29 July	8pm	**Edinburgh 2** (Group 7)	All aged 55+ All ABC1 Half men, half women

Please note that for groups without a specific BME quota (i.e. Cardiff, Edinburgh 1 and Edinburgh 2), it is fine to include people of BME origin.

Recruitment

- You should recruit **10 respondents** for each group for at least **7-8** to attend. We need to get **at least 7 participants** for each group and the recruitment needs to be of our usual extremely high standard. The client may be attending some of the groups.

- Please try and spread the recruitment over different days and different times of day to get a mix of different types of people.

- It is important that none of the respondents should be known to you or to any of the other people that you have recruited.

- The groups will last for **one and a half hours**.

- When recruiting, you may tell respondents that the focus groups are about "people's general views about science and society."

- Each participant will receive **£30** as an incentive, which includes provision for travel/childcare.

- Please ask participants to arrive 15 minutes before the start time of each focus group.

Please also note:

- Participants must not work in market research, public relations or the media/advertising, and they must not have attended a group discussion in the past **12** months.

- For each group, we do not want more than one person who is currently working in science. For those who are working, you must record present occupation on the recruitment questionnaire in the Occupation section.

- For each group, we do not want more than one person who answers 'Yes' to all four options at Q7 on the recruitment questionnaire (Been a member of a science organisation in the last 5 years; having a science degree; having (ever) worked as a scientist; and having taught a science subject)

- However, in a group we could have someone who is currently a scientist (from the Occupation section) *and* someone else who says 'Yes' to all four options a), b), c) and d) at Q7, provided that they are not also currently a scientist.

- We could have someone who is currently a scientist who codes 'Yes' to all four options at Q7.

- Please call respondents back a few days prior to the discussion to confirm attendance.

- When you have recruited your quota, please phone/fax the names and addresses back to head office (Field and Tab) before the groups. If you are sending a fax, please mark it for the attention of Fiona Nolan.

Hostessing and Venues

- It would be helpful to have a hostess for the groups – to receive people and give them their first drink, but not stay for the 1.5 hours of the group

- Viewing facility and videotaping not required.

- Flipchart with pens required.

- Light refreshments – crisps, sandwiches, wine/beer, soft drinks – required.

Your Pack

Your pack should contain:

- recruitment questionnaires
- showcards
- quota sheet

If you have any queries or problems, please contact your Area Manager in the first instance, or Fiona Nolan in MORI Field & Tab (freephone 0800 328 7706). Thank you again for working on this study and good luck with your recruitment.

Andrew Norton
OST Science & Society Research, 2004

Recruitment Questionnaire

Science & Society Recruitment Questionnaire

RESPONDENT RECRUITED FOR:
Focus group
RESPONDENT NO:

Specification - This questionnaire recruits people with the following characteristics:

Group: 1	Date:	*21 July*	Code:
	Time:	*6pm*	
		Quota 1 to 5	1
	Venue Details:	*London*	

Group 2	Date:	*21 July*	Code:
	Time:	*8pm*	
		Quota 1 to 5	2
	Venue Details:	*London*	

Group 3	Date:	*22 July*	Code:
	Time:	*6:30pm*	
		Quota 1 to 5	3
	Venue Details:	*Cardiff*	

Group: 4	Date:	*27 July*	Code:
	Time:	*6pm*	
		Quota 1 to 5	4
	Venue Details:	*Manchester*	

Group 5	Date:	*27 July*	Code:
	Time:	*8pm*	
		Quota 1 to 5	5
	Venue Details:	*Manchester*	

Group 6	Date:	*29 July*	Code:
	Time:	*6pm*	
		Quota 1 to 5	6
	Venue Details:	*Edinburgh*	
Group 7	Date:	*29 July*	Code:
	Time:	*8pm*	
		Quota 1 to 5	7
	Venue Details:	*Edinburgh*	

Good morning/afternoon/evening, My name is . . . . . from MORI, the opinion poll company. We are inviting a group of people together to take part in a discussion about science and society, I wonder if you could help me? This will take place in <LOCATION> on <DATE>. The focus group will last around an hour and a half.

To say 'thank you' for your time and cover any expenses incurred we would like to offer £30.

We are looking for particular groups of people, therefore I would like to ask you some questions about yourself. All information collected will be anonymised.

Q1. **Would you be interested in taking part?**

Yes	1	CONTINUE
No	2	**CLOSE**

Q2. SHOWCARD A **Do you or any members of your immediate family work in any of the following areas, either in a paid or unpaid capacity?**

Journalism/The media	1	
Advertising	2	
Public relations (PR)	3	
Market Research	4	**close**
No, none of these	5	continue
Don't know	6	

Q3. **Have you participated in a focus group discussion for a market research company in the last 12 months?**

Yes	1	**close**
No	2	CONTINUE

NOTE TO INTERVIEWER:

NB: please note that the shaded area from Q4 onwards indicates that the interviewer must check quotas and recruit to quota.

Q4. CODE SEX (DO NOT ASK)

Male	1	RECRUIT TO QUOTA
Female	2	

Q5. WRITE IN & CODE EXACT AGE

Exact Age ☐☐

18-24	1	RECRUIT TO QUOTA
25-34	2	
35-44	3	
45-54	4	
55-64	5	
65+	6	

Q6. SHOWCARD B **To which one of the groups on this card do you consider you belong?** SINGLE CODE ONLY.

WHITE	British	1	
	Irish	2	
	Any other white background	3	
MIXED	White and Black Caribbean	4	RECRUIT TO QUOTA FOR LONDON AND MANCHESTER GROUPS
	White and Asian	5	
	Any other mixed background	6	
ASIAN OR ASIAN BRITAIN	Indian	7	
	Pakistani	8	
	Bangladeshi	9	
	Any other Asian background	0	
BLACK OR BLACK BRITISH	Caribbean	X	
	African	Y	
	Any other black background	1	
CHINESE OR OTHER ETHNIC GROUP	Chinese	2	
	Any other background	3	
	Refused	4	

Working Status of Respondent:

Working - Full time (30+ hrs)	1
- Part-time (9-29 hrs)	2
Unemployed – seeking work	3
- not seeking work	4
Not working – retired	5
- looking after house/children	6
- invalid/disabled	7
Student	8
Other	9
Not stated	0

FOR THOSE WHO ARE WORKING
What is your current occupation?

WRITE IN BELOW

Class

A	1	RECRUIT TO QUOTA
B	2	
C1	3	
C2	3	
D	3	
E	4	

Q7. SHOWCARD C **Which, if any, of the following ways have you personally been involved in science?** READ OUT A-D. MULTICODE OK

a	**…Been a member of a science organisation in the last 5 years**	1
b	**…Have a science degree**	2
c	**…Have (ever) worked as a scientist**	3
d	**…Have taught a science subject**	4
	None of these	5

Please note that for each group, we do not want more than 1 person to currently be a scientist (from the Occupation section above).

For each group, we do not want more than 1 person to say 'Yes' to all four options a), b), c) and d) at Q7.

However, in a group we could have someone who is currently a scientist (from the Occupation section above) *and* someone else who says 'Yes' to all four options a), b), c) and d) at Q7, provided that they are not also currently a scientist.

We could have someone who is currently a scientist who codes 'Yes' to all four options at Q7.

Plus, we would allow others in the group to say 'Yes' to 3 out of 4, 2 out of 4 or 1 out of 4 at Q7.

Science & Society Recruitment Questionnaire

RESPONDENT RECRUITED FOR: Focus group
RESPONDENT NO:

PERSONAL IDENTIFIERS

Details	
Location:	Date:
Time:	

Name/Initial/Title: Mr/Mrs/Ms/Miss

Address:

Full ☐☐☐☐☐☐☐☐

Tel. Number (WRITE IN INCL. STD code)	
Home/mobile	1
Work	2
Refused/Ex-directory	3

e-mail address (WRITE IN)	1

Is respondent willing to take part and available?

Yes	1
No	2

It is possible that we may be conducting some further research on the same subject in the future. Would you be willing for us to contact you again?

Yes	1
No	2
Don't know	3

Respondent signature:

.....

Date:.....

Respondent attended?

Yes	1
No	2

Topic Guide

Notes to moderators

- Please ensure that every section (1-11) is covered in the discussion. If time is running out, you may need to skip over some of the sub-headings within each section.
- The main objectives of this research are to find out people's views on:
  - **Participation** in science activities
  - **Trust** in science, and scientists
  - Opinions about **consultation** on science

  For each focus group, we need to come away having learnt about each of these areas.

Description	Notes	Mins
1) Introduction Thank everyone for coming Hello, my name is… from MORI. As you may know, MORI is an opinion research organisation. We are running a series of these focus groups across the UK and will then go on to design a large-scale national survey. There are no right or wrong answers – we are interested in what you have to say. We will reveal who we are conducting this work for towards the end of the discussion. Housekeeping (toilets, fire exit, drinks) Stress confidentiality - MRS/ESOMAR codes Ask participants for permission to tape record Ask people to talk one at a time. Ask participants to introduce themselves, and tell the group briefly about themselves – their name, approximate age, background, any connection to science, whether they work or have children	Introduction and warm-up	3
2) Society a) We would like to kick off with the main issues to do with society that you think about in your day-to-day lives. What matters to you? What are the main things you think about? What else? Why? b) Where would you put science in all of this? Why?	This 2-minute discussion will put the subsequent discussion in context with people's day-to-day lives	2

3) Science & Society a) When I say 'science and society', what springs to mind? What do you think about? Just from the top of your mind…DO NOT PROMPT MODERATOR TO WRITE UP RESPONSES ON FLIPCHART And given what it is, 'how do you feel about it'? Then discuss among the rest of the group: 'How about the rest of you?' Then explored in terms of its meaning/importance for people's lives: 'What difference does that make for you?'; 'What does that mean for your day-to-day living?'; 'How beneficial has this been for society?'; 'How much of a problem is this for society?' PROBE: Why do you say that?	This will give us an understanding of the top-of-mind associations – good and bad – in people's minds	10

4) Feelings (and Concerns) About Science ASK RESPONDENTS TO WRITE DOWN THE FIRST THREE THINGS THAT COME TO MIND, WITHOUT CONFERRING. ROTATE ORDER OF ASKING (A/B) AND (C/D) ON SUCCESSIVE FOCUS GROUPS. (REFER TO SHEET SENT BY MORI HEAD OFFICE). PLEASE NOTE THAT B SHOULD ALWAYS FOLLOW A, AND D SHOULD ALWAYS FOLLOW C. a) When I say 'science', what do you think of? What else? b) When I say 'scientists', what do you think of? What else? c) When I say 'engineering', what do you think of? What else? d) When I say 'engineers', what do you think of? What else? e) When I say 'technologists', what do you think of? What else? f) When I say 'sociologists', what do you think of? What else? g) When I say 'psychologists', what do you think of? What else? h) What (else) might come under the term 'science'? i) Overall, how do you feel about science? Why do you say that? j) Overall, how do you feel about engineering? Why do you say that? PROBE: How would you describe the contribution of science to society? Has science been a good thing or bad thing? What are the benefits and risks of science? i) What concerns, if any, do you have? Which science issues, if any, most concern you? Why do you say that? PROBE for whether any of the following are mentioned: nanotechnology (Do they know what this is?), climate change, the space programme, MMR vaccine, genetic modification, cloning, use of animals in research, others – which other(s)? j) PROBE for whether participants feel the pace of science is moving too quickly.	We will see whether people are positive or negative about science in general, and their main concerns (if any)	10

