Surely that's banned?

A Report for the Royal Society of Chemistry on Chemicals & Procedures Thought to be Banned from Use in Schools

October 2005

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SCHOOL SCIENCE SERVICE

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The CLEAPSS® School Science Service is an advisory service supporting **practical** science (and technology) in schools, colleges, etc. It is largely funded by subscriptions from members. At the present moment every one of the 180 education authorities in England, Wales, Northern Ireland and the various islands is a member and hence all their schools have free access to CLEAPSS services. The vast majority of independent schools, post-16 colleges and teacher-training establishments are associate members, as are many curriculum developers, field study centres, hands-on museums and learned societies. There is a particular focus on health and safety.

CLEAPSS produces a large number of publications for members, ranging from termly newsletters for primary and secondary schools, a 1000-page *Laboratory Handbook*, *Hazcards*®, *Recipe Cards* and many leaflets and booklets. Much of this is now available on CD-ROMs. The members' `Helpline` takes about 6600 calls per year. CLEAPSS also runs about 180 courses per year, mostly 1-day. We are represented on several committees of the British Standards Institution and maintain a close dialogue with the Health and Safety Executive, the Qualifications and Curriculum Authority, professional bodies and others with an interest in science education.

SSERC fulfills a similar role in Scotland.

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Executive Summary

of a Report for the Royal Society of Chemistry on the Understanding of Schools & Education Authorities of Chemicals and Procedures Thought to be Banned from Use in Schools

There have been concerns nationally about the effectiveness of some of the science currently being taught in some secondary schools, especially to pupils in the period of statutory schooling. The Royal Society of Chemistry (RSC) is concerned about the teaching of practical science and in particular that

- there are a number of myths and misunderstandings about presumed bans on particular chemicals, activities or procedures in school science; and
- much effective teaching of practical science is being inhibited on spurious grounds of health and safety.

It asked CLEAPSS (a national advisory body supporting the teaching of practical science) to investigate whether these concerns are justified in secondary schools across the UK.

Questionnaires were sent to a sample of 1249 secondary schools of all types, in every education authority in England, Wales, Northern Ireland and the offshore islands. This is just over one quarter of all secondary schools in those areas. Similar questionnaires were sent to a sample of 447 Scottish secondary schools by SSERC (a sister body to CLEAPSS, operating in Scotland). The questions related partly to organisational aspects of health and safety in science but there were 40 questions about materials which might be used by schools or practical activities they might undertake. There was an approximately equal mix of biology, chemistry and physics but included some items relevant to all three sciences. The response rate by those circulated was just over 24% which is very good. Results were analysed by type of school and other criteria. Scottish practice is slightly different to that elsewhere. As there was a significant number of returns from Scottish schools, these have been analysed separately as well as within the complete sample.

Parallel questionnaires were also sent to 634 education officers in every education authority in the United Kingdom outside Scotland. The response rate was 10% which covered almost one third of those authorities circulated. About one third were from safety officers and almost two thirds from science advisers, etc. Where possible, results were compared with returns from their schools.

National and local bans of chemicals and science activities

Contrary to popular impressions, there are in fact very few science activities and chemicals which schools might consider using which are banned at a national level. The major ones are benzene (and any mixture or solution containing more than 1% benzene) and various ozone depleters. In addition to these outright bans there are a number of complicated restrictions on the dissection of eyes of various species, holdings of radioactive substances, making explosives, experiments involving cruelty to vertebrates and removal of protected species from the wild. The RSC has a list of banned chemicals, and those not recommended for use in schools on its web site at http://www.chemsoc.org/networks/learnnet/cldemo.htm.

Education employers could direct teachers not to use other chemicals or scientific activities, in addition to any national bans and restrictions. Of course, many chemicals and activities present hazards. A risk assessment must be carried out and any control measures implemented. In some cases it may be that there are safer alternatives which achieve the same educational aim. Some activities are suitable only for teacher demonstration or for use by older pupils.

Summary of the main findings

Almost 61% of education authorities replying (all from England and Wales) indicated that they did not ban any chemicals or activities, many amplifying this by saying that they strictly followed CLEAPSS guidance. There was a small number of returns which showed an inaccurate understanding about perceived national bans on a range of activities such as dissection, reduction of lead oxide and use of air rifles. However, almost all of the 40 items in the list, and indeed a few others not listed, were banned locally by at least one of those authorities who had such prohibitions in place. Officers from the same authority were not always in complete agreement about local policy and practice.

There were 45 authorities in which replies were received from both officers and schools. Three quarters of these authorities said they had no bans. Most of the schools in their areas correctly identified national bans on benzene and crude oil. However, the majority of schools also believed incorrectly that at least two or three other chemicals or activities, and sometimes many more, were also banned. Where education authorities had introduced local bans, schools' returns did not match the authority ones.

Almost all schools correctly identified benzene and crude oil as being banned nationally though less than half could produce documentary evidence. Despite this a few schools claim still to be using one or both of these materials. Just under one quarter of schools believed there was a ban on dissection of eyeballs which is only partially true. Beyond these there are a number of

misconceptions about what is banned nationally including 70% who believe it is illegal for pupils to sample their own blood and 32% who thought pupils' own saliva samples were banned. At least 15 other chemicals or activities in the list, including keeping giant African land snails, the ammonium dichromate volcano experiment and demonstrations of protactinium generators, were believed to be banned by between 10% and 30% of respondents, despite only a very small number of authorities who had local bans in place. Documentary evidence for these claims was, not surprisingly, rare. Ethical reasons were sometimes put forward as reasons for not carrying out some activities such as keeping small mammals but this reasoning was not often extended to cover activities such as using woodlice in choice chambers.

Fortunately, some of the more exciting or interesting activities are still being undertaken. Thus 97% of schools say they still demonstrate the reaction between potassium and water, 96% the van de Graaff generator and 90% the dissection of hearts.

Schools with and without sixth forms have broadly similar understanding about which chemicals and activities they believe to be banned. However, where significant differences do exist it is mainly those with sixth forms which are more adventurous. Independent schools were more able to provide documentary evidence for bans. Maintained schools incorrectly believed more items to be banned than independent schools. This may arise from differences in employers but the majority of education authorities responding did not have bans in addition to what is banned nationally. There were no major variations between schools of different sizes though smaller schools tended to believe more activities were banned even when they were not, and larger schools were more likely to carry out activities in the list. One might speculate that independent schools, those with sixth forms and larger schools generally would be more likely to have specialist equipment and suitably qualified specialist teachers, and thus more likely to undertake more adventurous activities. However, schools did not identify lack of expertise as a problem. Perhaps they do not realise what they are missing?

Broadly similar responses were received from teachers and technicians but fairly consistently teachers identified incorrectly more chemicals or activities which they believed to be banned. This may reflect the fact that many more technicians than teachers attend CLEAPSS and SSERC courses and use the CLEAPSS Helpline and thus are better informed.

Few items in the list were identified as being discouraged though not banned, despite this being the preferred terminology for many of those education authorities which did have local restrictions. Similarly, few activities were believed to be unsafe even when not banned. Slightly higher percentages were recorded for activities felt to be unsafe with the schools' pupils but even these were mostly below 10%. With some significant exceptions (eg, keeping animals, use of more expensive equipment), activities were not felt to be inhibited by a lack of resources.

Substantial percentages of schools discounted some of the more exciting, entertaining but pertinent activities because they believe they do not have time to use them or feel them not to be relevant to their work. The wide range of examples includes 45% not following the development of frog spawn, 28% not reducing lead oxide with charcoal and 15% not demonstrating power lines. The responses raise anxieties about approaches to teaching and the interpretation of curricular requirements.

Scottish schools were even more cautious than those across the UK generally. For example, over half of the respondents thought that pupils could not take samples of their own blood, use their own saliva in experiments or dissect eyeballs. About a third or more also believed that incubating pupils' own "finger dabs" on agar, lead oxide/charcoal reactions, power line demonstrations and protactinium generators were banned. Generally schools did not have substantiating documentation for these beliefs.

Conclusions

It appears that the Royal Society of Chemistry's concerns are substantially justified. There are significant misunderstandings on the part of teachers and technicians about the chemicals and scientific activities which are banned in secondary schools and some teaching is inhibited by unjustified concerns about health and safety.

With a few exceptions, there is little evidence to support the view that arbitrary decisions or over-reaction on the part of education authority officers is inhibiting good practical science; in practice, education authorities have banned very little.

The lack of resources to enable schools to use some chemicals and approaches is a continuing matter of concern. An equally worrying revelation is that schools do not feel they have time to undertake many of the activities included in the survey or that they do not see them as relevant to their courses.

There is already abundant advice available to schools from CLEAPSS and SSERC. It seems that much of it is ignored. The Royal Society of Chemistry produces many publications for teaching which document safe approaches to practical work. There is a need to improve the understanding of schools and employers about the balance between appropriate safety in science and exciting and stimulating science lessons.

Surely that's banned?

Contents

Surely that's banned?

A Report for the Royal Society of Chemistry on the Understanding of Schools and Education Authorities of Chemicals and Procedures Thought to be Banned from Use in Schools

1. Purpose of the investigation

Concerns have emerged nationally about the effectiveness of the teaching of practical science in some secondary schools, especially relating to pupils in the period of statutory schooling. The Royal Society of Chemistry (RSC) is concerned, in particular, that

- there are a number of myths and misunderstandings about presumed bans on particular chemicals, activities or procedures in school science; and
- much effective teaching of practical science is being inhibited on spurious grounds of health and safety.

The Consortium of Local Education Authorities for the Provision of Science Services (CLEAPSS) was commissioned in 2005 by the RSC to investigate whether these concerns are borne out in secondary schools teaching pupils who are of the statutory school age. The investigation was carried out with the cooperation of the Scottish Schools Equipment Research Centre (SSERC), the counterpart of CLEAPSS in Scotland.

2. Context for the investigation

An article in the journal *School Science Review* commented that

> *Accidents may happen in almost any part of the school building [but] the school science laboratory is … where accidents are very liable to occur unless adequate precautions are taken to guard against them.*

This article was, however, dated 1940 and recent statistics, both from the Health and Safety Executive and from local authorities, show that school science laboratories are one of the safest places in the school in terms of accidents arising from science activities carried out by pupils, teachers and technicians. Although just over 2% of the accidents to pupils in schools reported to the HSE under *RIDDOR*[1] occur in laboratories, due to a quirk of the reporting system, less than half of these result in any injury at all. This is mainly because health and safety is given high priority by school science staff in the light of extensive legislation, supported by guidance from employers whether they be education authorities or school governing bodies or boards.

The down side of this highly desirable concern for the safety of pupils and staff in science laboratories and preparation rooms is that a perceived threat of litigation in the event of an accident, and the occasional journalistic misreporting, has led some teachers to become over-cautious. They have stopped doing some of the more exciting and entertaining science activities which stimulate pupils and are relevant to what is being learned. Teachers feel under pressure because of the requirements of the national curricula and examination courses, the increasing expectations to achieve high standards in national examinations, the shortfall in school science departmental funding, often inadequate technician support and limited time to practice and prepare the more hazardous or spectacular demonstrations. When health and safety anxieties are added, it is not surprising that some teachers retreat at times from practical work to less-stimulating pencil and paper tasks.

More recently there have been pleas from some high profile and potentially influential people such as Professor Robert Winston, the author Bill Bryson and the Director of the Cheltenham Festival of Science, Kathy Sykes, to return to a more exciting and hands-on approach to school science. These moves are strongly supported by the learned societies such as the Institute of Biology, the Royal Society of Chemistry and the Institute of Physics as well as by CLEAPSS and its sister body in Scotland, SSERC. It is not without significance that of an annual 6500 calls from schools to the CLEAPSS science `Helpline`, about 65-70% are related to health and safety. Of the 30-40 calls per day during term time, typically about 15% are queries about perceived or possible bans. In practice, about 95% of these are unjustified concerns, most of which turn out to be misunderstandings by staff. This experience is mirrored in Scotland by SSERC. At least these callers have sought advice, although it is not known what effect this has on the actual activities undertaken in the classroom. Neither is it known how many other activities are simply not pursued because the member of staff does not have the time to obtain such clarification.

[1] *The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations.*

3. Methodology

Information was mainly collected through a questionnaire, which had been trialled with a small sample of schools and others and amended in the light of comments. The questions were partly related to organisational aspects of health and safety in science but mainly were concerned with materials which might be used by schools, or practical activities they might undertake. Originally almost 100 activities or chemicals had been identified by CLEAPSS staff and through an analysis of Helpline records as being plausibly banned. These were whittled down to 50 items for the trial questionnaires and, following discussions with both SSERC and the RSC, a final list of 40 items was used in the full survey. Of these about 14 could be broadly dassified as relating to biology, 15 to chemistry and 11 to physics, although some (such as the use of mercury thermometers) are relevant to all the sciences. These questionnaires were sent by CLEAPSS to a sample of 1249 secondary schools of all types, in all its member education authorities in England, Wales, Northern Ireland and the offshore islands. This is just over one quarter of all secondary schools in the country. Whilst every education authority was included, not all of the questionnaires went to education authority schools, some being sent to independent schools. The sample included a reasonable balance between different sizes of school, different types of school and the presence or otherwise of a sixth form. In addition, parallel questionnaires, also trialled, were sent to a total of 634 education authority officers including science advisers / inspectors and health & safety advisers in all the education authorities. Similar questionnaires were sent by SSERC to a sample of 447 Scottish secondary schools but not to Scottish education officers. Copies of the final questionnaires are shown in *Appendices 1* and *2*. Questionnaires were not, however, sent to post-16 colleges as the focus of the investigation was on the period of compulsory schooling, where the problems were thought to be greatest.

In addition, discussions were held with a few school staff and education authority officers to clarify points arising from the questionnaires. The Royal Society of Chemistry, CLEAPSS and SSERC are extremely grateful to all those in schools and local education authorities who took the time to complete the form despite being extremely busy.

Returns were received from 299 schools in England, Wales, Northern Ireland and the islands, representing a return rate of just under 25%. There was a similar response rate from Scottish schools (just over 24%). Although it was not possible to ensure that the returns retained the appropriate balance of school types and sizes, analysis shows that there was a reasonable representation of most kinds of schools. The questionnaire returns were entered into a database. Results for most of the questions posed to schools regarding perceived bans were analysed by type of school, school size, whether or not the school had a sixth form and whether replies came from teachers or technicians. Almost 52% of the school questionnaires were completed by teachers and a further 44% by (senior) technicians. Because Scottish practice is slightly different to that in the rest of the UK, returns from Scottish schools have been analysed separately as well as within the complete sample.

Returns were received from 66 education authority officers, a return of just over 10%. Almost 61% of education authority returns were from science advisers, inspectors or consultants and a further 33% by safety advisers or managers. Where more than one officer from the same authority responded, results were compared. Similarly, where officers and schools from the same education authority responded, results about actual bans and perceptions about bans were compared.

The outcomes of these analyses are discussed in the main findings and detailed figures are given in the *Appendices*.

4. Responsibilities of employers and employees under the *Health and Safety at Work Act*

Under the *Health and Safety at Work Act,* there is a legal obligation on employees to cooperate with their employer on health and safety matters. This means that, if an employer has banned a particular chemical or procedure, it is just as effectively banned for staff in that employer's schools as if there is national legislation making restrictions.

In England and Wales, education authorities are the employers in community and voluntary controlled schools. However, the governing body is the employer in foundation and voluntary aided schools. This distinction does not exist in Scotland – all maintained (ie, state) schools have the education authority as the employer. In Northern Ireland, the Education and Library Boards act as the employer for controlled schools, the Catholic Council of Maintained Schools for maintained schools and the Board of Governors in voluntary grammar schools and integrated colleges.

For independent schools, the employer may be the governing body, the proprietor or a charitable trust.

5. National and local bans

5.1 The general situation

Despite many misconceptions, there are very few science activities and chemicals which schools might consider using which are actually banned at a national level. The major ones are:

- benzene which is banned for all purposes except in motor fuels, scientific research and industrial processes (*COSHH Regulations* 2002, Schedule 2);
- any mixture or solution containing more than 0.1% benzene (thus including genuine crude oil) (*COSHH Regulations* 2002, Schedule 2);

- ozone-depleters (for use in diffusive purposes), the most likely to have been met in schools being tetrachloromethane and 1,1,1-trichloroethane (*COSHH Regulations* 2002, Schedule 2);

There are some materials which schools might have used in the past which would now be extremely difficult to obtain and/or may be very expensive. An example is white phosphorus which a few schools may still possess and use for demonstrations. It is not banned.

Of course, many other chemicals present significant hazards and a risk assessment must be undertaken and the significant findings then implemented. Often there may be safer alternatives which achieve the same educational effect. Some activities are suitable only for a teacher demonstration, others only for use by older pupils.

There are, in addition to the explicit bans above, a number of restrictions to certain, mainly biological, activities.

The main ones are as follows.

- Dissection of bovine eyes is only permissible if the animal from which the eyeballs came was 6 months old or younger when slaughtered (*Specified Risk Materials Regulations* 1997, amended 2000).
- Dissection of sheep and goats eyes is only permissible if the animal from which the eyeballs came was 12 months old or younger when slaughtered (*Specified Risk Materials Regulations* 1997, amended 2000).

Schools often find it difficult to obtain eyeballs which satisfy the above conditions but may have more success in finding suitable eyes from species not covered by these regulations at all.

Other restrictions include:

- maintained schools (ie all those other than independent schools) may hold a maximum of 100 g of uranium salts (*Administrative Memorandum 1/92*);
- maintained schools may not hold thorium compounds other than in thoron generators (*Administrative Memorandum 1/92*);
- schools are not allowed to make in excess of 100 g (until recently no more than 4 oz) of explosive materials (*Manufacture and Storage of Explosive Substances Regulations 2005*);
- no experiments involving cruelty to vertebrates are permitted in schools (*Protection of Animals Act* 1911);
- protected species must not be removed from the wild (*Wildlife and Countryside Act* 1981, amended 1998).

One can sympathise with busy schools trying to keep up to date with the complexities of some of this information. The best advice is to check CLEAPSS and SSERC bulletins regularly and to seek advice from these organisations. The Royal Society of Chemistry has a list on its web site http://www.chemsoc.org/networks/learnnet/cldemo.htm of banned chemicals and those not recommended for use in schools. This is taken from the 1996 DfES publication *Safety in School Science*.

In addition to these national bans, some education authorities may direct teachers not to use other chemicals or procedures at all and such directives must be followed just as stringently by schools for which they are the employer (mainly community and voluntary controlled schools) as national bans. Some education authorities prefer to use the terms “discouraged” or “not advised” rather than banned. In some of these instances specific additional precautions may be recommended (eg, in the power lines demonstrations) or alternatives suggested (eg, alternatives to the use of peanuts in situations where pupils are known to have nut allergy).

Where governing bodies are the employers, as in foundation, voluntary aided and independent schools, they also have the power to ban chemicals and activities which they believe to be too dangerous, in addition to any items nationally banned as noted above. There is little evidence that any have done so, although in practice the governing bodies of foundation and voluntary aided schools often follow the recommendations of the education authority, even although not required to do so.

Northern Ireland regulations tend to be broadly in line with those in England and Wales, although there is at present effectively a ban on taking cheek cells, saliva and blood samples. Where offshore islands have published health and safety guidance for school science, this tends to be in line with that in England and Wales. Whilst Regulations in Scotland are the same as those in England and Wales, SSERC has made recommendations that certain materials are unsuitable for use in schools. Because significant numbers of Scottish schools have responded to the questionnaire compared to schools in Wales and Northern Ireland, separate comments are made where significant differences have been shown in the analyses of data collected.

5.2 Specific situation about items used in the questionnaires

The following table lists the items which schools and local authority officers were asked about in the questionnaires. It also summarises briefly the position about national bans on these items.

Q1	*Keeping small mammals*	No national ban but must be no cruelty to vertebrates. Risk assessment needed.
Q2	*Keeping giant African land snails*	No national ban. Risk assessment needed.
Q3	*Inflating a sheep's lung (eg, with bellows)*	No national ban. Risk assessment needed.
Q4	*Using a choice chamber with woodlice*	No national ban.
Q5	*Bringing spawn of the common frog from a pond into school*	No national ban on the common frog. Risk assessment needed.
Q6	*Dissection of eyeballs*	No national ban on most species but bovine eyes must be from animals slaughtered at less than 6 months, sheep and goats less than 12 months. Risk assessment needed.
Q7	*Dissection of hearts*	No national ban. Risk assessment needed.
Q8	*Dissection of rats*	No national ban. Risk assessment needed.
Q9	*Pupils taking samples of their own cheek cells*	No national ban (except in Northern Ireland). Was strongly discouraged by DES in 1980s, but later modified. Risk assessment needed.
Q10	*Pupils using their own saliva in experiments*	No national ban (except in Northern Ireland). Risk assessment needed.
Q11	*Pupils taking samples of their own blood*	No national ban (except in Northern Ireland). Was very strongly discouraged by DES in 1980s, but later modified. Risk assessment needed.
Q12	*Incubating "finger dabs" on agar plates*	No national ban. Risk assessment needed.
Q13	*Burning peanuts in experiments*	No national ban but allergy is a common problem. Risk assessment needed.
Q14	*Using spirometers*	No national ban. Risk assessment needed.
Q15	*Exploding cans of custard powder, icing sugar, lycopodium powder or similar*	No national ban. Risk assessment needed.
Q16	*Exploding cans containing methane / air mixtures*	No national ban. Risk assessment needed.
Q17	*Demonstrating explosions of hydrogen / oxygen mixtures*	No national ban. Risk assessment needed.
Q18	*Reducing heated copper(II) oxide with hydrogen*	No national ban. Risk assessment needed.
Q19	*Dropping potassium into water*	No national ban. Risk assessment needed.
Q20	*Heating iron/sulfur mixtures*	No national ban. Risk assessment needed.

Q21	*Demonstrating the thermite reaction*	No national ban. Risk assessment needed.
Q22	*Use of benzene*	Banned under the COSHH (Amendment) Regulations.
Q23	*Demonstrating the iodine/aluminium reaction*	No national ban. Risk assessment needed.
Q24	*Using a blowpipe in lead oxide/charcoal reductions*	No national ban but to be avoided if pregnant or nursing females present. Risk assessment needed.
Q25	*Using bromine in diffusion demonstrations*	No national ban. Risk assessment needed.
Q26	*Demonstrating ammonium dichromate volcano*	No national ban. Risk assessment needed.
Q27	*Use of genuine crude oil*	Banned under the COSHH (Amendment) Regulations as it contains more than 0.1% benzene.
Q28	*Use of naphthalene (moth balls)*	No national ban. Risk assessment needed.
Q29	*Demonstrating reaction between propane-1,2,3-triol (glycerine) & pot-assium manganate(VII) (permanganate)*	No national ban. Risk assessment needed.
Q30	*Use of mercury thermometers*	No national ban. Risk assessment needed.
Q31	*Use of model steam engines*	No national ban. Risk assessment needed.
Q32	*Use of air rifles in momentum demonstrations*	No national ban. Risk assessment needed.
Q33	*Use of starting pistol in speed of sound experiments*	No national ban. Risk assessment needed.
Q34	*Making pupils' hair stand on end with van de Graaff generators*	No national ban. Risk assessment needed.
Q35	*Use of stroboscopes*	No national ban. Risk assessment needed.
Q36	*Showing magnetic fields with iron filings*	No national ban. Risk assessment needed.
Q37	*Use of EHT equipment up to 5000 volts at less than 5 mA*	No national ban. Risk assessment needed.
Q38	*Demonstrating the power line at mains voltage on the transmission line*	No national ban. Risk assessment needed. HSE has advised against certain types of apparatus.
Q39	*Demonstrations using sealed radioactive sources*	No national ban. Risk assessment needed.
Q40	*Demonstrations using protactinium generators*	No national ban. Risk assessment needed.

6. Overall findings from education authorities

6.1 Responses from education authorities (not Scotland)

There were 66 returns from 60 English and Welsh authorities. This represents just over one third of all local authorities circulated. (No questionnaires were sent to Scottish education authorities.) Of the returns, 60.6% were from science advisers (or inspectors or consultants), 33.3% from health and safety advisers or managers and 6.1% from officers with other titles.

60.6% of officers replying indicated that they did not ban any chemicals or activities although many amplified this by saying that they strictly followed CLEAPSS guidance. It is probably reasonable to assume that education authorities which said they did not ban anything actually meant they had not restricted the use of anything other than that which was banned nationally, although most did not make this clear. 33.3% of respondents said they **did** have bans in place, while a further 6.1% claimed not to know. In one of these instances (where there had been no science adviser for some years), receipt of the questionnaire had stimulated the authority to consult CLEAPSS about what advice they should give to schools with respect to health and safety in science.

Of the 33.3% who responded that they **did** have bans in place, all drew on CLEAPSS as their major source of guidance, just over two thirds used the DfES (or its equivalent), one half the HSE (or its equivalent) and one half local officer guidance. Over two thirds said that they implemented bans as a result of agreement between the science adviser etc and the health & safety adviser. It should be noted that not all authorities have a science adviser with responsibility for the whole period of statutory schooling.

Communication about bans and other safety matters is still mainly by newsletter (paper or electronic), though only half of the authorities with bans used training courses as a means of advising on health and safety matters. Over one half claim to include this information in an authority health and safety policy.

Any officer who indicated that his/her authority did not have any bans for school science was not required to complete the detailed section in the questionnaire relating to specific activities and materials. It is likely that these officers were assuming that any material banned nationally should not be included in their response since overall only 14 respondents (23%) correctly claimed that benzene was banned nationally in schools and 13 (21.3%) that genuine crude oil was similarly banned. If it is assumed that all those who said that they did not have any bans in place would have included items nationally banned, these figures would rise to 54 (almost 89%) and 53 (over 87%) respectively.

5 respondents overall (7.8% of the total sample) believed that pupils taking samples of their own blood was banned nationally and a further 3 (4.7%) had introduced local bans with respect to practical investigations of blood. Again, this only reflects responses from those education authority officers who indicated that they did have bans.

Other national bans **believed to be in place** by at least one authority included keeping giant African land snails, dissection of any eyeballs, burning peanuts, reducing lead oxide with charcoal, using naphthalene, reacting glycerine with potassium permanganate, using air rifles or starting pistols in physics experiments, power line demonstrations and using protactinium generators. Some of these were also identified as being subject to local bans, though some authorities were at pains to point out that they only use the term “ban” for nationally-banned materials or activities, preferring to use the term “discouraged” or “not recommended”.

In addition, use of almost all of the chemicals and activities included in the survey were, at the very least, discouraged by between one and seven authorities even though the vast majority were not banned nationally.

A few authorities identified materials or activities not included in the questionnaire which they had banned. These included making nitrogen tri-iodide and using ethanamide, mercury(II) oxide, chloral hydrate and car batteries. Other education authority bans are also known from regular communication with science advisers and health & safety officers in authorities which did not respond to this questionnaire. Reasons for some of these additional bans are not always apparent to schools and, indeed, to the authors of this report.

In only six instances were replies received from two officers in the same education authority so that comparisons of their responses are not statistically significant. The comparisons are nonetheless interesting. In three of these authorities, both the science adviser and the safety adviser agreed that they had no bans. In a fourth authority the health & environment officer indicated no bans while the science adviser banned use of crude oil. In a fifth authority, both officers agree that they have bans but their responses did not agree which chemicals and activities are banned. Interestingly they claimed that bans are reached by mutual agreement. In the sixth authority there was disagreement about whether the authority had bans or not, though both respondents stated that communications to schools about such matters are mutually agreed.

It is difficult to draw any firm conclusion from such a relatively small sample, also bearing in mind that officers are usually under severe time pressure. It is also difficult to extrapolate the picture emerging to the remaining two thirds of local authorities which did not reply to the questionnaire. However, it seems that about two thirds of education authorities do not ban anything other than that which is banned by national legislation. The remaining one third tend to ban only a very few things but for reasons not entirely clear. There seems to be much confusion.

6.2 Responses from education authorities and schools in their areas (not Scotland)

There were more education authorities represented in the schools' returns (130) than from the authority responses themselves (60). This excludes independent schools. A few education authority officers sent returns where none were received from any of their schools. However, a significant number of schools replied where no response had been received from the education authority. This has made interpretation of the overall implications less easy. Nevertheless, in 45 cases, replies were received from both education officers and one or more schools within the same local authority. Comparisons were made between their replies.

Three quarters of these education authorities said that they had no bans. The vast majority of schools in these authorities correctly identified benzene and crude oil as being banned. However, a similarly large majority of these schools also identified incorrectly a list of two to three activities (and sometimes as many as thirteen) other chemicals or activities which they believed to be banned locally or in some cases nationally. In the vast majority of cases, schools were able to offer no documentary evidence for these perceived bans. Indeed, even when evidence was offered it was often old, sometimes dating back twenty years, and had usually been superceded. In other cases, more careful reading of the evidence would have shown that the material or activity was not actually banned but simply needed precautions during use.

Where local authorities **had** introduced identified bans, schools' returns often did not exactly match the authority bans; most commonly schools identified additional materials, chemicals or activities which they perceived to have been banned.

7. Overall findings from schools

The questionnaire asked respondents to tick a box for each experiment corresponding to the following options:

- **A** I know that this is banned & enclose documentary evidence
- **B** I believe this is banned but do not have documentary evidence
- **C** This is not banned but is discouraged & documentary evidence is enclosed
- **D** This is not banned but I believe it to be unsafe to carry out
- **E** This is not banned but we don't do it because we don't think it is safe with our pupils
- **F** This is not banned but we don't do it because we don't have / can't afford the resources
- **G** This is not banned but we don't do it because we don't have the expertise
- **H** This is not banned but we don't do it because it is not relevant to our courses / don't have time
- **I** We do this sometimes, with appropriate safety precautions

Responses from schools have been analysed under a number of headings, eg, type of school, category of response A to I. Responses from Scotland are included in the overall results but in addition separately from the rest of the UK as there were some significant differences. The relatively small numbers of returns from Wales and Northern Ireland did not justify separate analysis for these parts of the UK. Not every school responded to every question. In order to achieve consistency of approach, the analysis has been based on the percentage of schools responding to each question rather than on the percentage of questionnaires returned. However, whichever system of analysis is used, the main trends remain broadly the same.

7.1 Overall picture, all UK schools

Almost all schools believed correctly that benzene (94.4%) and genuine crude oil (82.2%) were the subject of national bans in schools. Of these under one half (48.7% for benzene and 36.9% for crude oil) could produce documentary evidence for such a ban. A smaller percentage of schools in Scotland (32.4% for benzene and 14.4% for crude oil) could produce documentation in support of the bans than in the rest of the UK (54.6% for benzene and 45.0% for crude oil).

Despite these figures a small number of schools (0.5%) claimed to still use benzene and a slightly larger number (5.9%) to use crude oil. It is possible that in the latter case there may have been a misunderstanding since it is legal to use a crude oil substitute (CLEAPSS and SSERC having offered guidance) and respondents may not have realised it was a substitute.

Under a quarter of schools overall believe there is a national ban on the use of animal eyeballs in dissection (23.8% overall). Of these only 3.5% were able to provide documentary evidence for a ban. Figures for Scotland were significantly higher with 61% believing that there is a ban though only 6.0% were able to produce evidence. Few schools distinguished between use of eyeballs from different animal species in their returns yet 52.4% claim to still carry out such dissections though this figure is much lower for Scottish schools (17.0%). It is again uncertain whether this lack of detail from schools arises from lack of time to complete the questionnaire.

Beyond these chemicals or activities there are clearly a number of misconceptions about what is banned nationally or locally. For example a majority of schools (70.2%) believe that it is illegal for pupils to sample their own blood and

only 2.6% claim to still allow this activity. Only 15.1% could produce evidence of such a ban and much of this did not make a ban explicit or was out of date. The education authority responses showed that only 12.7% banned the activity. In Scotland 93.3% of respondents believe this to be illegal and no schools reported that their pupils carried out such tests.

32.1% of schools thought that pupils using their own saliva samples was illegal though under two percent could produce any evidence for this. One (less than 2%) of the responding education authorities actually banned this activity though several said they discouraged it. 26.0% of schools still carry out such activities. In Scotland, 56.8% of schools believe the use of saliva to be banned and 5.8% claim to have documentary evidence. Nevertheless 21.1% of schools still allow pupils to use their own saliva in experiments.

2.0% of schools overall could produce evidence that taking samples of cheek cells was banned and a further 18.0% believed this to be banned. The figures were higher for Scotland than in the rest of the UK (4.0% against 1.4% for evidence of a ban and 28.0% against 14.6% for undocumented belief). This figure is surprisingly high bearing in mind that cheek cells are explicitly mentioned in the QCA National Curriculum Programme of Study for Key Stage 3 for England.

Only rarely did more than one or two percent of schools claim to have documentary evidence of bans, national or local, for the other chemicals and scientific activities included in the questionnaire and even then it was sometimes not included, even though the questionnaire specifically asked for copies. However, significant percentages (of the order of 20%) believed that at least 15 other chemicals or activities in the questionnaire were also banned and this had a clear impact on the number of schools using the materials or activities. This list included keeping small mammals, keeping giant African land snails, inflating a sheep's lung, bringing frog spawn into school, dissecting rats, pupils taking samples of their own cheek cells, incubating finger dabs on agar, burning peanuts, lead oxide/charcoal reductions, the ammonium dichromate volcano demonstration, use of naphthalene, use of air rifles in momentum demonstrations, use of starting pistols in sound experiments, demonstrating power lines at mains voltages and demonstrating protactinium generators. In the vast majority of these cases figures for perceived bans in Scotland were much higher than in the rest of UK schools. This has resulted in a much lower percentage of schools actually carrying out experiments or demonstrations using these materials or activities in Scotland in particular.

In a few cases schools identified other reasons why they do not undertake certain activities, for example keeping small mammals, keeping giant African land snails or dissecting rats. These are most commonly based on what they describe as ethical reasons and it is clear that the proportions of schools actually undertaking such activities are low (respectively 17.6%, 14.1% and 28.3%). Yet the percentage of schools using woodlice in choice chambers remains high at 89.1%, as does inflation of sheep's lungs at 69.6%.

Some of the more exciting or interesting and relevant activities fortunately remain popular in schools. For example, 96.5% of schools still demonstrate the action of potassium and water, 95.7% still demonstrate the van de Graaff generator, 89.6% undertake dissection of hearts and 73.9% the thermite reaction. Most of the figures for take up of these experiments are lower in Scotland than in the rest of the UK.

Some schools indicating they had evidence for bans sent in photocopies of relevant documentation or made reference to CLEAPSS or SSERC publications. Most of these supported the school's claim but in some cases only gave a warning about precautions needed rather than banning the chemical or activity. A higher percentage of schools, however, did not enclose any supporting documentation at all, so their responses have been taken on trust.

7.2 Schools with and without sixth forms

Schools with and without sixth forms have broadly similar understanding about which chemicals and activities they believe to be banned, with or without documentary evidence. There were only minor differences in the extent to which many of these are used or carried out in science lessons. However, in the limited number of instances where significant differences between the two groups do exist (mainly in chemistry and physics) it is predominantly, though not entirely, schools with sixth forms which were more adventurous. Examples include use of the spirometer (63.0% to 38.1%), methane/air explosions (54.2% to 41.1%), copper oxide/hydrogen reductions (31.9% to 16.0%), iodine/aluminium reactions (45.6% to 18.9%), use of mercury thermometers (79.9% to 54.0%), use of stroboscopes (67.3% to 40.8%) and use of EHT equipment (82.0% to 38.8%).