4) continued ROTATE ORDER OF ASKING K(FOLLOWED BY L) AND M (FOLLOWED BY N) ON SUCCESSIVE FOCUS GROUPS k) Do you think there are any <u>benefits</u> from science? Which? l) Do you think there are any <u>personal benefits</u> from science? Which? Are there any <u>benefits for society</u>? Which? PROBE: IF BENEFITS ARE MENTIONED How confident are you that science will provide these benefits we have been talking about? Which areas do you have most confidence in? Which areas do you have least confidence in? Why do you say that? m) Do you think there are any <u>risks</u> from science? Which? n) Do you think there are any <u>personal risks</u> from science? Which? Are there any <u>risks for society</u>? Which? PROBE: IF RISKS ARE MENTIONED What do you feel are the greatest risks? Why do you say that? o) How do you weigh up the benefits and risks from science? Why do you say that? p) Which science issues are you <u>not</u> concerned about? PROBE: Why do you say that? q) What do you think are the triggers that cause concern about some science issues but not others? REFER TO ISSUES MENTIONED	We will see whether people are positive or negative about science in general, and their main concerns (if any)	10

5) Information on Science a) How well informed do you feel about science and scientific research/developments? PROBE: Very, fairly, not very, not at all? Why do you say that? b) How do you generally find out about science and scientific research/developments? PROBE: for whether they are proactive or reactive. c) Do you have too much or too little information on developments in science, or about the right amount? PROBE: During school, college, at work REFER TO PEOPLE'S BACKGROUNDS WHERE APPROPRIATE	This will show how informed do people feel and how confident are they when talking about science. This will highlight how people find out about science	15

6) Behaviour a) Which science programmes/documentaries, if any, do you watch on TV or listen to on the radio? b) Which newspapers and magazines, if any, do you read about science stories? c) Is anyone a member of a science-related organisation, or an organisation that campaigns on science issues? PROBE: Animal Welfare organisation; environmental organisation d) Has anyone been involved in discussing science issues or supporting scientific research / campaigning against scientific research? Which? Why? PROBE: Pressure groups, local groups e) Has anyone had any experience of taking part in a science activity? IF YES Which ones? PROBE: At work, at home, on holiday; The Science Museum, other museums, Science Centres, Discovery Centres, science festivals f) How far are you willing to travel to go to these kinds of venues? g) What would you like to get out of these places? PROBE: To have fun, learn about science, talk to scientists, a day out with children h) Has anyone been a parent helper on a school trip? i) How do people rate the quality and effectiveness, and impact of these activities on understanding of science? j) Has anyone heard of National Science Week? FOR THOSE WHO HAVE VISITED A SCIENCE ACTIVITY k) What kinds of benefits, if any, have these science activities brought you? l) What activities are the most and least engaging? Why? FOR THOSE WHO HAVE NOT VISITED A SCIENCE ACTIVITY m) For those of you who haven't been to a science activity, why not? n) What would encourage you to visit a science activity?	This will show how practical experience has shaped people's awareness and understanding of science	15

7) Trust in Science and Scientists a) How do you decide who to trust on science? Why? b) How do you decide whether an individual scientist or science organisation can be trusted? Why? PROBE: competence, independence c) Who do you most trust with regard to science? Why? PROBE: On climate change, GM food, MMR vaccine, nanotechnology, cloning, the space programme, animal experimentation PROBE: Environmental groups (which ones?), Government, industry, The Media (who are the media?), academia, scientists – government scientists, industry scientists, environmental groups' scientists, scientists in academia, vets, other (specify). GET PARTICIPANTS TO RANK LEVEL OF TRUST BY TYPE OF SCIENTIST d) Which, if any, people or institutions would you trust to provide you with honest and balanced information on science (e.g. on scientific discoveries and developments)? Why? PROBE FULLY ON DIFFERENT AREAS OF SCIENCE e) Who do you least trust on science? Why? f) What do you mean by 'trust'? PROBE FOR WHETHER IT MEANS 'INDEPENDENCE', 'COMPETENCE' OR/AND SOMETHING ELSE g) How independent are scientists? Why do you say that? h) When you hear that science is able to produce great benefit, how much do you trust the people that make such claims? Who generally makes such claims? (PROBE: Government, Business, scientists, other?) What claims are you aware of / have you heard of / read? PROBE FULLY i) How do people feel about newspaper, radio and TV coverage of science issues? PROBE: What recent science issues have you heard about on TV, radio or in the press? What was the thrust of the story? j) What comes to mind when you think about science and business? PROBE: What role does business play in science? Why do you say that? PROBE: What are the good things about the role of business in science? Why do you say that? PROBE: What are the bad things about the role of business in science? Why do you say that? PROBE (IF NOT ALREADY MENTIONED) FOR WHETHER THEY FEEL SCIENCE HAS BECOME COMMERCIALISED, AND SEE WHETHER THEY FEEL THIS HAS THREATENED SCIENTISTS' ABILITY TO BE INDEPENDENT ALSO PROBE FOR THE MERITS OF THE ROLE OF BUSINESS IN SCIENCE AND WHAT BENEFITS SCIENTISTS GAIN FROM THIS	We can compare responses with MORI's trend data, to see whether the focus groups reflect groups which the public trusts, and public trust in science. Test people's trust in the media presentation of science issues	15

8) Regulation of Science a) How much, if anything, do you feel you know about the way science is regulated? IF DON'T KNOW ANYTHING, ASK Have you heard of any regulations to do with science? b) How do you feel about how science is regulated? Why? c) What role should government play with regard to science? c) How much confidence do you have in the way science is regulated? Why do you say that? d) How much control is there on the type of scientific research that is carried out? Why do you say that? e) Are there any checks and balances needed? Why? What sorts of checks and balances?	Test level of confidence people have in the regulation of science	15
9) Science Communication a) What do you read, listen to or watch that covers science and science issues? PROBE: Do you watch Big Brother on a Sunday evening? Has anyone watched The Psyche Show on a Sunday evening, which analyses participants in Big Brother? (OST TO CONFIRM THIS POINT PLEASE) b) What experiences have people had of communication on science: – where scientists have communicated with them – when scientists have communicated their work How effective has that been in each case? c) How can people better understand the work of scientists? d) How can scientists better understand public views about science? e) Do scientists communicate their work well, or not? Why do you say that? How could they communicate their work better? f) What is the role of the media? Who are the media? (THIS MAY COME UP EARLIER; SEE SECTION 7)	Brainstorm how understanding and trust can be lifted	15

10) Public Consultation on Science a) Do you feel the public should be consulted about policy on scientific developments? How? PROBE FOR EXAMPLES: Which areas? Why? b) Would people like to be involved? Would <u>you</u> like to be involved? Why? How? PROBE: Early on – before an issue becomes topical – or at a later stage, when people are talking about it, and the issue becomes a reality? c) To what extent does the Government <u>listen</u> to what ordinary people think about science? Which areas? Why do you say that? d) To what extent does the Government <u>respond</u> to what ordinary people think about science? Which areas? How? Why do you say that? e) What do you feel is the Government's view about science? Why do you say that? PROBE: Are there any areas where there is a difference between your views and those of the Government on science? Which areas? Why do you say that? f) How much influence do you feel you have on policy about science or on scientific research that is conducted? Why? PROBE Great deal, A fair amount, Not very much, Nothing at all **Awareness** g) How much do you know about public consultation on science? PROBE for any awareness of the GM Nation Debate h) Would you be supportive of government consultation exercises with the nation? Which areas? Why? How would such exercises be carried out? PROBE: meetings, internet/web-based, Interactive TV. Where? Would you like one-off, or continual involvement? Why? i) How useful is it to have public debates on new developments in science and technology? PROBE: Which areas? Why do you say that? j) How much influence do these events have? Why do you say that? k) How important is public consultation on science compared with other social issues (e.g. schools, hospitals, lowering taxes). l) Would people be interested in taking part in consultation exercises? Why? Why not? m) What kinds of people would be likely to take part? How representative would they be? Do those consulted represent public interest and views?	Test the perceived importance of public consultation on science, and which areas are priorities for greater consultation. Test awareness of the GM nation debate, and see whether people feel this provides a useful model of public consultation on science. Put public consultation in context, and see how important it is seen to be.	30

11) Conclusions & Closure a) We are drawing to a close now and we promised to tell you who our client is. Our client is the Office of Science and Technology, headed up by Sir David King, the Government's Chief Scientific Adviser. (Has anyone heard of him? Any thoughts on him? Do you see him as independent?). The Office of Science and Technology sits within the DTi. They are interested to know people's views about science and society. b) What key points would you wish us to take back to the Government about the relationship between science and society? c) Has today raised any questions where you would like more information, or is there anything else you would like to know? If there is, please tell us and I will try to find out the answers for you. d) Thank you again for coming today. We hope you have found the discussion interesting. HAND OUT THE SHORT SELF-COMPLETION QUESTIONNAIRE AND COLLECT BEFORE PARTICIPANTS DEPART ISSUE PAYMENTS/SIGN OFF SHEET (£30 including expenses, e.g. travel costs, babysitting fees)	Summing up and closure	5

Exit Questionnaire

Thank you for attending tonight's group discussion on science and society.

Before you leave, please take a moment to answer the three questions below and overleaf.

Group location:	
Time and Date:	

Q1 How interested, if at all, would you say you were in tonight's discussion?

Please tick one box ☑

- Very interested ☐
- Fairly interested ☐
- Not very interested ☐
- Not at all interested ☐
- Don't know ☐

Q2 How seriously, if at all, do you think Government will take the findings of this MORI research?

Please tick one box ☑

- Very seriously ☐
- Fairly seriously ☐
- Not very seriously ☐
- Not at all seriously ☐
- Don't know ☐

– PTO –

Q3 How much, if anything, do you think Government will act on the findings of this research?

Please tick one box ☑

- A great deal ☐
- A fair amount ☐
- Not very much ☐
- Not at all ☐
- Don't know ☐

Quantitative Research Materials

Interviewer Instructions

Thank you for agreeing to work on this survey.

Background
We have been commissioned by the Office of Science and Technology to find out about the issues of concern to people, and their feelings about science and scientists.

When introducing yourself, please do not reveal the name of the client, or the main subject area (science and scientists). Instead, tell people that we are interested in various issues, and that after the first couple of questions we will give them a little more information about the topic (i.e. where we say "And now we'd like to focus on science"). You can tell them the name of the client at the end of the interview.

We are aiming for an average interview length of 35 minutes, including demographics.

Quotas

For each sampling point, you have been set quotas on gender, age and working status.
These are shown on the quota sheets, along with the addresses where you can interview. Please stick to these quotas and addresses. If you have problems, contact your Area Manager, Stephan in Field or Andrew at MORI immediately.

The total quota for each point is **11** interviews for the Main Stage of the survey in England, Wales and Scotland; and 4 interviews per sample point for the BME booster. Each sampling point is to be worked in for 2 days.

The BME Booster
In addition to the main surveys in England, Wales and Scotland, we are undertaking a booster survey among those from Black and Minority Ethnic (BME) Groups.

Within BMEs, there is no quota for Afro Caribbeans, Asians etc.

Questionnaire Versions

There are two versions of the questionnaire.

If you have an odd sampling point number (e.g. 1, 3, 5, 7…) then you must use Version 1.

If you have an even sampling point number (e.g. 2, 4, 6, 8…) then you must use Version 2.

The Questionnaire

Q	This is unprompted. Please do not mention science or scientists when you introduce yourself, or you may introduce bias at this question.
Q	If you are using Version 1, ask about 'science' and 'scientist' If you are using Version 2, ask about 'engineering' and 'engineer'
Q	If you are using Version 1, there is a shorter list of possible answers. If you are using Version 2, there is a longer list of possible answers.
Q	If you are using Version 1, ask whether the benefits of science outweigh the risks. If you are using Version 2, ask whether the risks of science outweigh the benefits.
Q	At Q, use the boxes to write in the number of times people have visited each of the activities on the card. Use leading zeros.
Q	At Q, use the boxes to write in the number of times people have visited each of the places on the card. Use leading zeros.
Q	Only read out the places that people have visited.
Q	**Alternate** the order of which of these questions is asked first.
Demographics	These are relatively straightforward

'Others' & the Open-ended Question

There are 19 'Others' and 1 fully open-ended question. MORI will be spending considerable time analysing 'others' and the open-ended question. So*, please write carefully*.

Return of Work

Please work throughout the fieldwork period, starting as quickly as possible – because we have to gauge how things are going, and return your work regularly. It is very important that you keep your supervisor informed of your progress as the timetable for reporting on these surveys is fixed and we cannot afford to extend the fieldwork period.

If there is anything that is not clear in these instructions, call Andrew Norton at MORI on 020 7347 3054. If you have problems when in the field, call your Area Manager or Stephan in Field & Tab on 020 7347 3000.

Thank you and good luck!

A Guide to Statistical Reliability

The sample tolerances that apply to the percentage results for an opinion survey are given in the table below. This table shows the possible variation that might be anticipated because a sample, rather than the entire population, has been interviewed. As indicated, sampling tolerances vary with the size of the sample and the size of the percentage result.

For example, on a question where 50% of the people in a sample of 1,000 respond with a particular answer, the chances are 95 in 100 that this result would not vary by more than 3 percentage points, plus or minus, from a complete coverage of the entire population using the same procedures.

Approximate sampling tolerances applicable to percentages at or near these levels

	10% or 90%	30% or 70%	50%
Size of sample on which survey result is based	±	±	±
2000	1	2	2
1,000	2	3	3
500	3	4	4
400	3	4	5
300	3	5	6
200	4	6	7
100	6	9	10

Source: MORI

Tolerances are also involved in the comparison of results from different sub-groups in the sample, or when examining trends over time. A difference, in other words, must be of at least a certain size to be considered statistically significant. The following table is a guide to the sampling tolerances applicable to comparisons.

Differences required for significance at or near these percentages

Sample sizes	10/90%	30/70%	50%
2,000 and 2,000	2	3	3
1,000 and 1,000	3	4	4
500 and 1,000	3	5	5
500 and 500	4	6	6
100 and 100	8	13	14

Social Class Definitions

The grades detailed below are the social class definitions as used by the Institute of Practitioners in Advertising, and are standard on all surveys carried out by MORI (Market & Opinion Research International Limited).

Social Grades			
	Social Class	**Occupation of Chief Income Earner**	**Percentage of Population**
A	Upper Middle Class	Higher managerial, administrative or professional	2.9
B	Middle Class	Intermediate managerial, administrative or professional	18.9
C1	Lower Middle Class	Supervisor or clerical and junior managerial, administrative or professional	27.0
C2	Skilled Working Class	Skilled manual workers	22.6
D	Working Class	Semi and unskilled manual workers	16.9
E	Those at the lowest levels of subsistence	State pensioners, etc, with no other earnings	11.7

Segmentation Analysis

Scores from the 6 Clusters, on Each of the 11 Factors

	The 11 Factors	**Cluster A**	**Cluster B**	**Cluster C**	**Cluster D**	**Cluster E**	**Cluster F**
1	Communication and Consultation	0.370	-1.194	0.296	0.293	-0.016	-0.019
2	Perceived knowledge	-0.140	-0.174	-0.333	-0.179	2.020	-0.188
3	Communicating science in daily life	0.166	-0.563	0.166	0.186	-0.064	-0.052
4	External influence over scientists	0.387	0.415	-0.465	0.121	-0.018	-0.167
5	Scientific optimism	-0.204	-0.110	0.084	-0.039	0.358	0.015
6	Placing trust in science	-1.273	0.187	0.555	0.216	0.007	0.137
7	Anxiety about science	0.074	-0.391	0.258	-0.052	0.090	-0.138
8	Scepticism about public consultation	0.124	-0.438	0.145	0.033	0.184	-0.100
9	Receptivness of Government to the Public/Consultation about science	-0.247	-0.497	-0.479	0.005	-0.051	1.558
10	Empathy over learnt skills	-0.284	-0.054	-0.463	1.719	-0.109	-0.376
11	Credentials over honesty	-0.137	0.282	0.028	-0.029	-0.216	-0.004
	Unweighted Sample Size	323	273	491	266	191	287

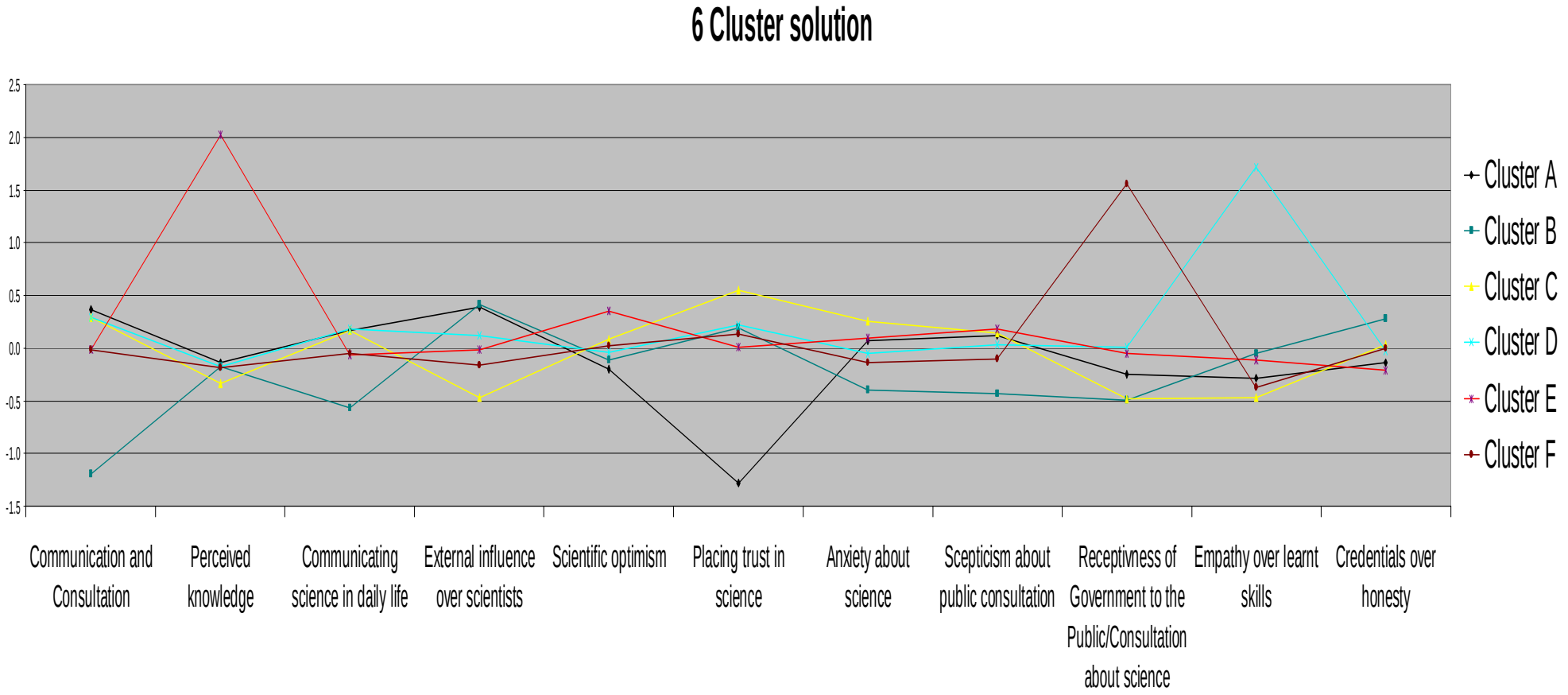
Profile of the 6 Clusters

Only those highlighted show differences that are statistically significant.

	UK Adult Profile	Cluster A	Cluster B	Cluster C	Cluster D	Cluster E	Cluster F
Sample Size	1,831	323	273	491	266	191	287
%		18%	15%	27%	15%	10%	16%
Total	100%	100%	100%	100%	100%	100%	100%
Gender							
Male	49	48	50	42	47	68	51
Female	51	52	50	58	53	32	49
Age							
16-24	14	9	14	18	12	18	14
25-34	19	16	20	20	16	15	25
35-44	18	20	23	17	16	17	16
45-54	16	25	11	14	17	22	11
55-59	7	6	8	5	9	5	8
60-64	6	7	5	5	10	6	5
65-74	10	11	8	12	11	6	11
75+	9	6	11	9	10	11	9
Work status							
Full-time	45	49	48	39	37	49	52
Part-time	10	9	10	12	11	8	11
Unemployed	4	3	3	4	6	4	3
Retired	24	23	21	25	29	21	23
Looking after house/childre n	9	8	9	11	11	4	5
Invalid/ disabled	3	3	2	3	3	2	1
Student	6	5	6	6	3	11	5
Social class							
A	4	4	6	0	2	10	4
B	20	33	21	15	11	26	20
C1	27	28	28	23	24	25	35
C2	21	16	18	26	28	19	16
D	14	9	15	20	16	7	12
E	14	10	13	16	19	13	12

	UK Adult Profile	Cluster A	Cluster B	Cluster C	Cluster D	Cluster E	Cluster F
	%	%	%	%	%	%	%
Number of children in household							
None	63	64	59	62	63	64	67
1	16	17	18	15	19	10	14
2	12	13	14	13	9	13	10
3	7	3	7	7	8	8	7
4 or more	0	1	0	1	0	2	0
Have studied Science GCSE/O level, Degree or A level							
Yes	45	55	49	34	36	59	47
No	55	45	51	66	64	41	53
Q How strongly do you agree with the following statement? …Overall, the benefits of science outweigh the risks							
Agree	89	83	89	91	78	92	95
Disagree	11	17	11	9	22	8	5
Q How strongly do you agree or with the following statement? …Overall, the risks of science outweigh the benefits							
Agree	37	33	24	42	46	32	45
Disagree	63	68	76	58	54	68	55
Q Combined How strongly do you agree or with the following statement? …Overall, the benefits of science outweigh the risks							
Agree	76	76	82	76	67	80	77
Disagree	24	24	18	24	33	20	23
Q Would you say you personally trust scientists more or less, or about the same as you did five years ago?							
Trust them more	52	23	38	50	60	83	68
Trust them less	48	77	62	50	40	17	32

	UK Adult Profile	Cluster A	Cluster B	Cluster C	Cluster D	Cluster E	Cluster F
	%	%	%	%	%	%	%
Q Which of the following statements on this card do you most agree with?							
I see and hear too much information about science	7	7	9	6	7	11	5
I see and hear about the right amount of information	42	42	46	31	37	59	52
I see and hear too little information about science	51	51	45	63	56	31	43
Q How would you describe your feelings about ... The use of animals in medical research?							
Good thing	35	37	38	28	33	51	36
Bad thing	65	63	62	72	67	49	64
Science Involvement							
Involved	29	42	32	15	18	54	26
Semi Involved	39	32	36	46	40	33	43
Not Involved	32	26	33	39	42	13	31
Broadsheet Reader							
Yes	20	31	20	10	11	35	26
No	80	69	80	90	89	65	74
Tabloid Reader							
Yes	46	38	41	53	50	45	46
No	54	62	59	47	50	55	54
Weekend Broadsheet							
Yes	19	26	19	12	12	30	23
No	81	74	81	88	88	70	77
Weekend Tabloid							
Yes	38	29	37	44	41	36	37
No	62	71	63	56	59	64	63


6 Cluster solution
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
-1.5
Cluster A
Cluster B
Cluster C
Cluster D
Cluster E
Cluster F
Communication and Consultation
Perceived knowledge
Communicating science in daily life
External influence over scientists
Scientific optimism
Placing trust in science
Anxiety about science
Scepticism about public consultation
Receptivness of Government to the Public/Consultation about science
Empathy over learnt skills
Credentials over honesty

Profile of the Sample

	UK	Any Science Qualif.	GCSE/O level	A level	Degree	Involved	Semi	None
		45%[1]	**40%**	**13%**	**7%**	**29%**	**39%**	**32%**
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Gender

Male	49	49	48	64	63	62	47	40
Female	51	51	52	36	37	38	53	60

Social Grade

AB	24	33	30	46	70	45	19	11
C1	27	34	34	35	19	30	31	20
C2	21	16	18	10	7	15	23	24
DE	28	17	18	10	4	10	27	45

Age

16-24	14	23	23	18	9	13	21	7
25-34	19	27	28	28	24	25	22	11
35-44	18	21	21	19	21	20	18	17
45-54	16	15	15	17	23	21	13	15
55-64	13	9	9	11	13	12	10	17
65-74	10	4	3	5	6	5	8	17
75+	9	2	2	3	4	3	7	17

[1] The figure for 'Any Science Qualification' (45%) is lower than the combined scores for GCSE/'O'-Level, 'A'-Level, and 'Degree' qualifications in science because there is overlap between these categories.