Some of this may reflect the better availability of equipment in schools with sixth forms. One might also speculate that there would be more specialist teachers available in schools with sixth forms although most schools insisted that lack of teacher expertise is not a problem (see paragraph 7.10).

7.3 Type of school

The responses have been analysed into three groups of schools with broadly similar characteristics:

- maintained schools under local authority control (ie, community & voluntary controlled schools in England and Wales, the equivalent in Northern Ireland and all state schools in Scotland);
- maintained schools, where the governors are the employer and thus have responsibility for health and safety (foundation & voluntary aided schools in England and Wales and the equivalent in Northern Ireland); and

- independent schools.

In general, independent schools were more able to justify those activities which have been banned nationally with documentation. The maintained schools under local authority control believed more items to be banned (without documentary proof) and this perception gradually reduces across the three groups, with the lowest percentage being the independent school group. This may reflect a difference between employers but this is unlikely considering that the majority of local authorities responding said they did not ban any activities (section 6.1).

It follows that, overall, independent schools believe that fewer chemicals and activities are banned than maintained schools.

The greatest variation was observed in the percentage of schools actually carrying out the specified activities. Here responses indicated that the highest level of take up was most commonly, though not always, in independent schools, followed almost always by the maintained schools where the governors are the employer and then the maintained schools under local authority control. The most extreme examples of this include use of EHT equipment (90.5%, 68.8%, 66.4%), dissection of rats (53.2%, 36.0%, 19.7%) and hydrogen/oxygen explosions (71.4%, 56.4%, 62.6%).

Again, some of this may reflect the better availability of equipment in independent schools. One might again speculate that independent schools would have more confident specialist teachers despite most schools insisting that lack of teacher expertise is not a problem (see paragraph 7.10).

7.4 School size

Returns were based on three broad classifications of school size: under 500, between 500 and 999 and more than 1000 pupils. There are some minor variations in the responses between schools in these three size categories but generally results tended to be similar. Smaller schools tended to believe more chemicals and activities to be banned and a higher proportion of larger schools tended to carry out the activities included in the list.

This may yet again reflect the better availability of equipment in larger schools and the likelihood that they will have more specialist teachers.

7.5 Responses from teachers and technicians

52% of the returns were from teachers and 44% from technicians. Broadly speaking the two groups showed similar responses to the number of substances and procedures they believed to be banned. Fairly consistently a slightly higher proportion of teachers than technicians identified materials and activities believed to be banned (often incorrectly). Examples include 24.4% of teachers who believed that dissection of rats was banned compared with 9.1% of technicians and 43.3% who thought that power line demonstrations were banned compared to 26.1% of technicians. A higher percentage of technicians than teachers were able to produce documentation to support bans on crude oil and benzene. These differences may reflect the fact that many more technicians than teachers (about four times as many last year) attend CLEAPSS courses. Similarly, about 3.5 times as many technicians as teachers use the CLEAPSS `Helpline` and thus may be expected to be better informed.

Scottish teachers consistently identified a higher proportion than English teachers of chemicals and activities as being banned. For example 31.0% thought that the ammonium dichromate volcano was banned compared with 12.4% and 29.9% thought protactinium generators were banned compared with 7.8%. A different distribution route resulted in relatively few technicians in Scotland being given the opportunity to respond and hence too few Scottish technicians replied to be able to make valid comparisons.

7.6 Activities discouraged but not banned

Very few of the activities in the list were identified in the returns as being discouraged though not banned with documentary evidence being produced despite this being the preferred definition by a number of education authorities. Percentages of schools responding to this prompt were all below 10%. The highest figures were recorded for pupils taking their own blood samples (6.9%), use of naphthalene (5.9%) and burning peanuts (4.5%). Results were similar for Scotland and the rest of the UK.

7.7 Activities not banned but believed unsafe

Although higher than the previous category, most of the responses to this prompt were lower than 5%, and even the highest (burning peanuts) was under 20%. Other examples above 5% were using saliva (9.3%), exploding cans of methane/air mixtures (12.3%), exploding hydrogen/oxygen mixtures (8.0%), reducing copper oxide with hydrogen (9.0%), lead oxide/charcoal reductions (9.3%), bromine diffusion (9.8%), use of air rifles (12.0%) and power line demonstrations (9.7%). Broadly-similar results were obtained across the UK.

7.8 Activities not banned but believed unsafe with the school's pupils

Fewer than 5% of schools in England and Wales identified concerns when using the majority of chemicals and activities which are not banned. This is interesting and, perhaps, unexpected given public perceptions about discipline in schools. Activities which were believed to be more significantly unsafe with the schools' pupils included use of pupils' own saliva (17.2%), pupils taking samples of their own blood (9.2%), burning peanuts (23.3%), use of naphthalene (8.0%) and use of mercury thermometers (14.5%).

Generally there were lower percentages of schools in Scotland exhibiting anxieties to the same extent as would be expected. Nevertheless a few concerns were identified, the main ones being burning peanuts (22.2%), reducing copper(II) oxide with hydrogen (11.0%), using bromine in diffusion experiments (12.5%), use of mercury thermometers (13.9%) and use of air rifles in momentum experiments (10.6%).

7.9 Activities not banned but limited by resources

Schools claimed that the use of most of the activities and materials in the list was not inhibited significantly by lack of funds with some notable exceptions. These included keeping mammals (15.8%), keeping giant African land snails (9.7%), using spirometers (20.5%), reducing copper (II) oxide with hydrogen (11.6%), use of air rifles (13.3%), use of starting pistols (25.4%) and use of protactinium generators (26.2%). Whilst this list may not be extensive, many other experiments were identified by between 4 and 10 percent of schools. It would be a great pity if lack of funding was the cause of reduction of any practical activity. The CLEAPSS report for the RSC in 2004 on *Laboratories, Resources and Budgets* drew attention to significant under-resourcing of many maintained school science departments and these data provide further evidence of the impact of this shortfall.

The responses for Scotland were similar although demonstrations of radioactive sources (25.8%) was added to the list.

7.10 Activities not banned but limited by expertise

Few schools across the United Kingdom believed that lack of expertise was a major inhibiting factor to activities undertaken, all responses being lower than 5%. However, this is difficult to reconcile with the fact that schools which were more adventurous tended to be the ones more likely to be well-staffed with competent specialists. Perhaps the more-disadvantaged schools do not realise just how disadvantaged they are.

7.11 Insufficient time or relevance

The results to this section are revealing with substantial percentages of schools excluding consideration of some of the more exciting, entertaining and often pertinent activities because they believe that they do not have time for them or that they are not relevant to their work. 43.4% of all schools expressed this view about keeping small mammals, 49.6% about keeping giant African land snails, 42.8% about tracking the development of frog spawn brought in to school, 10.6% dissecting eyeballs, 40.9% dissecting rats, 11.6% pupils using their own saliva in experiments and 15.7% using a spirometer.

An even longer list of negative responses was recorded for chemical activities such as exploding cans of custard powder (16.6%), exploding air/methane mixtures (18.1%), hydrogen/oxygen explosions (9.3%), reduction of copper(II) oxide with hydrogen (32.5%), demonstrations of iodine/aluminium reactions (36.1%), reduction of lead oxide with charcoal (27.5%), demonstrating diffusion using bromine (13.1%), demonstrating the ammonium dichromate volcano (21.1%), use of naphthalene (31.5%) and reactions between glycerine and potassium permanganate (32.1%). This is despite curricular requirements for pupils to learn about reactions between the elements, oxidation and reduction and so on.

Responses to the physics section showed similar high proportions of schools identifying shortage of time or relevance for some key activities including use of air rifles in momentum experiments (18.1%), starting pistols in sound experiments (24.9%), use of stroboscopes (16.5%), use of EHT equipment (12.3%), power line demonstrations (13.0%) and use of protactinium generators (22.7%).

Although there were a few differences in the returns from Scottish schools, results showed broadly the same kind of trends.

It is unclear whether the high number of activities in this category is caused by a perceived lack of time or by a genuine belief that some of these activities are not relevant. Nevertheless the responses raise some serious anxieties about effective use of teaching time or interpretation of curricular programmes of study and examination specifications and about the interest which the teaching will generate amongst the pupils. Some of the activities above would be highly pertinent either as demonstrations for lesson starters, for example in topics such as reaction rates, or as main activities in topics such as sound.

7.12 Scottish schools

As noted in paragraph 3, a separate analysis was carried out on the 109 replies received from Scottish schools since this was a substantial number in comparison to those received from other parts of the UK excluding England and there were significant differences. Comparisons are made in the preceding paragraphs but the main points are drawn out again below.

A high proportion was aware that benzene and genuine crude oil were banned, though only about a third of these said they had supporting documentation. Over half of the respondents thought that pupils could not take samples of their own blood, use their own saliva in experiments or dissect eyeballs. About a third or more also believed that small mammals could not be kept, sheep's lungs could not be inflated, frog spawn could not be brought into schools, pupils could not take their own finger dabs, lead oxide/charcoal reactions were not permitted, naphthalene was banned, air rifles could not be used, power line could not be demonstrated and protactinium generators were not allowed. These

figures are generally higher than in the rest of the UK. Generally schools did not have substantiating documentation for these beliefs.

Despite this the responses to the survey indicated that some of the more interesting experiments are still carried out in a large majority of Scottish schools including exploding cans of custard powder (97.2%), using the van de Graaff generator (97.0%) and woodlice choice chamber experiments (94.0%).

Few activities were described as discouraged though not banned, mostly being under 10% as in the rest of the UK whilst those not banned but thought to be unsafe were also similar to the UK averages, mainly being under 5% with only a few exceptions.

Many activities were not thought to be inhibited by lack of resources, but those which were seen to be inhibited included keeping small mammals (17.8%), using spirometers (14.1%), using starting pistols in sound experiments (21.3%), using sealed radioactive sources (25.8%) and demonstrating protactinium generators (28.9%).

Lack of expertise was not thought to be an inhibiting factor. Criteria for the registration of teachers in Scotland result in there being specialist teachers of biology, chemistry and physics with degrees in those subjects, unlike many schools elsewhere in the UK.

As in the rest of the UK, substantial numbers of schools excluded some of the more exciting and entertaining activities because they did not feel they had time or believed them not to be pertinent to their courses. Over one quarter of the activities or chemicals in the list were included by more than 25% and sometimes nearly 50% of the schools responding. Almost half of the listed activities were not undertaken by over 10% of the schools. It is not easy to understand this in relation to known syllabuses.

The current 32 Scottish local authorities inherited some of the more restrictive practices that were put in place by their regional predecessors. In recent years, SSERC has attempted to ease many of these restrictions. Clearly, much more is required to publicise this fact.

8. Conclusions

The main conclusions which can be drawn from this survey seem to be that the Royal Society of Chemistry's concerns are substantially justified. There are significant misunderstandings about the chemicals and scientific activities which are banned in secondary schools and some teaching is inhibited by unjustified concerns about health and safety.

The high response of almost 25% from schools gives confidence in the validity of the conclusions. Although the response from education authorities was not as high, at about 10%, this is still one third of education authorities approached and is a sound basis on which to draw at least tentative conclusions.

Schools seem to be well informed about the dangers arising from the few chemicals nationally banned such as benzene and genuine crude oil, and to a lesser extent about dissection of animal eyeballs. However, although schools seem to show proper concern for their pupils in experiments such as working out the energy available from peanuts, these concerns seem to extend to a much wider range of chemicals and scientific activities than is justified by national or local bans or indeed common sense. The net result is that significant numbers of schools are not undertaking a wide enough range of demonstrations or pupil activities which are potentially exciting and interesting. Despite this some potentially hazardous but exciting experiments, such as the reaction between potassium and water, are still being extensively carried out. Ethical reasons put forward by some schools for limiting activities such as the keeping of small mammals do not seem to be consistently extended to other creatures such as woodlice in choice chamber experiments.

Technicians have a better understanding of what is and is not banned than teachers. Schools with sixth forms seem to encourage a slightly wider use of the activities and chemicals explored in the survey. Independent schools, and to a slightly lesser extent maintained schools where governors are the employer, seem to be slightly more adventurous in their choice of activities, as are larger schools

The lack of resources to enable schools to use some chemicals and approaches is a continuing matter of concern and needs to addressed. An equally worrying revelation is that schools do not feel they have time to undertake many of the activities included in the survey or that they do not see them as relevant to their courses.

Whilst some caution must be exercised in drawing too firm a conclusion about replies from education authorities given the response rate, they could do more to ensure that schools know what is both permissable and desirable to ensure stimulating and safe science lessons. However, with a few exceptions, there seems to be very little evidence to support the view that arbitrary decisions or over-reaction on the part of education authority officers is inhibiting good practical science.

There is already abundant advice available to schools from CLEAPSS and SSERC. It seems that much of it is ignored. The Royal Society of Chemistry produces many publications for teaching, documenting safe approaches to practical work. There is a need to improve the understanding of schools and employers about the balance between appropriate safety in science and exciting and stimulating science lessons. In particular it would be profitable for the above bodies

to work, or to continue to work, with a variety of groups, including the ASE, who have an influence on what science is taught and how it is taught in secondary schools. For example, they could work with:

- schools to ensure that there is a better understanding of what is banned and what is not to enable them to teach exciting but safe science;
- education authorities and other employers to ensure that there is a more consistent understanding of what is banned and what is not, to enable them to support schools in teaching exciting but safe science;
- government officials to ensure that there is sufficient funding within education authorities and the school system to support provision of scientific expertise and health and safety knowledge to support all science teachers and not only those lucky enough to be able to attend courses;
- the Secondary National Strategy for School Improvement so that its consultants can convey appropriate messages to schools;
- science learning centres to ensure that the provision which they make to support teachers and school science departments reflects current safe practice whilst encouraging exciting teaching;
- government officials to influence the future direction and style of science teaching both through changes to the national curricula and through broad national examination requirements;
- examination boards to influence the expectations of teaching styles within the national requirements;
- initial teaching institutions and their partner schools to ensure that sufficient emphasis is given to teaching exciting science safely within the context of the limited number of national and local bans;
- the National Advisers and Inspectors Group for Science (NAIGS) so that its members may become the main vehicles for bringing about the above improvements.

Appendices

Appendix 1 Questionnaire to Schools

Royal Society of Chemistry Project Questionnaire June 2005

Chemicals & Procedures Possibly Banned from use in Schools with Pupils aged 11 to 16

1. Information about you and your school

S1	Name of person filling in form		
S2	Position held		
S3	Name of education authority in which school situated		
S4	Name of school		
S5	School post code		
S6	Number of pupils on roll		
S7	Status of school *(please tick one box)*		
	• Community school (ie, ordinary LEA school in England)		
	• Voluntary controlled school		
	• Voluntary aided school		
	• Foundation school		
	• Independent school		
	• Other (*please specify*)		
S8	Age range of school		
	• 11/12 – 16		
	• 11/12 - 18		
	• 14 - 18		
	• 9/10/11 - 14		
	• Other (*please specify*)		

2. Science activities and chemical materials

A number of activities and materials are listed on the following pages. All these items have been raised by schools as being possibly banned. It is, of course, acknowledged that most, if not all the items do present significant hazards. They should only be carried out following a risk assessment in line with the employer's procedures and after adopting any necessary control measures.

For each item please tick <u>one</u> box to show whether you think that the activity/chemical is banned or not. If you have ticked the box showing that you have documentary evidence that there is a ban ***please enclose a copy of the relevant page/s***, making sure it is clear where they come from.

Please add any other activities/chemicals which you think are banned and which we have omitted, at the end (or, if there is insufficient space at the end, in the space here).

		A I know that this is banned & enclose documentary evidence	**B** I believe this is banned but do not have documentary evidence	**C** This is not banned but is discouraged & documentary evidence is enclosed	**D** This is not banned but I believe it to be unsafe to carry out	**E** This is not banned but we don't do it because we don't think it is safe with our pupils	**F** This is not banned but we don't do it because we don't have / can't afford the resources	**G** This is not banned but we don't do it because we don't have the expertise	**H** This is not banned but we don't do it because it is not relevant to our courses / don't have time	**I** We do this sometimes, with appropriate safety precautions
Q1	Keeping small mammals									
Q2	Keeping giant African land snails									
Q3	Inflating a sheep's lung (eg, with bellows)									
Q4	Using a choice chamber with woodlice									
Q5	Bringing spawn of the common frog from a pond into school									
Q6	Dissection of eyeballs									
Q7	Dissection of hearts									
Q8	Dissection of rats									
Q9	Pupils taking samples of their own cheek cells									
Q10	Pupils using their own saliva in experiments									
Q11	Pupils taking samples of their own blood									
Q12	Incubating "finger dabs" on agar plates									
Q13	Burning peanuts in experiments									
Q14	Using spirometers									
Q15	Exploding cans of custard powder, icing sugar, lycopodium powder or similar									
Q16	Exploding cans containing methane / air mixtures									
Q17	Demonstrating explosions of hydrogen / oxygen mixtures									
Q18	Reducing heated copper(II) oxide with hydrogen									
Q19	Dropping potassium into water									
Q20	Heating iron/sulfur mixtures									

		A I know that this is banned & enclose documentary evidence	**B** I believe this is banned but do not have documentary evidence	**C** This is not banned but is discouraged & documentary evidence is enclosed	**D** This is not banned but I believe it to be unsafe to carry out	**E** This is not banned but we don't do it because we don't think it is safe with our pupils	**F** This is not banned but we don't do it because we don't have / can't afford the resources	**G** This is not banned but we don't do it because we don't have the expertise	**H** This is not banned but we don't do it because it is not relevant to our courses / don't have time	**I** We do this sometimes, with appropriate safety precautions
Q21	Demonstrating the thermite reaction									
Q22	Use of benzene									
Q23	Demonstrating the iodine/aluminium reaction									
Q24	Using a blowpipe in lead oxide/charcoal reductions									
Q25	Using bromine in diffusion demonstrations									
Q26	Demonstrating ammonium dichromate volcano									
Q27	Use of genuine crude oil									
Q28	Use of naphthalene (moth balls)									
Q29	Demonstrating reaction between propane-1,2,3-triol (glycerine) and potassium manganate(VII) (permanganate)									
Q30	Use of mercury thermometers									
Q31	Use of model steam engines									
Q32	Use of air rifles in momentum demonstrations									
Q33	Use of starting pistol in speed of sound experiments									
Q34	Making pupils' hair stand on end with van de Graaff generators									
Q35	Use of stroboscopes									
Q36	Showing magnetic fields with iron filings									
Q37	Use of EHT equipment up to 5000 volts at less than 5 mA									
Q38	Demonstrating the power line at mains voltage on the transmission line									

		A I know that this is banned & enclose documentary evidence	**B** I believe this is banned but do not have documentary evidence	**C** This is not banned but is discouraged & documentary evidence is enclosed	**D** This is not banned but I believe it to be unsafe to carry out	**E** This is not banned but we don't do it because we don't think it is safe with our pupils	**F** This is not banned but we don't do it because we don't have / can't afford the resources	**G** This is not banned but we don't do it because we don't have the expertise	**H** This is not banned but we don't do it because it is not relevant to our courses / don't have time	**I** We do this sometimes, with appropriate safety precautions
Q39	Demonstrations using sealed radioactive sources									
Q40	Demonstrations using protactinium generators									

S9 Evidence for "Banned" Science activities and chemical materials

For those sections where you have ticked the box labelled "I know this is banned and enclose documentary evidence" have you enclosed a photocopy of the relevant page or section noting its source (eg "LEA Health & Safety Handbook")? **Yes/No**

S10 Please list here any other activities or chemicals you believe to be banned and are not included in the above list and enclose documentary evidence. (Use additional space on the front page if necessary.)

S11 Would you be prepared to give more details about activities and materials you believe to be banned if necessary? Yes/No

Thank you for your help. **PLEASE RETURN AS SOON AS POSSIBLE AND NO LATER THAN 5TH JULY.**

Please return using the enclosed FREEPOST label to CLEAPSS School Science Service, FREEPOST, Uxbridge, Middlesex, UB8 3BR or fax it to 01895 814372.

Appendix 2 Questionnaire to Education Officers

Royal Society of Chemistry Project Questionnaire June 2005

Chemicals & Procedures Possibly Banned from use in Schools with Pupils aged 11 to 16

2. Information about you and your education authority

E1	Name of person filling in form	
E2	Position held	
E3	Name of education authority	
E4	Address	
E5	Telephone	
E6	E-mail	

3. The approach of your education authority to banning chemicals or activities

E7 As far as I am aware, we do not formally ban or discourage the use of any chemicals or activities for science in secondary schools.

True / False / don't know

If you have answered "True" (ie, you do not ban or discourage anything) or "Don't know" there is no need to proceed any further.

If you have answered "False" (ie, you do ban or discourage certain items) please answer the remaining questions.

What source(s) of guidance does your education authority use to decide which activities are safe and which should be banned or discouraged?		
E8	CLEAPSS (or in Scotland, SSERC)	Yes / no
E9	DfES (in England) or equivalent education department in devolved administrations *If yes, please specify.*	Yes / no
E10	Health and Safety Executive (or Northern Ireland equivalent) *If yes, please specify.*	Yes / no
E11	Individual officers of the education authority *If yes, please specify.*	Yes / no
E12	Other *If yes, please specify.*	Yes / no
What is the status of any ban in your education authority?		
E13	It is a decision of education committee or equivalent	Yes / no
E14	It is authorised by a science adviser, inspector or equivalent, alone	Yes / no
E15	It is authorised by a health and safety adviser or equivalent, alone	Yes / no
E16	It is a joint decision by a health and safety adviser and a science adviser or equivalent	Yes / no
E17	Other *If yes, please specify.*	Yes / no
How do you inform schools about any bans ?		
E18	By means of a circular or newsletter (paper or electronic)	Yes / no
E19	It is incorporated in the authority's health and safety policy	Yes / no
E20	By training courses for teachers	Yes / no
E21	Other *If yes, please specify.*	Yes / no

3. Science activities and chemical materials

A number of activities and materials are listed on the following pages. All these items have been raised by schools as being possibly banned. It is, of course, acknowledged that most, if not all the items do present significant hazards. They should only be carried out following a risk assessment in line with the employer's procedures and after adopting any necessary control measures.

For each item please tick <u>one</u> box to show whether the activity/chemical is banned or not. If you have ticked the box showing that an item is banned (column P or Q) please enclose a copy of the relevant page/s, making sure it is clear where they come from.

Please add any other activities/chemicals which are banned and which we have omitted, at the end.

		P This is banned because it is banned nationally	**Q** This is banned by the education authority even although it is not banned nationally	**R** This is not banned but it is discouraged / not recommended	**S** This is not banned or discouraged by this education authority	If you have ticked column P, please state the source of the national information on which the ban is based (eg, DfES Memo 7/04) If you have ticked column Q or R please give the reason for the local action
Q1	Keeping small mammals					
Q2	Keeping giant African land snails					
Q3	Inflating a sheep's lung (eg, with bellows)					
Q4	Using a choice chamber with woodlice					
Q5	Bringing spawn of the common frog from a pond into school					
Q6	Dissection of eyeballs					
Q7	Dissection of hearts					
Q8	Dissection of rats					
Q9	Pupils taking samples of their own cheek cells					
Q10	Pupils using their own saliva in experiments					
Q11	Pupils taking samples of their own blood					
Q12	Incubating "finger dabs" on agar plates					
Q13	Burning peanuts in experiments					
Q14	Using spirometers					
Q15	Exploding cans of custard powder, icing sugar, lycopodium powder or similar					
Q16	Exploding cans containing methane / air mixtures					
Q17	Demonstrating explosions of hydrogen / oxygen mixtures					
Q18	Reducing heated copper(II) oxide with hydrogen					
Q19	Dropping potassium into water					
Q20	Heating iron/sulfur mixtures					

		P This is banned because it is banned nationally	**Q** This is banned by the education authority even although it is not banned nationally	**R** This is not banned but it is discouraged / not recommended	**S** This is not banned or discouraged by this education authority	If you have ticked column P, please state the source of the national information on which the ban is based (eg, DfES Memo 7/04) If you have ticked column Q or R please give the reason for the local action
Q21	Demonstrating the thermite reaction					
Q22	Use of benzene					
Q23	Demonstrating the iodine/aluminium reaction					
Q24	Using a blowpipe in lead oxide/charcoal reductions					
Q25	Using bromine in diffusion demonstrations					
Q26	Demonstrating ammonium dichromate volcano					
Q27	Use of genuine crude oil					
Q28	Use of naphthalene (moth balls)					
Q29	Demonstrating reaction between propane-1,2,3-triol (glycerine) and potassium manganate(VII) (permanganate)					
Q30	Use of mercury thermometers					
Q31	Use of model steam engines					
Q32	Use of air rifles in momentum demonstrations					
Q33	Use of starting pistol in speed of sound experiments					
Q34	Making pupils' hair stand on end with van de Graaff generators					
Q35	Use of stroboscopes					
Q36	Showing magnetic fields with iron filings					
Q37	Use of EHT equipment up to 5000 volts at less than 5 mA					
Q38	Demonstrating the power line at mains voltage on the transmission line					
Q39	Demonstrations using sealed radioactive sources					
Q40	Demonstrations using protactinium generators					

Turn over

E22 Evidence for "banned" science activities and chemical materials

For those sections where you have ticked box P or Q have you enclosed a photocopy of the relevant page or section noting its source (eg "LEA Health & Safety Handbook")? **Yes/No**

E23 Please list here any other activities or chemicals banned in your education authority and are not included in the above list and enclose documentary evidence.

E24 Would you be prepared to give more details about activities and materials banned in your education authority if necessary? Yes/No

Thank you for your help.

PLEASE RETURN AS SOON AS POSSIBLE AND NO LATER THAN 5TH JULY.

Please return using the enclosed **FREEPOST** label to **CLEAPSS School Science Service, FREEPOST, Uxbridge, Middlesex, UB8 3BR or fax it to 01895 814372**

Appendix 3 Analysis of circulation to, and responses from, schools

Table 3(a) Numbers sent to schools and returned

Country	*Number sent*	*Numbers returned*	*% returned*
England	1083	271	25.0
Wales	120	21	17.5
Northern Ireland	29	3	10.3
Scotland	447	109	24.4
Offshore islands	17	4	23.5
All	1696	408	24.1

Table 3(b) Position held by respondent

Position held	*All schools number*	*All schools %*	*England & Wales etc number*	*England & Wales etc %*	*Scotland number*	*Scotland %*
Teacher	212	52.0	116	38.8	96	88.1
Technician	180	44.1	173	57.9	7	6.42
Other	16	3.9	10	3.3	6	5.5
Total	408	100	299	100	109	100

Table 3(c) Age range of schools

Age range	*All schools number*	*All schools %*	*England & Wales etc number*	*England & Wales etc %*	*Scotland number*	*Scotland %*
With 6th form	305	74.8	206	68.9	99	90.8
No 6th form	103	25.3	93	31.1	10	9.2
Total	408	100	299	100	109	100

Table 3(d) Size of School

Number of pupils	*All schools number*	*All schools %*	*England & Wales etc number*	*England & Wales etc %*	*Scotland number*	*Scotland %*
Less than 500	58	14.2	27	9.0	31	28.4
500 to 1000	175	42.9	133	44.5	42	38.5
Over 1000	175	42.9	139	46.5	36	33.0

Table 3(e) Status of School

Type of school	*All schools number*	*All schools %*	*England & Wales etc number*	*England & Wales etc %*	*Scotland number*	*Scotland %*
Maintained schools under LA control (community schools, etc)	263	64.5	169	56.5	94	86.2
Maintained schools under governor control (Foundation & VA)	79	19.4	79	26.4	0	0.0
Independent	66	16.2	51	17.1	15	13.8

Appendix 4 Analysis of circulation to, and responses from, education authorities

Table 4(a) Numbers sent to education authorities and returned

Country	*Number sent*	*Numbers returned*	*% returned*
England	554	61	11.0
Wales	56	5	8.9
Northern Ireland	17	0	0.0
Offshore islands	7	0	0.0
Scotland	0	0	0
Total	634	66	10.4

Table 4(b) Position held by respondent

Position	*Number*	*%*
Science adviser / inspector	40	60.6
Health & safety adviser	22	33.3
KS3 consultant	1	1.5
Other	3	4.6
Total	66	100

Table 4 (c) Education authorities and local bans

Bans in addition to national bans	*Number*	*%*
No bans (True on questionnaire)	40	60.6
Additional local bans (False on questionnaire)	22	33.3
Don't know	4	6.1

Appendix 5 Analysis of schools' replies

Table 5(a) All schools: main summary

		A *Banned + evidence*		*B* *Believed banned no evidence*		*C-H* *Not banned but ….*		*I* *Sometimes done*		*Total response*
		No	%	No	%	No	%	No	%	No
Q1	*Keeping small mammals*	1	0.3%	40	10.2%	282	71.9%	69	17.6%	392
Q2	*Keeping giant African land snails*	2	0.5%	44	11.5%	282	73.8%	54	14.1%	382
Q3	*Inflating a sheep's lung (eg, with bellows)*	1	0.3%	43	10.9%	76	19.2%	275	69.6%	395
Q4	*Using a choice chamber with woodlice*	1	0.3%	1	0.3%	41	10.4%	350	89.1%	393
Q5	*Bringing spawn of the common frog from a pond into school*	6	1.6%	74	19.4%	203	53.3%	98	25.7%	381
Q6	*Dissection of eyeballs*	14	3.5%	80	20.3%	94	23.8%	207	52.4%	395
Q7	*Dissection of hearts*	1	0.3%	17	4.3%	23	5.8%	355	89.6%	396
Q8	*Dissection of rats*	5	1.3%	59	15.5%	209	54.9%	108	28.3%	381
Q9	*Pupils taking samples of their own cheek cells*	8	2.0%	71	18.0%	86	21.8%	229	58.1%	394
Q10	*Pupils using their own saliva in experiments*	7	1.8%	120	30.3%	166	41.9%	103	26.0%	396
Q11	*Pupils taking samples of their own blood*	59	15.1%	216	55.1%	107	27.3%	10	2.6%	392
Q12	*Incubating "finger dabs" on agar plates*	3	0.8%	55	14.2%	81	20.9%	249	64.2%	388
Q13	*Burning peanuts in experiments*	7	1.8%	71	17.8%	194	48.6%	127	31.8%	399
Q14	*Using spirometers*	0	0.0%	4	1.1%	157	42.4%	209	56.5%	370
Q15	*Exploding cans of custard powder, icing sugar, lycopodium powder or similar*	0	0.0%	21	5.4%	107	27.3%	264	67.3%	392
Q16	*Exploding cans containing methane / air mixtures*	3	0.8%	34	8.9%	150	39.4%	194	50.9%	381
Q17	*Demonstrating explosions of hydrogen / oxygen mixtures*	2	0.5%	23	5.8%	123	30.9%	250	62.8%	398
Q18	*Reducing heated copper(II) oxide with hydrogen*	1	0.3%	22	5.8%	250	66.0%	106	28.0%	379
Q19	*Dropping potassium into water*	0	0.0%	11	2.7%	3	0.7%	389	96.5%	403
Q20	*Heating iron/sulfur mixtures*	0	0.0%	3	0.7%	26	6.5%	373	92.8%	402

		A Banned + evidence		B Believed banned no evidence		C-H Not banned but ….		I Sometimes done		Total response
		No	%	No	%	No	%	No	%	No
Q21	*Demonstrating the thermite reaction*	2	0.5%	16	4.1%	85	21.6%	291	73.9%	394
Q22	*Use of benzene*	194	48.7%	182	45.7%	20	5.0%	2	0.5%	398
Q23	*Demonstrating the iodine/aluminium reaction*	0	0.0%	32	8.4%	200	52.6%	148	38.9%	380
Q24	*Using a blowpipe in lead oxide/charcoal reductions*	2	0.5%	60	15.4%	200	51.4%	127	32.6%	389
Q25	*Using bromine in diffusion demonstrations*	1	0.3%	22	5.7%	139	35.7%	227	58.4%	389
Q26	*Demonstrating ammonium dichromate volcano*	5	1.3%	57	14.7%	147	37.8%	180	46.3%	389
Q27	*Use of genuine crude oil*	145	36.9%	178	45.3%	47	12.0%	23	5.9%	393
Q28	*Use of naphthalene (moth balls)*	16	4.3%	109	29.1%	201	53.6%	49	13.1%	375
Q29	*Demonstrating reaction between propane-1,2,3-triol (glycerine) and potassium manganate(VII) (permanganate)*	4	1.1%	22	5.9%	177	47.7%	168	45.3%	371
Q30	*Use of mercury thermometers*	1	0.3%	20	5.1%	84	21.4%	288	73.3%	393
Q31	*Use of model steam engines*	0	0.0%	9	2.3%	77	19.4%	311	78.3%	397
Q32	*Use of air rifles in momentum demonstrations*	2	0.5%	113	30.1%	211	56.3%	49	13.1%	375
Q33	*Use of starting pistol in speed of sound experiments*	1	0.3%	48	13.3%	236	65.2%	77	21.3%	362
Q34	*Making pupils' hair stand on end with van de Graaff generators*	0	0.0%	3	0.8%	14	3.6%	376	95.7%	393
Q35	*Use of stroboscopes*	1	0.3%	17	4.5%	117	30.6%	247	64.7%	382
Q36	*Showing magnetic fields with iron filings*	0	0.0%	1	0.3%	9	2.3%	379	97.4%	389
Q37	*Use of EHT equipment up to 5000 volts at less than 5 mA*	2	0.5%	21	5.5%	88	23.1%	270	70.9%	381
Q38	*Demonstrating the power line at mains voltage on the transmission line*	11	3.0%	117	31.6%	136	36.8%	106	28.6%	370
Q39	*Demonstrations using sealed radioactive sources*	1	0.3%	5	1.3%	59	15.1%	325	83.3%	390
Q40	*Demonstrations using protactinium generators*	4	1.1%	45	12.3%	215	58.7%	102	27.9%	366

Table 5(b) UK schools, outside Scotland: main summary

		A Banned + evidence		*B Believed banned no evidence*		*C-H Not banned but ….*		*I Sometimes done*		*Total response*
		No	%	No	%	No	%	No	%	No
Q1	*Keeping small mammals*	0	0.0%	12	4.1%	221	75.9%	58	19.9%	291
Q2	*Keeping giant African land snails*	0	0.0%	22	7.7%	224	78.0%	41	14.3%	287
Q3	*Inflating a sheep's lung (eg, with bellows)*	0	0.0%	17	5.8%	49	16.7%	228	77.6%	294
Q4	*Using a choice chamber with woodlice*	1	0.3%	1	0.3%	35	11.9%	256	87.4%	293
Q5	*Bringing spawn of the common frog from a pond into school*	1	0.3%	42	14.6%	162	56.4%	82	28.6%	287
Q6	*Dissection of eyeballs*	8	2.7%	25	8.5%	72	24.4%	190	64.4%	295
Q7	*Dissection of hearts*	0	0.0%	1	0.3%	8	2.7%	286	96.9%	295
Q8	*Dissection of rats*	0	0.0%	20	7.0%	160	56.3%	104	36.6%	284
Q9	*Pupils taking samples of their own cheek cells*	4	1.4%	43	14.6%	72	24.5%	175	59.5%	294
Q10	*Pupils using their own saliva in experiments*	1	0.3%	67	22.9%	143	49.0%	81	27.7%	292
Q11	*Pupils taking samples of their own blood*	42	14.6%	135	47.0%	100	34.8%	10	3.5%	287
Q12	*Incubating "finger dabs" on agar plates*	1	0.3%	27	9.3%	53	18.3%	209	72.1%	290
Q13	*Burning peanuts in experiments*	6	2.1%	55	18.9%	155	53.3%	75	25.8%	291
Q14	*Using spirometers*	0	0.0%	2	0.7%	131	46.0%	152	53.3%	285
Q15	*Exploding cans of custard powder, icing sugar, lycopodium powder or similar*	0	0.0%	20	7.0%	105	36.8%	160	56.1%	285
Q16	*Exploding cans containing methane / air mixtures*	3	1.1%	33	11.9%	122	44.0%	119	43.0%	277
Q17	*Demonstrating explosions of hydrogen / oxygen mixtures*	2	0.7%	18	6.1%	90	30.7%	183	62.5%	293
Q18	*Reducing heated copper(II) oxide with hydrogen*	0	0.0%	15	5.4%	180	64.5%	84	30.1%	279
Q19	*Dropping potassium into water*	0	0.0%	1	0.3%	1	0.3%	296	99.3%	298
Q20	*Heating iron/sulfur mixtures*	0	0.0%	1	0.3%	17	5.7%	279	93.9%	297