Source: MORI

Topline Results

- Results are based on interviews with 1,831 adults aged 16+ across the United Kingdom. This comprises: 1,450 interviews in England, 101 in Northern Ireland, 129 in Wales, 151 in Scotland, and 495 with BME groups
- Interviews were conducted face-to-face between 20 September – 21November 2004
- Data are weighted by sex, age, working status, region and ethnic group – to the 2001 UK Census; and by social class to the July 2001 National Readership Survey
- Where results do not sum to 100, this is due to multiple answers or computer rounding
- Base all (1,831), unless otherwise specified.

Good morning, afternoon, evening. My name is …… from MORI, the opinion research organisation, and we are carrying out a survey on various issues. After the first few questions, we will give you a little more information about the topic.

The interview will take around 35 minutes, and, if now is not convenient for you, we could arrange a time for me to come and interview you that would be more convenient.

We will tell you the name of MORI's client at the end of the interview.

I would like to assure you that all the information we collect will be kept in the strictest confidence, and used for research purposes only. It will not be possible to identify any particular individual or address in the results.

Q **Which two or three issues in your life, if any, are most important to you personally?** DO NOT PROMPT. PROBE FOR UP TO THREE. IF NECESSARY: **What else?** CODE UP TO THREE

	%
Anti-social behaviour/Tackling anti-social behaviour	6
Bringing up children/Caring for a relative	11
Crime/Tackling crime/Law & Order/Vandalism	8
Defence/Foreign affairs/Iraq	3
Education/A good education	7
Education system/A good education system	4
Environmental issues	6
Europe/EU/Relations with France, Germany, etc.	1
Friends and family	60
Health/Good health	35
Healthcare system/A good healthcare system/NHS	9
Helping Sudan/other developing countries	*
Housing/Having a good home to live in	11
Job/Having a job (i.e. paid work)	17
Money/Having financial security	21
Politics/Political issues/Current affairs	3
Public transport/Having good public transport	1
Race relations/Immigration/Asylum	2
Science/Cloning/Animal experimentation etc.	1
Terrorism/Tackling terrorism	3
Traffic congestion/Tackling traffic congestion	1
The economy/Cost of living/Inflation	4
Happiness	4
Car/Cars	*
Pets	1
Personal relationships	1
Sport	1
Faith/Religion	3
Other (PLEASE WRITE IN)	8
None of these	1
Don't know	3

ALTERNATE ORDER OF ASKING Q AND Q.
IF YOU HAVE AN ODD SAMPLE POINT NUMBER, PLEASE ASK VERSION 1
IF YOU HAVE AN EVEN SAMPLE POINT NUMBER, PLEASE ASK VERSION 2

Q **When I say… 'science' …what comes to mind?** DO NOT PROMPT. PROBE FULLY. MULTICODE OK.

Base: Adults aged 16+ (Version 1)	(899) %
Advancement/Progress/The future/Better world/Helping mankind/Easier living/Easier life	14
Biology/Chemistry/Physics	15
Boffins/Nerds/Eccentric/Crazy/ Boring/Mad/Mad professor/Mysterious	4
Bombs/War/Destruction of mankind	2
Laboratory/Labs/ Bunsen burners/ Test tubes/Chemicals/ Chemical reaction	19
Communications/'Phones	1
Computers/IT	5
Difficult/Difficult to understand	1
Engineering	4
Environment/Nature/Plants	5
Experiment/Inquisitive/ Understanding	7
Fiction/Science fiction	2
Food/Food production	1
Genetics/DNA/GM food/GM crops	3
Health/Drugs/Cures for diseases/Hospitals/Doctors/ Medicine/Hygiene	17
Important/Necessary	1
Ideas/Innovation/Invention/ Discovery/ Research/ Analysis/Logic	16
Nanotechnology	2
New appliances/New technology	6
School/Horrible teacher/Disliked at school/ Boring	12
Science festival/Science Museum/centre	2

Space/Rockets/Astronomy	10
Test-tube babies/IVF	2
Energy/Power	*
Weather/Meteorology	*
Technology	1
Schools/Education	1
Machine/Machinery/Mechanised Appliance	*
White coats	1
Other (PLEASE WRITE IN)	10
Nothing	6
Don't know	4

Q **When I say… 'engineering' …what comes to mind?** DO NOT PROMPT. PROBE FULLY. MULTICODE OK.

Base: Adults aged 16+ (Version 2)	(932) %
Advancement/Progress/The future/Better world/Helping mankind/Easier living/Easier life	4
Assembly/Construction/Building/Building sites/ Bridges/Tunnelling/Channel Tunnel	32
Biology/Chemistry/Physics	3
Boffins/Nerds/Eccentric/Crazy/ Boring/Mad/Mad professor/Mysterious	*
Communications/'Phones	1
Difficult/Difficult to understand	*
Computers/IT	3
Design/Designing/ Fixing/ Manufacturing/Making things/ Maintenance	21
Energy/Power	4
Genetics/DNA/GM food/GM crops	2
Industrial/Infrastructure/ Installation/Utility/Water	7
Important/Necessary	1
Ideas/Innovation/Invention/ Discovery/Research/ Analysis/Logic	6
Laboratory/Labs/ Bunsen burners/ Test tubes/ Chemicals/Chemical reaction	2
Machines/Machinery/Mechanical/Mechanised appliance/Motor(s)	31
Motoring/Motorways/Cars/Buses/Roads	15
Nanotechnology	*
Oil/Nuts & bolts/Parts/Metals/Cables	4
Plumber/Welder/Labourer/Joiner/Mechanics/Hard hats	6
Pollution	1
Science	2

Ships/Trains/Railways/Transport/Vehicles	13
Space/Rockets/Astronomy	1
Other (PLEASE WRITE IN)	11
Nothing	4
Don't know	3

Q **When I say…'scientist'…what comes to mind?** DO NOT PROMPT. PROBE FULLY. MULTICODE OK.

Base: Adults aged 16+ (Version 1)	(899) %
Academic/Professor/Teacher/ Research/Researchers	27
Beards	1
Biologists/Chemists/Physicians	11
Boffins/Nerds/Eccentric/Crazy/ Boring/Mad/Mad professor/Mysterious	11
Darwin/Einstein/Newton/Stephen Hawking	7
Doctors/Surgeons	7
Don't like/Not my type of person	*
Experiments/Laboratories/ Microscopes/ Test tubes	16
Experts/Skilled people/Educated/Highly educated/Brainy/Clever/ Intelligent/Smart	22
Glasses	1
Hardworking/Committed/ Persistence/Long hours/Dedicated	4
Innovative/Innovators/Inventors/Pioneers/Visionaries/Solution finders	15
Men	3
My Dad/My father	1
My family	2
My Mum/My mother	*
Old	*
Unemotional/Logical/Cool/Level headed	2
Well paid/Good career prospects	1
White	1
White coats	16
Historical figure (any)	2
Rockets/Space	1
Other (PLEASE WRITE IN)	9
Nothing	5
Don't know	4

Q **When I say… 'engineer' …what comes to mind?** DO NOT PROMPT. PROBE FULLY. MULTICODE OK.

Base: Adults aged 16+ (Version 2)	(932) %
Blue collar workers/Dirty/Factories/Overalls /Grease monkeys	15
Beards	*
Boffins/Nerds/Eccentric/Crazy/ Boring/Mad/Mad professor/Mysterious	3
Brunel/Stephenson	3
Cars/Railways	8
Chemical/Electrical/Mechanical	8
Computer	3
Don't like/Not my type of person	*
Experts/Skilled people/Educated/Highly educated/Brainy/Clever/ Intelligent/Smart	24
Fitter/Mechanics/Builders/Car mechanic/Civil engineers/Machine operator/Gas fitter/Ship builder/Sheet metal worker/Technicians	45
German	*
Glasses	*
Hardworking/Committed/ Persistence/Long hours/Dedicated	5
Innovative/Innovators/Inventors /Pioneers/Visionaries/Solution finders	7
Men	8
My Dad/My father	3
My family	6
My Mum/My mother	*
Old	-
Unemotional/Logical/Cool/Level headed	*
Well paid/Good career prospects	1
White	*
White coats	1
Other (PLEASE WRITE IN)	6
Nothing	5
Don't know	4

And now I'd like to focus more on science …

Q SHOWCARD A (R) **How well informed do you feel, if at all, about science and scientific research/developments? Just read out the letter that applies.** SINGLE CODE ONLY

		%
A	Very well informed	5
B	Fairly well informed	34
C	Not very well informed	42
D	Not at all informed	17
	Not stated	*
	Don't know	*

OST/WELLCOME TRUST TREND QUESTION (2002)[94]

Q SHOWCARD B (R) **Which of the following statements on this card do you most agree with? Just read out the letter that applies.** SINGLE CODE

		OST/Wellcome Trust 2000	MORI/OST 2004	Change
	Base: Adults aged 16+	(1,839) %	(1,831) %	(±)
A	…These days I see and hear far too much information about science	3	2	-1
B	…These days I see and hear too much information about science	11	5	-6
C	…These days I see and hear about the right amount of information about science	55	40	-15
D	…These days I see and hear too little information about science	20	37	+17
E	…These days I see and hear far too little information about science	4	12	+8
	None of these	-	2	+2
	Don't know	7	2	-5

[94] 'None of these' has been added.

Q **When I say "public consultation on science" what, if anything, springs to mind?** DO NOT PROMPT. MULTICODE OK

	%
Embryo gender selection/Consultation by Human Fertilisation and Embryology Authority	3
GM Nation debate	3
GM/GM food/Genetic engineering	5
It's a bad idea	*
It's a good idea	5
It's a waste of time/There is no point	1
Nanotechnology/Study by The Royal Society/Royal Academy of Engineering	1
Public health consultation/Department of Health	8
There is too much	1
There's not enough/There should be more	8
Animals	*
Environment	1
Consultation	4
Informing the public	4
Public opinion	2
Government	2
Media/TV	2
Research	2
Other (PLEASE WRITE IN)	12
Nothing	34
Never heard of it	8
Not stated	1
Don't know	9

Q SHOWCARD C (R) **How much, if anything, do you feel you know about public consultation on science?** SINGLE CODE ONLY

	%
A great deal	1
A fair amount	8
Not very much	44
Nothing at all	44
A great deal/A fair amount	9
Not very much/Nothing at all	88
Not stated	1
Don't know	2

IF YOUR HAVE AN ODD SAMPLE POINT NUMBER, PLEASE ASK VERSION 1 AT Qa AND Qb
IF YOUR HAVE AN EVEN SAMPLE POINT NUMBER, PLEASE ASK VERSION 2 AT Qa AND Qb
Version 1
MORI/OST 1999 TREND QUESTION

Qa SHOWCARD D – VERSION 1 (R) **On this card is a list of various scientific developments. Which two or three would you say have been beneficial for society as far as you are aware?** JUST READ OUT THE LETTER OR LETTERS. ROTATE ORDER. MULTICODE OK.

Qb SHOWCARD D – VERSION 1 (R) AGAIN **And which two or three would you say have not been beneficial for society, as far as you are aware?** JUST READ OUT THE LETTER OR LETTERS. MULTICODE OK.

		Qa BENEFICIAL		
		MORI/OST (1998/99)	2004	CHANGE
	Base: Adults aged 16+	(1,109) %	(899) %	(±)
A	Cloning/Dolly the sheep	2	2	-
B	Computers/The Internet/Email	28	41	+13
C	Cures for or eradication of illnesses/diseases	43	41	-2
D	Genetic modication/engineering of animals and plants	1	1	-
E	Genetically modified food	1	4	+3
F	Genetic testing or screening for particular things, eg diseases	24	14	-10
G	Discovering global warming/Climate Change/ Disruption to weather patterns/Greenhouse Effect	19	17	-2
H	Faster/cheaper travel	6	5	-1
I	Medicines/New drugs/Penicillin/ Antibiotics/Vaccines etc	57	53	-4
J	New and alternative sources of energy	17	16	-1
K	New operations/Surgery	31	24	-7
L	New telecommunications (fax machine/mobile phone/TV)	14	13	-1
M	Robots in industry and medicine	3	3	-
N	Space Research/Sending people to the moon	2	5	+3
O	Splitting the atom	4	5	+1
P	Test-tube babies/In-vitro fertilisation	11	8	-3
Q	Transplants eg of heart, liver, kidneys etc	51	41	-10
	Other (PLEASE WRITE) [NOT ON SHOWCARD]	*	*	-
	No, none spring to mind	*	*	-
	Don't know	*	*	-

Qb NOT BENEFICIAL

	Base: Adults aged 16+	MORI/OST (1998/99)	2004	CHANGE
	Base: Adults aged 16+	(1,109)	(899)	(±)
		%	%	
A	Cloning/Dolly the sheep	57	53	-4
B	Computers/The Internet/Email	4	3	-1
C	Cures for or eradication of illnesses/diseases	1	1	-
D	Genetic modication/engineering of animals and plants	28	18	-10
E	Genetically modified food	45	36	-9
F	Genetic testing or screening for particular things, eg diseases	2	1	-1
G	Discovering global warming/Climate Change/ Disruption to weather patterns/Greenhouse Effect	6	5	-1
H	Faster/cheaper travel	16	12	-4
I	Medicines/New drugs/Penicillin/ Antibiotics/Vaccines etc	1	1	-
J	New and alternative sources of energy	4	3	-1
K	New operations/Surgery	*	1	+1
L	New telecommunications (fax machine/mobile phone/TV)	5	4	-1
M	Robots in industry and medicine	18	12	-6
N	Space Research/Sending people to the moon	25	22	-3
O	Splitting the atom	20	17	-3
P	Test-tube babies/In-vitro fertilisation	9	11	+2
Q	Transplants eg of heart, liver, kidneys etc	1	1	-
	Other (PLEASE WRITE IN) [NOT ON SHOWCARD]	*	*	-
	No, none spring to mind	5	10	+5
	Don't know	1	2	+1

Version 2

Qa SHOWCARD D – VERSION 2 (R) **On this card is a list of various scientific developments. Which two or three would you say have been beneficial for society as far as you are aware?** JUST READ OUT THE LETTER OR LETTERS. ROTATE ORDER. MULTICODE OK.

Qb SHOWCARD D – VERSION 2 (R) AGAIN **And which two or three would you say have not been beneficial for society, as far as you are aware?** JUST READ OUT THE LETTER OR LETTERS. MULTICODE OK.

		Qa BENEFICIAL	Qb NOT BENEFICIAL	Net beneficial (+)
	Base: Adults aged 16+ (Version 2)	(932) %	(932) %	
A	Cloning/Dolly the sheep	3	45	-42
B	Computers/The Internet/Email	40	3	+37
C	Cures for or eradication of illnesses/diseases	40	*	+39
D	Genetic modication/engineering of animals and plants	3	12	-9
E	Genetically modified food	3	32	-29
F	Genetic testing or screening for particular things, eg diseases	17	2	+15
G	Discovering global warming/Climate Change/ Disruption to weather patterns/Greenhouse Effect	17	3	+14
H	Faster/Cheaper travel	10	9	-*
I	Medicines/New drugs/Penicillin/ Antibiotics/Vaccines etc	46	*	+46
J	New and alternative sources of energy	16	1	+14
K	New operations/Surgery	24	*	+24
L	New telecommunications (fax machine/mobile phone/TV)	14	5	+9
M	Robots in industry and medicine	5	11	-6
N	Space Research/Sending people to the moon	3	15	-12
O	Splitting the atom	5	10	-5
P	Test-tube babies/In-vitro fertilisation	8	6	+2
Q	Transplants eg of heart, liver, kidneys etc	37	*	+37
R	Brain science/Neuroscience	5	*	+5
S	'Designer babies'	2	27	-25
T	Energy/Electricity	11	*	+11
U	Mobile 'phones	7	8	-*
V	Nanotechnology/Miniaturisation	1	2	-*

W	New vaccinations for children (MMR vaccination/Five-in-one vaccination)	13	1	+12
X	Nuclear power	4	6	-2
Y	Radioactive waste	1	22	-21
Z	The use of animals in medical research	5	12	-6
	Other (PLEASE WRITE IN) [NOT ON SHOWCARD]	*	*	*
	No, none spring to mind	1	4	-4
	Don't know	1	1	-1

Q.- Q. SHOWCARD E (R) **From what you know or have heard about…** READ OUT Q – Q AND ROTATE ORDER **… on balance, which of these statements, if any, most closely reflects your own opinion? Please just read out the letter that applies.** SINGLE CODE FOR EACH. ROTATE ORDER ✓ TICK START

	A Benefits far outweigh risks %	B Benefits slightly outweigh risks %	C About the same %	D Risks slightly outweigh benefits %	E Risks far outweigh benefits %	None of these %	Don't know %
Q. **…Climate change...**							
UEA/MORI 2002	5	9	22	21	32	1	10
MORI/OST 2004	4	10	21	21	29	3	11
Change	-1	+1	-1	-	-3	-2	+1
Q. **…Genetically modified food…**							
UEA/MORI 2002	5	11	29	18	21	2	14
UEA/MORI 2003	6	14	23	19	23	3	12
MORI/OST 2004	4	12	15	24	33	*	10
Change	-1	+1	-14	+6	+12	-2	-4
Q. **…Genetic testing (i.e. tests to discover whether people have a range of inherited diseases or disorders)…**							
UEA/MORI 2002	15	23	29	15	12	1	6
MORI/OST 2004	30	38	11	8	6	1	5
Change	+15	+15	-18	-7	-6	-	-1
Q. **…Radioactive waste…**							
UEA/MORI 2002	7	13	21	23	30	2	4
MORI/OST 2004	4	8	9	17	55	1	5
Change	-3	-5	-12	-6	+25	-1	-1
Q. **…Radiation from mobile phone handsets…**							
UEA/MORI 2002	19	23	35	8	9	1	6
MORI/OST 2004	7	17	19	26	17	1	11
Change	-12	-6	-16	+18	+8	-	-5

NEW QUESTION

Q. **…Cloning…**							
MORI/OST 2004	6	10	12	19	44	1	8

IF YOUR HAVE AN ODD SAMPLE POINT NUMBER, PLEASE ASK QA (Version 1)
IF YOUR HAVE AN EVEN SAMPLE POINT NUMBER, PLEASE ASK QB (Version 2)

Q. SHOWCARD F (R) **How strongly do you agree or disagree with the following statement?** SINGLE CODE ONLY

A **…Overall, the benefits of science outweigh the risks** (Version 1)
B **…Overall, the risks of science outweigh the benefits** (Version 2)

	Version 1 **Benefits outweigh risks** (899) %	Version 2 **Risks outweigh benefits** (932) %
Strongly agree	24	4
Tend to agree	48	22
Neither agree nor disagree	18	26
Tend to disagree	7	31
Strongly disagree	2	13
Agree	71	26
Disagree	9	44
Don't know	2	4

Q - Q. SHOWCARD G (R) **On the whole, how would you describe your feelings about the following issues…** READ OUT. ALTERNATE ORDER AND TICK START. SINGLE CODE ONLY FOR EACH

	Very good thing %	Fairly good thing %	Neither good nor bad thing %	Fairly bad thing %	Very bad thing %	No opinion %	Not stated %
Q. **…Climate change**							
UEA/MORI 2002	2	10	26	38	21	4	-
MORI/OST 2004	2	8	23	33	29	5	1
Change	-	-2	-3	-5	+8	+1	+1
Q. **…Genetically modified food**							
UEA/MORI 2002	2	13	35	25	19	5	-
MORI/OST 2004	2	13	23	32	25	5	1
Change	-	-	-12	+7	+6	-	+1
Q. **…Genetic testing (i.e. tests to discover whether people have a range of inherited diseases or disorders)**							
UEA/MORI 2002	19	37	23	11	6	4	-
MORI/OST 2004	25	44	15	7	5	2	1
Change	+6	+7	-8	-4	-1	-2	+1

Q.	**…Radioactive waste**							
	UEA/MORI 2002	2	4	13	29	46	5	-
	MORI/OST 2004	1	4	8	23	60	3	1
	Change	-1	-	-5	-6	+14	-2	+1

Q.	**…Radiation from mobile phone handsets**							
	UEA/MORI 2002	1	4	26	38	24	7	-
	MORI/OST 2004	1	3	30	40	18	8	1
	Change	-	-1	+4	+2	-6	-1	+1

NEW QUESTIONS

Q.	**…Cloning**	2	8	19	25	40	5	1
Q.	**…Radiation from mobile phone base stations/masts**	1	3	23	39	26	7	1
Q.	**…Foot and Mouth Disease**	*	1	5	22	68	2	1
Q.	**…Nanotechnology/ miniaturisation**	10	21	27	7	7	28	1
Q.	**…The internet/computers/ information technology**	44	37	10	3	2	3	1
Q.	**…The use of animals in medical research**	5	21	26	23	23	2	1
Q.	**…Neuroscience/Brain science**	33	43	13	3	1	7	*
Q.	**…Energy/Electricity**	53	37	7	1	*	1	1

SIMILAR TO OST/WELLCOME TRUST (2000) BUT LONGER LIST IN 2004 DUE TO NEW CATEGORIES

Q. SHOWCARD H (R) **In which, if any, of these ways do you currently get any information about science? Please read out the letter or letters that apply.** MULTICODE OK

Q. SHOWCARD H (R) AGAIN **And which, if any, of these ways would you like to receive information about science in the future? Please include, if appropriate, any which you may have mentioned a moment ago. Please read out the letter or letters that apply.** MULTICODE OK