		A Banned + evidence		B Believed banned no evidence		C-H Not banned but ….		I Sometimes done		Total response
		No	%	No	%	No	%	No	%	No
Q21	*Demonstrating the thermite reaction*	0	0.0%	3	1.0%	29	9.8%	265	89.2%	297
Q22	*Use of benzene*	160	54.6%	120	41.0%	12	4.1%	1	0.3%	293
Q23	*Demonstrating the iodine/aluminium reaction*	0	0.0%	16	5.7%	159	56.4%	107	37.9%	282
Q24	*Using a blowpipe in lead oxide/charcoal reductions*	1	0.3%	28	9.7%	150	51.9%	110	38.1%	289
Q25	*Using bromine in diffusion demonstrations*	0	0.0%	7	2.4%	94	32.1%	192	65.5%	293
Q26	*Demonstrating ammonium dichromate volcano*	3	1.0%	26	9.0%	112	38.8%	148	51.2%	289
Q27	*Use of genuine crude oil*	130	45.0%	120	41.5%	33	11.4%	6	2.1%	289
Q28	*Use of naphthalene (moth balls)*	11	3.9%	69	24.6%	161	57.5%	39	13.9%	280
Q29	*Demonstrating reaction between propane-1,2,3-triol (glycerine) and potassium manganate(VII) (permanganate)*	3	1.1%	14	5.0%	138	49.6%	123	44.2%	278
Q30	*Use of mercury thermometers*	1	0.3%	9	3.1%	62	21.2%	220	75.3%	292
Q31	*Use of model steam engines*	0	0.0%	4	1.4%	60	20.3%	232	78.4%	296
Q32	*Use of air rifles in momentum demonstrations*	2	0.7%	75	26.7%	167	59.4%	37	13.2%	281
Q33	*Use of starting pistol in speed of sound experiments*	1	0.4%	29	10.6%	185	67.8%	58	21.2%	273
Q34	*Making pupils' hair stand on end with van de Graaff generators*	0	0.0%	2	0.7%	12	4.1%	280	95.2%	294
Q35	*Use of stroboscopes*	1	0.3%	9	3.1%	89	30.8%	190	65.7%	289
Q36	*Showing magnetic fields with iron filings*	0	0.0%	1	0.3%	2	0.7%	290	99.0%	293
Q37	*Use of EHT equipment up to 5000 volts at less than 5 mA*	1	0.3%	18	6.3%	80	27.8%	189	65.6%	288
Q38	*Demonstrating the power line at mains voltage on the transmission line*	6	2.2%	72	25.8%	115	41.2%	86	30.8%	279
Q39	*Demonstrations using sealed radioactive sources*	0	0.0%	2	0.7%	23	7.8%	268	91.5%	293
Q40	*Demonstrations using protactinium generators*	0	0.0%	20	7.2%	166	60.1%	90	32.6%	276

Table 5(c) Schools in Scotland: main summary

A Banned + evidence	B Believed banned no evidence	C-H Not banned but ….	I Sometimes done	Total response

		No	%	No	%	No	%	No	%	**No**
Q1	*Keeping small mammals*	1	1.0%	28	27.7%	61	60.4%	11	10.9%	101
Q2	*Keeping giant African land snails*	2	2.1%	22	23.2%	58	61.1%	13	13.7%	95
Q3	*Inflating a sheep's lung (eg, with bellows)*	1	1.0%	26	25.7%	27	26.7%	47	46.5%	101
Q4	*Using a choice chamber with woodlice*	0	0.0%	0	0.0%	6	6.0%	94	94.0%	100
Q5	*Bringing spawn of the common frog from a pond into school*	5	5.3%	32	34.0%	41	43.6%	16	17.0%	94
Q6	*Dissection of eyeballs*	6	6.0%	55	55.0%	22	22.0%	17	17.0%	100
Q7	*Dissection of hearts*	1	1.0%	16	15.8%	15	14.9%	69	68.3%	101
Q8	*Dissection of rats*	5	5.2%	39	40.2%	49	50.5%	4	4.1%	97
Q9	*Pupils taking samples of their own cheek cells*	4	4.0%	28	28.0%	14	14.0%	54	54.0%	100
Q10	*Pupils using their own saliva in experiments*	6	5.8%	53	51.0%	23	22.1%	22	21.2%	104
Q11	*Pupils taking samples of their own blood*	17	16.2%	81	77.1%	7	6.7%	0	0.0%	105
Q12	*Incubating "finger dabs" on agar plates*	2	2.0%	28	28.6%	28	28.6%	40	40.8%	98
Q13	*Burning peanuts in experiments*	1	0.9%	16	14.8%	39	36.1%	52	48.1%	108
Q14	*Using spirometers*	0	0.0%	2	2.4%	26	30.6%	57	67.1%	85
Q15	*Exploding cans of custard powder, icing sugar, lycopodium powder or similar*	0	0.0%	1	0.9%	2	1.9%	104	97.2%	107
Q16	*Exploding cans containing methane / air mixtures*	0	0.0%	1	1.0%	28	26.9%	75	72.1%	104
Q17	*Demonstrating explosions of hydrogen / oxygen mixtures*	0	0.0%	5	4.8%	33	31.4%	67	63.8%	105
Q18	*Reducing heated copper(II) oxide with hydrogen*	1	1.0%	7	7.0%	70	70.0%	22	22.0%	100
Q19	*Dropping potassium into water*	0	0.0%	10	9.5%	2	1.9%	93	88.6%	105
Q20	*Heating iron/sulfur mixtures*	0	0.0%	2	1.9%	9	8.6%	94	89.5%	105

		A *Banned + evidence*		*B* *Believed banned no evidence*		*C-H* *Not banned but ….*		*I* *Sometimes done*		*Total response*
		No	%	No	%	No	%	No	%	**No**
Q21	*Demonstrating the thermite reaction*	2	2.1%	13	13.4%	56	57.7%	26	26.8%	97
Q22	*Use of benzene*	34	32.4%	62	59.0%	8	7.6%	1	1.0%	105
Q23	*Demonstrating the iodine/aluminium reaction*	0	0.0%	16	16.3%	41	41.8%	41	41.8%	98
Q24	*Using a blowpipe in lead oxide/charcoal reductions*	1	1.0%	32	32.0%	50	50.0%	17	17.0%	100
Q25	*Using bromine in diffusion demonstrations*	1	1.0%	15	15.6%	45	46.9%	35	36.5%	96
Q26	*Demonstrating ammonium dichromate volcano*	2	2.0%	31	31.0%	35	35.0%	32	32.0%	100
Q27	*Use of genuine crude oil*	15	14.4%	58	55.8%	14	13.5%	17	16.3%	104
Q28	*Use of naphthalene (moth balls)*	5	5.3%	40	42.1%	40	42.1%	10	10.5%	95
Q29	*Demonstrating reaction between propane-1,2,3-triol (glycerine) and potassium manganate(VII) (permanganate)*	1	1.1%	8	8.6%	39	41.9%	45	48.4%	93
Q30	*Use of mercury thermometers*	0	0.0%	11	10.9%	22	21.8%	68	67.3%	101
Q31	*Use of model steam engines*	0	0.0%	5	5.0%	17	16.8%	79	78.2%	101
Q32	*Use of air rifles in momentum demonstrations*	0	0.0%	38	40.4%	44	46.8%	12	12.8%	94
Q33	*Use of starting pistol in speed of sound experiments*	0	0.0%	19	21.3%	51	57.3%	19	21.3%	89
Q34	*Making pupils' hair stand on end with van de Graaff generators*	0	0.0%	1	1.0%	2	2.0%	96	97.0%	99
Q35	*Use of stroboscopes*	0	0.0%	8	8.6%	28	30.1%	57	61.3%	93
Q36	*Showing magnetic fields with iron filings*	0	0.0%	0	0.0%	7	7.3%	89	92.7%	96
Q37	*Use of EHT equipment up to 5000 volts at less than 5 mA*	1	1.1%	3	3.2%	8	8.6%	81	87.1%	93
Q38	*Demonstrating the power line at mains voltage on the transmission line*	5	5.5%	45	49.5%	21	23.1%	20	22.0%	91
Q39	*Demonstrations using sealed radioactive sources*	1	1.0%	3	3.1%	36	37.1%	57	58.8%	97
Q40	*Demonstrations using protactinium generators*	4	4.4%	25	27.8%	49	54.4%	12	13.3%	90

Table 5(d) All schools: summary of sections C to H (not banned but…)

		C *Not banned but discouraged*		*D* *Not banned but believed unsafe*		*E* *Not banned but believed unsafe with own pupils*		*F* *Not banned but not affordable*		*G* *Not banned but don't have expertise*		*H* *Not banned but not relevant*		*Total Response*
		No	**%**	No	**%**	No	**%**	No	**%**	No	**%**	No	**%**	**No**
Q1	*Keeping small mammals*	7	1.8%	8	2.0%	21	5.4%	62	15.8%	14	3.6%	170	43.4%	392
Q2	*Keeping giant African land snails*	5	1.3%	8	2.1%	10	2.6%	37	9.7%	32	8.4%	190	49.7%	382
Q3	*Inflating a sheep's lung (eg, with bellows)*	1	0.3%	13	3.3%	11	2.8%	15	3.8%	5	1.3%	31	7.8%	395
Q4	*Using a choice chamber with woodlice*	1	0.0%	0	0.0%	4	1.0%	2	0.5%	0	0.0%	34	8.7%	393
Q5	*Bringing spawn of the common frog from a pond into school*	3	0.8%	5	1.3%	8	2.1%	16	4.2%	8	2.1%	163	42.8%	381
Q6	*Dissection of eyeballs*	6	1.5%	9	2.3%	11	2.8%	21	5.3%	5	1.3%	42	10.6%	395
Q7	*Dissection of hearts*	0	0.0%	1	0.3%	5	1.3%	6	1.5%	2	0.5%	9	2.3%	396
Q8	*Dissection of rats*	5	1.3%	5	1.3%	14	3.7%	24	6.3%	5	1.3%	156	40.9%	381
Q9	*Pupils taking samples of their own cheek cells*	15	3.8%	19	4.8%	31	7.9%	2	0.5%	0	0.0%	19	4.8%	394
Q10	*Pupils using their own saliva in experiments*	11	2.8%	37	9.3%	68	17.2%	3	0.8%	1	0.3%	46	11.6%	396
Q11	*Pupils taking samples of their own blood*	27	6.9%	27	6.9%	36	9.2%	2	0.5%	2	0.5%	13	3.3%	392

		C *Not banned but discouraged*		D *Not banned but believed unsafe*		E *Not banned but believed unsafe with own pupils*		F *Not banned but not affordable*		G *Not banned but don't have expertise*		H *Not banned but not relevant*		*Total Response*
		No	**%**	No	**%**	No	**%**	No	**%**	No	**%**	No	**%**	**No**
Q12	*Incubating "finger dabs" on agar plates*	5	1.3%	28	7.2%	22	5.7%	3	0.8%	2	0.5%	21	5.4%	388
Q13	*Burning peanuts in experiments*	18	4.5%	70	17.5%	93	23.3%	1	0.3%	0	0.0%	12	3.0%	399
Q14	*Using spirometers*	1	0.3%	10	2.7%	4	1.1%	76	20.5%	8	2.2%	58	15.7%	370
Q15	*Exploding cans of custard powder, icing sugar, lycopodium powder or similar*	1	0.3%	19	4.8%	11	2.8%	2	0.5%	9	2.3%	65	16.6%	392
Q16	*Exploding cans containing methane / air mixtures*	1	0.3%	47	12.3%	20	5.2%	4	1.0%	9	2.4%	69	18.1%	381
Q17	*Demonstrating explosions of hydrogen / oxygen mixtures*	3	0.8%	32	8.0%	20	5.0%	19	4.8%	12	3.0%	37	9.3%	398
Q18	*Reducing heated copper(II) oxide with hydrogen*	5	1.3%	36	9.5%	30	7.9%	44	11.6%	12	3.2%	123	32.5%	379
Q19	*Dropping potassium into water*	0	0.0%	0	0.0%	0	0.0%	1	0.2%	1	0.2%	1	0.2%	403
Q20	*Heating iron/sulfur mixtures*	0	0.0%	9	2.2%	7	1.7%	1	0.2%	0	0.0%	9	2.2%	402
Q21	*Demonstrating the thermite reaction*	2	0.5%	13	3.3%	15	3.8%	3	0.8%	11	2.8%	41	10.4%	394
Q22	*Use of benzene*	3	0.8%	5	1.3%	6	1.5%	1	0.3%	1	0.3%	4	1.0%	398
Q23	*Demonstrating the iodine/aluminium reaction*	4	1.1%	32	8.4%	8	2.1%	5	1.3%	14	3.7%	137	36.1%	380

		C *Not banned but discouraged*		D *Not banned but believed unsafe*		E *Not banned but believed unsafe with own pupils*		F *Not banned but not affordable*		G *Not banned but don't have expertise*		H *Not banned but not relevant*		*Total Response*
		No	**%**	No	**%**	No	**%**	No	**%**	No	**%**	No	**%**	**No**
Q24	*Using a blowpipe in lead oxide/charcoal reductions*	4	1.0%	36	9.3%	29	7.5%	12	3.1%	12	3.1%	107	27.5%	389
Q25	*Using bromine in diffusion demonstrations*	4	1.0%	38	9.8%	26	6.7%	14	3.6%	6	1.5%	51	13.1%	389
Q26	*Demonstrating ammonium dichromate volcano*	5	1.3%	27	6.9%	21	5.4%	4	1.0%	8	2.1%	82	21.1%	389
Q27	*Use of genuine crude oil*	19	4.8%	15	3.8%	6	1.5%	3	0.8%	0	0.0%	4	1.0%	393
Q28	*Use of naphthalene (moth balls)*	22	5.9%	24	6.4%	30	8.0%	6	1.6%	1	0.3%	118	31.5%	375
Q29	*Demonstrating reaction between propane-1,2,3-triol (glycerine) and potassium manganate(VII) (permanganate)*	5	1.3%	31	8.4%	9	2.4%	2	0.5%	11	3.0%	119	32.1%	371
Q30	*Use of mercury thermometers*	4	1.0%	18	4.6%	57	14.5%	3	0.8%	0	0.0%	2	0.5%	393
Q31	*Use of model steam engines*	2	0.5%	10	2.5%	10	2.5%	24	6.0%	5	1.3%	26	6.5%	397
Q32	*Use of air rifles in momentum demonstrations*	7	1.9%	45	12.0%	29	7.7%	50	13.3%	12	3.2%	68	18.1%	375
Q33	*Use of starting pistol in speed of sound experiments*	2	0.6%	22	6.1%	22	6.1%	92	25.4%	8	2.2%	90	24.9%	362
Q34	*Making pupils' hair stand on end with van de Graaff generators*	0	0.0%	3	0.8%	8	2.0%	1	0.3%	0	0.0%	2	0.5%	393

		C *Not banned but discouraged*		D *Not banned but believed unsafe*		E *Not banned but believed unsafe with own pupils*		F *Not banned but not affordable*		G *Not banned but don't have expertise*		H *Not banned but not relevant*		*Total Response*
		No	**%**	No	**%**	No	**%**	No	**%**	No	**%**	No	**%**	**No**
Q35	*Use of stroboscopes*	1	0.3%	14	3.7%	14	3.7%	25	6.5%	0	0.0%	63	16.5%	382
Q36	*Showing magnetic fields with iron filings*	0	0.0%	1	0.3%	1	0.3%	0	0.0%	0	0.0%	7	1.8%	389
Q37	*Use of EHT equipment up to 5000 volts at less than 5 mA*	0	0.0%	9	2.4%	7	1.8%	21	5.5%	4	1.0%	47	12.3%	381
Q38	*Demonstrating the power line at mains voltage on the transmission line*	1	0.3%	36	9.7%	19	5.1%	19	5.1%	13	3.5%	48	13.0%	370
Q39	*Demonstrations using sealed radioactive sources*	0	0.0%	3	0.8%	5	1.3%	38	9.7%	4	1.0%	9	2.3%	390
Q40	*Demonstrations using protactinium generators*	2	0.5%	10	2.7%	11	3.0%	96	26.2%	13	3.6%	83	22.7%	366

Table 5(e) UK schools outside Scotland: summary of sections C to H (not banned but…)

		C *Not banned but discouraged*		*D* *Not banned but believed unsafe*		*E* *Not banned but believed unsafe with own pupils*		*F* *Not banned but not affordable*		*G* *Not banned but don't have expertise*		*H* *Not banned but not relevant*		*Total Response*
		No	**%**	No	**%**	No	**%**	No	**%**	No	**%**	No	**%**	No
Q1	*Keeping small mammals*	6	2.1%	3	1.0%	18	6.2%	44	15.1%	11	3.8%	139	47.8%	291
Q2	*Keeping giant African land snails*	4	1.4%	5	1.7%	10	3.5%	32	11.1%	22	7.7%	151	52.6%	287
Q3	*Inflating a sheep's lung (eg, with bellows)*	1	0.3%	8	2.7%	4	1.4%	13	4.4%	2	0.7%	21	7.1%	294
Q4	*Using a choice chamber with woodlice*	1	0.3%	0	0.0%	4	1.4%	2	0.7%	0	0.0%	28	9.6%	293
Q5	*Bringing spawn of the common frog from a pond into school*	1	0.3%	4	1.4%	8	2.8%	14	4.9%	5	1.7%	130	45.3%	287
Q6	*Dissection of eyeballs*	5	1.7%	6	2.0%	8	2.7%	19	6.4%	2	0.7%	32	10.8%	295
Q7	*Dissection of hearts*	0	0.0%	0	0.0%	2	0.7%	4	1.4%	0	0.0%	2	0.7%	295
Q8	*Dissection of rats*	5	1.8%	4	1.4%	13	4.6%	16	5.6%	3	1.1%	119	41.9%	284
Q9	*Pupils taking samples of their own cheek cells*	15	5.1%	12	4.1%	27	9.2%	1	0.3%	0	0.0%	17	5.8%	294
Q10	*Pupils using their own saliva in experiments*	11	3.8%	30	10.3%	58	19.9%	2	0.7%	1	0.3%	41	14.0%	292
Q11	*Pupils taking samples of their own blood*	26	9.1%	24	8.4%	34	11.8%	1	0.3%	2	0.7%	13	4.5%	287

		C *Not banned but discouraged*		D *Not banned but believed unsafe*		E *Not banned but believed unsafe with own pupils*		F *Not banned but not affordable*		G *Not banned but don't have expertise*		H *Not banned but not relevant*		*Total Response*
		No	**%**	No	**%**	No	**%**	No	**%**	No	**%**	No	**%**	No
Q12	*Incubating "finger dabs" on agar plates*	4	1.4%	18	6.2%	16	5.5%	1	0.3%	1	0.3%	13	4.5%	290
Q13	*Burning peanuts in experiments*	17	5.8%	58	19.9%	69	23.7%	0	0.0%	0	0.0%	11	3.8%	291
Q14	*Using spirometers*	1	0.4%	7	2.5%	3	1.1%	64	22.5%	5	1.8%	51	17.9%	285
Q15	*Exploding cans of custard powder, icing sugar, lycopodium powder or similar*	1	0.4%	18	6.3%	11	3.9%	2	0.7%	9	3.2%	64	22.5%	285
Q16	*Exploding cans containing methane / air mixtures*	0	0.0%	40	14.4%	16	5.8%	3	1.1%	7	2.5%	56	20.2%	277
Q17	*Demonstrating explosions of hydrogen / oxygen mixtures*	2	0.7%	30	10.2%	11	3.8%	9	3.1%	8	2.7%	30	10.2%	293
Q18	*Reducing heated copper(II) oxide with hydrogen*	5	1.8%	28	10.0%	19	6.8%	31	11.1%	9	3.2%	88	31.5%	279
Q19	*Dropping potassium into water*	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	0.3%	298
Q20	*Heating iron/sulfur mixtures*	0	0.0%	5	1.7%	5	1.7%	1	0.3%	0	0.0%	6	2.0%	297
Q21	*Demonstrating the thermite reaction*	0	0.0%	5	1.7%	6	2.0%	1	0.3%	7	2.4%	10	3.4%	297
Q22	*Use of benzene*	3	1.0%	3	1.0%	1	0.3%	0	0.0%	1	0.3%	4	1.4%	293
Q23	*Demonstrating the iodine/aluminium reaction*	2	0.7%	26	9.2%	6	2.1%	3	1.1%	11	3.9%	111	39.4%	282

		C *Not banned but discouraged*		D *Not banned but believed unsafe*		E *Not banned but believed unsafe with own pupils*		F *Not banned but not affordable*		G *Not banned but don't have expertise*		H *Not banned but not relevant*		*Total Response*
		No	**%**	No	**%**	No	**%**	No	**%**	No	**%**	No	**%**	No
Q24	*Using a blowpipe in lead oxide/charcoal reductions*	2	0.7%	29	10.0%	20	6.9%	12	4.2%	7	2.4%	80	27.7%	289
Q25	*Using bromine in diffusion demonstrations*	4	1.4%	25	8.5%	14	4.8%	13	4.4%	4	1.4%	34	11.6%	293
Q26	*Demonstrating ammonium dichromate volcano*	4	1.4%	18	6.2%	17	5.9%	4	1.4%	4	1.4%	65	22.5%	289
Q27	*Use of genuine crude oil*	17	5.9%	11	3.8%	1	0.3%	1	0.3%	0	0.0%	3	1.0%	289
Q28	*Use of naphthalene (moth balls)*	19	6.8%	22	7.9%	28	10.0%	5	1.8%	1	0.4%	86	30.7%	280
Q29	*Demonstrating reaction between propane-1,2,3-triol (glycerine) and potassium manganate(VII) (permanganate)*	5	1.8%	24	8.6%	6	2.2%	2	0.7%	9	3.2%	92	33.1%	278
Q30	*Use of mercury thermometers*	3	1.0%	12	4.1%	43	14.7%	3	1.0%	0	0.0%	1	0.3%	292
Q31	*Use of model steam engines*	1	0.3%	6	2.0%	6	2.0%	22	7.4%	4	1.4%	21	7.1%	296
Q32	*Use of air rifles in momentum demonstrations*	5	1.8%	35	12.5%	19	6.8%	43	15.3%	10	3.6%	55	19.6%	281
Q33	*Use of starting pistol in speed of sound experiments*	2	0.7%	14	5.1%	17	6.2%	73	26.7%	7	2.6%	72	26.4%	273
Q34	*Making pupils' hair stand on end with van de Graaff generators*	0	0.0%	3	1.0%	8	2.7%	0	0.0%	0	0.0%	1	0.3%	294

		C *Not banned but discouraged*		D *Not banned but believed unsafe*		E *Not banned but believed unsafe with own pupils*		F *Not banned but not affordable*		G *Not banned but don't have expertise*		H *Not banned but not relevant*		*Total Response*
		No	**%**	No	**%**	No	**%**	No	**%**	No	**%**	No	**%**	No
Q35	*Use of stroboscopes*	1	0.3%	10	3.5%	9	3.1%	24	8.3%	0	0.0%	45	15.6%	289
Q36	*Showing magnetic fields with iron filings*	0	0.0%	0	0.0%	1	0.3%	0	0.0%	0	0.0%	1	0.3%	293
Q37	*Use of EHT equipment up to 5000 volts at less than 5 mA*	0	0.0%	8	2.8%	5	1.7%	20	6.9%	4	1.4%	43	14.9%	288
Q38	*Demonstrating the power line at mains voltage on the transmission line*	1	0.4%	32	11.5%	14	5.0%	15	5.4%	12	4.3%	41	14.7%	279
Q39	*Demonstrations using sealed radioactive sources*	0	0.0%	1	0.3%	1	0.3%	13	4.4%	4	1.4%	4	1.4%	293
Q40	*Demonstrations using protactinium generators*	1	0.4%	6	2.2%	7	2.5%	70	25.4%	10	3.6%	72	26.1%	276

Table 5(f) Schools in Scotland: summary of sections C to H (not banned but…)

		C *Not banned but discouraged*		*D* *Not banned but believed unsafe*		*E* *Not banned but believed unsafe with own pupils*		*F* *Not banned but not affordable*		*G* *Not banned but don't have expertise*		*H* *Not banned but not relevant*		*Total Response*
		No	**%**	No	**%**	No	**%**	No	**%**	No	**%**	No	**%**	No
Q1	*Keeping small mammals*	1	1.0%	5	5.0%	3	3.0%	18	17.8%	3	3.0%	31	30.7%	101
Q2	*Keeping giant African land snails*	1	1.1%	3	3.2%	0	0.0%	5	5.3%	10	10.5%	39	41.1%	95
Q3	*Inflating a sheep's lung (eg, with bellows)*	0	0.0%	5	5.0%	7	6.9%	2	2.0%	3	3.0%	10	9.9%	101
Q4	*Using a choice chamber with woodlice*	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	6	6.0%	100
Q5	*Bringing spawn of the common frog from a pond into school*	2	2.1%	1	1.1%	0	0.0%	2	2.1%	3	3.2%	33	35.1%	94
Q6	*Dissection of eyeballs*	1	1.0%	3	3.0%	3	3.0%	2	2.0%	3	3.0%	10	10.0%	100
Q7	*Dissection of hearts*	0	0.0%	1	1.0%	3	3.0%	2	2.0%	2	2.0%	7	6.9%	101
Q8	*Dissection of rats*	0	0.0%	1	1.0%	1	1.0%	8	8.2%	2	2.1%	37	38.1%	97
Q9	*Pupils taking samples of their own cheek cells*	0	0.0%	7	7.0%	4	4.0%	1	1.0%	0	0.0%	2	2.0%	100
Q10	*Pupils using their own saliva in experiments*	0	0.0%	7	6.7%	10	9.6%	1	1.0%	0	0.0%	5	4.8%	104
Q11	*Pupils taking samples of their own blood*	1	1.0%	3	2.9%	2	1.9%	1	1.0%	0	0.0%	0	0.0%	105

		C *Not banned but discouraged*		D *Not banned but believed unsafe*		E *Not banned but believed unsafe with own pupils*		F *Not banned but not affordable*		G *Not banned but don't have expertise*		H *Not banned but not relevant*		*Total Response*
		No	**%**	No	**%**	No	**%**	No	**%**	No	**%**	No	**%**	No
Q12	*Incubating "finger dabs" on agar plates*	1	1.0%	10	10.2%	6	6.1%	2	2.0%	1	1.0%	8	8.2%	98
Q13	*Burning peanuts in experiments*	1	0.9%	12	11.1%	24	22.2%	1	0.9%	0	0.0%	1	0.9%	108
Q14	*Using spirometers*	0	0.0%	3	3.5%	1	1.2%	12	14.1%	3	3.5%	7	8.2%	85
Q15	*Exploding cans of custard powder, icing sugar, lycopodium powder or similar*	0	0.0%	1	0.9%	0	0.0%	0	0.0%	0	0.0%	1	0.9%	107
Q16	*Exploding cans containing methane / air mixtures*	1	1.0%	7	6.7%	4	3.8%	1	1.0%	2	1.9%	13	12.5%	104
Q17	*Demonstrating explosions of hydrogen / oxygen mixtures*	1	1.0%	2	1.9%	9	8.6%	10	9.5%	4	3.8%	7	6.7%	105
Q18	*Reducing heated copper(II) oxide with hydrogen*	0	0.0%	8	8.0%	11	11.0%	13	13.0%	3	3.0%	35	35.0%	100
Q19	*Dropping potassium into water*	0	0.0%	0	0.0%	0	0.0%	1	1.0%	1	1.0%	0	0.0%	105
Q20	*Heating iron/sulfur mixtures*	0	0.0%	4	3.8%	2	1.9%	0	0.0%	0	0.0%	3	2.9%	105
Q21	*Demonstrating the thermite reaction*	2	2.1%	8	8.2%	9	9.3%	2	2.1%	4	4.1%	31	32.0%	97
Q22	*Use of benzene*	0	0.0%	2	1.9%	5	4.8%	1	1.0%	0	0.0%	0	0.0%	105
Q23	*Demonstrating the iodine/aluminium reaction*	2	2.0%	6	6.1%	2	2.0%	2	2.0%	3	3.1%	26	26.5%	98

		C *Not banned but discouraged*		D *Not banned but believed unsafe*		E *Not banned but believed unsafe with own pupils*		F *Not banned but not affordable*		G *Not banned but don't have expertise*		H *Not banned but not relevant*		*Total Response*
		No	**%**	No	**%**	No	**%**	No	**%**	No	**%**	No	**%**	No
Q24	*Using a blowpipe in lead oxide/charcoal reductions*	2	2.0%	7	7.0%	9	9.0%	0	0.0%	5	5.0%	27	27.0%	100
Q25	*Using bromine in diffusion demonstrations*	0	0.0%	13	13.5%	12	12.5%	1	1.0%	2	2.1%	17	17.7%	96
Q26	*Demonstrating ammonium dichromate volcano*	1	1.0%	9	9.0%	4	4.0%	0	0.0%	4	4.0%	17	17.0%	100
Q27	*Use of genuine crude oil*	2	1.9%	4	3.8%	5	4.8%	2	1.9%	0	0.0%	1	1.0%	104
Q28	*Use of naphthalene (moth balls)*	3	3.2%	2	2.1%	2	2.1%	1	1.1%	0	0.0%	32	33.7%	95
Q29	*Demonstrating reaction between propane-1,2,3-triol (glycerine) and potassium manganate(VII) (permanganate)*	0	0.0%	7	7.5%	3	3.2%	0	0.0%	2	2.2%	27	29.0%	93
Q30	*Use of mercury thermometers*	1	1.0%	6	5.9%	14	13.9%	0	0.0%	0	0.0%	1	1.0%	101
Q31	*Use of model steam engines*	1	1.0%	4	4.0%	4	4.0%	2	2.0%	1	1.0%	5	5.0%	101
Q32	*Use of air rifles in momentum demonstrations*	2	2.1%	10	10.6%	10	10.6%	7	7.4%	2	2.1%	13	13.8%	94
Q33	*Use of starting pistol in speed of sound experiments*	0	0.0%	8	9.0%	5	5.6%	19	21.3%	1	1.1%	18	20.2%	89
Q34	*Making pupils' hair stand on end with van de Graaff generators*	0	0.0%	0	0.0%	0	0.0%	1	1.0%	0	0.0%	1	1.0%	99

		C *Not banned but discouraged*		D *Not banned but believed unsafe*		E *Not banned but believed unsafe with own pupils*		F *Not banned but not affordable*		G *Not banned but don't have expertise*		H *Not banned but not relevant*		*Total Response*
		No	**%**	No	**%**	No	**%**	No	**%**	No	**%**	No	**%**	No
Q35	*Use of stroboscopes*	0	0.0%	4	4.3%	5	5.4%	1	1.1%	0	0.0%	18	19.4%	93
Q36	*Showing magnetic fields with iron filings*	0	0.0%	1	1.0%	0	0.0%	0	0.0%	0	0.0%	6	6.3%	96
Q37	*Use of EHT equipment up to 5000 volts at less than 5 mA*	0	0.0%	1	1.1%	2	2.2%	1	1.1%	0	0.0%	4	4.3%	93
Q38	*Demonstrating the power line at mains voltage on the transmission line*	0	0.0%	4	4.4%	5	5.5%	4	4.4%	1	1.1%	7	7.7%	91
Q39	*Demonstrations using sealed radioactive sources*	0	0.0%	2	2.1%	4	4.1%	25	25.8%	0	0.0%	5	5.2%	97
Q40	*Demonstrations using protactinium generators*	1	1.1%	4	4.4%	4	4.4%	26	28.9%	3	3.3%	11	12.2%	90

Appendix 6 Age range of schools

Table 6(a) All UK schools with sixth form

		A *Banned + evidence*		*B* *Believed banned no evidence*		*C-H* *Not banned but ….*		*I* *Sometimes done*		*Total response*
		No	%	No	%	No	%	No	%	No
Q1	*Keeping small mammals*	0	0.0%	34	11.7%	203	70.0%	53	18.3%	290
Q2	*Keeping giant African land snails*	2	0.7%	35	12.5%	203	72.2%	41	14.6%	281
Q3	*Inflating a sheep's lung (eg, with bellows)*	1	0.3%	34	11.6%	56	19.1%	202	68.9%	293
Q4	*Using a choice chamber with woodlice*	1	0.3%	1	0.3%	29	10.0%	260	89.3%	291
Q5	*Bringing spawn of the common frog from a pond into school*	5	1.8%	53	19.1%	151	54.3%	69	24.8%	278
Q6	*Dissection of eyeballs*	7	2.4%	71	24.1%	70	23.8%	146	49.7%	294
Q7	*Dissection of hearts*	1	0.3%	17	5.8%	17	5.8%	259	88.1%	294
Q8	*Dissection of rats*	5	1.8%	48	16.9%	135	47.5%	96	33.8%	284
Q9	*Pupils taking samples of their own cheek cells*	4	1.4%	56	19.1%	58	19.8%	175	59.7%	293
Q10	*Pupils using their own saliva in experiments*	4	1.4%	97	32.8%	120	40.5%	75	25.3%	296
Q11	*Pupils taking samples of their own blood*	45	15.3%	167	56.6%	76	25.8%	7	2.4%	295
Q12	*Incubating "finger dabs" on agar plates*	2	0.7%	44	15.3%	66	23.0%	175	61.0%	287
Q13	*Burning peanuts in experiments*	5	1.7%	50	16.8%	147	49.5%	95	32.0%	297
Q14	*Using spirometers*	0	0.0%	4	1.5%	97	35.5%	172	63.0%	273
Q15	*Exploding cans of custard powder, icing sugar, lycopodium powder or similar*	0	0.0%	14	4.8%	78	26.7%	200	68.5%	292
Q16	*Exploding cans containing methane / air mixtures*	3	1.0%	20	7.0%	108	37.8%	155	54.2%	286
Q17	*Demonstrating explosions of hydrogen / oxygen mixtures*	0	0.0%	14	4.7%	88	29.5%	196	65.8%	298
Q18	*Reducing heated copper(II) oxide with hydrogen*	1	0.4%	14	4.9%	179	62.8%	91	31.9%	285
Q19	*Dropping potassium into water*	0	0.0%	9	3.0%	2	0.7%	289	96.3%	300
Q20	*Heating iron/sulfur mixtures*	0	0.0%	3	1.0%	21	7.0%	276	92.0%	300