		Q **Current** %	Q **Future** %	
A	Audio tapes	1	1	
B	Billboards/Hoardings	4	3	
C	Information in Braille for blind people	1	*	
D	Children	10	5	
E	Citizens' juries	1	*	
F	Focus groups	2	2	
G	Friends and Relations/Husband/Wife/Partner	18	10	
H	Information in languages apart from English	1	*	
I	Interactive television	9	7	
J	Internet sites/Websites	30	24	
K	Internet discussion groups/Internet chat rooms	4	3	
L	Leaflets	12	12	
M	Magazines	33	23	
N	Membership of a campaign group/local group	3	2	
O	Newspapers – local	16	11	
P	Newspapers – national	53	37	
Q	Products – e.g. food	5	4	
R	Radio – local	12	9	
S	Radio – national	30	23	
T	Science centres / Science museums	13	9	
U	Science festivals	3	4	
V	Science talks / Public meetings / Meet-the-scientist events	5	7	
W	Telephone information line	1	1	
X	Teletext	5	4	
Y	Television news	63	47	
Z	Television programmes, e.g. documentaries	67	55	
AA	Videos	5	3	
BB	Work / Work colleagues	13	6	
CC	Information from government	11	12	
DD	Noticeboards	4	3	
EE	Nowhere	3	4	
	School/college	1	*	
	Not interested in science	-	*	
	Other (PLEASE WRITE IN)	2	2	NOT ON SHOWCARD
	Don't know	1	5	

Q. SHOWCARD I (R) **Which, if any, of the following have you heard of? Just read out the letter or letters that apply.** MULTICODE OK

		%	
A	The BA Festival of Science	8	
B	The Cheltenham Science Festival	10	
C	The Edinburgh Festival	72	
D	The Edinburgh International Festival of Science	11	
E	National Science Week	55	
F	Oxfordshire Science Festival	5	
G	The Wrexham Science Festival	3	
H	The Royal Society's Summer Science Exhibition	12	
	Other (PLEASE WRITE IN)	*	NOT ON SHOWCARD
	None of these	12	
	Don't know	*	

SIMILAR TO OST/WELLCOME TRUST (2000) BUT LONGER LIST IN 2004 DUE TO NEW CATEGORIES AND ALTERING OF CODES 10 - 13

ASK ALL

Q. SHOWCARD J (R) **Which, if any, of the things on this card have you visited or done in the last 12 months? Just read out the letter or letters that apply**. MULTICODE OK

ASK Q OF ALL THOSE VISITING/DONE ACTIVITY AT Q

Q. **How many times have you visited… in the last 12 months**? WRITE IN USING LEADING ZEROS

ASK ALL

Q. SHOWCARD J (R) AGAIN **Of those that you have not visited or been to in the last 12 months, which if any would you be interested in attending/visiting?**

		Q %	Q WRITE IN NUMBER Average	Q %
A	Visited a museum or science centre	34	1.03	12
B	Visited a science festival	2	0.02	8
C	Visited a laboratory	8	1.86	8
D	Attended a public meeting on a science-related topic	4	0.11	3
E	Participated in a science-related activity at a school/community centre	7	1.11	3
F	Visited an art gallery	28	0.84	8
G	Visited a zoo	30	0.53	11
H	Visited a theme park	27	0.58	10
I	Visited a planetarium	6	0.08	20
J	Been to a lecture/talk on a science-related subject	8	0.93	5
K	Been to a lecture/talk on a non science-related subject	14	1.5	2
L	Been to a meeting or debate on a science-related subject	5	0.42	4
M	Been to a meeting or debate on a non-science related subject	12	1.2	2
N	Been to a visitor centre (i.e. at a tourist spot)	35	1.54	5
O	Been to the cinema	53	3.84	9
P	Visited a historic house or gardens	39	1.25	11
Q	Been to a sporting event	32	3.2	8
R	Been to a theatre	37	1.24	15
S	Been to a concert or the opera	24	0.67	11
	None of these	15		20
	Don't know	*		5

ASK Q IF BEEN TO A SCIENCE-RELATED EVENT IN LAST 12 MONTHS AT Q (CODES 1 TO 5, 7, 9, 10, 12 – SHOWN IN LIGHT GRAY). OTHERS GO TO Q

SIMILAR TO OST/WELLCOME TRUST (2000) BUT LONGER LIST IN 2004 DUE TO NEW CATEGORIES

Q. **Thinking about the last place or event you went to that was related to science, why did you go to it?** DO NOT PROMPT. MULTICODE OK

Base: All who have been to a science-related event in the last 12 months	(958) %
Discounts	1
For enjoyment/recreation/a day out	27
Interesting subject	19
Named speaker	1
On holiday	5
Personal interest	18
Recommendation/Someone recommended it	4
Taking children	27
Taking visitors	2
To meet others with a similar interest	3
To put forward/discuss my views on a science-related topic	2
Weather was bad	*
Weather was good	1
Work-related	7
Education	5
Other (PLEASE WRITE IN)	7
None of these	1
Don't know	2

Q. **And how much, if at all, would you say you enjoyed it? Would you say…?** READ OUT A-D. ALTERNATE ORDER. ✓ TICK START. SINGLE CODE ONLY

		Base: All who have been to a science-related event in the last 12 months	(958) %
☐	A	**…A great deal**	45
	B	**…A fair amount**	36
	C	**…Just a little**	4
☐	D	**…Not at all**	1
		Don't know	2
		Not stated	11

ASK ALL

Q. SHOWCARD K (R) **Which, if any, of the following science centres or museums have you visited in the last five years or so? Just read out the letter or letters.** MULTICODE OK

Q. FOR EACH SCIENCE CENTRE VISITED **How often have you visited… in the last five years or so?** WRITE IN USING LEADING ZEROS

		Q. %	Q. WRITE IN Average
A	At-Bristol	2	0.04
B	The Centre for Life (Newcastle)	3	0.05
C	CuriOXity (Oxford)	*	*
D	Eureka! (Halifax)	5	0.06
E	Glasgow Science Centre	2	0.03
F	INSPIRE (Norwich)	1	0.01
G	INTECH (Winchester)	*	0.01
H	Our Dynamic Earth (Edinburgh)	3	0.04
I	Kennedy Space Centre, Cape Canaveral (Florida, USA)	6	0.09
J	Magna (Rotherham)	2	0.03
K	Techniquest (Cardiff)	2	0.05
L	The Deep (Hull)	3	0.04
M	The Eden Project (Cornwall)	14	0.18
N	The Museum of Science and Industry in Manchester	4	0.08
O	The National Space Centre (Leicester)	2	0.03
P	The Natural History Museum (London)	23	0.4
Q	The Science Museum (London)	19	0.34
R	Think Tank (Birmingham)	2	0.03
S	The Millennium Dome, London	13	0.16

T	W5 (Belfast)	1	0.02	
	Other (PLEASE WRITE IN)	2		NOT ON SHOWCARD
	None of these	47		
	Don't know	*		

ASK Q FOR EACH SCIENCE CENTRE VISITED AT Q

Q. SHOWCARD L (R) **How favourable or unfavourable would you say you found your last visit to…?** READ OUT NAMES OF EACH SCIENCE CENTRE VISITED AT Q IN TURN. SINGLE CODE FOR EACH

	Base: All visiting each	Very favourable %	Mainly favourable %	Neither favourable nor unfavourable %	Mainly unfavourable %	Very unfavourable %	Don't know / Not stated %
At-Bristol	(37)	45	45	-	-	-	10
The Centre for Life (Newcastle)	(40)	33	42	6	4	2	13
CuriOXity (Oxford)	(6)	25	6	11	-	-	58
Eureka! (Halifax)	(70)	52	27	9	-	-	12
Glasgow Science Centre	(25)	60	32	1	1	-	6
INSPIRE (Norwich)	(10)	26	56	-	-	-	17
INTECH (Winchester)	(7)	38	16	44	-	-	3
Our Dynamic Earth (Edinburgh)	(39)	45	39	1	-	-	16
Kennedy Space Centre, Cape Canaveral (Florida, USA)	(88)	68	22	4	-	-	6
Magna (Rotherham)	(25)	43	28	8	-	-	20
Techniquest (Cardiff)	(43)	53	38	6	4	-	-
The Deep (Hull)	(49)	64	24	7	-	2	3
The Eden Project (Cornwall)	(198)	69	24	4	1	*	2
The Museum of Science and Industry in Manchester	(81)	47	47	-	1	-	5
The National Space Centre (Leicester)	(35)	46	34	11	5	-	4
The Natural History Museum (London)	(376)	66	26	3	*	1	4
The Science Museum (London)	(328)	59	34	2	1	*	4
Think Tank (Birmingham)	(27)	41	41	-	1	-	17
The Millennium Dome, London	(227)	35	31	10	9	7	8
W5 (Belfast)	(25)	55	17	21	-	-	7
Others mentioned above	(33)	60	25	2	-	-	14

ASK ALL

Q. **What, if anything, are the main advantages of visiting science centres or science museums?** DO NOT PROMPT. MULTICODE OK

	%
Encouraging children to take an interest in science and engineering	23
Enjoyment	23
Keep children amused	7
Providing a forum for debate/discussion on science and engineering	5
Teaching adults	32
Teaching children	30
To see science in action	18
Preservation of heritage	3
Remind how people used to live	6
Learning/education/knowledge/ information	19
Interesting/Personal interest	3
Other (PLEASE WRITE IN)	4
Nothing	3
Not stated	2
Don't know	7

Q. **What, if anything, are the main disadvantages of visiting science centres or science museums?** DO NOT PROMPT. MULTICODE OK

	%
Cost	15
Distance/Too far away	18
Difficult to get to/Awkward to get to	9
Lack of opportunity to ask questions/debate interesting issues	2
Lack of opportunity to meet scientists/talk to scientists	1
Lack of information	3
Not interested/Not for me	8
Overly geared towards children/Do not cater for adults	2
Do not cater enough for children	1
Not interactive enough	3
Not enough fun	2
Crowds/Queues	3
Tiring to walk around/Mobility problems	1

Boring/Uninspiring	2
Difficult to understand/Too technical	3
Parking/Cost of parking	1
Concerning/scared to see scientific advances	1
Other (PLEASE WRITE IN)	6
Nothing	36
Don't know	9

Q. SHOWCARD M (R) **Thinking now about scientists, which two or three of the following, if any, do you think is the most important in determining whether you trust scientists? Just read out the letter or letters.** CODE UP TO THREE

		%
A	Being older	6
B	Being apolitical/Non political	17
C	Competence	45
D	Credentials	22
E	Experience	52
F	Honesty	57
G	If they are from a Black or Minority Ethnic Group	*
H	If they are White	1
I	Independence	16
J	Being male	1
K	Being female	1
L	If they listen to my concerns	26
M	If they share my concerns	16
N	If they are smartly dressed/Smart appearance	2
O	If they are wearing white coats/white lab coats	3
	COMBINATIONS	
	Competence/Credentials/ Experience	77
	If they listen to my concerns/If they share my concerns	34
	If they are smartly dressed/Smart appearance/If they are wearing lab coats/white lab coats	4
	Nothing	1
	Don't know	2

Q. SHOWCARD N (R) **Would you say you personally trust scientists more or less, or about the same as you did five years ago?** IF MORE OR LESS **Is that a little more/a little less or much more/much less?** SINGLE CODE ONLY

	%
Trust them much more	3
Trust them a little more	12
About the same	70
Trust them a little less	11
Trust them much less	3
Trust them more	14
Trust them less	13
Don't know	2

Q. SHOWCARD O (R) **Which, if any, of the following, do you value as a source of information, support or advice about science? Just read out the letter or letters.** MULTICODE OK

		%
A	Companies/Industry/Business	6
B	Environmental campaigning groups (e.g. Greenpeace)	18
C	Friends and family	16
D	Government	11
E	GP/Family Doctors	31
F	Health campaigning groups (e.g. Alzheimer's Society)	20
G	Internet/Worldwide web	21
H	Magazines	18
I	Medical charities	13
J	Newspapers	25
K	Personal experience	14
L	Radio	17
M	Religious organisations	3
N	Scientists working for charities (e.g. Cancer Research UK)	28
O	Scientists working for government	9
P	Scientists working for industry	9
Q	Scientists working in universities	27
R	TV	42
S	Universities	18
T	Word-of-mouth	8
U	Work colleagues	7
	COMBINATIONS The media	57
	Scientists working for Government, industry or charities/Scientists working in universities	47
	Friends and family/Word-of-mouth/Work colleagues	25
	None of these	2
	Don't know	3

OST/WELLCOME TRUST TREND QUESTION (2000)

Q. SHOWCARD P (R) **Looking at this list of sources of information, which, if any, would you generally trust to provide accurate information about scientific facts? Just read out the letter or letters**. MULTICODE OK

Q. SHOWCARD P (R) AGAIN **Which one of these would you trust the most?** SINGLE CODE

Q. SHOWCARD P (R) AGAIN **And which one would you trust the least?** SINGLE CODE

		Q. %	Q. %	Q. %
A	People working for broadsheet newspapers	11	1	5
B	People working for tabloid newspapers	2	*	34
C	People working for the popular scientific press, e.g. New Scientist	23	5	1
D	Government scientists	14	3	13
E	Scientists working for industry	13	2	5
F	Scientists working in universities	43	17	*
G	Scientists working for charities (e.g. Cancer Research UK)	41	14	*
H	Health campaigning groups (e.g. Alzheimer's Society)	29	5	*
I	Environmental campaigning groups (e.g. Greenpeace)	20	4	1
J	Government advisory bodies	9	1	4
K	Government ministers/politicians	2	*	18
L	TV documentaries	45	10	2
M	TV news and current affairs programmes	30	6	2
N	Science books	30	8	*
O	Well-known scientists	30	12	*
P	Investigative journalists	15	4	5
	COMBINATIONS Scientists working for Government, industry or charities/Scientists working in universities	69	35	19
	TV documentaries/news and current affairs programmes	55	15	4
	Health/environmental campaigning groups	38	9	1

People working for broadsheet/tabloid newspapers/Investigative journalists	24	5	42	
Government scientists/Government advisory bodies/Government Ministers/politicians	19	4	34	
Other (WRITE IN)	*	*	*	NOT ON SHOWCARD
None	3	4	2	
Don't know	3	4	8	

IF 'SCIENTISTS WORKING IN UNIVERSITIES' (CODE 6) IS SELECTED AT Q, ASK Q-Q. OTHERS GO TO Q

Q.- Q. SHOWCARD Q (R) **Using this card, how much more or less do you trust scientists working in universities if they are funded by…** READ OUT Q.-Q. ROTATE ORDER… **or does it make no difference?** SINGLE CODE FOR EACH ✓ TICK START

Base: All those who trust scientists working in universities to provide accurate information about scientific facts (735)		Trust them much more	Trust them a little more	It makes no difference	Trust them a little less	Trust them much less	Don't know	Not stated
		%	%	%	%	%	%	%
Q.	**…government**	3	12	39	32	10	2	2
Q.	**…industry**	1	14	33	35	13	3	2
Q.	**…medical charities**	15	36	38	6	1	2	2
Q.	**…environmental groups**	7	26	42	16	4	3	2
Q.	**…campaign groups**	3	16	37	31	8	3	2

Q. SHOWCARD R (R) AGAIN **How much, if anything, would you say you know about the way science is regulated?** SINGLE CODE ONLY

	%
A great deal	1
A fair amount	11
Not very much	54
Not at all	30
Don't know	3

Q. SHOWCARD S (R) **Which, if any, of the following scientists are regulated…? Just read out the letter or letters.** MULTICODE OK

Scientists working for….

		%
A	**…companies**	35
B	**…universities**	43
C	**…government**	44
D	**…the NHS**	56
E	**…medical charities**	38
F	**…environmental groups**	21
G	**…campaign groups**	17
	None of these	2
	Don't know	31

ASK Q IF ANY SCIENTISTS ARE REGULATED (CODES 1 TO 7 AT Q). OTHERS GO TO Q

Q. **Who, if anyone, do you think regulates scientists?** DO NOT PROMPT. MULTICODE OK

Base: All those thinking that scientists are regulated	(1,188)
	%
Campaign groups/The campaign group the scientist works for	3
Charities/The charity the scientist works for	2
Companies/The company the scientist works for	8
Environmental groups/The environmental group the scientist works for	2
Science Council/Research Council	8
Shareholders	1
The EU	3
The Government/Government quango/department/agency	66
The NHS	5
The scientists themselves	6

The scientists' line manager/boss	2
The United Nations	2
Universities/The university the scientist works for	4
It varies	*
The Royal Society	4
Other (PLEASE WRITE IN)	3
Don't know	20

ASK Q IF ANY SCIENTISTS ARE REGULATED (CODES 1 TO 7 AT Q). OTHERS GO TO Q

Q. SHOWCARD T (R) **How much confidence, if any, do you have in the way science is regulated? Would you say…** READ OUT A-D. ALTERNATE ORDER. ✓ TICK START SINGLE CODE ONLY

Base: All those thinking that scientists are regulated (1,188)

			%
☐	A	**…A great deal**	3
	B	**…A fair amount**	48
	C	**…Not very much**	31
☐	D	**…None at all**	4
		Don't know	13

Q. **Why do you say that?** PROBE IN FULL AND WRITE IN

Those who have:	'**A great deal**' of confidence (46)	'**A fair amount**' of confidence (561)	'**Not very much**' confidence (362)	'**None at all**' (53)
I have trust/trust the regulators	30	21	-	2
There must be regulation/Can't not have regulation	26	16	1	-
We have to trust the scientists	11	8	*	-
That's my opinion/what I believe	8	5	3	7
They (the scientists) have strict guidelines	8	5	*	-
Scientists are self regulating/regulate self	5	3	1	-
From what I see on TV/News programmes	4	8	2	-
If not regulated there would be more catastrophes than there are now	1	9	1	-
Scientists have to be accountable	-	2	-	-
Not always told full story/whole truth	-	4	21	14
I do not know enough about the subject	-	-	17	-
Scientists are not always accountable	-	2	14	-
Catastrophies have happened/Look at…	-	2	12	11

Motivated by benefits to suit selves/regulate to suit themselves	-	*	7	3
It's motivated by money/profits	-	1	7	4
Do not trust who regulates them		1	6	15
It's motivated by politics	-	1	4	-
From what I read in newspapers/magazines	1	5	3	-
No one overall regulator/Too many regulators	-	1	2	3
Not always told the truth/Tell lies	1	*	2	10
Keep changing/changing minds/no consistency	-	1	3	2
There have been benefits of science/Scientists have done good things	-	1	-	-
From personal experiences	-	1	-	-
Scientists can never agree among themselves	-	*	-	2
I do not know enough about the subject	-	4	17	30
Don't know/Not stated	9	7	6	10

ASK ALL

Q. **If scientists have to communicate their research and its social and ethical implications, who do you think would be the most important groups to communicate with?** DO NOT PROMPT. MULTICODE OK

	%
Academics	5
Charities	4
End users/those who will put the research into practice (i.e. engineers)	9
Environmentalists/Environmental groups	6
Financiers/Funding bodies	1
General public/The public/Everyone/Taxpayers	32
Government/politicians/policy makers	21
Industry	2
The Media/The Press/TV	9
Medical field/Doctors/NHS	13
Other people in the same field e.g. Engineers, Technicians	6
People who will be directly affected (e.g patients, horse owners)	11
People with religious/ethical connections	3
Professional bodies/organisations	8
Specialist Journals/Scientific Journals	4
Students/Graduates/ Schoolchildren	3
Teachers/Schools/People in education	4
The scientific community	8
Their peers/colleagues/fellow scientists/researchers	7
Campaign groups	2
Other (PLEASE WRITE IN)	9
None/No answer	2
Don't know/Not stated	16

ALTERNATE ORDER OF ASKING Q AND Q

Q. **What, if any, would you say are the main BARRIERS to greater public involvement in decision-making and discussions about science?** DO NOT PROMPT. MULTICODE OK

	%
Campaigns by activist groups	2
Commercial or other barriers to publishing information	3
Government policy	7
I don't have the time/Lack of time	4
Insufficient media coverage	3
Lack of awareness among scientists of the public's understanding of science	10
Lack of communication skills among scientists	6
Lack of education	10
Lack of funding	4
Lack of knowledge about the facts of science/Lack of information	27
Lack of political will	3
Lack of public interest/Apathy/Indifference/ Lack of willingness	17
Lack of public understanding/appreciation	18
Little public understanding of what scientists do/ Lack of understanding of scientific processes	13
Media coverage (unspecified)	3
Negative media coverage	2
Mistrust of scientists/The public perception of scientists	4
Scientific jargon/Technical language/The terminology	4
The image of science – boring, uninteresting	3
The way science is taught at school	1
Level of public concern/Public being scared	3
Other (PLEASE WRITE IN)	12
Nothing	3
Don't know	19

Q. **And what, if any, would you say are the main BENEFITS from greater public involvement in decision-making and discussions about science?** DO NOT PROMPT. MULTICODE OK

	%
Ability to contribute to decision making/more informed opinions	11
Acceptance of change/ New ideas	6
Appreciation of where taxes go/Justify research funding	3
Better decision-making	6
Better knowledge/understanding of science is a benefit in itself	21
Better media coverage	3
Could give considered/informed opinions on social/ethical issues	7
Enables the public to judge science issues for themselves	17
Enables the public to make informed decisions about their lives	15
Enhances/Promotes science/ More interest shown in science	3
Feeling of fulfilment/job satisfaction for scientists	1
Greater accountability of scientists	5
Greater appreciation of the environment/ the world around us	8
Greater progress/Speedier progress	2
Greater support for our work/Will partake in tests/trials	1
Greater understanding of what scientists do	13
Help with schools/ Improved education spend	2
Improve the quality of their life	3
Improved choice	3
Improved democracy	1
Improved public trust in policy-makers and decision-makers	4
Improvements in	

society/general well-being of country/economy	2
Industrial benefits	1
Keeping up with technology/Knowing where things are going	7
Less manipulation by media/government/ independence of thinking	3
Less opposition to scientific research	2
Makes decision-makers more accountable	2
Medical benefits	4
More balanced debate	2
More career opportunities/More jobs for scientists	1
More funding for science	2
More people entering science education/science careers	3
More tolerance of scientists	1
Overcoming ignorance/ education of public	10
Peace of mind/Lessen fear	3
Policy-makers and decision-makers are better equipped	1
Reduce negativity/prejudice/change of people's mentality	5
Understanding the political implications of science/ research/ Can put pressure on Government/politicians	3
Other (PLEASE WRITE IN)	11
Nothing	4
Don't know	15

SIMILAR TO MORI/WELLCOME TRUST QUESTIONS 2000 (ASKED OF SCIENTISTS)

Q. - Q. SHOWCARD U (R) **I'd like to now look at communication between scientists and the general public. How strongly do you agree or disagree with the following statements?**
READ OUT Q.-Q. ROTATE ORDER AND ✓ TICK START. SINGLE CODE ONLY

	Strongly agree %	Tend to agree %	Neither agree nor dis-agree %	Tend to disagree %	Strongly disagree %	Don't know %	Not stated %
MORI/WELLCOME TRUST 2000							
I would like to spend more time than I do communicating the implications of my research to non-specialist audiences	*16*	*41*	*26*	*14*	*3*	*1*	-
Q. **…I would like more scientists to spend more time than they do discussing the implications of their research with the general public**	31	48	13	4	1	1	*
Difference	+15	+7	-13	-10	-2	-	-

MORI/WELLCOME TRUST 2000

	…Funders of scientific research should help scientists to communicate research findings and their social and ethical implications to the non-specialist public	*39*	*45*	*9*	*5*	*1*	*1*	*
Q.	**…Funders of scientific research should help scientists to discuss research and its social and ethical implications with the general public**	32	48	11	4	1	3	1
	Difference	-7	+3	+2	-1	-	+2	+1