		A *Banned + evidence*		*B* *Believed banned no evidence*		*C-H* *Not banned but ….*		*I* *Sometimes done*		*Total response*
		No	%	No	%	No	%	No	%	No
Q21	*Demonstrating the thermite reaction*	2	0.7%	14	4.8%	69	23.6%	207	70.9%	292
Q22	*Use of benzene*	148	50.0%	134	45.3%	12	4.1%	2	0.7%	296
Q23	*Demonstrating the iodine/aluminium reaction*	0	0.0%	22	7.7%	133	46.7%	130	45.6%	285
Q24	*Using a blowpipe in lead oxide/charcoal reductions*	1	0.3%	45	15.6%	147	50.9%	96	33.2%	289
Q25	*Using bromine in diffusion demonstrations*	1	0.3%	18	6.3%	93	32.4%	175	61.0%	287
Q26	*Demonstrating ammonium dichromate volcano*	3	1.0%	42	14.5%	100	34.5%	145	50.0%	290
Q27	*Use of genuine crude oil*	106	36.3%	128	43.8%	37	12.7%	21	7.2%	292
Q28	*Use of naphthalene (moth balls)*	11	3.9%	79	28.1%	156	55.5%	35	12.5%	281
Q29	*Demonstrating reaction between propane-1,2,3-triol (glycerine) and potassium manganate(VII) (permanganate)*	2	0.7%	16	5.8%	120	43.2%	140	50.4%	278
Q30	*Use of mercury thermometers*	0	0.0%	12	4.1%	47	16.0%	234	79.9%	293
Q31	*Use of model steam engines*	0	0.0%	7	2.4%	57	19.4%	230	78.2%	294
Q32	*Use of air rifles in momentum demonstrations*	0	0.0%	86	31.3%	145	52.7%	44	16.0%	275
Q33	*Use of starting pistol in speed of sound experiments*	0	0.0%	39	14.8%	173	65.5%	52	19.7%	264
Q34	*Making pupils' hair stand on end with van de Graaff generators*	0	0.0%	2	0.7%	10	3.4%	279	95.9%	291
Q35	*Use of stroboscopes*	0	0.0%	11	3.9%	66	23.4%	205	72.7%	282
Q36	*Showing magnetic fields with iron filings*	0	0.0%	1	0.3%	9	3.1%	276	96.5%	286
Q37	*Use of EHT equipment up to 5000 volts at less than 5 mA*	1	0.4%	13	4.6%	37	13.1%	232	82.0%	283
Q38	*Demonstrating the power line at mains voltage on the transmission line*	7	2.6%	91	33.2%	96	35.0%	80	29.2%	274
Q39	*Demonstrations using sealed radioactive sources*	1	0.3%	3	1.0%	40	13.9%	244	84.7%	288
Q40	*Demonstrations using protactinium generators*	4	1.5%	34	12.4%	145	52.9%	91	33.2%	274

Table 6(b) **All UK schools – without sixth form**

		A Banned + evidence		*B Believed banned no evidence*		*C-H Not banned but ….*		*I Sometimes done*		*Total response*
		No	%	No	%	No	%	No	%	No
Q1	*Keeping small mammals*	1	1.0%	6	5.9%	79	77.5%	16	15.7%	102
Q2	*Keeping giant African land snails*	0	0.0%	9	8.9%	79	78.2%	13	12.9%	101
Q3	*Inflating a sheep's lung (eg, with bellows)*	0	0.0%	9	8.8%	20	19.6%	73	71.6%	102
Q4	*Using a choice chamber with woodlice*	0	0.0%	0	0.0%	12	11.8%	90	88.2%	102
Q5	*Bringing spawn of the common frog from a pond into school*	1	1.0%	21	20.4%	52	50.5%	29	28.2%	103
Q6	*Dissection of eyeballs*	7	6.9%	9	8.9%	24	23.8%	61	60.4%	101
Q7	*Dissection of hearts*	0	0.0%	0	0.0%	6	5.9%	96	94.1%	102
Q8	*Dissection of rats*	0	0.0%	11	11.3%	74	76.3%	12	12.4%	97
Q9	*Pupils taking samples of their own cheek cells*	4	4.0%	15	14.9%	28	27.7%	54	53.5%	101
Q10	*Pupils using their own saliva in experiments*	3	3.0%	23	23.0%	46	46.0%	28	28.0%	100
Q11	*Pupils taking samples of their own blood*	14	14.4%	49	50.5%	31	32.0%	3	3.1%	97
Q12	*Incubating "finger dabs" on agar plates*	1	1.0%	11	10.9%	15	14.9%	74	73.3%	101
Q13	*Burning peanuts in experiments*	2	2.0%	21	20.6%	47	46.1%	32	31.4%	102
Q14	*Using spirometers*	0	0.0%	0	0.0%	60	61.9%	37	38.1%	97
Q15	*Exploding cans of custard powder, icing sugar, lycopodium powder or similar*	0	0.0%	7	7.0%	29	29.0%	64	64.0%	100
Q16	*Exploding cans containing methane / air mixtures*	0	0.0%	14	14.7%	42	44.2%	39	41.1%	95
Q17	*Demonstrating explosions of hydrogen / oxygen mixtures*	2	2.0%	9	9.0%	35	35.0%	54	54.0%	100
Q18	*Reducing heated copper(II) oxide with hydrogen*	0	0.0%	8	8.5%	71	75.5%	15	16.0%	94
Q19	*Dropping potassium into water*	0	0.0%	2	1.9%	1	1.0%	100	97.1%	103
Q20	*Heating iron/sulfur mixtures*	0	0.0%	0	0.0%	5	4.9%	97	95.1%	102

		A *Banned + evidence*		*B* *Believed banned no evidence*		*C-H* *Not banned but ....*		*I* *Sometimes done*		*Total response*
		No	%	No	%	No	%	No	%	No
Q21	*Demonstrating the thermite reaction*	0	0.0%	2	2.0%	16	15.7%	84	82.4%	102
Q22	*Use of benzene*	46	45.1%	48	47.1%	8	7.8%	0	0.0%	102
Q23	*Demonstrating the iodine/aluminium reaction*	0	0.0%	10	10.5%	67	70.5%	18	18.9%	95
Q24	*Using a blowpipe in lead oxide/charcoal reductions*	1	1.0%	15	15.0%	53	53.0%	31	31.0%	100
Q25	*Using bromine in diffusion demonstrations*	0	0.0%	4	3.9%	46	45.1%	52	51.0%	102
Q26	*Demonstrating ammonium dichromate volcano*	2	2.0%	15	15.2%	47	47.5%	35	35.4%	99
Q27	*Use of genuine crude oil*	39	38.6%	50	49.5%	10	9.9%	2	2.0%	101
Q28	*Use of naphthalene (moth balls)*	5	5.3%	30	31.9%	45	47.9%	14	14.9%	94
Q29	*Demonstrating reaction between propane-1,2,3-triol (glycerine) and potassium manganate(VII) (permanganate)*	2	2.2%	6	6.5%	57	61.3%	28	30.1%	93
Q30	*Use of mercury thermometers*	1	1.0%	8	8.0%	37	37.0%	54	54.0%	100
Q31	*Use of model steam engines*	0	0.0%	2	1.9%	20	19.4%	81	78.6%	103
Q32	*Use of air rifles in momentum demonstrations*	2	2.0%	27	27.0%	66	66.0%	5	5.0%	100
Q33	*Use of starting pistol in speed of sound experiments*	1	1.0%	9	9.2%	63	64.3%	25	25.5%	98
Q34	*Making pupils' hair stand on end with van de Graaff generators*	0	0.0%	1	1.0%	4	3.9%	97	95.1%	102
Q35	*Use of stroboscopes*	1	1.0%	6	6.0%	51	51.0%	42	42.0%	100
Q36	*Showing magnetic fields with iron filings*	0	0.0%	0	0.0%	0	0.0%	103	100.0%	103
Q37	*Use of EHT equipment up to 5000 volts at less than 5 mA*	1	1.0%	8	8.2%	51	52.0%	38	38.8%	98
Q38	*Demonstrating the power line at mains voltage on the transmission line*	4	4.2%	26	27.1%	40	41.7%	26	27.1%	96
Q39	*Demonstrations using sealed radioactive sources*	0	0.0%	2	2.0%	19	18.6%	81	79.4%	102
Q40	*Demonstrations using protactinium generators*	0	0.0%	11	12.0%	70	76.1%	11	12.0%	92

Table 6(c) UK schools outside Scotland – with sixth form

		A *Banned + evidence*		*B* *Believe banned no evidence*		*C-H* *Not banned but….*		*I* *Sometimes done*		*Total response*
		No	%	No	%	No	%	No	%	No
Q1	*Keeping small mammals*	0	0.0%	8	4.0%	148	74.8%	42	21.2%	198
Q2	*Keeping giant African land snails*	0	0.0%	14	7.2%	151	77.4%	30	15.4%	195
Q3	*Inflating a sheep's lung (eg, with bellows)*	0	0.0%	9	4.5%	33	16.3%	160	79.2%	202
Q4	*Using a choice chamber with woodlice*	1	0.5%	1	0.5%	23	11.5%	175	87.5%	200
Q5	*Bringing spawn of the common frog from a pond into school*	1	0.5%	23	11.9%	113	58.3%	57	29.4%	194
Q6	*Dissection of eyeballs*	3	1.5%	18	8.9%	50	24.6%	132	65.0%	203
Q7	*Dissection of hearts*	0	0.0%	1	0.5%	4	2.0%	198	97.5%	203
Q8	*Dissection of rats*	0	0.0%	10	5.1%	94	47.96%	92	46.9%	196
Q9	*Pupils taking samples of their own cheek cells*	0	0.0%	28	13.9%	44	21.9%	129	64.2%	201
Q10	*Pupils using their own saliva in experiments*	0	0.0%	46	22.9%	99	49.3%	56	27.9%	201
Q11	*Pupils taking samples of their own blood*	30	15.0%	93	46.5%	70	35.0%	7	3.5%	200
Q12	*Incubating "finger dabs" on agar plates*	0	0.0%	17	8.5%	42	21.1%	140	70.4%	199
Q13	*Burning peanuts in experiments*	4	2.0%	35	17.6%	109	54.8%	51	25.6%	199
Q14	*Using spirometers*	0	0.0%	2	1.0%	75	38.3%	119	60.7%	196
Q15	*Exploding cans of custard powder, icing sugar, lycopodium powder or similar*	0	0.0%	13	6.7%	76	39.0%	106	54.4%	195
Q16	*Exploding cans containing methane / air mixtures*	3	1.6%	19	9.9%	85	44.3%	85	44.3%	192
Q17	*Demonstrating explosions of hydrogen / oxygen mixtures*	0	0.0%	9	4.5%	58	28.7%	135	66.8%	202
Q18	*Reducing heated copper(II) oxide with hydrogen*	0	0.0%	8	4.1%	115	59.3%	71	36.6%	194
Q19	*Dropping potassium into water*	0	0.0%	0	0.0%	0	0.0%	205	100.0%	205
Q20	*Heating iron/sulfur mixtures*	0	0.0%	1	0.5%	13	6.3%	191	93.2%	205

		A Banned + evidence		B Believe banned no evidence		C-H Not banned but….		I Sometimes done		Total response
		No	%	No	%	No	%	No	%	No
Q21	*Demonstrating the thermite reaction*	0	0.0%	3	1.5%	19	9.3%	183	89.3%	205
Q22	*Use of benzene*	114	56.7%	80	39.8%	6	3.0%	1	0.5%	201
Q23	*Demonstrating the iodine/aluminium reaction*	0	0.0%	7	3.6%	99	50.5%	90	45.9%	196
Q24	*Using a blowpipe in lead oxide/charcoal reductions*	0	0.0%	15	7.5%	104	52.3%	80	40.2%	199
Q25	*Using bromine in diffusion demonstrations*	0	0.0%	3	1.5%	54	27.0%	143	71.5%	200
Q26	*Demonstrating ammonium dichromate volcano*	1	0.5%	14	7.0%	71	35.5%	114	57.0%	200
Q27	*Use of genuine crude oil*	91	46.0%	76	38.4%	25	12.6%	6	3.0%	198
Q28	*Use of naphthalene (moth balls)*	6	3.1%	42	21.8%	120	62.2%	25	13.0%	193
Q29	*Demonstrating reaction between propane-1,2,3-triol (glycerine) and potassium manganate(VII) (permanganate)*	1	0.5%	8	4.2%	88	45.8%	95	49.5%	192
Q30	*Use of mercury thermometers*	0	0.0%	1	0.5%	29	14.4%	171	85.1%	201
Q31	*Use of model steam engines*	0	0.0%	2	1.0%	41	20.2%	160	78.8%	203
Q32	*Use of air rifles in momentum demonstrations*	0	0.0%	49	25.7%	108	56.5%	34	17.8%	191
Q33	*Use of starting pistol in speed of sound experiments*	0	0.0%	20	10.8%	127	68.7%	38	20.5%	185
Q34	*Making pupils' hair stand on end with van de Graaff generators*	0	0.0%	2	1.0%	9	4.5%	191	94.6%	202
Q35	*Use of stroboscopes*	0	0.0%	3	1.5%	41	20.7%	154	77.8%	198
Q36	*Showing magnetic fields with iron filings*	0	0.0%	1	0.5%	2	1.0%	197	98.5%	200
Q37	*Use of EHT equipment up to 5000 volts at less than 5 mA*	0	0.0%	10	5.0%	32	16.0%	158	79.0%	200
Q38	*Demonstrating the power line at mains voltage on the transmission line*	2	1.0%	52	26.9%	78	40.4%	61	31.6%	193
Q39	*Demonstrations using sealed radioactive sources*	0	0.0%	0	0.0%	8	4.0%	192	96.0%	200
Q40	*Demonstrations using protactinium generators*	0	0.0%	13	6.8%	100	52.1%	79	41.2%	192

Table 6(d) UK schools outside Scotland without sixth form

		A *Banned + evidence*		*B* *Believe banned no evidence*		*C-H* *Not banned but….*		*I* *Sometimes done*		*Total response*
		No	%	No	%	No	%	No	%	No
Q1	*Keeping small mammals*	0	0.0%	4	4.3%	73	78.5%	16	17.2%	93
Q2	*Keeping giant African land snails*	0	0.0%	8	8.7%	73	79.4%	11	12.0%	92
Q3	*Inflating a sheep's lung (eg, with bellows)*	0	0.0%	8	8.7%	16	17.4%	68	73.9%	92
Q4	*Using a choice chamber with woodlice*	0	0.0%	0	0.0%	12	12.9%	81	87.1%	93
Q5	*Bringing spawn of the common frog from a pond into school*	0	0.0%	19	20.4%	49	52.7%	25	26.9%	93
Q6	*Dissection of eyeballs*	5	5.4%	7	7.6%	22	23.9%	58	63.0%	92
Q7	*Dissection of hearts*	0	0.0%	0	0.0%	4	4.4%	88	95.7%	92
Q8	*Dissection of rats*	0	0.0%	10	11.4%	66	75.0%	12	13.6%	88
Q9	*Pupils taking samples of their own cheek cells*	4	4.3%	15	16.1%	28	30.1%	46	49.5%	93
Q10	*Pupils using their own saliva in experiments*	1	1.1%	21	23.1%	44	48.4%	25	27.5%	91
Q11	*Pupils taking samples of their own blood*	12	13.8%	42	48.3%	30	34.5%	3	3.5%	87
Q12	*Incubating "finger dabs" on agar plates*	1	1.1%	10	11.0%	11	12.1%	69	75.8%	91
Q13	*Burning peanuts in experiments*	2	2.2%	20	21.7%	46	50.0%	24	26.1%	92
Q14	*Using spirometers*	0	0.0%	0	0.0%	56	62.9%	33	37.1%	89
Q15	*Exploding cans of custard powder, icing sugar, lycopodium powder or similar*	0	0.0%	7	7.8%	29	32.2%	54	60.0%	90
Q16	*Exploding cans containing methane / air mixtures*	0	0.0%	14	16.5%	37	43.5%	34	40.0%	85
Q17	*Demonstrating explosions of hydrogen / oxygen mixtures*	2	2.2%	9	9.9%	32	35.2%	48	52.8%	91
Q18	*Reducing heated copper(II) oxide with hydrogen*	0	0.0%	7	8.2%	65	76.5%	13	15.3%	85
Q19	*Dropping potassium into water*	0	0.0%	1	1.1%	1	1.1%	91	97.9%	93
Q20	*Heating iron/sulfur mixtures*	0	0.0%	0	0.0%	4	4.4%	88	95.7%	92

		A Banned + evidence		B Believe banned no evidence		C-H Not banned but….		I Sometimes done		Total response
		No	%	No	%	No	%	No	%	No
Q21	*Demonstrating the thermite reaction*	0	0.0%	0	0.0%	10	10.9%	82	89.1%	92
Q22	*Use of benzene*	46	50.0%	40	43.5%	6	6.5%	0	0.0%	92
Q23	*Demonstrating the iodine/aluminium reaction*	0	0.0%	9	10.5%	60	69.8%	17	19.8%	86
Q24	*Using a blowpipe in lead oxide/charcoal reductions*	1	1.1%	13	14.4%	46	51.1%	30	33.3%	90
Q25	*Using bromine in diffusion demonstrations*	0	0.0%	4	4.3%	40	43.0%	49	52.7%	93
Q26	*Demonstrating ammonium dichromate volcano*	2	2.3%	12	13.5%	41	46.1%	34	38.2%	89
Q27	*Use of genuine crude oil*	39	42.9%	44	48.4%	8	8.8%	0	0.0%	91
Q28	*Use of naphthalene (moth balls)*	5	5.8%	27	31.0%	41	47.1%	14	16.1%	87
Q29	*Demonstrating reaction between propane-1,2,3-triol (glycerine) and potassium manganate(VII) (permanganate)*	2	2.3%	6	7.0%	50	58.1%	28	32.6%	86
Q30	*Use of mercury thermometers*	1	1.1%	8	8.8%	33	36.3%	49	53.9%	91
Q31	*Use of model steam engines*	0	0.0%	2	2.2%	19	20.4%	72	77.4%	93
Q32	*Use of air rifles in momentum demonstrations*	2	2.2%	26	28.9%	59	65.6%	3	3.3%	90
Q33	*Use of starting pistol in speed of sound experiments*	1	1.1%	9	10.2%	58	65.9%	20	22.7%	88
Q34	*Making pupils' hair stand on end with van de Graaff generators*	0	0.0%	0	0.0%	3	3.3%	89	96.7%	92
Q35	*Use of stroboscopes*	1	1.1%	6	6.6%	48	52.8%	36	39.6%	91
Q36	*Showing magnetic fields with iron filings*	0	0.0%	0	0.0%	0	0.0%	93	100.0%	93
Q37	*Use of EHT equipment up to 5000 volts at less than 5 mA*	1	1.1%	8	9.1%	48	54.6%	31	35.2%	88
Q38	*Demonstrating the power line at mains voltage on the transmission line*	4	4.7%	20	23.3%	37	43.0%	25	29.1%	86
Q39	*Demonstrations using sealed radioactive sources*	0	0.0%	2	2.2%	15	16.1%	76	81.7%	93
Q40	*Demonstrations using protactinium generators*	0	0.0%	7	8.3%	66	78.6%	11	13.1%	84

Table 6(e) Schools in Scotland – with sixth form

		A *Banned + evidence*		*B* *Believe banned no evidence*		*C-H* *Not banned but….*		*I* *Sometimes done*		*Total response*
		No	%	No	%	No	%	No	%	No
Q1	*Keeping small mammals*	0	0.0%	26	28.3%	55	59.8%	11	12.0%	92
Q2	*Keeping giant African land snails*	2	2.3%	21	24.4%	52	60.5%	11	12.8%	86
Q3	*Inflating a sheep's lung (eg, with bellows)*	1	1.1%	25	27.5%	23	25.3%	42	46.2%	91
Q4	*Using a choice chamber with woodlice*	0	0.0%	0	0.0%	6	6.6%	85	93.4%	91
Q5	*Bringing spawn of the common frog from a pond into school*	4	4.8%	30	35.7%	38	45.2%	12	14.3%	84
Q6	*Dissection of eyeballs*	4	4.4%	53	58.2%	20	22.0%	14	15.4%	91
Q7	*Dissection of hearts*	1	1.1%	16	17.6%	13	14.3%	61	67.0%	91
Q8	*Dissection of rats*	5	5.7%	38	43.2%	41	46.6%	4	4.6%	88
Q9	*Pupils taking samples of their own cheek cells*	4	4.4%	28	30.4%	14	15.2%	46	50.0%	92
Q10	*Pupils using their own saliva in experiments*	4	4.2%	51	53.7%	21	22.1%	19	20.0%	95
Q11	*Pupils taking samples of their own blood*	15	15.8%	74	77.9%	6	6.3%	0	0.0%	95
Q12	*Incubating "finger dabs" on agar plates*	2	2.3%	27	30.7%	24	27.3%	35	39.8%	88
Q13	*Burning peanuts in experiments*	1	1.0%	15	15.3%	38	38.8%	44	44.9%	98
Q14	*Using spirometers*	0	0.0%	2	2.6%	22	28.6%	53	68.8%	77
Q15	*Exploding cans of custard powder, icing sugar, lycopodium powder or similar*	0	0.00%	1	1.0%	2	2.1%	94	96.9%	97
Q16	*Exploding cans containing methane / air mixtures*	0	0.0%	1	1.1%	23	24.5%	70	74.5%	94
Q17	*Demonstrating explosions of hydrogen / oxygen mixtures*	0	0.0%	5	5.2%	30	31.3%	61	63.5%	96
Q18	*Reducing heated copper(II) oxide with hydrogen*	1	1.1%	6	6.6%	64	70.3%	20	22.0%	91
Q19	*Dropping potassium into water*	0	0.0%	9	9.5%	2	2.1%	84	88.4%	95
Q20	*Heating iron/sulfur mixtures*	0	0.0%	2	2.1%	8	8.4%	85	89.5%	95

		A Banned + evidence		B Believe banned no evidence		C-H Not banned but….		I Sometimes done		Total response
		No	%	No	%	No	%	No	%	No
Q21	*Demonstrating the thermite reaction*	2	2.3%	11	12.6%	50	57.5%	24	27.6%	87
Q22	*Use of benzene*	34	35.8%	54	56.8%	6	6.3%	1	1.1%	95
Q23	*Demonstrating the iodine/aluminium reaction*	0	0.0%	15	16.9%	34	38.2%	40	44.9%	89
Q24	*Using a blowpipe in lead oxide/charcoal reductions*	1	1.1%	30	33.3%	43	47.8%	16	17.8%	90
Q25	*Using bromine in diffusion demonstrations*	1	1.2%	15	17.2%	39	44.8%	32	36.8%	87
Q26	*Demonstrating ammonium dichromate volcano*	2	2.2%	28	31.1%	29	32.2%	31	34.4%	90
Q27	*Use of genuine crude oil*	15	16.0%	52	55.3%	12	12.8%	15	16.0%	94
Q28	*Use of naphthalene (moth balls)*	5	5.7%	37	42.1%	36	40.9%	10	11.4%	88
Q29	*Demonstrating reaction between propane-1,2,3-triol (glycerine) and potassium manganate(VII) (permanganate)*	1	1.2%	8	9.3%	32	37.2%	45	52.3%	86
Q30	*Use of mercury thermometers*	0	0.0%	11	12.0%	18	19.6%	63	68.5%	92
Q31	*Use of model steam engines*	0	0.0%	5	5.5%	16	17.6%	70	76.9%	91
Q32	*Use of air rifles in momentum demonstrations*	0	0.0%	37	44.1%	37	44.1%	10	11.9%	84
Q33	*Use of starting pistol in speed of sound experiments*	0	0.0%	19	24.1%	46	58.2%	14	17.7%	79
Q34	*Making pupils' hair stand on end with van de Graaff generators*	0	0.0%	0	0.0%	1	1.1%	88	98.9%	89
Q35	*Use of stroboscopes*	0	0.0%	8	9.5%	25	29.8%	51	60.7%	84
Q36	*Showing magnetic fields with iron filings*	0	0.0%	0	0.0%	7	8.1%	79	91.9%	86
Q37	*Use of EHT equipment up to 5000 volts at less than 5 mA*	1	1.2%	3	3.6%	5	6.0%	74	89.2%	83
Q38	*Demonstrating the power line at mains voltage on the transmission line*	5	6.2%	39	48.2%	18	22.2%	19	23.5%	81
Q39	*Demonstrations using sealed radioactive sources*	1	1.1%	3	3.4%	32	36.4%	52	59.1%	88
Q40	*Demonstrations using protactinium generators*	4	4.9%	21	25.6%	45	54.9%	12	14.6%	82

Table 6(f) Schools in Scotland – without sixth form

		A *Banned + evidence*		*B* *Believe banned no evidence*		*C-H* *Not banned but….*		*I* *Sometimes done*		*Total response*
		No	%	No	%	No	%	No	%	
Q1	*Keeping small mammals*	1	11.1%	2	22.2%	6	66.7%	0	0.0%	9
Q2	*Keeping giant African land snails*	0	0.0%	1	11.1%	6	66.7%	2	22.2%	9
Q3	*Inflating a sheep's lung (eg, with bellows)*	0	0.0%	1	10.0%	4	40.0%	5	50.0%	10
Q4	*Using a choice chamber with woodlice*	0	0.0%	0	0.0%	0	0.0%	9	100.0%	9
Q5	*Bringing spawn of the common frog from a pond into school*	1	10.0%	2	20.0%	3	30.0%	4	40.0%	10
Q6	*Dissection of eyeballs*	2	22.2%	2	22.2%	2	22.2%	3	33.3%	9
Q7	*Dissection of hearts*	0	0.0%	0	0.0%	2	20.0%	8	80.0%	10
Q8	*Dissection of rats*	0	0.0%	1	11.1%	8	88.9%	0	0.0%	9
Q9	*Pupils taking samples of their own cheek cells*	0	0.0%	0	0.0%	0	0.0%	8	100.0%	8
Q10	*Pupils using their own saliva in experiments*	2	22.2%	2	22.2%	2	22.2%	3	33.3%	9
Q11	*Pupils taking samples of their own blood*	2	20.0%	7	70.0%	1	10.0%	0	0.0%	10
Q12	*Incubating "finger dabs" on agar plates*	0	0.0%	1	10.0%	4	40.0%	5	50.0%	10
Q13	*Burning peanuts in experiments*	0	0.0%	1	10.0%	1	10.0%	8	80.0%	10
Q14	*Using spirometers*	0	0.0%	0	0.0%	4	50.0%	4	50.0%	8
Q15	*Exploding cans of custard powder, icing sugar, lycopodium powder or similar*	0	0.0%	0	0.0%	0	0.0%	10	100.0%	10
Q16	*Exploding cans containing methane / air mixtures*	0	0.0%	0	0.0%	5	50.0%	5	50.0%	10
Q17	*Demonstrating explosions of hydrogen / oxygen mixtures*	0	0.0%	0	0.0%	3	33.3%	6	66.7%	9
Q18	*Reducing heated copper(II) oxide with hydrogen*	0	0.0%	1	11.1%	6	66.7%	2	22.2%	9
Q19	*Dropping potassium into water*	0	0.0%	1	10.0%	0	0.0%	9	90.0%	10
Q20	*Heating iron/sulfur mixtures*	0	0.0%	0	0.0%	1	10.0%	9	90.0%	10

		A Banned + evidence		B Believe banned no evidence		C-H Not banned but….		I Sometimes done		Total response
		No	%	No	%	No	%	No	%	
Q21	*Demonstrating the thermite reaction*	0	0.0%	2	20.0%	6	60.0%	2	20.0%	10
Q22	*Use of benzene*	0	0.0%	8	80.0%	2	20.0%	0	0.0%	10
Q23	*Demonstrating the iodine/aluminium reaction*	0	0.0%	1	11.1%	7	77.8%	1	11.1%	9
Q24	*Using a blowpipe in lead oxide/charcoal reductions*	0	0.0%	2	20.0%	7	70.0%	1	10.0%	10
Q25	*Using bromine in diffusion demonstrations*	0	0.0%	0	0.0%	6	66.7%	3	33.3%	9
Q26	*Demonstrating ammonium dichromate volcano*	0	0.0%	3	30.0%	6	60.0%	1	10.0%	10
Q27	*Use of genuine crude oil*	0	0.0%	6	60.0%	2	20.0%	2	20.0%	10
Q28	*Use of naphthalene (moth balls)*	0	0.0%	3	42.9%	4	57.1%	0	0.0%	7
Q29	*Demonstrating reaction between propane-1,2,3-triol (glycerine) and potassium manganate(VII) (permanganate)*	0	0.0%	0	0.0%	7	100.0%	0	0.0%	7
Q30	*Use of mercury thermometers*	0	0.0%	0	0.00%	4	44.4%	5	55.6%	9
Q31	*Use of model steam engines*	0	0.0%	0	0.0%	1	10.0%	9	90.0%	10
Q32	*Use of air rifles in momentum demonstrations*	0	0.0%	1	10.0%	7	70.0%	2	20.0%	10
Q33	*Use of starting pistol in speed of sound experiments*	0	0.0%	0	0.0%	5	50.0%	5	50.0%	10
Q34	*Making pupils' hair stand on end with van de Graaff generators*	0	0.0%	1	10.0%	1	10.0%	8	80.0%	10
Q35	*Use of stroboscopes*	0	0.0%	0	0.0%	3	30.0%	6	60.0%	10
Q36	*Showing magnetic fields with iron filings*	0	0.0%	0	0.0%	0	0.0%	10	100.0%	10
Q37	*Use of EHT equipment up to 5000 volts at less than 5 mA*	0	0.0%	0	0.0%	3	30.0%	7	70.0%	10
Q38	*Demonstrating the power line at mains voltage on the transmission line*	0	0.0%	6	60.0%	3	30.0%	1	10.0%	10
Q39	*Demonstrations using sealed radioactive sources*	0	0.0%	0	0.0%	4	44.4%	5	55.6%	9
Q40	*Demonstrations using protactinium generators*	0	0.0%	4	50.0%	4	50.0%	0	0.0%	8

Appendix 7 Status of schools

Table 7(a) **All maintained schools where local authority is employer** (Community & Voluntary Controlled Schools in England and Wales)

		A *Banned + evidence*		*B* *Believe banned no evidence*		*C-H* *Not banned but….*		*I* *Sometimes done*		*Total response*
		No	%	No	%	No	%	No	%	No
Q1	*Keeping small mammals*	1	0.4%	35	13.3%	172	65.4%	44	16.7%	252
Q2	*Keeping giant African land snails*	2	0.8%	34	12.9%	177	67.3%	32	12.2%	245
Q3	*Inflating a sheep's lung (eg, with bellows)*	1	0.4%	35	13.3%	53	20.2%	166	63.1%	255
Q4	*Using a choice chamber with woodlice*	1	0.4%	1	0.4%	28	10.7%	223	84.8%	253
Q5	*Bringing spawn of the common frog from a pond into school*	5	1.9%	59	22.4%	133	50.6%	50	19.0%	247
Q6	*Dissection of eyeballs*	10	3.8%	66	25.1%	67	25.5%	111	42.2%	254
Q7	*Dissection of hearts*	1	0.4%	16	6.1%	16	6.1%	222	84.4%	255
Q8	*Dissection of rats*	4	1.5%	55	20.9%	137	52.1%	48	18.3%	244
Q9	*Pupils taking samples of their own cheek cells*	7	2.7%	54	20.5%	56	21.3%	138	52.5%	255
Q10	*Pupils using their own saliva in experiments*	6	2.3%	92	35.0%	96	36.5%	61	23.2%	255
Q11	*Pupils taking samples of their own blood*	36	13.7%	160	60.8%	56	21.3%	5	1.9%	257
Q12	*Incubating "finger dabs" on agar plates*	3	1.1%	42	16.0%	52	19.8%	154	58.6%	251
Q13	*Burning peanuts in experiments*	6	2.3%	52	19.8%	115	43.7%	85	32.3%	258
Q14	*Using spirometers*	0	0.0%	1	0.4%	104	39.5%	127	48.3%	232
Q15	*Exploding cans of custard powder, icing sugar, lycopodium powder or similar*	0	0.0%	12	4.6%	49	18.6%	193	73.4%	254
Q16	*Exploding cans containing methane / air mixtures*	0	0.0%	21	8.0%	88	33.5%	133	50.6%	242
Q17	*Demonstrating explosions of hydrogen / oxygen mixtures*	0	0.0%	15	5.7%	81	30.8%	161	61.2%	257
Q18	*Reducing heated copper(II) oxide with hydrogen*	1	0.4%	14	5.3%	171	65.0%	58	22.1%	244
Q19	*Dropping potassium into water*	0	0.0%	11	4.2%	3	1.1%	246	93.5%	260
Q20	*Heating iron/sulfur mixtures*	0	0.0%	3	1.1%	15	5.7%	241	91.6%	259

		A Banned + evidence		B Believe banned no evidence		C-H Not banned but….		I Sometimes done		Total response
		No	%	No	%	No	%	No	%	No
Q21	*Demonstrating the thermite reaction*	2	0.8%	16	6.1%	61	23.2%	172	65.4%	251
Q22	*Use of benzene*	105	39.9%	135	51.3%	16	6.1%	1	0.4%	257
Q23	*Demonstrating the iodine/aluminium reaction*	0	0.0%	27	10.3%	130	49.4%	85	32.3%	242
Q24	*Using a blowpipe in lead oxide/charcoal reductions*	2	0.8%	48	18.3%	120	45.6%	80	30.4%	250
Q25	*Using bromine in diffusion demonstrations*	1	0.4%	20	7.6%	96	36.5%	129	49.1%	246
Q26	*Demonstrating ammonium dichromate volcano*	4	1.5%	52	19.8%	98	37.3%	94	35.7%	248
Q27	*Use of genuine crude oil*	75	28.5%	130	49.4%	30	11.4%	19	7.2%	254
Q28	*Use of naphthalene (moth balls)*	12	4.6%	82	31.2%	118	44.9%	27	10.3%	239
Q29	*Demonstrating reaction between propane-1,2,3-triol (glycerine) and potassium manganate(VII) (permanganate)*	3	1.1%	19	7.2%	104	39.5%	111	42.2%	237
Q30	*Use of mercury thermometers*	0	0.0%	19	7.2%	58	22.1%	172	65.4%	249
Q31	*Use of model steam engines*	0	0.0%	8	3.0%	48	18.3%	200	76.1%	256
Q32	*Use of air rifles in momentum demonstrations*	1	0.4%	83	31.6%	138	52.5%	21	8.0%	243
Q33	*Use of starting pistol in speed of sound experiments*	0	0.0%	34	12.9%	146	55.5%	51	19.4%	231
Q34	*Making pupils' hair stand on end with van de Graaff generators*	0	0.0%	3	1.1%	8	3.0%	242	92.0%	253
Q35	*Use of stroboscopes*	0	0.0%	15	5.7%	90	34.2%	138	52.5%	243
Q36	*Showing magnetic fields with iron filings*	0	0.0%	0	0.0%	6	2.3%	244	92.8%	250
Q37	*Use of EHT equipment up to 5000 volts at less than 5 mA*	1	0.4%	13	4.9%	67	25.5%	160	60.8%	241
Q38	*Demonstrating the power line at mains voltage on the transmission line*	9	3.4%	80	30.4%	86	32.7%	59	22.4%	234
Q39	*Demonstrations using sealed radioactive sources*	1	0.4%	4	1.5%	45	17.1%	203	77.2%	253
Q40	*Demonstrations using protactinium generators*	4	1.5%	37	14.1%	139	52.9%	55	20.9%	235