Q.- SHOWCARD U (R) AGAIN **And how strongly do you agree or disagree with each of the**
Q. **following statements about science and scientists…?** READ OUT Q.-Q. ROTATE ORDER AND ✓ TICK START. SINGLE CODE FOR EACH

	Strongly agree %	Tend to agree %	Neither agree nor dis-agree %	Tend to disagree %	Strongly disagree %	Don't know %	Not stated %
☐ Q. **…On the whole, science will make our lives easier**							
UEA/MORI 2002	15	57	18	7	2	2	-
MORI/OST 2004	25	57	14	3	*	1	*
Change	+10	-	-4	-4	-2	-1	-
Q. **…Science makes a good contribution to society**							
UEA/MORI 2002	20	60	15	2	1	2	-
MORI/OST 2004	27	58	11	2	*	1	*
Change	+7	-2	-4	-	-1	-1	-
Q. **…Scientists should listen more to what ordinary people think**							
OST/Wellcome Trust 2000	19	50	14	10	2	-	-
UEA/MORI 2002	17	50	19	10	2	3	-
MORI/OST 2004	31	43	15	8	1	1	*
Change	+12	-7	+1	-2	-1	+1	-
Q. **…Scientists often try new things without thinking about the consequences**							
UEA/MORI 2002	14	38	26	16	3	4	-
MORI/OST 2004	20	41	20	14	2	3	*
Change	+6	+3	-6	-2	-1	-1	-
Q. **…The independence of scientists is often put at risk by the interests of their funders**							
UEA/MORI 2002	14	46	27	5	1	7	-
MORI/OST 2004	28	45	18	3	1	6	*
Change	+14	-1	-9	-2	-	-1	-
Q. **…The funding of science is becoming too commercialised**							
UEA/MORI 2002	13	41	30	9	1	6	-
MORI/OST 2004	21	36	22	10	2	10	*
Change	+8	-5	-12	+1	+1	+4	-
Q. **…It is important to know about science in my daily life**							
OST/Wellcome Trust 2000	10	49	21	15	3	-	-
MORI/OST 2004	22	49	15	11	2	1	*
Change	+12	-	-6	-4	-1	+1	-

Q. **…It is important that young people have a grasp of science and technology**

OST/Wellcome Trust 2000	37	54	6	1	*	-	-
MORI/OST 2004	59	37	3	1	*	1	1
Change	+22	-17	-3	-	-	+1	+1

Q. SHOWCARD V (R) **How much, if at all, do you feel the public should be consulted on decisions about scientific developments?** SINGLE CODE ONLY

	%
A great deal	26
A fair amount	55
Not very much	14
Not at all	2
Not stated	*
Don't know	3

Q. SHOWCARD W (R) **How much influence, if any, do you feel you personally have on decision-making about science or on scientific research that is conducted?** SINGLE CODE ONLY

Q. SHOWCARD W (R) AGAIN **And how much influence, if any, do you feel you <u>should</u> have on decision-making about science or on scientific research that is conducted?** SINGLE CODE ONLY

	Q. **Current** %	Q. **Should have** %
A great deal	1	6
A fair amount	6	50
Not very much	40	31
None at all	51	9
A great deal/A fair amount	7	56
Not very much/None at all	91	39
Don't know	1	4

Q. SHOWCARD X (R) **How far do you think the Government <u>listens to</u> the outcomes from public consultation on science?** SINGLE CODE ONLY

Q. SHOWCARD X (R) AGAIN **And how far do you think the Government <u>acts on</u> the outcomes from public consultation on science?** SINGLE CODE ONLY

	Q. %	Q. %
A great deal	1	1
A fair amount	21	17
Not very much	51	54
Not at all	20	19
A great deal/A fair amount	22	18
Not very much/Not at all	71	73
Don't know	7	8

Q. SHOWCARD Y (R) **If there was a national debate on a science-related issue, how interested would you be, if at all, in spending time at a discussion group to talk about these issues? Would you say…** READ OUT A-D. ALTERNATE ORDER AND ✓ TICK START. SINGLE CODE ONLY

			%
☐	A	**…Very interested**	8
	B	**…Fairly interested**	43
	C	**…Not very interested**	24
☐	D	**…Not at all interested**	21
		Don't know	1
		Not stated	*
		It depends	4

ASK Q IF VERY INTERESTED/FAIRLY INTERESTED/DEPENDS AT Q.

Q. SHOWCARD Z (R) **Which two or three of these, if any, would be most important to you in making a decision to take part in a discussion group to talk about a science-related issue? Just read out the letter or letters.** CODE UP TO THREE

	Base: All those who are 'very interested' or 'fairly interested' in spending time at a discussion group to talk about science issues, or say 'it depends'	(987) %	
A	Those seeking your views acting on the outcomes	36	
B	Being Paid	6	
C	Childcare provision/Payment for childcare	8	
D	Demonstrating that the outcomes have been acted upon	39	
E	Length of discussion/involvement required	20	
F	Local venue/Location of venue	44	
G	Not just a talking shop	17	
H	Subject matter/Issue	57	
I	Time of day/week	28	
J	Type of venue	7	
K	Whether refreshments are provided	2	
	Other (PLEASE WRITE IN)	1	NOT ON SHOWCARD
	None of these	*	
	Not stated	2	
	Don't know	1	

Q.- Q. SHOWCARD AA (R) **How strongly do you agree or disagree with each of the following statements…?** READ OUT Q-Q. ROTATE ORDER AND ✓ TICK START. SINGLE CODE FOR EACH

		Strongly agree %	Tend to agree %	Neither agree nor dis-agree %	Tend to disagree %	Strongly disagree %	Don't know %	Not stated %
☐ Q.	**…The more I know about science, the more worried I am**							
	OST/Wellcome Trust 2000	6	26	18	38	9	-	-
	MORI/OST 2004	7	28	25	31	9	1	1
	Change	+1	+2	+7	-7	-	+1	+1
Q.	**…The speed of development in science and technology means that it cannot be properly controlled by Government**							
	OST/Wellcome Trust 2000	8	33	20	25	4	-	-
	MORI/OST 2004	8	40	23	21	3	5	1
	Change	-	+7	+3	-4	-1	+5	+1
Q.	**…The media sensationalises science**							
	OST/Wellcome Trust 2000	16	48	18	10	1	-	-
	MORI/OST 2004	26	45	15	8	1	4	1
	Change	+10	-3	-3	-2	-	+4	+1

NEW QUESTIONS

☐ Q.	**…School put me off science**	6	14	14	37	26	2	1
Q.	**…We ought to hear about potential new areas of science and technology before they happen, not afterwards**	23	51	14	7	2	2	1
Q.	**…Those who regulate science need to communicate with the public**	32	55	8	2	*	2	1
☐ Q.	**…We have no option but to trust science**	11	42	17	23	6	1	1
Q.	**…We have no option but to trust those governing science**	9	39	17	25	8	2	1
Q.	**…Public consultation events are just public relations activities and don't make any difference to policy**	10	40	24	15	2	9	1
☐ Q.	**…Public consultation events are unrepresentative of public opinion**	10	40	24	13	2	11	1

	Q.	**…When publishing the results of research, scientists should always state how they were funded**	37	42	11	6	1	3	*
	Q.	**…The Government should listen to public concerns about science and technology**	43	49	5	2	*	1	1
☐	Q.	**…The Government should act in accordance with public concerns about science and technology**	32	49	12	5	1	1	1

Demographics

Gender

Male	49
Female	51

Exact Age

	%
16-24	14
25-34	19
35-44	18
45-54	16
55-59	7
60-64	6
65-74	10
75+	9

Working Status of Respondent:

Working - Full time (30+ hrs)	45
- Part-time (9-29 hrs)	10
Unemployed	4
Not working - retired	24
- looking after	9
- invalid/disabled	3
Student	6
Other	*

Class

A	4
B	20
C1	27
C2	21
D	14
E	14

Number of children in the household? SINGLE CODE ONLY

None	63
1	16
2	12
3	7
4 or more	*
Don't know/Refused	-

ASK IF CHILDREN IN HOUSEHOLD **What ages are the children in the household?** MULTICODE OK

0-4	15
5-7	11
8-10	10
11-15	13
Don't know/Refused	1

SHOWCARD BB (R) **Which of the following applies to you and your household? Please just read out the letter or letters that apply.** MULTICODE OK

		%
A	E-mail at home	51
B	E-mail at work, place of study or elsewhere	29
C	Internet at home	51
D	Internet at work, place of study or elsewhere	30
E	PC, laptop or notebook at home	50
F	PC, laptop or notebook at work, place of study or elsewhere	28
G	Interactive Digital TV	38
	None of these	24
	Don't know	*

SHOWCARD CC (R) **Which, if any, of the following applies to you? Just read out the letter or letters.** MULTICODE OK

A	Been a member of a science organisation in the last 5 years	4
B	Currently subscribe to a science magazine	4
C	Have (ever) worked as a scientist or engineer	9
D	Have a science or engineering degree	7
E	Have bought a science magazine in the past year	10
F	Have studied science to A level	13
G	Have studied science to degree level	7
H	Have studied science to GCSE/O Level	40
I	Have taught a science subject	6
J	I am a scientist	3
K	I am an engineer	8
L	I have never met a scientist or engineer	7
M	I have scientists or engineers among my friends and relatives	30
N	I meet scientists or engineers frequently (i.e. at least once a month)	12
O	I meet scientists or engineers infrequently (less than once a year)	6
P	I work with scientists or engineers	11
Q	Member of a science organisation	3
R	Once subscribed to a science magazine but don't now	5
S	I have looked up scientific information on the internet	27
	None of these	31
	Don't know	*

SHOWCARD DD **Which of the groups on this card do you consider you belong to? Again, just read out the letter that applies.** SINGLE CODE ONLY

		%
	WHITE	
A	British	89
B	Irish	2
C	Any other white background (PLEASE WRITE IN)	3
	MIXED	
D	White and Black Caribbean	*
E	White and Black African	*
F	White and Asian	*
G	Any other mixed background (PLEASE WRITE IN)	*
	ASIAN OR ASIAN	
H	Indian	1
I	Pakistani	1
J	Bangladeshi	*
K	Any other Asian background (PLEASE WRITE IN)	*
	BLACK OR BLACK	
L	Caribbean	1
M	African	1
N	Any other black background (PLEASE WRITE IN)	*
	CHINESE OR OTHER ETHNIC GROUP	
O	Chinese	*
	Any other background (PLEASE WRITE IN)	*
	Refused	-

SHOWCARD EE **Here is a list of <u>daily newspapers</u>. Which of these do you read or look at regularly? By regularly I mean on average at least three out of four issues**. MULTICODE OK

		%
A	Daily Express	6
B	Daily Mail	15
C	The Mirror	11
D	Daily Record	3
E	Daily Telegraph	6
F	Financial Times	1
G	The Guardian	6
H	The Herald (Glasgow)	*
I	The Independent	4
J	Metro	4
K	The Scotsman	1
L	Daily Star	4
M	The Sun	15
N	The Times	7
O	Evening Standard	3
	Other	9
	None of these	35

SHOWCARD FF **And which of these <u>Sunday newspapers</u> do you read or look at regularly? By regularly I mean on average at least three out of four issues**. MULTICODE OK

		%
A	News of the World	15
B	Sunday Express	4
C	Sunday Mail (Scotland only)	4
D	Sunday Mirror	7
E	Sunday Post	2
F	The Sunday Telegraph	4
G	The Mail on Sunday	12
H	The Observer	4
I	Sunday People	4
J	The Sunday Times	8
K	Scotland on Sunday	1
L	The Independent on Sunday	2
M	Sunday Business	*
N	Sunday Herald	*
	Other	3
	None of these	45