Table 7(b) All maintained schools where governors are employer (Foundation & Voluntary Aided schools in England & Wales)

		A *Banned + evidence*		*B* *Believe banned no evidence*		*C-H* *Not banned but….*		*I* *Sometimes done*		*Total response*
		No	%	No	%	No	%	No	%	No
Q1	*Keeping small mammals*	0	0.0%	1	1.3%	66	83.5%	10	12.7%	77
Q2	*Keeping giant African land snails*	0	0.0%	5	6.3%	59	74.7%	10	12.7%	74
Q3	*Inflating a sheep's lung (eg, with bellows)*	0	0.0%	4	5.1%	10	12.7%	62	78.5%	76
Q4	*Using a choice chamber with woodlice*	0	0.0%	0	0.0%	6	7.6%	70	88.6%	76
Q5	*Bringing spawn of the common frog from a pond into school*	0	0.0%	7	8.9%	43	54.4%	24	30.4%	74
Q6	*Dissection of eyeballs*	4	5.1%	5	6.3%	16	20.3%	53	67.1%	78
Q7	*Dissection of hearts*	0	0.0%	1	1.3%	2	2.5%	74	93.7%	77
Q8	*Dissection of rats*	0	0.0%	4	5.1%	44	55.7%	27	34.2%	75
Q9	*Pupils taking samples of their own cheek cells*	1	1.3%	10	12.7%	17	21.5%	49	62.0%	77
Q10	*Pupils using their own saliva in experiments*	1	1.3%	17	21.5%	41	51.9%	19	24.1%	78
Q11	*Pupils taking samples of their own blood*	14	17.7%	35	44.3%	24	30.4%	1	1.3%	74
Q12	*Incubating "finger dabs" on agar plates*	0	0.0%	8	10.1%	16	20.3%	53	67.1%	77
Q13	*Burning peanuts in experiments*	1	1.3%	13	16.5%	45	57.0%	18	22.8%	77
Q14	*Using spirometers*	0	0.0%	0	0.0%	33	41.8%	43	54.4%	76
Q15	*Exploding cans of custard powder, icing sugar, lycopodium powder or similar*	0	0.0%	5	6.3%	28	35.4%	41	51.9%	74
Q16	*Exploding cans containing methane / air mixtures*	2	2.5%	9	11.4%	33	41.8%	30	38.0%	74
Q17	*Demonstrating explosions of hydrogen / oxygen mixtures*	2	2.5%	7	8.9%	25	31.7%	44	55.7%	78
Q18	*Reducing heated copper(II) oxide with hydrogen*	0	0.0%	7	8.9%	44	55.7%	23	29.1%	74
Q19	*Dropping potassium into water*	0	0.0%	0	0.0%	0	0.0%	78	98.7%	78
Q20	*Heating iron/sulfur mixtures*	0	0.0%	0	0.0%	5	6.3%	73	92.4%	78

		A Banned + evidence		B Believe banned no evidence		C-H Not banned but….		I Sometimes done		Total response
		No	%	No	%	No	%	No	%	No
Q21	*Demonstrating the thermite reaction*	0	0.0%	0	0.0%	7	8.9%	71	89.9%	78
Q22	*Use of benzene*	42	53.2%	29	36.7%	3	3.8%	1	1.3%	75
Q23	*Demonstrating the iodine/aluminium reaction*	0	0.0%	5	6.3%	43	54.4%	26	32.9%	74
Q24	*Using a blowpipe in lead oxide/charcoal reductions*	0	0.0%	8	10.1%	39	49.4%	27	34.2%	74
Q25	*Using bromine in diffusion demonstrations*	0	0.0%	2	2.5%	25	31.7%	50	63.3%	77
Q26	*Demonstrating ammonium dichromate volcano*	1	1.3%	5	6.3%	31	39.2%	39	49.4%	76
Q27	*Use of genuine crude oil*	33	41.8%	32	40.5%	8	10.1%	2	2.5%	75
Q28	*Use of naphthalene (moth balls)*	4	5.1%	18	22.8%	44	55.7%	8	10.1%	74
Q29	*Demonstrating reaction between propane-1,2,3-triol (glycerine) and potassium manganate(VII) (permanganate)*	1	1.3%	2	2.5%	41	51.9%	28	35.4%	72
Q30	*Use of mercury thermometers*	1	1.3%	1	1.3%	18	22.8%	59	74.7%	79
Q31	*Use of model steam engines*	0	0.0%	1	1.3%	14	17.7%	63	79.8%	78
Q32	*Use of air rifles in momentum demonstrations*	1	1.3%	21	26.6%	38	48.1%	12	15.2%	72
Q33	*Use of starting pistol in speed of sound experiments*	1	1.3%	9	11.4%	51	64.6%	12	15.2%	73
Q34	*Making pupils' hair stand on end with van de Graaff generators*	0	0.0%	0	0.0%	4	5.1%	73	92.4%	77
Q35	*Use of stroboscopes*	1	1.3%	1	1.3%	17	21.5%	57	72.2%	76
Q36	*Showing magnetic fields with iron filings*	0	0.0%	0	0.0%	1	1.3%	76	96.2%	77
Q37	*Use of EHT equipment up to 5000 volts at less than 5 mA*	1	1.3%	7	8.9%	16	20.3%	53	67.1%	77
Q38	*Demonstrating the power line at mains voltage on the transmission line*	2	2.5%	18	22.8%	35	44.3%	20	25.3%	75
Q39	*Demonstrations using sealed radioactive sources*	0	0.0%	0	0.0%	3	3.8%	73	92.4%	76
Q40	*Demonstrations using protactinium generators*	0	0.0%	5	6.3%	46	58.2%	20	25.3%	71

Table 7(c) All independent schools

		A Banned + evidence		B Believe banned no evidence		C-H Not banned but….		I Sometimes done		Total response
		No	%	No	%	No	%	No	%	No
Q1	*Keeping small mammals*	0	0.0%	4	6.1%	44	66.7%	15	22.7%	63
Q2	*Keeping giant African land snails*	0	0.0%	5	7.6%	46	69.7%	12	18.2%	63
Q3	*Inflating a sheep's lung (eg, with bellows)*	0	0.0%	4	6.1%	13	19.7%	47	71.2%	64
Q4	*Using a choice chamber with woodlice*	0	0.0%	0	0.0%	7	10.6%	57	86.4%	64
Q5	*Bringing spawn of the common frog from a pond into school*	1	1.5%	8	12.1%	27	40.9%	24	36.4%	60
Q6	*Dissection of eyeballs*	0	0.0%	9	13.6%	11	16.7%	43	65.2%	63
Q7	*Dissection of hearts*	0	0.0%	0	0.0%	5	7.6%	59	89.4%	64
Q8	*Dissection of rats*	1	1.5%	0	0.0%	28	42.4%	33	50.0%	62
Q9	*Pupils taking samples of their own cheek cells*	0	0.0%	7	10.6%	13	19.7%	42	63.6%	62
Q10	*Pupils using their own saliva in experiments*	0	0.0%	11	16.7%	29	43.9%	23	34.9%	63
Q11	*Pupils taking samples of their own blood*	9	13.6%	21	31.8%	27	40.9%	4	6.1%	61
Q12	*Incubating "finger dabs" on agar plates*	0	0.0%	5	7.6%	13	19.7%	42	63.6%	60
Q13	*Burning peanuts in experiments*	0	0.0%	6	9.1%	34	51.5%	24	36.4%	64
Q14	*Using spirometers*	0	0.0%	3	4.6%	20	30.3%	39	59.1%	62
Q15	*Exploding cans of custard powder, icing sugar, lycopodium powder or similar*	0	0.0%	4	6.1%	30	45.5%	30	45.5%	64
Q16	*Exploding cans containing methane / air mixtures*	1	1.5%	4	6.1%	29	43.9%	31	47.0%	65
Q17	*Demonstrating explosions of hydrogen / oxygen mixtures*	0	0.0%	1	1.5%	17	25.8%	45	68.2%	63
Q18	*Reducing heated copper(II) oxide with hydrogen*	0	0.0%	1	1.5%	35	53.0%	25	37.9%	61
Q19	*Dropping potassium into water*	0	0.0%	0	0.0%	0	0.0%	65	98.5%	65
Q20	*Heating iron/sulfur mixtures*	0	0.0%	0	0.0%	6	9.1%	59	89.4%	65

		A Banned + evidence		B Believe banned no evidence		C-H Not banned but….		I Sometimes done		Total response
		No	%	No	%	No	%	No	%	No
Q21	*Demonstrating the thermite reaction*	0	0.0%	0	0.0%	17	25.8%	48	72.7%	65
Q22	*Use of benzene*	47	71.2%	18	27.3%	1	1.5%	0	0.0%	66
Q23	*Demonstrating the iodine/aluminium reaction*	0	0.0%	0	0.0%	27	40.9%	37	56.1%	64
Q24	*Using a blowpipe in lead oxide/charcoal reductions*	0	0.0%	4	6.1%	41	62.1%	20	30.3%	65
Q25	*Using bromine in diffusion demonstrations*	0	0.0%	0	0.0%	18	27.3%	48	72.7%	66
Q26	*Demonstrating ammonium dichromate volcano*	0	0.0%	0	0.0%	18	27.3%	47	71.2%	65
Q27	*Use of genuine crude oil*	37	56.1%	16	24.2%	9	13.6%	2	3.0%	64
Q28	*Use of naphthalene (moth balls)*	0	0.0%	9	13.6%	39	59.1%	14	21.2%	62
Q29	*Demonstrating reaction between propane-1,2,3-triol (glycerine) and potassium manganate(VII) (permanganate)*	0	0.0%	1	1.5%	32	48.5%	29	43.9%	62
Q30	*Use of mercury thermometers*	0	0.0%	0	0.0%	8	12.1%	57	86.4%	65
Q31	*Use of model steam engines*	0	0.0%	0	0.0%	15	22.7%	48	72.7%	63
Q32	*Use of air rifles in momentum demonstrations*	0	0.0%	9	13.6%	35	53.0%	16	24.2%	60
Q33	*Use of starting pistol in speed of sound experiments*	0	0.0%	5	7.6%	39	59.1%	14	21.2%	58
Q34	*Making pupils' hair stand on end with van de Graaff generators*	0	0.0%	0	0.0%	2	3.0%	61	92.4%	63
Q35	*Use of stroboscopes*	0	0.0%	1	1.5%	10	15.2%	52	78.8%	63
Q36	*Showing magnetic fields with iron filings*	0	0.0%	1	1.5%	2	3.0%	59	89.4%	62
Q37	*Use of EHT equipment up to 5000 volts at less than 5 mA*	0	0.0%	1	1.5%	5	7.6%	57	86.4%	63
Q38	*Demonstrating the power line at mains voltage on the transmission line*	0	0.0%	19	28.8%	15	22.7%	27	40.9%	61
Q39	*Demonstrations using sealed radioactive sources*	0	0.0%	1	1.5%	11	16.7%	49	74.2%	61
Q40	*Demonstrations using protactinium generators*	0	0.0%	3	4.6%	30	45.5%	27	40.9%	60

Table 7(d) All maintained schools outside Scotland where local authority is employer

		A Banned + evidence		*B* Believe banned no evidence		*C-H* Not banned but….		*I* Sometimes done		*Total response*
		No	%	No	%	No	%	No	%	No
Q1	*Keeping small mammals*	0	0.0%	10	6.1%	120	72.7%	35	21.21%	165
Q2	*Keeping giant African land snails*	0	0.0%	16	9.8%	128	78.1%	20	12.2%	164
Q3	*Inflating a sheep's lung (eg, with bellows)*	0	0.0%	12	7.1%	32	18.9%	125	74.0%	169
Q4	*Using a choice chamber with woodlice*	1	0.6%	1	0.6%	24	14.3%	142	84.5%	168
Q5	*Bringing spawn of the common frog from a pond into school*	1	0.6%	29	17.4%	98	58.7%	39	23.4%	167
Q6	*Dissection of eyeballs*	4	2.4%	16	9.5%	50	29.6%	99	58.6%	169
Q7	*Dissection of hearts*	0	0.0%	0	0.0%	5	3.0%	164	97.0%	169
Q8	*Dissection of rats*	0	0.0%	16	9.9%	98	60.9%	47	29.2%	161
Q9	*Pupils taking samples of their own cheek cells*	3	1.8%	31	18.3%	44	26.0%	91	53.9%	169
Q10	*Pupils using their own saliva in experiments*	0	0.0%	45	27.1%	77	46.4%	44	26.5%	166
Q11	*Pupils taking samples of their own blood*	22	13.3%	89	53.6%	50	30.1%	5	3.0%	166
Q12	*Incubating "finger dabs" on agar plates*	1	0.6%	16	9.6%	27	16.2%	123	73.7%	167
Q13	*Burning peanuts in experiments*	5	3.0%	37	22.4%	81	49.1%	42	25.5%	165
Q14	*Using spirometers*	0	0.0%	0	0.0%	83	51.6%	78	48.5%	161
Q15	*Exploding cans of custard powder, icing sugar, lycopodium powder or similar*	0	0.0%	11	6.8%	48	29.6%	103	63.6%	162
Q16	*Exploding cans containing methane / air mixtures*	0	0.0%	20	13.1%	66	43.1%	67	43.8%	153
Q17	*Demonstrating explosions of hydrogen / oxygen mixtures*	0	0.0%	10	6.0%	54	32.5%	102	61.5%	166
Q18	*Reducing heated copper(II) oxide with hydrogen*	0	0.0%	7	4.4%	110	69.6%	41	26.0%	158
Q19	*Dropping potassium into water*	0	0.0%	1	0.6%	1	0.6%	167	98.8%	169
Q20	*Heating iron/sulfur mixtures*	0	0.0%	1	0.6%	7	4.1%	161	95.3%	169

		A Banned + evidence		B Believe banned no evidence		C-H Not banned but….		I Sometimes done		No response
		No	%	No	%	No	%	No	%	No
Q21	*Demonstrating the thermite reaction*	0	0.0%	3	1.8%	15	8.9%	150	89.3%	168
Q22	*Use of benzene*	77	46.1%	82	49.1%	8	4.9%	0	0.0%	167
Q23	*Demonstrating the iodine/aluminium reaction*	0	0.0%	11	6.9%	95	59.8%	53	33.3%	159
Q24	*Using a blowpipe in lead oxide/charcoal reductions*	1	0.6%	18	10.9%	77	46.7%	69	41.8%	165
Q25	*Using bromine in diffusion demonstrations*	0	0.0%	5	3.0%	57	34.6%	103	62.4%	165
Q26	*Demonstrating ammonium dichromate volcano*	2	1.2%	21	13.0%	66	40.7%	73	45.1%	162
Q27	*Use of genuine crude oil*	64	38.8%	79	47.9%	18	10.9%	4	2.4%	165
Q28	*Use of naphthalene (moth balls)*	7	4.4%	45	28.5%	84	53.2%	22	13.9%	158
Q29	*Demonstrating reaction between propane-1,2,3-triol (glycerine) and potassium manganate(VII) (permanganate)*	2	1.3%	11	6.9%	74	46.5%	72	45.3%	159
Q30	*Use of mercury thermometers*	0	0.0%	8	4.9%	40	24.5%	115	70.6%	163
Q31	*Use of model steam engines*	0	0.0%	3	1.8%	34	20.1%	132	78.1%	169
Q32	*Use of air rifles in momentum demonstrations*	1	0.6%	48	29.5%	103	63.2%	11	6.8%	163
Q33	*Use of starting pistol in speed of sound experiments*	0	0.0%	17	11.0%	105	67.7%	33	21.3%	155
Q34	*Making pupils' hair stand on end with van de Graaff generators*	0	0.0%	2	1.2%	6	3.6%	160	95.2%	168
Q35	*Use of stroboscopes*	0	0.0%	8	4.9%	68	41.5%	88	53.7%	164
Q36	*Showing magnetic fields with iron filings*	0	0.0%	0	0.0%	1	0.6%	167	99.4%	168
Q37	*Use of EHT equipment up to 5000 volts at less than 5 mA*	0	0.0%	10	6.2%	62	38.3%	90	55.6%	162
Q38	*Demonstrating the power line at mains voltage on the transmission line*	4	2.6%	42	26.8%	68	43.3%	43	27.4%	157
Q39	*Demonstrations using sealed radioactive sources*	0	0.0%	2	1.2%	17	10.1%	150	88.8%	169
Q40	*Demonstrations using protactinium generators*	0	0.0%	13	8.2%	102	64.6%	43	27.2%	158

Table 7(e) All maintained schools outside Scotland where governors are employer (Foundation & Voluntary Aided schools in England & Wales)

		A Banned + evidence		*B Believed banned no evidence*		*C-H Not banned but ….*		*I Sometimes done*		*Total response*
		No	%	No	%	No	%	No	%	**No**
Q1	*Keeping small mammals*	0	0.0%	1	1.3%	66	85.7%	10	13.0%	77
Q2	*Keeping giant African land snails*	0	0.0%	5	6.8%	59	79.7%	10	13.5%	74
Q3	*Inflating a sheep's lung (eg, with bellows)*	0	0.0%	4	5.3%	10	13.2%	62	81.6%	76
Q4	*Using a choice chamber with woodlice*	0	0.0%	0	0.0%	6	7.9%	70	92.1%	76
Q5	*Bringing spawn of the common frog from a pond into school*	0	0.0%	7	9.5%	43	58.1%	24	32.4%	74
Q6	*Dissection of eyeballs*	4	5.1%	5	6.4%	16	20.5%	53	67.9%	78
Q7	*Dissection of hearts*	0	0.0%	1	1.3%	2	2.6%	74	96.1%	77
Q8	*Dissection of rats*	0	0.0%	4	5.3%	44	58.7%	27	36.0%	75
Q9	*Pupils taking samples of their own cheek cells*	1	1.3%	10	13.0%	17	22.1%	49	63.6%	77
Q10	*Pupils using their own saliva in experiments*	1	1.3%	17	21.8%	41	52.6%	19	24.4%	78
Q11	*Pupils taking samples of their own blood*	14	18.9%	35	47.3%	24	32.4%	1	1.4%	74
Q12	*Incubating "finger dabs" on agar plates*	0	0.0%	8	10.4%	16	20.8%	53	68.8%	77
Q13	*Burning peanuts in experiments*	1	1.3%	13	16.9%	45	58.4%	18	23.4%	77
Q14	*Using spirometers*	0	0.0%	0	0.0%	33	43.4%	43	56.6%	76
Q15	*Exploding cans of custard powder, icing sugar, lycopodium powder or similar*	0	0.0%	5	6.8%	28	37.8%	41	55.4%	74
Q16	*Exploding cans containing methane / air mixtures*	2	2.7%	9	12.2%	33	44.6%	30	40.5%	74
Q17	*Demonstrating explosions of hydrogen / oxygen mixtures*	2	2.6%	7	9.0%	25	32.1%	44	56.4%	78
Q18	*Reducing heated copper(II) oxide with hydrogen*	0	0.0%	7	9.5%	44	59.5%	23	31.1%	74
Q19	*Dropping potassium into water*	0	0.0%	0	0.0%	0	0.0%	78	100.0%	78
Q20	*Heating iron/sulfur mixtures*	0	0.0%	0	0.0%	5	6.4%	73	93.6%	78

		A *Banned + evidence*		*B* *Believed banned no evidence*		*C-H* *Not banned but ….*		*I* *Sometimes done*		*Total response*
		No	%	No	%	No	%	No	%	**No**
Q21	*Demonstrating the thermite reaction*	0	0.0%	0	0.0%	7	9.0%	71	91.0%	78
Q22	*Use of benzene*	42	56.0%	29	38.7%	3	4.0%	1	1.3%	75
Q23	*Demonstrating the iodine/aluminium reaction*	0	0.0%	5	6.8%	43	58.1%	26	35.1%	74
Q24	*Using a blowpipe in lead oxide/charcoal reductions*	0	0.0%	8	10.8%	39	52.7%	27	36.5%	74
Q25	*Using bromine in diffusion demonstrations*	0	0.0%	2	2.6%	25	32.5%	50	64.9%	77
Q26	*Demonstrating ammonium dichromate volcano*	1	1.3%	5	6.6%	31	40.8%	39	51.3%	76
Q27	*Use of genuine crude oil*	33	44.0%	32	42.7%	8	10.7%	2	2.7%	75
Q28	*Use of naphthalene (moth balls)*	4	5.4%	18	24.3%	44	59.5%	8	10.8%	74
Q29	*Demonstrating reaction between propane-1,2,3-triol (glycerine) and potassium manganate(VII) (permanganate)*	1	1.4%	2	2.8%	41	56.9%	28	38.9%	72
Q30	*Use of mercury thermometers*	1	1.3%	1	1.3%	18	22.8%	59	74.7%	79
Q31	*Use of model steam engines*	0	0.0%	1	1.3%	14	17.9%	63	80.8%	78
Q32	*Use of air rifles in momentum demonstrations*	1	1.4%	21	29.2%	38	52.8%	12	16.7%	72
Q33	*Use of starting pistol in speed of sound experiments*	1	1.4%	9	12.3%	51	69.9%	12	16.4%	73
Q34	*Making pupils' hair stand on end with van de Graaff generators*	0	0.0%	0	0.0%	4	5.2%	73	94.8%	77
Q35	*Use of stroboscopes*	1	1.3%	1	1.3%	17	22.4%	57	75.0%	76
Q36	*Showing magnetic fields with iron filings*	0	0.0%	0	0.0%	1	1.3%	76	98.7%	77
Q37	*Use of EHT equipment up to 5000 volts at less than 5 mA*	1	1.3%	7	9.1%	16	20.8%	53	68.8%	77
Q38	*Demonstrating the power line at mains voltage on the transmission line*	2	2.7%	18	24.0%	35	46.7%	20	26.7%	75
Q39	*Demonstrations using sealed radioactive sources*	0	0.0%	0	0.0%	3	3.9%	73	96.1%	76
Q40	*Demonstrations using protactinium generators*	0	0.0%	5	7.0%	46	64.8%	20	28.2%	71

Table 7(f) Independent schools outside Scotland

		A Banned + evidence		*B Believed banned no evidence*		*C-H Not banned but ….*		*I Sometimes done*		*Total response*
		No	%	No	%	No	%	No	%	
Q1	*Keeping small mammals*	0	0.0%	1	2.0%	35	71.4%	13	26.5%	49
Q2	*Keeping giant African land snails*	0	0.0%	1	2.0%	37	75.5%	11	22.4%	49
Q3	*Inflating a sheep's lung (eg, with bellows)*	0	0.0%	1	2.0%	7	14.3%	41	83.7%	49
Q4	*Using a choice chamber with woodlice*	0	0.0%	0	0.0%	5	10.2%	44	89.8%	49
Q5	*Bringing spawn of the common frog from a pond into school*	0	0.0%	6	13.0%	21	45.7%	19	41.3%	46
Q6	*Dissection of eyeballs*	0	0.0%	4	8.3%	6	12.5%	38	79.2%	48
Q7	*Dissection of hearts*	0	0.0%	0	0.0%	1	2.0%	48	98.0%	49
Q8	*Dissection of rats*	0	0.0%	0	0.0%	18	37.5%	30	62.5%	48
Q9	*Pupils taking samples of their own cheek cells*	0	0.0%	2	4.2%	11	22.9%	35	72.9%	48
Q10	*Pupils using their own saliva in experiments*	0	0.0%	5	10.4%	25	52.1%	18	37.5%	48
Q11	*Pupils taking samples of their own blood*	6	12.8%	11	23.4%	26	55.3%	4	8.5%	47
Q12	*Incubating "finger dabs" on agar plates*	0	0.0%	3	6.5%	10	21.7%	33	71.7%	46
Q13	*Burning peanuts in experiments*	0	0.0%	5	10.2%	29	59.2%	15	30.6%	49
Q14	*Using spirometers*	0	0.0%	2	4.2%	15	31.3%	31	64.6%	48
Q15	*Exploding cans of custard powder, icing sugar, lycopodium powder or similar*	0	0.0%	4	8.2%	29	59.2%	16	32.7%	49
Q16	*Exploding cans containing methane / air mixtures*	1	2.0%	4	8.0%	23	46.0%	22	44.0%	50
Q17	*Demonstrating explosions of hydrogen / oxygen mixtures*	0	0.0%	1	2.0%	11	22.4%	37	75.5%	49
Q18	*Reducing heated copper(II) oxide with hydrogen*	0	0.0%	1	2.1%	26	55.3%	20	42.6%	47
Q19	*Dropping potassium into water*	0	0.0%	0	0.0%	0	0.0%	51	100.0%	51
Q20	*Heating iron/sulfur mixtures*	0	0.0%	0	0.0%	5	10.0%	45	90.0%	50

		A Banned + evidence		B Believed banned no evidence		C-H Not banned but ….		I Sometimes done		Total response
		No	%	No	%	No	%	No	%	
Q21	*Demonstrating the thermite reaction*	0	0.0%	0	0.0%	7	13.7%	44	86.3%	51
Q22	*Use of benzene*	41	80.4%	9	17.6%	1	2.0%	0	0.0%	51
Q23	*Demonstrating the iodine/aluminium reaction*	0	0.0%	0	0.0%	21	42.9%	28	57.1%	49
Q24	*Using a blowpipe in lead oxide/charcoal reductions*	0	0.0%	2	4.0%	34	68.0%	14	28.0%	50
Q25	*Using bromine in diffusion demonstrations*	0	0.0%	0	0.0%	12	23.5%	39	76.5%	51
Q26	*Demonstrating ammonium dichromate volcano*	0	0.0%	0	0.0%	15	29.4%	36	70.6%	51
Q27	*Use of genuine crude oil*	33	67.3%	9	18.4%	7	14.3%	0	0.0%	49
Q28	*Use of naphthalene (moth balls)*	0	0.0%	6	12.5%	33	68.8%	9	18.8%	48
Q29	*Demonstrating reaction between propane-1,2,3-triol (glycerine) and potassium manganate(VII) (permanganate)*	0	0.0%	1	2.1%	23	48.9%	23	48.9%	47
Q30	*Use of mercury thermometers*	0	0.0%	0	0.0%	4	8.0%	46	92.0%	50
Q31	*Use of model steam engines*	0	0.0%	0	0.0%	12	24.5%	37	75.5%	49
Q32	*Use of air rifles in momentum demonstrations*	0	0.0%	6	13.0%	26	56.5%	14	30.4%	46
Q33	*Use of starting pistol in speed of sound experiments*	0	0.0%	3	6.7%	29	64.4%	13	28.9%	45
Q34	*Making pupils' hair stand on end with van de Graaff generators*	0	0.0%	0	0.0%	2	4.1%	47	95.9%	49
Q35	*Use of stroboscopes*	0	0.0%	0	0.0%	4	8.2%	45	91.8%	49
Q36	*Showing magnetic fields with iron filings*	0	0.0%	1	2.1%	0	0.0%	47	97.9%	48
Q37	*Use of EHT equipment up to 5000 volts at less than 5 mA*	0	0.0%	1	2.0%	2	4.1%	46	93.9%	49
Q38	*Demonstrating the power line at mains voltage on the transmission line*	0	0.0%	12	25.5%	12	25.5%	23	48.9%	47
Q39	*Demonstrations using sealed radioactive sources*	0	0.0%	0	0.0%	3	6.3%	45	93.8%	48
Q40	*Demonstrations using protactinium generators*	0	0.0%	2	4.3%	18	38.3%	27	57.4%	47

Table 7(g) Maintained schools in Scotland

		A Banned + evidence		*B Believed banned no evidence*		*C-H Not banned but ….*		*I Sometimes done*		*Total response*
		No	%	No	%	No	%	No	%	
Q1	*Keeping small mammals*	1	1.1%	25	28.7%	52	59.8%	9	10.3%	87
Q2	*Keeping giant African land snails*	2	2.5%	18	22.2%	49	60.5%	12	14.8%	81
Q3	*Inflating a sheep's lung (eg, with bellows)*	1	1.2%	23	26.7%	21	24.4%	41	47.7%	86
Q4	*Using a choice chamber with woodlice*	0	0.0%	0	0.0%	4	4.7%	81	95.3%	85
Q5	*Bringing spawn of the common frog from a pond into school*	4	5.0%	30	37.5%	35	43.8%	11	13.8%	80
Q6	*Dissection of eyeballs*	6	7.1%	50	58.8%	17	20.0%	12	14.1%	85
Q7	*Dissection of hearts*	1	1.2%	16	18.6%	11	12.8%	58	67.4%	86
Q8	*Dissection of rats*	4	4.8%	39	47.0%	39	47.0%	1	1.2%	83
Q9	*Pupils taking samples of their own cheek cells*	4	4.7%	23	26.7%	12	14.0%	47	54.7%	86
Q10	*Pupils using their own saliva in experiments*	6	6.7%	47	52.8%	19	21.3%	17	19.1%	89
Q11	*Pupils taking samples of their own blood*	14	15.4%	71	78.0%	6	6.6%	0	0.0%	91
Q12	*Incubating "finger dabs" on agar plates*	2	2.4%	26	31.0%	25	29.8%	31	36.9%	84
Q13	*Burning peanuts in experiments*	1	1.1%	15	16.1%	34	36.6%	43	46.2%	93
Q14	*Using spirometers*	0	0.0%	1	1.4%	21	29.6%	49	69.0%	71
Q15	*Exploding cans of custard powder, icing sugar, lycopodium powder or similar*	0	0.0%	1	1.1%	1	1.1%	90	97.8%	92
Q16	*Exploding cans containing methane / air mixtures*	0	0.0%	1	1.1%	22	24.7%	66	74.2%	89
Q17	*Demonstrating explosions of hydrogen / oxygen mixtures*	0	0.0%	5	5.5%	27	29.7%	59	64.8%	91
Q18	*Reducing heated copper(II) oxide with hydrogen*	1	1.2%	7	8.1%	61	70.9%	17	19.8%	86
Q19	*Dropping potassium into water*	0	0.0%	10	11.0%	2	2.2%	79	86.8%	91
Q20	*Heating iron/sulfur mixtures*	0	0.0%	2	2.2%	8	8.9%	80	88.9%	90

		A Banned + evidence		B Believed banned no evidence		C-H Not banned but ….		I Sometimes done		Total response
		No	%	No	%	No	%	No	%	
Q21	*Demonstrating the thermite reaction*	2	2.4%	13	15.7%	46	55.4%	22	26.5%	83
Q22	*Use of benzene*	28	31.1%	53	58.9%	8	8.9%	1	1.1%	90
Q23	*Demonstrating the iodine/aluminium reaction*	0	0.0%	16	19.3%	35	42.2%	32	38.6%	83
Q24	*Using a blowpipe in lead oxide/charcoal reductions*	1	1.2%	30	35.3%	43	50.6%	11	12.9%	85
Q25	*Using bromine in diffusion demonstrations*	1	1.2%	15	18.5%	39	48.1%	26	32.1%	81
Q26	*Demonstrating ammonium dichromate volcano*	2	2.3%	31	36.0%	32	37.2%	21	24.4%	86
Q27	*Use of genuine crude oil*	11	12.4%	51	57.3%	12	13.5%	15	16.9%	89
Q28	*Use of naphthalene (moth balls)*	5	6.2%	37	45.7%	34	42.0%	5	6.2%	81
Q29	*Demonstrating reaction between propane-1,2,3-triol (glycerine) and potassium manganate(VII) (permanganate)*	1	1.3%	8	10.3%	30	38.5%	39	50.0%	78
Q30	*Use of mercury thermometers*	0	0.0%	11	12.8%	18	20.9%	57	66.3%	86
Q31	*Use of model steam engines*	0	0.0%	5	5.7%	14	16.1%	68	78.2%	87
Q32	*Use of air rifles in momentum demonstrations*	0	0.0%	35	43.8%	35	43.8%	10	12.5%	80
Q33	*Use of starting pistol in speed of sound experiments*	0	0.0%	17	22.4%	41	53.9%	18	23.7%	76
Q34	*Making pupils' hair stand on end with van de Graaff generators*	0	0.0%	1	1.2%	2	2.4%	82	96.5%	85
Q35	*Use of stroboscopes*	0	0.0%	7	8.9%	22	27.8%	50	63.3%	79
Q36	*Showing magnetic fields with iron filings*	0	0.0%	0	0.0%	5	6.1%	77	93.9%	82
Q37	*Use of EHT equipment up to 5000 volts at less than 5 mA*	1	1.3%	3	3.8%	5	6.3%	70	88.6%	79
Q38	*Demonstrating the power line at mains voltage on the transmission line*	5	6.5%	38	49.4%	18	23.4%	16	20.8%	77
Q39	*Demonstrations using sealed radioactive sources*	1	1.2%	2	2.4%	28	33.3%	53	63.1%	84
Q40	*Demonstrations using protactinium generators*	4	5.2%	24	31.2%	37	48.1%	12	15.6%	77

Table 7(h) Independent schools in Scotland

		A Banned + evidence		*B Believed banned no evidence*		*C-H Not banned but ….*		*I Sometimes done*		*Total response*
		No	%	No	%	No	%	No	%	
Q1	*Keeping small mammals*	0	0.0%	3	21.4%	9	64.3%	2	14.3%	14
Q2	*Keeping giant African land snails*	0	0.0%	4	28.6%	9	64.3%	1	7.1%	14
Q3	*Inflating a sheep's lung (eg, with bellows)*	0	0.0%	3	20.0%	6	40.0%	6	40.0%	15
Q4	*Using a choice chamber with woodlice*	0	0.0%	0	0.0%	2	13.3%	13	86.7%	15
Q5	*Bringing spawn of the common frog from a pond into school*	1	7.1%	2	14.3%	6	42.9%	5	35.7%	14
Q6	*Dissection of eyeballs*	0	0.0%	5	33.3%	5	33.3%	5	33.3%	15
Q7	*Dissection of hearts*	0	0.0%	0	0.0%	4	26.7%	11	73.3%	15
Q8	*Dissection of rats*	1	7.1%	0	0.0%	10	71.4%	3	21.4%	14
Q9	*Pupils taking samples of their own cheek cells*	0	0.0%	5	35.7%	2	14.3%	7	50.0%	14
Q10	*Pupils using their own saliva in experiments*	0	0.0%	6	40.0%	4	26.7%	5	33.3%	15
Q11	*Pupils taking samples of their own blood*	3	21.4%	10	71.4%	1	7.1%	0	0.0%	14
Q12	*Incubating "finger dabs" on agar plates*	0	0.0%	2	14.3%	3	21.4%	9	64.3%	14
Q13	*Burning peanuts in experiments*	0	0.0%	1	6.7%	5	33.3%	9	60.0%	15
Q14	*Using spirometers*	0	0.0%	1	7.1%	5	35.7%	8	57.1%	14
Q15	*Exploding cans of custard powder, icing sugar, lycopodium powder or similar*	0	0.0%	0	0.0%	1	6.7%	14	93.3%	15
Q16	*Exploding cans containing methane / air mixtures*	0	0.0%	0	0.0%	6	40.0%	9	60.0%	15
Q17	*Demonstrating explosions of hydrogen / oxygen mixtures*	0	0.0%	0	0.0%	6	42.9%	8	57.1%	14
Q18	*Reducing heated copper(II) oxide with hydrogen*	0	0.0%	0	0.0%	9	64.3%	5	35.7%	14
Q19	*Dropping potassium into water*	0	0.0%	0	0.0%	0	0.0%	14	100.0%	14
Q20	*Heating iron/sulfur mixtures*	0	0.0%	0	0.0%	1	6.7%	14	93.3%	15

		A Banned + evidence		B Believed banned no evidence		C-H Not banned but ….		I Sometimes done		Total response
		No	%	No	%	No	%	No	%	
Q21	*Demonstrating the thermite reaction*	0	0.0%	0	0.0%	10	71.4%	4	28.6%	14
Q22	*Use of benzene*	6	40.0%	9	60.0%	0	0.0%	0	0.0%	15
Q23	*Demonstrating the iodine/aluminium reaction*	0	0.0%	0	0.0%	6	40.0%	9	60.0%	15
Q24	*Using a blowpipe in lead oxide/charcoal reductions*	0	0.0%	2	13.3%	7	46.7%	6	40.0%	15
Q25	*Using bromine in diffusion demonstrations*	0	0.0%	0	0.0%	6	40.0%	9	60.0%	15
Q26	*Demonstrating ammonium dichromate volcano*	0	0.0%	0	0.0%	3	21.4%	11	78.6%	14
Q27	*Use of genuine crude oil*	4	26.7%	7	46.7%	2	13.3%	2	13.3%	15
Q28	*Use of naphthalene (moth balls)*	0	0.0%	3	21.4%	6	42.9%	5	35.7%	14
Q29	*Demonstrating reaction between propane-1,2,3-triol (glycerine) and potassium manganate(VII) (permanganate)*	0	0.0%	0	0.0%	9	60.0%	6	40.0%	15
Q30	*Use of mercury thermometers*	0	0.0%	0	0.0%	4	26.7%	11	73.3%	15
Q31	*Use of model steam engines*	0	0.0%	0	0.0%	3	21.4%	11	78.6%	14
Q32	*Use of air rifles in momentum demonstrations*	0	0.0%	3	21.4%	9	64.3%	2	14.3%	14
Q33	*Use of starting pistol in speed of sound experiments*	0	0.0%	2	15.4%	10	76.9%	1	7.7%	13
Q34	*Making pupils' hair stand on end with van de Graaff generators*	0	0.0%	0	0.0%	0	0.0%	14	100.0%	14
Q35	*Use of stroboscopes*	0	0.0%	1	7.1%	6	42.9%	7	50.0%	14
Q36	*Showing magnetic fields with iron filings*	0	0.0%	0	0.0%	2	14.3%	12	85.7%	14
Q37	*Use of EHT equipment up to 5000 volts at less than 5 mA*	0	0.0%	0	0.0%	3	21.4%	11	78.6%	14
Q38	*Demonstrating the power line at mains voltage on the transmission line*	0	0.0%	7	50.0%	3	21.4%	4	28.6%	14
Q39	*Demonstrations using sealed radioactive sources*	0	0.0%	1	7.7%	8	61.5%	4	30.8%	13
Q40	*Demonstrations using protactinium generators*	0	0.0%	1	7.7%	12	92.3%	0	0.0%	13

Appendix 8 Size of schools

Table 8(a) All schools with under 500 pupils

		A Banned + evidence		*B Believed banned no evidence*		*C-H Not banned but ….*		*I Sometimes done*		*Total response*
		No	%	No	%	No	%	No	%	**No**
Q1	Keeping small mammals	0	0.0%	12	21.1%	37	64.9%	8	14.0%	57
Q2	Keeping giant African land snails	0	0.0%	9	16.1%	41	73.2%	6	10.7%	56
Q3	Inflating a sheep's lung (eg, with bellows)	0	0.0%	8	14.0%	20	35.1%	29	50.9%	57
Q4	Using a choice chamber with woodlice	0	0.0%	0	0.0%	7	12.3%	50	87.7%	57
Q5	Bringing spawn of the common frog from a pond into school	2	3.8%	13	24.5%	15	28.3%	23	43.4%	53
Q6	Dissection of eyeballs	1	1.8%	17	30.4%	13	23.2%	25	44.6%	56
Q7	Dissection of hearts	0	0.0%	4	7.0%	8	14.0%	45	78.9%	57
Q8	Dissection of rats	1	1.8%	8	14.5%	28	50.9%	18	32.7%	55
Q9	Pupils taking samples of their own cheek cells	2	3.6%	8	14.5%	11	20.0%	34	61.8%	55
Q10	Pupils using their own saliva in experiments	2	3.6%	18	32.1%	20	35.7%	16	28.6%	56
Q11	Pupils taking samples of their own blood	8	14.5%	35	63.6%	11	20.0%	1	1.8%	55
Q12	Incubating "finger dabs" on agar plates	1	1.8%	6	10.9%	16	29.1%	32	58.2%	55
Q13	Burning peanuts in experiments	0	0.0%	5	8.8%	19	33.3%	33	57.9%	57
Q14	Using spirometers	0	0.0%	2	3.8%	22	41.5%	29	54.7%	53
Q15	Exploding cans of custard powder, icing sugar, lycopodium powder or similar	0	0.0%	1	1.7%	18	31.0%	39	67.2%	58
Q16	Exploding cans containing methane / air mixtures	0	0.0%	1	1.8%	27	48.2%	28	50.0%	56
Q17	Demonstrating explosions of hydrogen / oxygen mixtures	0	0.0%	2	3.6%	22	40.0%	31	56.4%	55
Q18	Reducing heated copper(II) oxide with hydrogen	0	0.0%	0	0.0%	39	69.6%	17	30.4%	56
Q19	Dropping potassium into water	0	0.0%	0	0.0%	0	0.0%	58	100.0%	58
Q20	Heating iron/sulfur mixtures	0	0.0%	0	0.0%	2	3.5%	55	96.5%	57

		A *Banned + evidence*		*B* *Believed banned no evidence*		*C-H* *Not banned but ….*		*I* *Sometimes done*		*Total response*
		No	%	No	%	No	%	No	%	**No**
Q21	Demonstrating the thermite reaction	0	0.0%	2	3.6%	24	43.6%	29	52.7%	55
Q22	Use of benzene	30	51.7%	21	36.2%	7	12.1%	0	0.0%	58
Q23	Demonstrating the iodine/aluminium reaction	0	0.0%	2	3.5%	29	50.9%	26	45.6%	57
Q24	Using a blowpipe in lead oxide/charcoal reductions	0	0.0%	8	14.0%	34	59.6%	15	26.3%	57
Q25	Using bromine in diffusion demonstrations	0	0.0%	1	1.8%	24	42.1%	32	56.1%	57
Q26	Demonstrating ammonium dichromate volcano	1	1.8%	4	7.0%	19	33.3%	33	57.9%	57
Q27	Use of genuine crude oil	19	33.3%	20	35.1%	12	21.1%	6	10.5%	57
Q28	Use of naphthalene (moth balls)	1	1.9%	11	20.4%	32	59.3%	10	18.5%	54
Q29	Demonstrating reaction between propane-1,2,3-triol (glycerine) and potassium manganate(VII) (permanganate)	0	0.0%	0	0.0%	26	47.3%	29	52.7%	55
Q30	Use of mercury thermometers	0	0.0%	0	0.0%	11	19.6%	45	80.4%	56
Q31	Use of model steam engines	0	0.0%	0	0.0%	16	28.1%	41	71.9%	57
Q32	Use of air rifles in momentum demonstrations	0	0.0%	18	33.3%	29	53.7%	7	13.0%	54
Q33	Use of starting pistol in speed of sound experiments	0	0.0%	9	17.6%	30	58.8%	12	23.5%	51
Q34	Making pupils' hair stand on end with van de Graaff generators	0	0.0%	1	1.8%	2	3.6%	53	94.6%	56
Q35	Use of stroboscopes	0	0.0%	4	7.4%	15	27.8%	35	64.8%	54
Q36	Showing magnetic fields with iron filings	0	0.0%	0	0.0%	4	7.4%	50	92.6%	54
Q37	Use of EHT equipment up to 5000 volts at less than 5 mA	0	0.0%	3	5.5%	9	16.4%	43	78.2%	55
Q38	Demonstrating the power line at mains voltage on the transmission line	0	0.0%	24	44.4%	19	35.2%	11	20.4%	54
Q39	Demonstrations using sealed radioactive sources	1	1.8%	2	3.6%	17	30.9%	35	63.6%	55
Q40	Demonstrations using protactinium generators	1	2.0%	4	7.8%	33	64.7%	13	25.5%	51

Table 8(b) All schools with between 500 & 1000 pupils

		A Banned + evidence		*B Believed banned no evidence*		*C-H Not banned but ….*		*I Sometimes done*		*Total response*
		No	%	No	%	No	%	No	%	
Q1	*Keeping small mammals*	1	0.6%	9	5.5%	125	75.8%	30	18.2%	165
Q2	*Keeping giant African land snails*	2	1.2%	14	8.6%	128	79.0%	18	11.1%	162
Q3	*Inflating a sheep's lung (eg, with bellows)*	1	0.6%	16	9.6%	36	21.6%	114	68.3%	167
Q4	*Using a choice chamber with woodlice*	1	0.6%	1	0.6%	18	10.8%	146	88.0%	166
Q5	*Bringing spawn of the common frog from a pond into school*	2	1.2%	33	20.1%	99	60.4%	30	18.3%	164
Q6	*Dissection of eyeballs*	6	3.6%	37	21.9%	39	23.1%	87	51.5%	169
Q7	*Dissection of hearts*	1	0.6%	5	3.0%	11	6.5%	152	89.9%	169
Q8	*Dissection of rats*	3	1.9%	26	16.1%	102	63.4%	30	18.6%	161
Q9	*Pupils taking samples of their own cheek cells*	4	2.4%	35	20.7%	29	17.2%	101	59.8%	169
Q10	*Pupils using their own saliva in experiments*	4	2.4%	49	29.2%	68	40.5%	47	28.0%	168
Q11	*Pupils taking samples of their own blood*	28	16.8%	90	53.9%	45	26.9%	4	2.4%	167
Q12	*Incubating "finger dabs" on agar plates*	1	0.6%	26	15.9%	28	17.1%	109	66.5%	164
Q13	*Burning peanuts in experiments*	3	1.8%	32	18.8%	88	51.8%	47	27.6%	170
Q14	*Using spirometers*	0	0.0%	2	1.3%	70	45.2%	83	53.5%	155
Q15	*Exploding cans of custard powder, icing sugar, lycopodium powder or similar*	0	0.0%	12	7.3%	44	26.7%	109	66.1%	165
Q16	*Exploding cans containing methane / air mixtures*	2	1.2%	23	13.9%	63	38.0%	78	47.0%	166
Q17	*Demonstrating explosions of hydrogen / oxygen mixtures*	1	0.6%	12	7.0%	47	27.5%	111	64.9%	171
Q18	*Reducing heated copper(II) oxide with hydrogen*	1	0.6%	15	9.6%	98	62.4%	43	27.4%	157
Q19	*Dropping potassium into water*	0	0.0%	7	4.1%	0	0.0%	165	95.9%	172
Q20	*Heating iron/sulfur mixtures*	0	0.0%	2	1.2%	13	7.6%	156	91.2%	171

		A Banned + evidence		B Believed banned no evidence		C-H Not banned but ….		I Sometimes done		Total response
		No	%	No	%	No	%	No	%	
Q21	*Demonstrating the thermite reaction*	1	0.6%	8	4.7%	34	20.1%	126	74.6%	169
Q22	*Use of benzene*	75	44.1%	88	51.8%	6	3.5%	1	0.6%	170
Q23	*Demonstrating the iodine/aluminium reaction*	0	0.0%	16	10.0%	90	56.3%	54	33.8%	160
Q24	*Using a blowpipe in lead oxide/charcoal reductions*	1	0.6%	24	14.5%	90	54.5%	50	30.3%	165
Q25	*Using bromine in diffusion demonstrations*	1	0.6%	12	7.2%	52	31.1%	102	61.1%	167
Q26	*Demonstrating ammonium dichromate volcano*	2	1.2%	26	15.8%	61	37.0%	76	46.1%	165
Q27	*Use of genuine crude oil*	59	35.1%	81	48.2%	16	9.5%	12	7.1%	168
Q28	*Use of naphthalene (moth balls)*	7	4.5%	48	30.8%	81	51.9%	20	12.8%	156
Q29	*Demonstrating reaction between propane-1,2,3-triol (glycerine) and potassium manganate(VII) (permanganate)*	2	1.3%	12	7.7%	81	51.9%	61	39.1%	156
Q30	*Use of mercury thermometers*	1	0.6%	15	8.8%	42	24.6%	113	66.1%	171
Q31	*Use of model steam engines*	0	0.0%	3	1.8%	35	20.8%	130	77.4%	168
Q32	*Use of air rifles in momentum demonstrations*	2	1.3%	46	28.9%	91	57.2%	20	12.6%	159
Q33	*Use of starting pistol in speed of sound experiments*	1	0.7%	21	13.8%	99	65.1%	31	20.4%	152
Q34	*Making pupils' hair stand on end with van de Graaff generators*	0	0.0%	0	0.0%	4	2.4%	163	97.6%	167
Q35	*Use of stroboscopes*	1	0.6%	7	4.3%	54	33.3%	100	61.7%	162
Q36	*Showing magnetic fields with iron filings*	0	0.0%	1	0.6%	2	1.2%	163	98.2%	166
Q37	*Use of EHT equipment up to 5000 volts at less than 5 mA*	1	0.6%	12	7.6%	46	29.1%	99	62.7%	158
Q38	*Demonstrating the power line at mains voltage on the transmission line*	4	2.6%	51	33.6%	52	34.2%	45	29.6%	152
Q39	*Demonstrations using sealed radioactive sources*	0	0.0%	2	1.2%	31	18.8%	132	80.0%	165
Q40	*Demonstrations using protactinium generators*	1	0.7%	22	14.6%	95	62.9%	33	21.9%	151

Table 8(c) All schools with over 1000 pupils

		A Banned + evidence		*B Believed banned no evidence*		*C-H Not banned but ….*		*I Sometimes done*		*Total response*
		No	%	No	%	No	%	No	%	
Q1	*Keeping small mammals*	0	0.0%	19	11.2%	120	70.6%	31	18.2%	170
Q2	*Keeping giant African land snails*	0	0.0%	21	12.8%	113	68.9%	30	18.3%	164
Q3	*Inflating a sheep's lung (eg, with bellows)*	0	0.0%	19	11.1%	20	11.7%	132	77.2%	171
Q4	*Using a choice chamber with woodlice*	0	0.0%	0	0.0%	16	9.4%	154	90.6%	170
Q5	*Bringing spawn of the common frog from a pond into school*	2	1.2%	28	17.1%	89	54.3%	45	27.4%	164
Q6	*Dissection of eyeballs*	7	4.1%	26	15.3%	42	24.7%	95	55.9%	170
Q7	*Dissection of hearts*	0	0.0%	8	4.7%	4	2.4%	158	92.9%	170
Q8	*Dissection of rats*	1	0.6%	25	15.2%	79	47.9%	60	36.4%	165
Q9	*Pupils taking samples of their own cheek cells*	2	1.2%	28	16.5%	46	27.1%	94	55.3%	170
Q10	*Pupils using their own saliva in experiments*	1	0.6%	53	30.8%	78	45.3%	40	23.3%	172
Q11	*Pupils taking samples of their own blood*	23	13.5%	91	53.5%	51	30.0%	5	2.9%	170
Q12	*Incubating "finger dabs" on agar plates*	1	0.6%	23	13.6%	37	21.9%	108	63.9%	169
Q13	*Burning peanuts in experiments*	4	2.3%	34	19.8%	87	50.6%	47	27.3%	172
Q14	*Using spirometers*	0	0.0%	0	0.0%	65	40.1%	97	59.9%	162
Q15	*Exploding cans of custard powder, icing sugar, lycopodium powder or similar*	0	0.0%	8	4.7%	45	26.6%	116	68.6%	169
Q16	*Exploding cans containing methane / air mixtures*	1	0.6%	10	6.3%	60	37.7%	88	55.3%	159
Q17	*Demonstrating explosions of hydrogen / oxygen mixtures*	1	0.6%	9	5.2%	54	31.4%	108	62.8%	172
Q18	*Reducing heated copper(II) oxide with hydrogen*	0	0.0%	7	4.2%	113	68.1%	46	27.7%	166
Q19	*Dropping potassium into water*	0	0.0%	4	2.3%	3	1.7%	166	96.0%	173
Q20	*Heating iron/sulfur mixtures*	0	0.0%	1	0.6%	11	6.3%	162	93.1%	174

		A Banned + evidence		B Believed banned no evidence		C-H Not banned but ….		I Sometimes done		Total response
		No	%	No	%	No	%	No	%	
Q21	*Demonstrating the thermite reaction*	1	0.6%	6	3.5%	27	15.9%	136	80.0%	170
Q22	*Use of benzene*	89	52.4%	73	42.9%	7	4.1%	1	0.6%	170
Q23	*Demonstrating the iodine/aluminium reaction*	0	0.0%	14	8.6%	81	49.7%	68	41.7%	163
Q24	*Using a blowpipe in lead oxide/charcoal reductions*	1	0.6%	28	16.8%	76	45.5%	62	37.1%	167
Q25	*Using bromine in diffusion demonstrations*	0	0.0%	9	5.5%	63	38.2%	93	56.4%	165
Q26	*Demonstrating ammonium dichromate volcano*	2	1.2%	27	16.2%	67	40.1%	71	42.5%	167
Q27	*Use of genuine crude oil*	67	39.9%	77	45.8%	19	11.3%	5	3.0%	168
Q28	*Use of naphthalene (moth balls)*	8	4.8%	50	30.3%	88	53.3%	19	11.5%	165
Q29	*Demonstrating reaction between propane-1,2,3-triol (glycerine) and potassium manganate(VII) (permanganate)*	2	1.3%	10	6.3%	70	43.8%	78	48.8%	160
Q30	*Use of mercury thermometers*	0	0.0%	5	3.0%	31	18.7%	130	78.3%	166
Q31	*Use of model steam engines*	0	0.0%	6	3.5%	26	15.1%	140	81.4%	172
Q32	*Use of air rifles in momentum demonstrations*	0	0.0%	49	30.2%	91	56.2%	22	13.6%	162
Q33	*Use of starting pistol in speed of sound experiments*	0	0.0%	18	11.3%	107	67.3%	34	21.4%	159
Q34	*Making pupils' hair stand on end with van de Graaff generators*	0	0.0%	2	1.2%	8	4.7%	160	94.1%	170
Q35	*Use of stroboscopes*	0	0.0%	6	3.6%	48	28.9%	112	67.5%	166
Q36	*Showing magnetic fields with iron filings*	0	0.0%	0	0.0%	3	1.8%	166	98.2%	169
Q37	*Use of EHT equipment up to 5000 volts at less than 5 mA*	1	0.6%	6	3.6%	33	19.6%	128	76.2%	168
Q38	*Demonstrating the power line at mains voltage on the transmission line*	7	4.3%	42	25.6%	65	39.6%	50	30.5%	164
Q39	*Demonstrations using sealed radioactive sources*	0	0.0%	1	0.6%	11	6.5%	158	92.9%	170
Q40	*Demonstrations using protactinium generators*	2	1.2%	19	11.6%	87	53.0%	56	34.1%	164

Table 8(d) All UK schools outside Scotland with under 500 pupils

		A Banned + evidence		*B Believed banned no evidence*		*C-H Not banned but ….*		*I Sometimes done*		*Total response*
		No	%	No	%	No	%	No	%	
Q1	*Keeping small mammals*	0	0.0%	2	7.7%	20	76.9%	4	15.4%	26
Q2	*Keeping giant African land snails*	0	0.0%	1	3.8%	21	80.8%	4	15.4%	26
Q3	*Inflating a sheep's lung (eg, with bellows)*	0	0.0%	1	3.8%	9	34.6%	16	61.5%	26
Q4	*Using a choice chamber with woodlice*	0	0.0%	0	0.0%	6	23.1%	20	76.9%	26
Q5	*Bringing spawn of the common frog from a pond into school*	0	0.0%	3	12.5%	8	33.3%	13	54.2%	24
Q6	*Dissection of eyeballs*	0	0.0%	2	8.0%	5	20.0%	18	72.0%	25
Q7	*Dissection of hearts*	0	0.0%	0	0.0%	2	7.7%	24	92.3%	26
Q8	*Dissection of rats*	0	0.0%	0	0.0%	9	36.0%	16	64.0%	25
Q9	*Pupils taking samples of their own cheek cells*	1	4.0%	0	0.0%	8	32.0%	16	64.0%	25
Q10	*Pupils using their own saliva in experiments*	0	0.0%	2	8.0%	15	60.0%	8	32.0%	25
Q11	*Pupils taking samples of their own blood*	4	16.7%	9	37.5%	10	41.7%	1	4.2%	24
Q12	*Incubating "finger dabs" on agar plates*	1	4.0%	3	12.0%	8	32.0%	13	52.0%	25
Q13	*Burning peanuts in experiments*	0	0.0%	2	7.7%	14	53.8%	10	38.5%	26
Q14	*Using spirometers*	0	0.0%	1	4.0%	14	56.0%	10	40.0%	25
Q15	*Exploding cans of custard powder, icing sugar, lycopodium powder or similar*	0	0.0%	1	3.7%	17	63.0%	9	33.3%	27
Q16	*Exploding cans containing methane / air mixtures*	0	0.0%	1	4.0%	12	48.0%	12	48.0%	25
Q17	*Demonstrating explosions of hydrogen / oxygen mixtures*	0	0.0%	1	4.0%	10	40.0%	14	56.0%	25
Q18	*Reducing heated copper(II) oxide with hydrogen*	0	0.0%	0	0.0%	17	65.4%	9	34.6%	26
Q19	*Dropping potassium into water*	0	0.0%	0	0.0%	0	0.0%	27	100.0%	27
Q20	*Heating iron/sulfur mixtures*	0	0.0%	0	0.0%	1	3.8%	25	96.2%	26

		A Banned + evidence		B Believed banned no evidence		C-H Not banned but ….		I Sometimes done		Total response
		No	%	No	%	No	%	No	%	
Q21	*Demonstrating the thermite reaction*	0	0.0%	0	0.0%	6	22.2%	21	77.8%	27
Q22	*Use of benzene*	22	81.5%	3	11.1%	2	7.4%	0	0.0%	27
Q23	*Demonstrating the iodine/aluminium reaction*	0	0.0%	0	0.0%	14	53.8%	12	46.2%	26
Q24	*Using a blowpipe in lead oxide/charcoal reductions*	0	0.0%	0	0.0%	19	70.4%	8	29.6%	27
Q25	*Using bromine in diffusion demonstrations*	0	0.0%	0	0.0%	8	29.6%	19	70.4%	27
Q26	*Demonstrating ammonium dichromate volcano*	0	0.0%	0	0.0%	7	26.9%	19	73.1%	26
Q27	*Use of genuine crude oil*	16	61.5%	4	15.4%	6	23.1%	0	0.0%	26
Q28	*Use of naphthalene (moth balls)*	1	3.8%	3	11.5%	16	61.5%	6	23.1%	26
Q29	*Demonstrating reaction between propane-1,2,3-triol (glycerine) and potassium manganate(VII) (permanganate)*	0	0.0%	0	0.0%	8	30.8%	18	69.2%	26
Q30	*Use of mercury thermometers*	0	0.0%	0	0.0%	1	3.8%	25	96.2%	26
Q31	*Use of model steam engines*	0	0.0%	0	0.0%	12	44.4%	15	55.6%	27
Q32	*Use of air rifles in momentum demonstrations*	0	0.0%	6	25.0%	13	54.2%	5	20.8%	24
Q33	*Use of starting pistol in speed of sound experiments*	0	0.0%	1	4.3%	15	65.2%	7	30.4%	23
Q34	*Making pupils' hair stand on end with van de Graaff generators*	0	0.0%	0	0.0%	1	3.8%	25	96.2%	26
Q35	*Use of stroboscopes*	0	0.0%	1	3.8%	5	19.2%	20	76.9%	26
Q36	*Showing magnetic fields with iron filings*	0	0.0%	0	0.0%	0	0.0%	26	100.0%	26
Q37	*Use of EHT equipment up to 5000 volts at less than 5 mA*	0	0.0%	3	11.5%	4	15.4%	19	73.1%	26
Q38	*Demonstrating the power line at mains voltage on the transmission line*	0	0.0%	8	32.0%	10	40.0%	7	28.0%	25
Q39	*Demonstrations using sealed radioactive sources*	0	0.0%	0	0.0%	6	23.1%	20	76.9%	26
Q40	*Demonstrations using protactinium generators*	0	0.0%	0	0.0%	13	54.2%	11	45.8%	24

Table 8(e) UK schools outside Scotland with 500-999 pupils

		A Banned + evidence		*B Believed banned no evidence*		*C-H Not banned but ….*		*I Sometimes done*		*Total response*
		No	%	No	%	No	%	No	%	
Q1	*Keeping small mammals*	0	0.0%	4	3.1%	97	75.8%	27	21.1%	128
Q2	*Keeping giant African land snails*	0	0.0%	10	7.9%	103	81.7%	13	10.3%	126
Q3	*Inflating a sheep's lung (eg, with bellows)*	0	0.0%	7	5.4%	25	19.4%	97	75.2%	129
Q4	*Using a choice chamber with woodlice*	1	0.8%	1	0.8%	16	12.3%	112	86.2%	130
Q5	*Bringing spawn of the common frog from a pond into school*	0	0.0%	21	16.4%	79	61.7%	28	21.9%	128
Q6	*Dissection of eyeballs*	2	1.5%	14	10.7%	30	22.9%	85	64.9%	131
Q7	*Dissection of hearts*	0	0.0%	0	0.0%	5	3.8%	125	96.2%	130
Q8	*Dissection of rats*	0	0.0%	12	9.6%	84	67.2%	29	23.2%	125
Q9	*Pupils taking samples of their own cheek cells*	2	1.5%	27	20.6%	24	18.3%	78	59.5%	131
Q10	*Pupils using their own saliva in experiments*	1	0.8%	32	24.8%	57	44.2%	39	30.2%	129
Q11	*Pupils taking samples of their own blood*	17	13.4%	63	49.6%	43	33.9%	4	3.1%	127
Q12	*Incubating "finger dabs" on agar plates*	0	0.0%	11	8.6%	20	15.6%	97	75.8%	128
Q13	*Burning peanuts in experiments*	2	1.6%	28	21.7%	69	53.5%	30	23.3%	129
Q14	*Using spirometers*	0	0.0%	1	0.8%	60	48.4%	63	50.8%	124
Q15	*Exploding cans of custard powder, icing sugar, lycopodium powder or similar*	0	0.0%	11	8.9%	44	35.5%	69	55.6%	124
Q16	*Exploding cans containing methane / air mixtures*	2	1.6%	22	17.5%	55	43.7%	47	37.3%	126
Q17	*Demonstrating explosions of hydrogen / oxygen mixtures*	1	0.8%	8	6.2%	39	30.0%	82	63.1%	130
Q18	*Reducing heated copper(II) oxide with hydrogen*	0	0.0%	11	9.1%	73	60.3%	37	30.6%	121
Q19	*Dropping potassium into water*	0	0.0%	1	0.8%	0	0.0%	131	99.2%	132
Q20	*Heating iron/sulfur mixtures*	0	0.0%	1	0.8%	9	6.8%	122	92.4%	132

		A *Banned + evidence*		*B* *Believed banned no evidence*		*C-H* *Not banned but ….*		*I* *Sometimes done*		*Total response*
		No	%	No	%	No	%	No	%	
Q21	*Demonstrating the thermite reaction*	0	0.0%	2	1.5%	13	9.9%	116	88.5%	131
Q22	*Use of benzene*	60	46.2%	64	49.2%	6	4.6%	0	0.0%	130
Q23	*Demonstrating the iodine/aluminium reaction*	0	0.0%	11	8.9%	74	59.7%	39	31.5%	124
Q24	*Using a blowpipe in lead oxide/charcoal reductions*	0	0.0%	14	11.0%	67	52.8%	46	36.2%	127
Q25	*Using bromine in diffusion demonstrations*	0	0.0%	5	3.8%	39	29.8%	87	66.4%	131
Q26	*Demonstrating ammonium dichromate volcano*	1	0.8%	12	9.4%	48	37.5%	67	52.3%	128
Q27	*Use of genuine crude oil*	50	39.1%	64	50.0%	11	8.6%	3	2.3%	128
Q28	*Use of naphthalene (moth balls)*	4	3.3%	36	30.0%	64	53.3%	16	13.3%	120
Q29	*Demonstrating reaction between propane-1,2,3-triol (glycerine) and potassium manganate(VII) (permanganate)*	1	0.8%	8	6.7%	68	56.7%	43	35.8%	120
Q30	*Use of mercury thermometers*	1	0.8%	8	6.1%	32	24.2%	91	68.9%	132
Q31	*Use of model steam engines*	0	0.0%	1	0.8%	26	20.0%	103	79.2%	130
Q32	*Use of air rifles in momentum demonstrations*	2	1.6%	33	26.6%	76	61.3%	13	10.5%	124
Q33	*Use of starting pistol in speed of sound experiments*	1	0.8%	13	11.0%	78	66.1%	26	22.0%	118
Q34	*Making pupils' hair stand on end with van de Graaff generators*	0	0.0%	0	0.0%	4	3.1%	125	96.9%	129
Q35	*Use of stroboscopes*	1	0.8%	6	4.7%	44	34.6%	76	59.8%	127
Q36	*Showing magnetic fields with iron filings*	0	0.0%	1	0.8%	1	0.8%	127	98.4%	129
Q37	*Use of EHT equipment up to 5000 volts at less than 5 mA*	1	0.8%	10	8.1%	45	36.6%	67	54.5%	123
Q38	*Demonstrating the power line at mains voltage on the transmission line*	1	0.8%	35	29.4%	47	39.5%	36	30.3%	119
Q39	*Demonstrations using sealed radioactive sources*	0	0.0%	2	1.6%	15	11.7%	111	86.7%	128
Q40	*Demonstrations using protactinium generators*	0	0.0%	12	10.3%	74	63.2%	31	26.5%	117

Table 8(f) UK schools outside Scotland with over 1000 pupils

		A Banned + evidence		*B Believed banned no evidence*		*C-H Not banned but ….*		*I Sometimes done*		*Total response*
		No	%	No	%	No	%	No	%	
Q1	*Keeping small mammals*	0	0.0%	6	4.4%	104	75.9%	27	19.7%	137
Q2	*Keeping giant African land snails*	0	0.0%	11	8.1%	100	74.1%	24	17.8%	135
Q3	*Inflating a sheep's lung (eg, with bellows)*	0	0.0%	9	6.5%	15	10.8%	115	82.7%	139
Q4	*Using a choice chamber with woodlice*	0	0.0%	0	0.0%	13	9.5%	124	90.5%	137
Q5	*Bringing spawn of the common frog from a pond into school*	1	0.7%	18	13.3%	75	55.6%	41	30.4%	135
Q6	*Dissection of eyeballs*	6	4.3%	9	6.5%	37	26.6%	87	62.6%	139
Q7	*Dissection of hearts*	0	0.0%	1	0.7%	1	0.7%	137	98.6%	139
Q8	*Dissection of rats*	0	0.0%	8	6.0%	67	50.0%	59	44.0%	134
Q9	*Pupils taking samples of their own cheek cells*	1	0.7%	16	11.6%	40	29.0%	81	58.7%	138
Q10	*Pupils using their own saliva in experiments*	0	0.0%	33	23.9%	71	51.4%	34	24.6%	138
Q11	*Pupils taking samples of their own blood*	21	15.4%	63	46.3%	47	34.6%	5	3.7%	136
Q12	*Incubating "finger dabs" on agar plates*	0	0.0%	13	9.5%	25	18.2%	99	72.3%	137
Q13	*Burning peanuts in experiments*	4	2.9%	25	18.4%	72	52.9%	35	25.7%	136
Q14	*Using spirometers*	0	0.0%	0	0.0%	57	41.9%	79	58.1%	136
Q15	*Exploding cans of custard powder, icing sugar, lycopodium powder or similar*	0	0.0%	8	6.0%	44	32.8%	82	61.2%	134
Q16	*Exploding cans containing methane / air mixtures*	1	0.8%	10	7.9%	55	43.7%	60	47.6%	126
Q17	*Demonstrating explosions of hydrogen / oxygen mixtures*	1	0.7%	9	6.5%	41	29.7%	87	63.0%	138
Q18	*Reducing heated copper(II) oxide with hydrogen*	0	0.0%	4	3.0%	90	68.2%	38	28.8%	132
Q19	*Dropping potassium into water*	0	0.0%	0	0.0%	1	0.7%	138	99.3%	139
Q20	*Heating iron/sulfur mixtures*	0	0.0%	0	0.0%	7	5.0%	132	95.0%	139

		A Banned + evidence		B Believed banned no evidence		C-H Not banned but ….		I Sometimes done		Total response
		No	%	No	%	No	%	No	%	
Q21	*Demonstrating the thermite reaction*	0	0.0%	1	0.7%	10	7.2%	128	92.1%	139
Q22	*Use of benzene*	78	57.4%	53	39.0%	4	2.9%	1	0.7%	136
Q23	*Demonstrating the iodine/aluminium reaction*	0	0.0%	5	3.8%	71	53.8%	56	42.4%	132
Q24	*Using a blowpipe in lead oxide/charcoal reductions*	1	0.7%	14	10.4%	64	47.4%	56	41.5%	135
Q25	*Using bromine in diffusion demonstrations*	0	0.0%	2	1.5%	47	34.8%	86	63.7%	135
Q26	*Demonstrating ammonium dichromate volcano*	2	1.5%	14	10.4%	57	42.2%	62	45.9%	135
Q27	*Use of genuine crude oil*	64	47.4%	52	38.5%	16	11.9%	3	2.2%	135
Q28	*Use of naphthalene (moth balls)*	6	4.5%	30	22.4%	81	60.4%	17	12.7%	134
Q29	*Demonstrating reaction between propane-1,2,3-triol (glycerine) and potassium manganate(VII) (permanganate)*	2	1.5%	6	4.5%	62	47.0%	62	47.0%	132
Q30	*Use of mercury thermometers*	0	0.0%	1	0.7%	29	21.6%	104	77.6%	134
Q31	*Use of model steam engines*	0	0.0%	3	2.2%	22	15.8%	114	82.0%	139
Q32	*Use of air rifles in momentum demonstrations*	0	0.0%	36	27.1%	78	58.6%	19	14.3%	133
Q33	*Use of starting pistol in speed of sound experiments*	0	0.0%	15	11.4%	92	69.7%	25	18.9%	132
Q34	*Making pupils' hair stand on end with van de Graaff generators*	0	0.0%	2	1.4%	7	5.0%	130	93.5%	139
Q35	*Use of stroboscopes*	0	0.0%	2	1.5%	40	29.4%	94	69.1%	136
Q36	*Showing magnetic fields with iron filings*	0	0.0%	0	0.0%	1	0.7%	137	99.3%	138
Q37	*Use of EHT equipment up to 5000 volts at less than 5 mA*	0	0.0%	5	3.6%	31	22.3%	103	74.1%	139
Q38	*Demonstrating the power line at mains voltage on the transmission line*	5	3.7%	29	21.5%	58	43.0%	43	31.9%	135
Q39	*Demonstrations using sealed radioactive sources*	0	0.0%	0	0.0%	2	1.4%	137	98.6%	139
Q40	*Demonstrations using protactinium generators*	0	0.0%	8	5.9%	79	58.5%	48	35.6%	135

Table 8(g) Schools in Scotland with under 500 pupils

		A Banned + evidence		*B Believed banned no evidence*		*C-H Not banned but ….*		*I Sometimes done*		*Total response*
		No	%	No	%	No	%	No	%	
Q1	*Keeping small mammals*	0	0.0%	10	32.3%	17	54.8%	4	12.9%	31
Q2	*Keeping giant African land snails*	0	0.0%	8	26.7%	20	66.7%	2	6.7%	30
Q3	*Inflating a sheep's lung (eg, with bellows)*	0	0.0%	7	22.6%	11	35.5%	13	41.9%	31
Q4	*Using a choice chamber with woodlice*	0	0.0%	0	0.0%	1	3.2%	30	96.8%	31
Q5	*Bringing spawn of the common frog from a pond into school*	2	6.9%	10	34.5%	7	24.1%	10	34.5%	29
Q6	*Dissection of eyeballs*	1	3.2%	15	48.4%	8	25.8%	7	22.6%	31
Q7	*Dissection of hearts*	0	0.0%	4	12.9%	6	19.4%	21	67.7%	31
Q8	*Dissection of rats*	1	3.3%	8	26.7%	19	63.3%	2	6.7%	30
Q9	*Pupils taking samples of their own cheek cells*	1	3.3%	8	26.7%	3	10.0%	18	60.0%	30
Q10	*Pupils using their own saliva in experiments*	2	6.5%	16	51.6%	5	16.1%	8	25.8%	31
Q11	*Pupils taking samples of their own blood*	4	12.9%	26	83.9%	1	3.2%	0	0.0%	31
Q12	*Incubating "finger dabs" on agar plates*	0	0.0%	3	10.0%	8	26.7%	19	63.3%	30
Q13	*Burning peanuts in experiments*	0	0.0%	3	9.7%	5	16.1%	23	74.2%	31
Q14	*Using spirometers*	0	0.0%	1	3.6%	8	28.6%	19	67.9%	28
Q15	*Exploding cans of custard powder, icing sugar, lycopodium powder or similar*	0	0.0%	0	0.0%	1	3.2%	30	96.8%	31
Q16	*Exploding cans containing methane / air mixtures*	0	0.0%	0	0.0%	15	48.4%	16	51.6%	31
Q17	*Demonstrating explosions of hydrogen / oxygen mixtures*	0	0.0%	1	3.3%	12	40.0%	17	56.7%	30
Q18	*Reducing heated copper(II) oxide with hydrogen*	0	0.0%	0	0.0%	22	73.3%	8	26.7%	30
Q19	*Dropping potassium into water*	0	0.0%	0	0.0%	0	0.0%	31	100.0%	31
Q20	*Heating iron/sulfur mixtures*	0	0.0%	0	0.0%	1	3.2%	30	96.8%	31

		A Banned + evidence		B Believed banned no evidence		C-H Not banned but ….		I Sometimes done		Total response
		No	%	No	%	No	%	No	%	
Q21	*Demonstrating the thermite reaction*	0	0.0%	2	7.1%	18	64.3%	8	28.6%	28
Q22	*Use of benzene*	8	25.8%	18	58.1%	5	16.1%	0	0.0%	31
Q23	*Demonstrating the iodine/aluminium reaction*	0	0.0%	2	6.5%	15	48.4%	14	45.2%	31
Q24	*Using a blowpipe in lead oxide/charcoal reductions*	0	0.0%	8	26.7%	15	50.0%	7	23.3%	30
Q25	*Using bromine in diffusion demonstrations*	0	0.0%	1	3.3%	16	53.3%	13	43.3%	30
Q26	*Demonstrating ammonium dichromate volcano*	1	3.2%	4	12.9%	12	38.7%	14	45.2%	31
Q27	*Use of genuine crude oil*	3	9.7%	16	51.6%	6	19.4%	6	19.4%	31
Q28	*Use of naphthalene (moth balls)*	0	0.0%	8	28.6%	16	57.1%	4	14.3%	28
Q29	*Demonstrating reaction between propane-1,2,3-triol (glycerine) and potassium manganate(VII) (permanganate)*	0	0.0%	0	0.0%	18	62.1%	11	37.9%	29
Q30	*Use of mercury thermometers*	0	0.0%	0	0.0%	10	33.3%	20	66.7%	30
Q31	*Use of model steam engines*	0	0.0%	0	0.0%	4	13.3%	26	86.7%	30
Q32	*Use of air rifles in momentum demonstrations*	0	0.0%	12	40.0%	16	53.3%	2	6.7%	30
Q33	*Use of starting pistol in speed of sound experiments*	0	0.0%	8	28.6%	15	53.6%	5	17.9%	28
Q34	*Making pupils' hair stand on end with van de Graaff generators*	0	0.0%	1	3.3%	1	3.3%	28	93.3%	30
Q35	*Use of stroboscopes*	0	0.0%	3	10.7%	10	35.7%	15	53.6%	28
Q36	*Showing magnetic fields with iron filings*	0	0.0%	0	0.0%	4	14.3%	24	85.7%	28
Q37	*Use of EHT equipment up to 5000 volts at less than 5 mA*	0	0.0%	0	0.0%	5	17.2%	24	82.8%	29
Q38	*Demonstrating the power line at mains voltage on the transmission line*	0	0.0%	16	55.2%	9	31.0%	4	13.8%	29
Q39	*Demonstrations using sealed radioactive sources*	1	3.4%	2	6.9%	11	37.9%	15	51.7%	29
Q40	*Demonstrations using protactinium generators*	1	3.7%	4	14.8%	20	74.1%	2	7.4%	27

Table 8(h) Schools in Scotland with 500-999 pupils

		A Banned + evidence		*B Believed banned no evidence*		*C-H Not banned but ….*		*I Sometimes done*		*Total response*
		No	%	No	%	No	%	No	%	
Q1	*Keeping small mammals*	1	2.7%	5	13.5%	28	75.7%	3	8.1%	37
Q2	*Keeping giant African land snails*	2	5.6%	4	11.1%	25	69.4%	5	13.9%	36
Q3	*Inflating a sheep's lung (eg, with bellows)*	1	2.6%	9	23.7%	11	28.9%	17	44.7%	38
Q4	*Using a choice chamber with woodlice*	0	0.0%	0	0.0%	2	5.6%	34	94.4%	36
Q5	*Bringing spawn of the common frog from a pond into school*	2	5.6%	12	33.3%	20	55.6%	2	5.6%	36
Q6	*Dissection of eyeballs*	4	10.5%	23	60.5%	9	23.7%	2	5.3%	38
Q7	*Dissection of hearts*	1	2.6%	5	12.8%	6	15.4%	27	69.2%	39
Q8	*Dissection of rats*	3	8.3%	14	38.9%	18	50.0%	1	2.8%	36
Q9	*Pupils taking samples of their own cheek cells*	2	5.3%	8	21.1%	5	13.2%	23	60.5%	38
Q10	*Pupils using their own saliva in experiments*	3	7.7%	17	43.6%	11	28.2%	8	20.5%	39
Q11	*Pupils taking samples of their own blood*	11	27.5%	27	67.5%	2	5.0%	0	0.0%	40
Q12	*Incubating "finger dabs" on agar plates*	1	2.8%	15	41.7%	8	22.2%	12	33.3%	36
Q13	*Burning peanuts in experiments*	1	2.4%	4	9.8%	19	46.3%	17	41.5%	41
Q14	*Using spirometers*	0	0.0%	1	3.2%	10	32.3%	20	64.5%	31
Q15	*Exploding cans of custard powder, icing sugar, lycopodium powder or similar*	0	0.0%	1	2.4%	0	0.0%	40	97.6%	41
Q16	*Exploding cans containing methane / air mixtures*	0	0.0%	1	2.5%	8	20.0%	31	77.5%	40
Q17	*Demonstrating explosions of hydrogen / oxygen mixtures*	0	0.0%	4	9.8%	8	19.5%	29	70.7%	41
Q18	*Reducing heated copper(II) oxide with hydrogen*	1	2.8%	4	11.1%	25	69.4%	6	16.7%	36
Q19	*Dropping potassium into water*	0	0.0%	6	15.0%	0	0.0%	34	85.0%	40
Q20	*Heating iron/sulfur mixtures*	0	0.0%	1	2.6%	4	10.3%	34	87.2%	39

		A Banned + evidence		B Believed banned no evidence		C-H Not banned but ….		I Sometimes done		Total response
		No	%	No	%	No	%	No	%	
Q21	*Demonstrating the thermite reaction*	1	2.6%	6	15.8%	21	55.3%	10	26.3%	38
Q22	*Use of benzene*	15	37.5%	24	60.0%	0	0.0%	1	2.5%	40
Q23	*Demonstrating the iodine/aluminium reaction*	0	0.0%	5	13.9%	16	44.4%	15	41.7%	36
Q24	*Using a blowpipe in lead oxide/charcoal reductions*	1	2.6%	10	26.3%	23	60.5%	4	10.5%	38
Q25	*Using bromine in diffusion demonstrations*	1	2.8%	7	19.4%	13	36.1%	15	41.7%	36
Q26	*Demonstrating ammonium dichromate volcano*	1	2.7%	14	37.8%	13	35.1%	9	24.3%	37
Q27	*Use of genuine crude oil*	9	22.5%	17	42.5%	5	12.5%	9	22.5%	40
Q28	*Use of naphthalene (moth balls)*	3	8.3%	12	33.3%	17	47.2%	4	11.1%	36
Q29	*Demonstrating reaction between propane-1,2,3-triol (glycerine) and potassium manganate(VII) (permanganate)*	1	2.8%	4	11.1%	13	36.1%	18	50.0%	36
Q30	*Use of mercury thermometers*	0	0.0%	7	17.9%	10	25.6%	22	56.4%	39
Q31	*Use of model steam engines*	0	0.0%	2	5.3%	9	23.7%	27	71.1%	38
Q32	*Use of air rifles in momentum demonstrations*	0	0.0%	13	37.1%	15	42.9%	7	20.0%	35
Q33	*Use of starting pistol in speed of sound experiments*	0	0.0%	8	23.5%	21	61.8%	5	14.7%	34
Q34	*Making pupils' hair stand on end with van de Graaff generators*	0	0.0%	0	0.0%	0	0.0%	38	100.0%	38
Q35	*Use of stroboscopes*	0	0.0%	1	2.9%	10	28.6%	24	68.6%	35
Q36	*Showing magnetic fields with iron filings*	0	0.0%	0	0.0%	1	2.7%	36	97.3%	37
Q37	*Use of EHT equipment up to 5000 volts at less than 5 mA*	0	0.0%	2	5.7%	1	2.9%	32	91.4%	35
Q38	*Demonstrating the power line at mains voltage on the transmission line*	3	9.1%	16	48.5%	5	15.2%	9	27.3%	33
Q39	*Demonstrations using sealed radioactive sources*	0	0.0%	0	0.0%	16	43.2%	21	56.8%	37
Q40	*Demonstrations using protactinium generators*	1	2.9%	10	29.4%	21	61.8%	2	5.9%	34

Table 8(i) Schools in Scotland with over 1000 pupils

		A Banned + evidence		*B Believed banned no evidence*		*C-H Not banned but ….*		*I Sometimes done*		*Total response*
		No	%	No	%	No	%	No	%	
Q1	*Keeping small mammals*	0	0.0%	13	39.4%	16	48.5%	4	12.1%	33
Q2	*Keeping giant African land snails*	0	0.0%	10	34.5%	13	44.8%	6	20.7%	29
Q3	*Inflating a sheep's lung (eg, with bellows)*	0	0.0%	10	31.3%	5	15.6%	17	53.1%	32
Q4	*Using a choice chamber with woodlice*	0	0.0%	0	0.0%	3	9.1%	30	90.9%	33
Q5	*Bringing spawn of the common frog from a pond into school*	1	3.4%	10	34.5%	14	48.3%	4	13.8%	29
Q6	*Dissection of eyeballs*	1	3.2%	17	54.8%	5	16.1%	8	25.8%	31
Q7	*Dissection of hearts*	0	0.0%	7	22.6%	3	9.7%	21	67.7%	31
Q8	*Dissection of rats*	1	3.2%	17	54.8%	12	38.7%	1	3.2%	31
Q9	*Pupils taking samples of their own cheek cells*	1	3.1%	12	37.5%	6	18.8%	13	40.6%	32
Q10	*Pupils using their own saliva in experiments*	1	2.9%	20	58.8%	7	20.6%	6	17.6%	34
Q11	*Pupils taking samples of their own blood*	2	5.9%	28	82.4%	4	11.8%	0	0.0%	34
Q12	*Incubating "finger dabs" on agar plates*	1	3.1%	10	31.3%	12	37.5%	9	28.1%	32
Q13	*Burning peanuts in experiments*	0	0.0%	9	25.0%	15	41.7%	12	33.3%	36
Q14	*Using spirometers*	0	0.0%	0	0.0%	8	30.8%	18	69.2%	26
Q15	*Exploding cans of custard powder, icing sugar, lycopodium powder or similar*	0	0.0%	0	0.0%	1	2.9%	34	97.1%	35
Q16	*Exploding cans containing methane / air mixtures*	0	0.0%	0	0.0%	5	15.2%	28	84.8%	33
Q17	*Demonstrating explosions of hydrogen / oxygen mixtures*	0	0.0%	0	0.0%	13	38.2%	21	61.8%	34
Q18	*Reducing heated copper(II) oxide with hydrogen*	0	0.0%	3	8.8%	23	67.6%	8	23.5%	34
Q19	*Dropping potassium into water*	0	0.0%	4	11.8%	2	5.9%	28	82.4%	34
Q20	*Heating iron/sulfur mixtures*	0	0.0%	1	2.9%	4	11.4%	30	85.7%	35

		A Banned + evidence		B Believed banned no evidence		C-H Not banned but ….		I Sometimes done		Total response
		No	%	No	%	No	%	No	%	
Q21	*Demonstrating the thermite reaction*	1	3.2%	5	16.1%	17	54.8%	8	25.8%	31
Q22	*Use of benzene*	11	32.4%	20	58.8%	3	8.8%	0	0.0%	34
Q23	*Demonstrating the iodine/aluminium reaction*	0	0.0%	9	29.0%	10	32.3%	12	38.7%	31
Q24	*Using a blowpipe in lead oxide/charcoal reductions*	0	0.0%	14	43.8%	12	37.5%	6	18.8%	32
Q25	*Using bromine in diffusion demonstrations*	0	0.0%	7	23.3%	16	53.3%	7	23.3%	30
Q26	*Demonstrating ammonium dichromate volcano*	0	0.0%	13	40.6%	10	31.3%	9	28.1%	32
Q27	*Use of genuine crude oil*	3	9.1%	25	75.8%	3	9.1%	2	6.1%	33
Q28	*Use of naphthalene (moth balls)*	2	6.5%	20	64.5%	7	22.6%	2	6.5%	31
Q29	*Demonstrating reaction between propane-1,2,3-triol (glycerine) and potassium manganate(VII) (permanganate)*	0	0.0%	4	14.3%	8	28.6%	16	57.1%	28
Q30	*Use of mercury thermometers*	0	0.0%	4	12.5%	2	6.3%	26	81.3%	32
Q31	*Use of model steam engines*	0	0.0%	3	9.1%	4	12.1%	26	78.8%	33
Q32	*Use of air rifles in momentum demonstrations*	0	0.0%	13	44.8%	13	44.8%	3	10.3%	29
Q33	*Use of starting pistol in speed of sound experiments*	0	0.0%	3	11.1%	15	55.6%	9	33.3%	27
Q34	*Making pupils' hair stand on end with van de Graaff generators*	0	0.0%	0	0.0%	1	3.2%	30	96.8%	31
Q35	*Use of stroboscopes*	0	0.0%	4	13.3%	8	26.7%	18	60.0%	30
Q36	*Showing magnetic fields with iron filings*	0	0.0%	0	0.0%	2	6.5%	29	93.5%	31
Q37	*Use of EHT equipment up to 5000 volts at less than 5 mA*	1	3.4%	1	3.4%	2	6.9%	25	86.2%	29
Q38	*Demonstrating the power line at mains voltage on the transmission line*	2	6.9%	13	44.8%	7	24.1%	7	24.1%	29
Q39	*Demonstrations using sealed radioactive sources*	0	0.0%	1	3.2%	9	29.0%	21	67.7%	31
Q40	*Demonstrations using protactinium generators*	2	6.9%	11	37.9%	8	27.6%	8	27.6%	29

Appendix 9 Type of respondent

Table 9(a) **All UK schools' responses by teachers**

		A Banned + evidence		*B Believed banned no evidence*		*C-H Not banned but ….*		*I Sometimes done*		*Total response*
		No	%	No	%	No	%	No	%	
Q1	*Keeping small mammals*	1	0.5%	32	16.3%	131	66.8%	32	16.3%	196
Q2	*Keeping giant African land snails*	2	1.1%	28	14.8%	131	69.3%	28	14.8%	189
Q3	*Inflating a sheep's lung (eg, with bellows)*	1	0.5%	27	13.6%	43	21.6%	128	64.3%	199
Q4	*Using a choice chamber with woodlice*	0	0.0%	1	0.5%	21	10.6%	177	88.9%	199
Q5	*Bringing spawn of the common frog from a pond into school*	4	2.1%	47	24.4%	90	46.6%	52	26.9%	193
Q6	*Dissection of eyeballs*	6	3.0%	60	30.0%	47	23.5%	87	43.5%	200
Q7	*Dissection of hearts*	1	0.5%	15	7.5%	16	8.0%	169	84.1%	201
Q8	*Dissection of rats*	3	1.6%	43	22.8%	103	54.5%	40	21.2%	189
Q9	*Pupils taking samples of their own cheek cells*	3	1.5%	51	25.6%	39	19.6%	106	53.3%	199
Q10	*Pupils using their own saliva in experiments*	5	2.5%	83	40.9%	70	34.5%	45	22.2%	203
Q11	*Pupils taking samples of their own blood*	25	12.3%	144	70.9%	30	14.8%	4	2.0%	203
Q12	*Incubating "finger dabs" on agar plates*	2	1.0%	45	22.8%	47	23.9%	103	52.3%	197
Q13	*Burning peanuts in experiments*	3	1.4%	40	19.3%	86	41.5%	78	37.7%	207
Q14	*Using spirometers*	0	0.0%	2	1.1%	65	36.5%	111	62.4%	178
Q15	*Exploding cans of custard powder, icing sugar, lycopodium powder or similar*	0	0.0%	8	3.9%	44	21.4%	154	74.8%	206
Q16	*Exploding cans containing methane / air mixtures*	2	1.0%	12	6.0%	72	35.8%	115	57.2%	201
Q17	*Demonstrating explosions of hydrogen / oxygen mixtures*	1	0.5%	10	4.8%	61	29.3%	136	65.4%	208
Q18	*Reducing heated copper(II) oxide with hydrogen*	1	0.5%	12	6.1%	137	69.5%	47	23.9%	197
Q19	*Dropping potassium into water*	0	0.0%	10	4.8%	1	0.5%	197	94.7%	208
Q20	*Heating iron/sulfur mixtures*	0	0.0%	3	1.4%	17	8.2%	188	90.4%	208

		A Banned + evidence		B Believed banned no evidence		C-H Not banned but ….		I Sometimes done		Total response
		No	%	No	%	No	%	No	%	
Q21	*Demonstrating the thermite reaction*	1	0.5%	13	6.5%	55	27.4%	132	65.7%	201
Q22	*Use of benzene*	76	36.7%	114	55.1%	16	7.7%	1	0.5%	207
Q23	*Demonstrating the iodine/aluminium reaction*	0	0.0%	22	11.3%	93	47.9%	79	40.7%	194
Q24	*Using a blowpipe in lead oxide/charcoal reductions*	0	0.0%	37	18.8%	108	54.8%	52	26.4%	197
Q25	*Using bromine in diffusion demonstrations*	1	0.5%	18	9.1%	71	35.9%	108	54.5%	198
Q26	*Demonstrating ammonium dichromate volcano*	2	1.0%	39	19.5%	64	32.0%	95	47.5%	200
Q27	*Use of genuine crude oil*	47	23.3%	108	53.5%	28	13.9%	19	9.4%	202
Q28	*Use of naphthalene (moth balls)*	8	4.3%	66	35.3%	92	49.2%	21	11.2%	187
Q29	*Demonstrating reaction between propane-1,2,3-triol (glycerine) and potassium manganate(VII) (permanganate)*	2	1.1%	16	8.5%	91	48.4%	79	42.0%	188
Q30	*Use of mercury thermometers*	1	0.5%	15	7.4%	33	16.3%	153	75.7%	202
Q31	*Use of model steam engines*	0	0.0%	7	3.5%	42	20.8%	153	75.7%	202
Q32	*Use of air rifles in momentum demonstrations*	1	0.5%	63	33.5%	97	51.6%	27	14.4%	188
Q33	*Use of starting pistol in speed of sound experiments*	1	0.6%	22	12.2%	113	62.8%	44	24.4%	180
Q34	*Making pupils' hair stand on end with van de Graaff generators*	0	0.0%	3	1.5%	5	2.5%	190	96.0%	198
Q35	*Use of stroboscopes*	1	0.5%	13	6.8%	60	31.4%	117	61.3%	191
Q36	*Showing magnetic fields with iron filings*	0	0.0%	1	0.5%	6	3.1%	189	96.4%	196
Q37	*Use of EHT equipment up to 5000 volts at less than 5 mA*	2	1.1%	10	5.3%	33	17.4%	145	76.3%	190
Q38	*Demonstrating the power line at mains voltage on the transmission line*	7	3.8%	73	39.5%	60	32.4%	45	24.3%	185
Q39	*Demonstrations using sealed radioactive sources*	1	0.5%	3	1.5%	41	20.8%	152	77.2%	197
Q40	*Demonstrations using protactinium generators*	4	2.2%	27	15.0%	103	57.2%	46	25.6%	180

Table 9(b) **All UK schools' responses by Technicians**

		A Banned + evidence		*B Believed banned no evidence*		*C-H Not banned but ….*		*I Sometimes done*		*Total response*
		No	%	No	%	No	%	No	%	
Q1	*Keeping small mammals*	0	0.0%	5	2.8%	143	79.4%	32	17.8%	180
Q2	*Keeping giant African land snails*	0	0.0%	13	7.3%	140	79.1%	24	13.6%	177
Q3	*Inflating a sheep's lung (eg, with bellows)*	0	0.0%	10	5.6%	30	16.7%	140	77.8%	180
Q4	*Using a choice chamber with woodlice*	1	0.6%	0	0.0%	19	10.7%	158	88.8%	178
Q5	*Bringing spawn of the common frog from a pond into school*	2	1.2%	23	13.3%	106	61.3%	42	24.3%	173
Q6	*Dissection of eyeballs*	8	4.5%	15	8.4%	43	24.0%	113	63.1%	179
Q7	*Dissection of hearts*	0	0.0%	1	0.6%	7	3.9%	171	95.5%	179
Q8	*Dissection of rats*	1	0.6%	15	8.5%	97	54.8%	64	36.2%	177
Q9	*Pupils taking samples of their own cheek cells*	4	2.2%	17	9.5%	45	25.1%	113	63.1%	179
Q10	*Pupils using their own saliva in experiments*	2	1.1%	31	17.4%	92	51.7%	53	29.8%	178
Q11	*Pupils taking samples of their own blood*	32	18.4%	61	35.1%	75	43.1%	6	3.4%	174
Q12	*Incubating "finger dabs" on agar plates*	1	0.6%	8	4.5%	26	14.8%	141	80.1%	176
Q13	*Burning peanuts in experiments*	3	1.7%	28	15.9%	103	58.5%	42	23.9%	176
Q14	*Using spirometers*	0	0.0%	2	1.1%	89	50.3%	86	48.6%	177
Q15	*Exploding cans of custard powder, icing sugar, lycopodium powder or similar*	0	0.0%	12	7.0%	62	36.3%	97	56.7%	171
Q16	*Exploding cans containing methane / air mixtures*	1	0.6%	22	13.4%	72	43.9%	69	42.1%	164
Q17	*Demonstrating explosions of hydrogen / oxygen mixtures*	1	0.6%	13	7.5%	58	33.3%	102	58.6%	174
Q18	*Reducing heated copper(II) oxide with hydrogen*	0	0.0%	9	5.4%	102	61.4%	55	33.1%	166
Q19	*Dropping potassium into water*	0	0.0%	1	0.6%	2	1.1%	176	98.3%	179
Q20	*Heating iron/sulfur mixtures*	0	0.0%	0	0.0%	8	4.5%	170	95.5%	178

		A *Banned + evidence*		*B* *Believed banned no evidence*		*C-H* *Not banned but ….*		*I* *Sometimes done*		*Total response*
		No	%	No	%	No	%	No	%	
Q21	*Demonstrating the thermite reaction*	1	0.6%	3	1.7%	25	14.0%	149	83.7%	178
Q22	*Use of benzene*	110	62.9%	60	34.3%	4	2.3%	1	0.6%	175
Q23	*Demonstrating the iodine/aluminium reaction*	0	0.0%	9	5.3%	102	59.6%	60	35.1%	171
Q24	*Using a blowpipe in lead oxide/charcoal reductions*	1	0.6%	19	10.8%	89	50.6%	67	38.1%	176
Q25	*Using bromine in diffusion demonstrations*	0	0.0%	4	2.3%	64	36.4%	108	61.4%	176
Q26	*Demonstrating ammonium dichromate volcano*	2	1.2%	14	8.1%	81	46.8%	76	43.9%	173
Q27	*Use of genuine crude oil*	92	52.6%	62	35.4%	18	10.3%	3	1.7%	175
Q28	*Use of naphthalene (moth balls)*	8	4.6%	38	21.8%	101	58.0%	27	15.5%	174
Q29	*Demonstrating reaction between propane-1,2,3-triol (glycerine) and potassium manganate(VII) (permanganate)*	2	1.2%	4	2.4%	82	48.5%	81	47.9%	169
Q30	*Use of mercury thermometers*	0	0.0%	5	2.9%	48	27.4%	122	69.7%	175
Q31	*Use of model steam engines*	0	0.0%	2	1.1%	35	19.6%	142	79.3%	179
Q32	*Use of air rifles in momentum demonstrations*	1	0.6%	45	26.3%	104	60.8%	21	12.3%	171
Q33	*Use of starting pistol in speed of sound experiments*	0	0.0%	24	14.3%	115	68.5%	29	17.3%	168
Q34	*Making pupils' hair stand on end with van de Graaff generators*	0	0.0%	0	0.0%	9	5.0%	170	95.0%	179
Q35	*Use of stroboscopes*	0	0.0%	3	1.7%	51	29.1%	121	69.1%	175
Q36	*Showing magnetic fields with iron filings*	0	0.0%	0	0.0%	2	1.1%	176	98.9%	178
Q37	*Use of EHT equipment up to 5000 volts at less than 5 mA*	0	0.0%	10	5.7%	48	27.3%	118	67.0%	176
Q38	*Demonstrating the power line at mains voltage on the transmission line*	4	2.3%	39	22.8%	71	41.5%	57	33.3%	171
Q39	*Demonstrations using sealed radioactive sources*	0	0.0%	1	0.6%	15	8.5%	161	91.0%	177
Q40	*Demonstrations using protactinium generators*	0	0.0%	13	7.6%	106	62.4%	51	30.0%	170

Table 9(c) **All UK schools' responses by Others**

		A Banned + evidence		*B Believed banned no evidence*		*C-H Not banned but ….*		*I Sometimes done*		*Total response*
		No	%	No	%	No	%	No	%	
Q1	*Keeping small mammals*	0	0.0%	3	18.8%	8	50.0%	5	31.3%	16
Q2	*Keeping giant African land snails*	0	0.0%	3	18.8%	11	68.8%	2	12.5%	16
Q3	*Inflating a sheep's lung (eg, with bellows)*	0	0.0%	6	37.5%	3	18.8%	7	43.8%	16
Q4	*Using a choice chamber with woodlice*	0	0.0%	0	0.0%	1	6.3%	15	93.8%	16
Q5	*Bringing spawn of the common frog from a pond into school*	0	0.0%	4	26.7%	7	46.7%	4	26.7%	15
Q6	*Dissection of eyeballs*	0	0.0%	5	31.3%	4	25.0%	7	43.8%	16
Q7	*Dissection of hearts*	0	0.0%	1	6.3%	0	0.0%	15	93.8%	16
Q8	*Dissection of rats*	1	6.7%	1	6.7%	9	60.0%	4	26.7%	15
Q9	*Pupils taking samples of their own cheek cells*	1	6.3%	3	18.8%	2	12.5%	10	62.5%	16
Q10	*Pupils using their own saliva in experiments*	0	0.0%	6	40.0%	4	26.7%	5	33.3%	15
Q11	*Pupils taking samples of their own blood*	2	13.3%	11	73.3%	2	13.3%	0	0.0%	15
Q12	*Incubating "finger dabs" on agar plates*	0	0.0%	2	13.3%	8	53.3%	5	33.3%	15
Q13	*Burning peanuts in experiments*	1	6.3%	3	18.8%	5	31.3%	7	43.8%	16
Q14	*Using spirometers*	0	0.0%	0	0.0%	3	20.0%	12	80.0%	15
Q15	*Exploding cans of custard powder, icing sugar, lycopodium powder or similar*	0	0.0%	1	6.7%	1	6.7%	13	86.7%	15
Q16	*Exploding cans containing methane / air mixtures*	0	0.0%	0	0.0%	6	37.5%	10	62.5%	16
Q17	*Demonstrating explosions of hydrogen / oxygen mixtures*	0	0.0%	0	0.0%	4	25.0%	12	75.0%	16
Q18	*Reducing heated copper(II) oxide with hydrogen*	0	0.0%	1	6.3%	11	68.8%	4	25.0%	16
Q19	*Dropping potassium into water*	0	0.0%	0	0.0%	0	0.0%	16	100.0%	16
Q20	*Heating iron/sulfur mixtures*	0	0.0%	0	0.0%	1	6.3%	15	93.8%	16
Q21	*Demonstrating the thermite reaction*	0	0.0%	0	0.0%	5	33.3%	10	66.7%	15

		A Banned + evidence		B Believed banned no evidence		C-H Not banned but ….		I Sometimes done		Total response
		No	%	No	%	No	%	No	%	
Q22	*Use of benzene*	8	50.0%	8	50.0%	0	0.0%	0	0.0%	16
Q23	*Demonstrating the iodine/aluminium reaction*	0	0.0%	1	6.7%	5	33.3%	9	60.0%	15
Q24	*Using a blowpipe in lead oxide/charcoal reductions*	1	6.3%	4	25.0%	3	18.8%	8	50.0%	16
Q25	*Using bromine in diffusion demonstrations*	0	0.0%	0	0.0%	4	26.7%	11	73.3%	15
Q26	*Demonstrating ammonium dichromate volcano*	1	6.3%	4	25.0%	2	12.5%	9	56.3%	16
Q27	*Use of genuine crude oil*	6	37.5%	8	50.0%	1	6.3%	1	6.3%	16
Q28	*Use of naphthalene (moth balls)*	0	0.0%	5	35.7%	8	57.1%	1	7.1%	14
Q29	*Demonstrating reaction between propane-1,2,3-triol (glycerine) and potassium manganate(VII) (permanganate)*	0	0.0%	2	14.3%	4	28.6%	8	57.1%	14
Q30	*Use of mercury thermometers*	0	0.0%	0	0.0%	3	18.8%	13	81.3%	16
Q31	*Use of model steam engines*	0	0.0%	0	0.0%	0	0.0%	16	100.0%	16
Q32	*Use of air rifles in momentum demonstrations*	0	0.0%	5	31.3%	10	62.5%	1	6.3%	16
Q33	*Use of starting pistol in speed of sound experiments*	0	0.0%	2	14.3%	8	57.1%	4	28.6%	14
Q34	*Making pupils' hair stand on end with van de Graaff generators*	0	0.0%	0	0.0%	0	0.0%	16	100.0%	16
Q35	*Use of stroboscopes*	0	0.0%	1	6.3%	6	37.5%	9	56.3%	16
Q36	*Showing magnetic fields with iron filings*	0	0.0%	0	0.0%	1	6.7%	14	93.3%	15
Q37	*Use of EHT equipment up to 5000 volts at less than 5 mA*	0	0.0%	1	6.7%	7	46.7%	7	46.7%	15
Q38	*Demonstrating the power line at mains voltage on the transmission line*	0	0.0%	5	35.7%	5	35.7%	4	28.6%	14
Q39	*Demonstrations using sealed radioactive sources*	0	0.0%	1	6.3%	3	18.8%	12	75.0%	16
Q40	*Demonstrations using protactinium generators*	0	0.0%	5	31.3%	6	37.5%	5	31.3%	16

Table 9(d) UK schools outside Scotland responses by Teachers

		A Banned + evidence		*B Believed banned no evidence*		*C-H Not banned but ….*		*I Sometimes done*		*Total response*
		No	%	No	%	No	%	No	%	
Q1	*Keeping small mammals*	0	0.0%	7	6.5%	77	71.3%	24	22.2%	108
Q2	*Keeping giant African land snails*	0	0.0%	9	8.5%	80	75.5%	17	16.0%	106
Q3	*Inflating a sheep's lung (eg, with bellows)*	0	0.0%	6	5.4%	20	18.0%	85	76.6%	111
Q4	*Using a choice chamber with woodlice*	0	0.0%	1	0.9%	15	13.4%	96	85.7%	112
Q5	*Bringing spawn of the common frog from a pond into school*	0	0.0%	20	18.2%	53	48.2%	37	33.6%	110
Q6	*Dissection of eyeballs*	0	0.0%	13	11.5%	28	24.8%	72	63.7%	113
Q7	*Dissection of hearts*	0	0.0%	1	0.9%	3	2.7%	109	96.5%	113
Q8	*Dissection of rats*	0	0.0%	8	7.6%	61	58.1%	36	34.3%	105
Q9	*Pupils taking samples of their own cheek cells*	1	0.9%	26	23.2%	26	23.2%	59	52.7%	112
Q10	*Pupils using their own saliva in experiments*	1	0.9%	36	32.1%	49	43.8%	26	23.2%	112
Q11	*Pupils taking samples of their own blood*	11	9.9%	71	64.0%	25	22.5%	4	3.6%	111
Q12	*Incubating "finger dabs" on agar plates*	0	0.0%	19	17.1%	23	20.7%	69	62.2%	111
Q13	*Burning peanuts in experiments*	2	1.8%	27	24.1%	51	45.5%	32	28.6%	112
Q14	*Using spirometers*	0	0.0%	1	1.0%	42	40.0%	62	59.0%	105
Q15	*Exploding cans of custard powder, icing sugar, lycopodium powder or similar*	0	0.0%	7	6.3%	42	37.5%	63	56.3%	112
Q16	*Exploding cans containing methane / air mixtures*	2	1.8%	12	10.9%	49	44.5%	47	42.7%	110
Q17	*Demonstrating explosions of hydrogen / oxygen mixtures*	1	0.9%	6	5.2%	30	25.9%	79	68.1%	116
Q18	*Reducing heated copper(II) oxide with hydrogen*	0	0.0%	6	5.5%	75	68.8%	28	25.7%	109
Q19	*Dropping potassium into water*	0	0.0%	1	0.9%	0	0.0%	115	99.1%	116
Q20	*Heating iron/sulfur mixtures*	0	0.0%	1	0.9%	9	7.8%	106	91.4%	116

		A Banned + evidence		B Believed banned no evidence		C-H Not banned but ….		I Sometimes done		Total response
		No	%	No	%	No	%	No	%	
Q21	*Demonstrating the thermite reaction*	0	0.0%	1	0.9%	7	6.1%	107	93.0%	115
Q22	*Use of benzene*	46	40.0%	61	53.0%	8	7.0%	0	0.2%	115
Q23	*Demonstrating the iodine/aluminium reaction*	0	0.0%	8	7.3%	55	50.5%	46	42.2%	109
Q24	*Using a blowpipe in lead oxide/charcoal reductions*	0	0.0%	12	10.9%	62	56.4%	36	32.7%	110
Q25	*Using bromine in diffusion demonstrations*	0	0.0%	3	2.6%	31	27.0%	81	70.4%	115
Q26	*Demonstrating ammonium dichromate volcano*	2	1.8%	12	10.6%	32	28.3%	67	59.3%	113
Q27	*Use of genuine crude oil*	35	31.5%	59	53.2%	15	13.5%	2	1.8%	111
Q28	*Use of naphthalene (moth balls)*	4	3.8%	34	32.4%	55	52.4%	12	11.4%	105
Q29	*Demonstrating reaction between propane-1,2,3-triol (glycerine) and potassium manganate(VII) (permanganate)*	1	0.9%	8	7.5%	55	51.4%	43	40.2%	107
Q30	*Use of mercury thermometers*	1	0.9%	6	5.3%	13	11.4%	94	82.5%	114
Q31	*Use of model steam engines*	0	0.0%	2	1.8%	26	22.8%	86	75.4%	114
Q32	*Use of air rifles in momentum demonstrations*	1	0.9%	30	28.3%	58	54.7%	17	16.0%	106
Q33	*Use of starting pistol in speed of sound experiments*	1	1.0%	6	5.9%	68	66.7%	27	26.5%	102
Q34	*Making pupils' hair stand on end with van de Graaff generators*	0	0.0%	2	1.8%	3	2.7%	107	95.5%	112
Q35	*Use of stroboscopes*	1	0.9%	7	6.3%	35	31.5%	68	61.3%	111
Q36	*Showing magnetic fields with iron filings*	0	0.0%	1	0.9%	0	0.0%	111	99.1%	112
Q37	*Use of EHT equipment up to 5000 volts at less than 5 mA*	1	0.9%	7	6.5%	26	24.1%	74	68.5%	108
Q38	*Demonstrating the power line at mains voltage on the transmission line*	2	1.9%	35	33.3%	40	38.1%	28	26.7%	105
Q39	*Demonstrations using sealed radioactive sources*	0	0.0%	1	0.9%	10	8.8%	102	90.3%	113
Q40	*Demonstrations using protactinium generators*	0	0.0%	8	7.8%	58	56.3%	37	35.9%	103

Table 9(e) UK schools outside Scotland responses by Technicians

		A Banned + evidence		*B Believed banned no evidence*		*C-H Not banned but ….*		*I Sometimes done*		*Total response*
		No	%	No	%	No	%	No	%	
Q1	*Keeping small mammals*	0	0.0%	4	2.3%	139	80.3%	30	17.3%	173
Q2	*Keeping giant African land snails*	0	0.0%	12	7.0%	137	80.1%	22	12.9%	171
Q3	*Inflating a sheep's lung (eg, with bellows)*	0	0.0%	9	5.2%	27	15.6%	137	79.2%	173
Q4	*Using a choice chamber with woodlice*	1	0.6%	0	0.0%	19	11.1%	151	88.3%	171
Q5	*Bringing spawn of the common frog from a pond into school*	1	0.6%	21	12.6%	103	61.7%	42	25.1%	167
Q6	*Dissection of eyeballs*	8	4.7%	11	6.4%	41	23.8%	112	65.1%	172
Q7	*Dissection of hearts*	0	0.0%	0	0.0%	5	2.9%	167	97.1%	172
Q8	*Dissection of rats*	0	0.0%	12	7.1%	94	55.3%	64	37.6%	170
Q9	*Pupils taking samples of their own cheek cells*	2	1.2%	16	9.3%	44	25.6%	110	64.0%	172
Q10	*Pupils using their own saliva in experiments*	0	0.0%	28	16.4%	90	52.6%	53	31.0%	171
Q11	*Pupils taking samples of their own blood*	30	18.0%	58	34.7%	73	43.7%	6	3.6%	167
Q12	*Incubating "finger dabs" on agar plates*	1	0.6%	6	3.6%	25	14.8%	137	81.1%	169
Q13	*Burning peanuts in experiments*	3	1.8%	26	15.4%	100	59.2%	40	23.7%	169
Q14	*Using spirometers*	0	0.0%	1	0.6%	87	51.2%	82	48.2%	170
Q15	*Exploding cans of custard powder, icing sugar, lycopodium powder or similar*	0	0.0%	12	7.3%	62	37.8%	90	54.9%	164
Q16	*Exploding cans containing methane / air mixtures*	1	0.6%	21	13.4%	69	43.9%	66	42.0%	157
Q17	*Demonstrating explosions of hydrogen / oxygen mixtures*	1	0.6%	12	7.2%	57	34.1%	97	58.1%	167
Q18	*Reducing heated copper(II) oxide with hydrogen*	0	0.0%	9	5.6%	97	60.6%	54	33.8%	160
Q19	*Dropping potassium into water*	0	0.0%	0	0.0%	1	0.6%	171	99.4%	172
Q20	*Heating iron/sulfur mixtures*	0	0.0%	0	0.0%	7	4.1%	164	95.9%	171
Q21	*Demonstrating the thermite reaction*	0	0.0%	2	1.2%	21	12.2%	149	86.6%	172

		A *Banned + evidence*		*B* *Believed banned no evidence*		*C-H* *Not banned but ….*		*I* *Sometimes done*		*Total response*
		No	%	No	%	No	%	No	%	
Q22	*Use of benzene*	107	63.7%	56	33.3%	4	2.4%	1	0.6%	168
Q23	*Demonstrating the iodine/aluminium reaction*	0	0.0%	7	4.3%	99	60.4%	58	35.4%	164
Q24	*Using a blowpipe in lead oxide/charcoal reductions*	0	0.0%	15	8.9%	87	51.5%	67	39.6%	169
Q25	*Using bromine in diffusion demonstrations*	0	0.0%	4	2.4%	62	36.7%	103	60.9%	169
Q26	*Demonstrating ammonium dichromate volcano*	1	0.6%	13	7.8%	78	47.0%	74	44.6%	166
Q27	*Use of genuine crude oil*	90	53.6%	58	34.5%	17	10.1%	3	1.8%	168
Q28	*Use of naphthalene (moth balls)*	7	4.2%	34	20.4%	100	59.9%	26	15.6%	167
Q29	*Demonstrating reaction between propane-1,2,3-triol (glycerine) and potassium manganate(VII) (permanganate)*	2	1.2%	4	2.5%	80	49.4%	76	46.9%	162
Q30	*Use of mercury thermometers*	0	0.0%	3	1.8%	47	28.0%	118	70.2%	168
Q31	*Use of model steam engines*	0	0.0%	2	1.2%	34	19.8%	136	79.1%	172
Q32	*Use of air rifles in momentum demonstrations*	1	0.6%	42	25.5%	102	61.8%	20	12.1%	165
Q33	*Use of starting pistol in speed of sound experiments*	0	0.0%	22	13.6%	112	69.1%	28	17.3%	162
Q34	*Making pupils' hair stand on end with van de Graaff generators*	0	0.0%	0	0.0%	9	5.2%	163	94.8%	172
Q35	*Use of stroboscopes*	0	0.0%	2	1.2%	50	29.8%	116	69.0%	168
Q36	*Showing magnetic fields with iron filings*	0	0.0%	0	0.0%	2	1.2%	169	98.8%	171
Q37	*Use of EHT equipment up to 5000 volts at less than 5 mA*	0	0.0%	10	5.9%	48	28.2%	112	65.9%	170
Q38	*Demonstrating the power line at mains voltage on the transmission line*	4	2.4%	36	21.8%	70	42.4%	55	33.3%	165
Q39	*Demonstrations using sealed radioactive sources*	0	0.0%	1	0.6%	12	7.1%	157	92.4%	170
Q40	*Demonstrations using protactinium generators*	0	0.0%	10	6.1%	104	63.8%	49	30.1%	163

Table 9(f) UK schools outside Scotland responses by Others

		A Banned + evidence		*B Believed banned no evidence*		*C-H Not banned but ….*		*I Sometimes done*		*Total response*
		No	%	No	%	No	%	No	%	
Q1	*Keeping small mammals*	0	0.0%	1	10.0%	5	50.0%	4	40.0%	10
Q2	*Keeping giant African land snails*	0	0.0%	1	10.0%	7	70.0%	2	20.0%	10
Q3	*Inflating a sheep's lung (eg, with bellows)*	0	0.0%	2	20.0%	2	20.0%	6	60.0%	10
Q4	*Using a choice chamber with woodlice*	0	0.0%	0	0.0%	1	10.0%	9	90.0%	10
Q5	*Bringing spawn of the common frog from a pond into school*	0	0.0%	1	10.0%	6	60.0%	3	30.0%	10
Q6	*Dissection of eyeballs*	0	0.0%	1	10.0%	3	30.0%	6	60.0%	10
Q7	*Dissection of hearts*	0	0.0%	0	0.0%	0	0.0%	10	100.0%	10
Q8	*Dissection of rats*	0	0.0%	0	0.0%	5	55.6%	4	44.4%	9
Q9	*Pupils taking samples of their own cheek cells*	1	10.0%	1	10.0%	2	20.0%	6	60.0%	10
Q10	*Pupils using their own saliva in experiments*	0	0.0%	3	33.3%	4	44.4%	2	22.2%	9
Q11	*Pupils taking samples of their own blood*	1	11.1%	6	66.7%	2	22.2%	0	0.0%	9
Q12	*Incubating "finger dabs" on agar plates*	0	0.0%	2	20.0%	5	50.0%	3	30.0%	10
Q13	*Burning peanuts in experiments*	1	10.0%	2	20.0%	4	40.0%	3	30.0%	10
Q14	*Using spirometers*	0	0.0%	0	0.0%	2	20.0%	8	80.0%	10
Q15	*Exploding cans of custard powder, icing sugar, lycopodium powder or similar*	0	0.0%	1	11.1%	1	11.1%	7	77.8%	9
Q16	*Exploding cans containing methane / air mixtures*	0	0.0%	0	0.0%	4	40.0%	6	60.0%	10
Q17	*Demonstrating explosions of hydrogen / oxygen mixtures*	0	0.0%	0	0.0%	3	30.0%	7	70.0%	10
Q18	*Reducing heated copper(II) oxide with hydrogen*	0	0.0%	0	0.0%	8	80.0%	2	20.0%	10
Q19	*Dropping potassium into water*	0	0.0%	0	0.0%	0	0.0%	10	100.0%	10
Q20	*Heating iron/sulfur mixtures*	0	0.0%	0	0.0%	1	10.0%	9	90.0%	10

		A Banned + evidence		B Believed banned no evidence		C-H Not banned but ….		I Sometimes done		Total response
		No	%	No	%	No	%	No	%	
Q21	*Demonstrating the thermite reaction*	0	0.0%	0	0.0%	1	10.0%	9	90.0%	10
Q22	*Use of benzene*	7	70.0%	3	30.0%	0	0.0%	0	0.0%	10
Q23	*Demonstrating the iodine/aluminium reaction*	0	0.0%	1	11.1%	5	55.6%	3	33.3%	9
Q24	*Using a blowpipe in lead oxide/charcoal reductions*	1	10.0%	1	10.0%	1	10.0%	7	70.0%	10
Q25	*Using bromine in diffusion demonstrations*	0	0.0%	0	0.0%	1	11.1%	8	88.9%	9
Q26	*Demonstrating ammonium dichromate volcano*	0	0.0%	1	10.0%	2	20.0%	7	70.0%	10
Q27	*Use of genuine crude oil*	5	50.0%	3	30.0%	1	10.0%	1	10.0%	10
Q28	*Use of naphthalene (moth balls)*	0	0.0%	1	12.5%	6	75.0%	1	12.5%	8
Q29	*Demonstrating reaction between propane-1,2,3-triol (glycerine) and potassium manganate(VII) (permanganate)*	0	0.0%	2	22.2%	3	33.3%	4	44.4%	9
Q30	*Use of mercury thermometers*	0	0.0%	0	0.0%	2	20.0%	8	80.0%	10
Q31	*Use of model steam engines*	0	0.0%	0	0.0%	0	0.0%	10	100.0%	10
Q32	*Use of air rifles in momentum demonstrations*	0	0.0%	3	30.0%	7	70.0%	0	0.0%	10
Q33	*Use of starting pistol in speed of sound experiments*	0	0.0%	1	11.1%	5	55.6%	3	33.3%	9
Q34	*Making pupils' hair stand on end with van de Graaff generators*	0	0.0%	0	0.0%	0	0.0%	10	100.0%	10
Q35	*Use of stroboscopes*	0	0.0%	0	0.0%	4	40.0%	6	60.0%	10
Q36	*Showing magnetic fields with iron filings*	0	0.0%	0	0.0%	0	0.0%	10	100.0%	10
Q37	*Use of EHT equipment up to 5000 volts at less than 5 mA*	0	0.0%	1	10.0%	6	60.0%	3	30.0%	10
Q38	*Demonstrating the power line at mains voltage on the transmission line*	0	0.0%	1	11.1%	5	55.6%	3	33.3%	9
Q39	*Demonstrations using sealed radioactive sources*	0	0.0%	0	0.0%	1	10.0%	9	90.0%	10
Q40	*Demonstrations using protactinium generators*	0	0.0%	2	20.0%	4	40.0%	4	40.0%	10

Table 9(g) Schools in Scotland responses by Teachers

		A Banned + evidence		*B Believed banned no evidence*		*C-H Not banned but ….*		*I Sometimes done*		*Total response*
		No	%	No	%	No	%	No	%	
Q1	*Keeping small mammals*	1	1.1%	25	28.4%	54	61.4%	8	9.1%	88
Q2	*Keeping giant African land snails*	2	2.4%	19	22.9%	51	61.4%	11	13.3%	83
Q3	*Inflating a sheep's lung (eg, with bellows)*	1	1.1%	21	23.9%	23	26.1%	43	48.9%	88
Q4	*Using a choice chamber with woodlice*	0	0.0%	0	0.0%	6	6.9%	81	93.1%	87
Q5	*Bringing spawn of the common frog from a pond into school*	4	4.8%	27	32.5%	37	44.6%	15	18.1%	83
Q6	*Dissection of eyeballs*	6	6.9%	47	54.0%	19	21.8%	15	17.2%	87
Q7	*Dissection of hearts*	1	1.1%	14	15.9%	13	14.8%	60	68.2%	88
Q8	*Dissection of rats*	3	3.6%	35	41.7%	42	50.0%	4	4.8%	84
Q9	*Pupils taking samples of their own cheek cells*	2	2.3%	25	28.7%	13	14.9%	47	54.0%	87
Q10	*Pupils using their own saliva in experiments*	4	4.4%	47	51.6%	21	23.1%	19	20.9%	91
Q11	*Pupils taking samples of their own blood*	14	15.2%	73	79.3%	5	5.4%	0	0.0%	92
Q12	*Incubating "finger dabs" on agar plates*	2	2.3%	26	30.2%	24	27.9%	34	39.5%	86
Q13	*Burning peanuts in experiments*	1	1.1%	13	13.7%	35	36.8%	46	48.4%	95
Q14	*Using spirometers*	0	0.0%	1	1.4%	23	31.5%	49	67.1%	73
Q15	*Exploding cans of custard powder, icing sugar, lycopodium powder or similar*	0	0.0%	1	1.1%	2	2.1%	91	96.8%	94
Q16	*Exploding cans containing methane / air mixtures*	0	0.0%	0	0.0%	23	25.3%	68	74.7%	91
Q17	*Demonstrating explosions of hydrogen / oxygen mixtures*	0	0.0%	4	4.3%	31	33.7%	57	62.0%	92
Q18	*Reducing heated copper(II) oxide with hydrogen*	1	1.1%	6	6.8%	62	70.5%	19	21.6%	88
Q19	*Dropping potassium into water*	0	0.0%	9	9.8%	1	1.1%	82	89.1%	92
Q20	*Heating iron/sulfur mixtures*	0	0.0%	2	2.2%	8	8.7%	82	89.1%	92

		A Banned + evidence		B Believed banned no evidence		C-H Not banned but ….		I Sometimes done		Total response
		No	%	No	%	No	%	No	%	
Q21	*Demonstrating the thermite reaction*	1	1.2%	12	14.0%	48	55.8%	25	29.1%	86
Q22	*Use of benzene*	30	32.6%	53	57.6%	8	8.7%	1	1.1%	92
Q23	*Demonstrating the iodine/aluminium reaction*	0	0.0%	14	16.5%	38	44.7%	33	38.8%	85
Q24	*Using a blowpipe in lead oxide/charcoal reductions*	0	0.0%	25	28.7%	46	52.9%	16	18.4%	87
Q25	*Using bromine in diffusion demonstrations*	1	1.2%	15	18.1%	40	48.2%	27	32.5%	83
Q26	*Demonstrating ammonium dichromate volcano*	0	0.0%	27	31.0%	32	36.8%	28	32.2%	87
Q27	*Use of genuine crude oil*	12	13.2%	49	53.8%	13	14.3%	17	18.7%	91
Q28	*Use of naphthalene (moth balls)*	4	4.9%	32	39.0%	37	45.1%	9	11.0%	82
Q29	*Demonstrating reaction between propane-1,2,3-triol (glycerine) and potassium manganate(VII) (permanganate)*	1	1.2%	8	9.9%	36	44.4%	36	44.4%	81
Q30	*Use of mercury thermometers*	0	0.0%	9	10.2%	20	22.7%	59	67.0%	88
Q31	*Use of model steam engines*	0	0.0%	5	5.7%	16	18.2%	67	76.1%	88
Q32	*Use of air rifles in momentum demonstrations*	0	0.0%	33	40.2%	39	47.6%	10	12.2%	82
Q33	*Use of starting pistol in speed of sound experiments*	0	0.0%	16	20.5%	45	57.7%	17	21.8%	78
Q34	*Making pupils' hair stand on end with van de Graaff generators*	0	0.0%	1	1.2%	2	2.3%	83	96.5%	86
Q35	*Use of stroboscopes*	0	0.0%	6	7.5%	25	31.3%	49	61.3%	80
Q36	*Showing magnetic fields with iron filings*	0	0.0%	0	0.0%	6	7.1%	78	92.9%	84
Q37	*Use of EHT equipment up to 5000 volts at less than 5 mA*	1	1.2%	3	3.7%	7	8.5%	71	86.6%	82
Q38	*Demonstrating the power line at mains voltage on the transmission line*	5	6.3%	38	47.5%	20	25.0%	17	21.3%	80
Q39	*Demonstrations using sealed radioactive sources*	1	1.2%	2	2.4%	31	36.9%	50	59.5%	84
Q40	*Demonstrations using protactinium generators*	4	5.2%	19	24.7%	45	58.4%	9	11.7%	77

Table 9(h) Schools in Scotland responses by Technicians

		A Banned + evidence		*B Believed banned no evidence*		*C-H Not banned but ….*		*I Sometimes done*		*Total response*
		No	%	No	%	No	%	No	%	
Q1	*Keeping small mammals*	0	0.0%	1	14.3%	4	57.1%	2	28.6%	7
Q2	*Keeping giant African land snails*	0	0.0%	1	16.7%	3	50.0%	2	33.3%	6
Q3	*Inflating a sheep's lung (eg, with bellows)*	0	0.0%	1	14.3%	3	42.9%	3	42.9%	7
Q4	*Using a choice chamber with woodlice*	0	0.0%	0	0.0%	0	0.0%	7	100.0%	7
Q5	*Bringing spawn of the common frog from a pond into school*	1	16.7%	2	33.3%	3	50.0%	0	0.0%	6
Q6	*Dissection of eyeballs*	0	0.0%	4	57.1%	2	28.6%	1	14.3%	7
Q7	*Dissection of hearts*	0	0.0%	1	14.3%	2	28.6%	4	57.1%	7
Q8	*Dissection of rats*	1	14.3%	3	42.9%	3	42.9%	0	0.0%	7
Q9	*Pupils taking samples of their own cheek cells*	2	28.6%	1	14.3%	1	14.3%	3	42.9%	7
Q10	*Pupils using their own saliva in experiments*	2	28.6%	3	42.9%	2	28.6%	0	0.0%	7
Q11	*Pupils taking samples of their own blood*	2	28.6%	3	42.9%	2	28.6%	0	1.0%	7
Q12	*Incubating "finger dabs" on agar plates*	0	0.0%	2	28.6%	1	14.3%	4	57.1%	7
Q13	*Burning peanuts in experiments*	0	0.0%	2	28.6%	3	42.9%	2	28.6%	7
Q14	*Using spirometers*	0	0.0%	1	14.3%	2	28.6%	4	57.1%	7
Q15	*Exploding cans of custard powder, icing sugar, lycopodium powder or similar*	0	0.0%	0	0.0%	0	0.0%	7	100.0%	7
Q16	*Exploding cans containing methane / air mixtures*	0	0.0%	1	14.3%	3	42.9%	3	42.9%	7
Q17	*Demonstrating explosions of hydrogen / oxygen mixtures*	0	0.0%	1	14.3%	1	14.3%	5	71.4%	7
Q18	*Reducing heated copper(II) oxide with hydrogen*	0	0.0%	0	0.0%	5	83.3%	1	16.7%	6
Q19	*Dropping potassium into water*	0	0.0%	1	14.3%	1	14.3%	5	71.4%	7
Q20	*Heating iron/sulfur mixtures*	0	0.0%	0	0.0%	1	14.3%	6	85.7%	7

		A Banned + evidence		B Believed banned no evidence		C-H Not banned but ….		I Sometimes done		Total response
		No	%	No	%	No	%	No	%	
Q21	*Demonstrating the thermite reaction*	1	16.7%	1	16.7%	4	66.7%	0	0.0%	6
Q22	*Use of benzene*	3	42.9%	4	57.1%	0	0.0%	0	0.0%	7
Q23	*Demonstrating the iodine/aluminium reaction*	0	0.0%	2	28.6%	3	42.9%	2	28.6%	7
Q24	*Using a blowpipe in lead oxide/charcoal reductions*	1	14.3%	4	57.1%	2	28.6%	0	0.0%	7
Q25	*Using bromine in diffusion demonstrations*	0	0.0%	0	0.0%	2	28.6%	5	71.4%	7
Q26	*Demonstrating ammonium dichromate volcano*	1	14.3%	1	14.3%	3	42.9%	2	28.6%	7
Q27	*Use of genuine crude oil*	2	28.6%	4	57.1%	1	14.3%	0	0.0%	7
Q28	*Use of naphthalene (moth balls)*	1	14.3%	4	57.1%	1	14.3%	1	14.3%	7
Q29	*Demonstrating reaction between propane-1,2,3-triol (glycerine) and potassium manganate(VII) (permanganate)*	0	0.0%	0	0.0%	2	28.6%	5	71.4%	7
Q30	*Use of mercury thermometers*	0	0.0%	2	28.6%	1	14.3%	4	57.1%	7
Q31	*Use of model steam engines*	0	0.0%	0	0.0%	1	14.3%	6	85.7%	7
Q32	*Use of air rifles in momentum demonstrations*	0	0.0%	3	50.0%	2	33.3%	1	16.7%	6
Q33	*Use of starting pistol in speed of sound experiments*	0	0.0%	2	33.3%	3	50.0%	1	16.7%	6
Q34	*Making pupils' hair stand on end with van de Graaff generators*	0	0.0%	0	0.0%	0	0.0%	7	100.0%	7
Q35	*Use of stroboscopes*	0	0.0%	1	14.3%	1	14.3%	5	71.4%	7
Q36	*Showing magnetic fields with iron filings*	0	0.0%	0	0.0%	0	0.0%	7	100.0%	7
Q37	*Use of EHT equipment up to 5000 volts at less than 5 mA*	0	0.0%	0	0.0%	0	0.0%	6	100.0%	6
Q38	*Demonstrating the power line at mains voltage on the transmission line*	0	0.0%	3	50.0%	1	16.7%	2	33.3%	6
Q39	*Demonstrations using sealed radioactive sources*	0	0.0%	0	0.0%	3	42.9%	4	57.1%	7
Q40	*Demonstrations using protactinium generators*	0	0.0%	3	42.9%	2	28.6%	2	28.6%	7

Table 9(i) Schools in Scotland responses by Others

		A Banned + evidence		*B Believed banned no evidence*		*C-H Not banned but ….*		*I Sometimes done*		*Total response*
		No	%	No	%	No	%	No	%	
Q1	*Keeping small mammals*	0	0.0%	2	33.3%	3	50.0%	1	16.7%	6
Q2	*Keeping giant African land snails*	0	0.0%	2	33.3%	4	66.7%	0	0.0%	6
Q3	*Inflating a sheep's lung (eg, with bellows)*	0	0.0%	4	66.7%	1	16.7%	1	16.7%	6
Q4	*Using a choice chamber with woodlice*	0	0.0%	0	0.0%	0	0.0%	6	100.0%	6
Q5	*Bringing spawn of the common frog from a pond into school*	0	0.0%	3	60.0%	1	20.0%	1	20.0%	5
Q6	*Dissection of eyeballs*	0	0.0%	4	66.7%	1	16.7%	1	16.7%	6
Q7	*Dissection of hearts*	0	0.0%	1	16.7%	0	0.0%	5	83.3%	6
Q8	*Dissection of rats*	1	16.7%	1	16.7%	4	66.7%	0	0.0%	6
Q9	*Pupils taking samples of their own cheek cells*	0	0.0%	2	33.3%	0	0.0%	4	66.7%	6
Q10	*Pupils using their own saliva in experiments*	0	0.0%	3	50.0%	0	0.0%	3	50.0%	6
Q11	*Pupils taking samples of their own blood*	1	16.7%	5	83.3%	0	0.0%	0	0.0%	6
Q12	*Incubating "finger dabs" on agar plates*	0	0.0%	0	0.0%	3	60.0%	2	40.0%	5
Q13	*Burning peanuts in experiments*	0	0.0%	1	16.7%	1	16.7%	4	66.7%	6
Q14	*Using spirometers*	0	0.0%	0	0.0%	1	20.0%	4	80.0%	5
Q15	*Exploding cans of custard powder, icing sugar, lycopodium powder or similar*	0	0.0%	0	0.0%	0	0.0%	6	100.0%	6
Q16	*Exploding cans containing methane / air mixtures*	0	0.0%	0	0.0%	2	33.3%	4	66.7%	6
Q17	*Demonstrating explosions of hydrogen / oxygen mixtures*	0	0.0%	0	0.0%	1	16.7%	5	83.3%	6
Q18	*Reducing heated copper(II) oxide with hydrogen*	0	0.0%	1	16.7%	3	50.0%	2	33.3%	6
Q19	*Dropping potassium into water*	0	0.0%	0	0.0%	0	0.0%	6	100.0%	6
Q20	*Heating iron/sulfur mixtures*	0	0.0%	0	0.0%	0	0.0%	6	100.0%	6

		A *Banned + evidence*		*B* *Believed banned no evidence*		*C-H* *Not banned but ….*		*I* *Sometimes done*		*Total response*
		No	%	No	%	No	%	No	%	
Q21	*Demonstrating the thermite reaction*	0	0.0%	0	0.0%	4	80.0%	1	20.0%	5
Q22	*Use of benzene*	1	16.7%	5	83.3%	0	0.0%	0	0.0%	6
Q23	*Demonstrating the iodine/aluminium reaction*	0	0.0%	0	0.0%	0	0.0%	6	100.0%	6
Q24	*Using a blowpipe in lead oxide/charcoal reductions*	0	0.0%	3	50.0%	2	33.3%	1	16.7%	6
Q25	*Using bromine in diffusion demonstrations*	0	0.0%	0	0.0%	3	50.0%	3	50.0%	6
Q26	*Demonstrating ammonium dichromate volcano*	1	16.7%	3	50.0%	0	0.0%	2	33.3%	6
Q27	*Use of genuine crude oil*	1	16.7%	5	83.3%	0	0.0%	0	0.0%	6
Q28	*Use of naphthalene (moth balls)*	0	0.0%	4	66.7%	2	33.3%	0	0.0%	6
Q29	*Demonstrating reaction between propane-1,2,3-triol (glycerine) and potassium manganate(VII) (permanganate)*	0	0.0%	0	0.0%	1	20.0%	4	80.0%	5
Q30	*Use of mercury thermometers*	0	0.0%	0	0.0%	1	16.7%	5	83.3%	6
Q31	*Use of model steam engines*	0	0.0%	0	0.0%	0	0.0%	6	100.0%	6
Q32	*Use of air rifles in momentum demonstrations*	0	0.0%	2	33.3%	3	50.0%	1	16.7%	6
Q33	*Use of starting pistol in speed of sound experiments*	0	0.0%	1	20.0%	3	60.0%	1	20.0%	5
Q34	*Making pupils' hair stand on end with van de Graaff generators*	0	0.0%	0	0.0%	0	0.0%	6	100.0%	6
Q35	*Use of stroboscopes*	0	0.0%	1	16.7%	2	33.3%	3	50.0%	6
Q36	*Showing magnetic fields with iron filings*	0	0.0%	0	0.0%	1	20.0%	4	80.0%	5
Q37	*Use of EHT equipment up to 5000 volts at less than 5 mA*	0	0.0%	0	0.0%	1	20.0%	4	80.0%	5
Q38	*Demonstrating the power line at mains voltage on the transmission line*	0	0.0%	4	80.0%	0	0.0%	1	20.0%	5
Q39	*Demonstrations using sealed radioactive sources*	0	0.0%	1	16.7%	2	33.3%	3	50.0%	6
Q40	*Demonstrations using protactinium generators*	0	0.0%	3	50.0%	2	33.3%	1	16.7%	6

Appendix 10 Education authority responses

		P Banned because banned nationally		Q Banned by EA even though not banned nationally		R Not banned but discouraged		S Not banned or discouraged		Total Respons
Q1	*Keeping small mammals*	0	0.0%	0	0.0%	0	0.0%	64	100.0%	64
Q2	*Keeping giant African land snails*	1	1.6%	0	0.0%	2	3.1%	61	95.3%	64
Q3	*Inflating a sheep's lung (eg, with bellows)*	0	0.0%	1	1.7%	4	6.7%	55	91.7%	60
Q4	*Using a choice chamber with woodlice*	0	0.0%	0	0.0%	0	0.0%	63	100.0%	63
Q5	*Bringing spawn of the common frog from a pond into school*	0	0.0%	0	0.0%	3	4.8%	60	95.2%	63
Q6	*Dissection of eyeballs*	1	1.6%	1	1.6%	1	1.6%	61	95.3%	64
Q7	*Dissection of hearts*	0	0.0%	0	0.0%	0	0.0%	62	100.0%	62
Q8	*Dissection of rats*	0	0.0%	0	0.0%	1	1.6%	61	98.4%	62
Q9	*Pupils taking samples of their own cheek cells*	1	1.6%	0	0.0%	3	4.8%	59	93.7%	63
Q10	*Pupils using their own saliva in experiments*	0	0.0%	1	1.6%	3	4.8%	58	93.6%	62
Q11	*Pupils taking samples of their own blood*	5	7.8%	3	4.7%	4	6.3%	52	81.3%	64
Q12	*Incubating "finger dabs" on agar plates*	0	0.0%	0	0.0%	4	6.4%	59	93.7%	63
Q13	*Burning peanuts in experiments*	1	1.6%	0	0.0%	7	11.5%	53	86.9%	61
Q14	*Using spirometers*	0	0.0%	0	0.0%	0	0.0%	63	100.0%	63
Q15	*Exploding cans of custard powder, icing sugar, lycopodium powder or similar*	0	0.0%	0	0.0%	4	6.5%	58	93.6%	62
Q16	*Exploding cans containing methane / air mixtures*	0	0.0%	0	0.0%	4	6.6%	57	93.4%	61
Q17	*Demonstrating explosions of hydrogen / oxygen mixtures*	0	0.0%	0	0.0%	5	7.9%	58	92.1%	63
Q18	*Reducing heated copper(II) oxide with hydrogen*	0	0.0%	0	0.0%	3	4.7%	61	95.3%	64
Q19	*Dropping potassium into water*	0	0.0%	0	0.0%	1	1.6%	63	98.4%	64
Q20	*Heating iron/sulfur mixtures*	0	0.0%	0	0.0%	1	1.6%	63	98.4%	64

		P Banned because banned nationally		Q Banned by EA even though not banned nationally		R Not banned but discouraged		S Not banned or discouraged		Total Responses
Q21	*Demonstrating the thermite reaction*	0	0.0%	0	0.0%	1	1.6%	62	98.4%	63
Q22	*Use of benzene*	14	23.0%	0	0.0%	2	3.3%	45	73.8%	61
Q23	*Demonstrating the iodine/aluminium reaction*	0	0.0%	0	0.0%	2	3.2%	61	96.8%	63
Q24	*Using a blowpipe in lead oxide/charcoal reductions*	1	1.6%	0	0.0%	2	3.2%	60	95.2%	63
Q25	*Using bromine in diffusion demonstrations*	0	0.0%	0	0.0%	3	4.8%	60	95.2%	63
Q26	*Demonstrating ammonium dichromate volcano*	0	0.0%	0	0.0%	3	4.8%	60	95.2%	63
Q27	*Use of genuine crude oil*	13	21.3%	0	0.0%	1	1.6%	47	77.1%	61
Q28	*Use of naphthalene (moth balls)*	3	5.0%	0	0.0%	3	5.0%	54	90.0%	60
Q29	*Demonstrating reaction between propane-1,2,3-triol (glycerine) and potassium manganate(VII) (permanganate)*	1	1.7%	0	0.0%	4	6.9%	53	91.4%	58
Q30	*Use of mercury thermometers*	0	0.0%	0	0.0%	4	6.3%	60	93.8%	64
Q31	*Use of model steam engines*	0	0.0%	0	0.0%	2	3.1%	62	96.9%	64
Q32	*Use of air rifles in momentum demonstrations*	2	3.2%	0	0.0%	4	6.5%	56	90.3%	62
Q33	*Use of starting pistol in speed of sound experiments*	1	1.6%	0	0.0%	4	6.4%	58	92.1%	63
Q34	*Making pupils' hair stand on end with van de Graaff generators*	0	0.0%	0	0.0%	2	3.1%	62	96.9%	64
Q35	*Use of stroboscopes*	0	0.0%	0	0.0%	2	3.1%	62	96.9%	64
Q36	*Showing magnetic fields with iron filings*	0	0.0%	0	0.0%	1	1.6%	62	98.4%	63
Q37	*Use of EHT equipment up to 5000 volts at less than 5 mA*	0	0.0%	0	0.0%	4	6.5%	58	93.6%	62
Q38	*Demonstrating the power line at mains voltage on the transmission line*	1	1.6%	1	1.6%	7	11.1%	54	85.7%	63
Q39	*Demonstrations using sealed radioactive sources*	0	0.0%	0	0.0%	1	1.6%	63	98.4%	64
Q40	*Demonstrations using protactinium generators*	1	1.6%	0	0.0%	0	0.0%	61	98.4%	62