

Chemistry at Work
A Handbook for Organisers

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www.rsc.org/caw

CHEMISTRY AT WORK **A Handbook For Organisers**

Introduction

The RSC has been sponsoring *Chemistry at Work* events since 1991. This handbook hopes to pass on some of the experience built up over the years, to ensure that organising your own event goes as smoothly as possible.

The handbook provides a step-by-step guide to organising a successful *Chemistry at Work* event. No previous experience is assumed, and those with experience can safely ignore parts of the text. Whatever your level of expertise, please do not feel restricted by the suggestions in this handbook. All organisers are encouraged to develop and use their own ideas in their planning where possible, as this makes for more stimulating, interesting and varied events. A 'quick start' guide is also available that gives an overview of organising an event and should be useful to new organisers as well as a refresher for 'old hands'.

Having said that, it is important that all events follow the same basic format so that *Chemistry at Work* maintains its reputation for high quality, worthwhile events.

Should you have any questions or require further advice at any time, please contact the RSC *Chemistry at Work* National Coordinator:

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What is *Chemistry at Work*?

Aims

The aim of *Chemistry at Work* is to show young people the parts that chemistry and the chemical sciences play in their everyday lives. By doing this, we hope to highlight the positive aspects of chemistry as a rewarding and wealth-creating activity which is central to our way of life. We hope that the events will thereby help students understand the importance of chemistry to society and perhaps encourage them to consider chemistry as a career or as a subject worth studying further.

Independent research commissioned by RSC shows that *Chemistry at Work* has been successful in achieving these aims. One event was rated 'interesting' or better by 90% of students attending, with almost half saying that after visiting the event they were more likely to consider a job in the chemical or pharmaceutical industries. To access the full evaluation report go to www.rsc.org/caw.

What is a *Chemistry at Work* event like?

A typical *Chemistry at Work* event is organised by a RSC Local Section, often in conjunction with an Education Business Partnership (EBP) or STEM organisation. These organisations often have good local contacts in both the business and education communities and may also have experience of organising similar events. However other styles of organising events are possible and have been successful.

A *Chemistry at Work* event usually takes place over one, two or three days at a venue such as a local college (often after exam time so that rooms are available and the college is keen to show itself off to potential students), a university, conference centre or EBP offices. A number of local organisations and companies are invited to provide staff to give a presentation about how they use chemistry in their work. A wide range of organisations have given presentations at past events including local fire brigades (dealing with chemical spills or chip pan fires), pharmaceutical businesses (deodorants), the army (testing fuels, chemical warfare protection suits) and an adhesives company (superglue) as well as the more typical chemical businesses. Each presentation is repeated several times throughout the event to several groups of students. Typically six to 12 organisations give presentations at an event. A CD showing examples of past events is available from the National Coordinator.

Who attends?

Local schools are invited to send students in groups of 15-20, each group accompanied by a teacher, to spend half a day at the event. Students are often in the 14-16 age range, although events have been organised for various age groups from 5-16 years old. The students visit the presentations in rotation and usually see between six and eight presentations in a session. Up to 1000 students and 50 teachers may attend a three-day event. Students take away with them a booklet containing a brief description of each presentation, and RSC provides careers literature for teachers. Events usually attract coverage from the local media and some events incorporate a reception to which local dignitaries are invited, as well as presenters and others involved in the event.

The benefits

There are tangible benefits for all those participating in a *Chemistry at Work* event:

- **Students** are given the opportunity to see the variety of local organisations which use chemistry in their workplaces and to learn about how chemistry affects their everyday lives. This is particularly relevant to students following courses with vocational aspects such as GNVQs or Applied Science courses.
- **Schools and colleges** see the events as a stimulating and different way to show their students the role of chemistry in the world beyond school.
- **Organisations** are able to forge closer links with the local community and are given the opportunity of improving the general perception of chemistry and of their organisation (both locally and nationally).
- **Presenters** are able to develop their communication skills and often gain new perspectives on their own work through describing it to others.

- **Venues** have the opportunity to show their facilities to a large number of local students and teachers.
- **Organisers** such as STEM organisations or EBPs may find that organising an event helps to fulfill their own aims such as linking the worlds of education and local business.

Future events

Ideally the RSC would like to see events being established on a regular basis. This need not be too daunting a prospect as experience shows that most presenters are willing to participate again and the organisational work gets easier with each subsequent event.

The role of the Royal Society of Chemistry

A *Chemistry at Work* event should be advertised as a joint venture between the organiser, the host institution and the RSC. The RSC may provide some financial support to help run the event and also employs a National Coordinator who is responsible for the overall planning of the UK programme of events. Local planning is in the hands of the local organiser.

Funding

Funding of up to £800 per day (up to a maximum of £2400), payable after the event has taken place, is available from the RSC Science, Education and Skills Department when required (conditions apply). RSC Local Sections may also be willing to contribute separately and in addition. In exceptional cases, consideration can be given to providing some funds prior to the event.

Funding is intended to help cover:

- postage / telephone costs
- hire of venue
- photocopying, secretarial expenses, expenses for meetings.
- the cost of producing the event booklets
- the organiser's time
- the cost of a reception (if applicable).

RSC funding is not available for teacher cover or transport to and from schools.

Some organisers 'sub-contract' much of the administrative work to a local EBP who may charge for their time at an appropriate rate. Experience has shown that events can be run successfully within the RSC budget. However, some organisers supplement this funding by raising additional funds locally - either in cash or in kind - (eg a company may offer its photocopying facilities or agree to produce the event booklet). A number of events have attracted matched funding from a variety of sources. Organisers are encouraged to explore the possibilities locally.

RSC support is given on the condition that the event is advertised as a joint event of the RSC and the host institution(s) so that the RSC logo (available from Joanne O'Meara 01223 432221, seiadmin@rsc.org) is displayed on letters and other advertising material and is also displayed on signs (provided by RSC) at the event. In addition, 2011-12 Chemistry at Work events are also funded in part by an unrestricted grant from the Wolfson Foundation, which allows us to expand the number of events we can support. To fulfil the requirements of the Wolfson Foundation their logo must also be displayed on the front of your event booklet. Both the RSC and Wolfson logo will be sent to you by Joanne O'Meara in the SEIadmin team.

Events for secondary schools must be labelled 'Chemistry at Work'. If another heading is to be used at a primary school event this must be discussed in advance with a National Coordinator but the event must still be subtitled 'Chemistry at Work'. Presentations should have some link to a chemistry-based theme (the National Coordinator can often help presenters tease out the chemistry in their presentations). Except for these requirements the 'flavour' of an individual event lies very much with the Local Organiser.

Please note that the sums referred to above are the maximum that can be allocated for a particular event. Some events clearly need more or less financial support than others. For example, events may take place in science specialist schools which may have already received enhanced school funding and other resources for their outreach activities. RSC is happy to support such events in a number of ways (see below) other than purely financial if appropriate.

The National Coordinator

The National Coordinator is available to advise and assist local organisers in a number of ways.

- Putting organisers in touch with the network of RSC Local Sections, some of which have organised events in the past.
- Making suggestions about possible presenters.

- Providing colour leaflets outlining *Chemistry at Work* to send to potential participants from industry and education.
- Organising training sessions for presenters to assist them in making effective presentations to students.
- Providing information packs for teachers attending events, containing a variety of materials produced by the RSC.
- Providing RSC pens for students attending the event, and location signs to help set up the event.
- Providing a list of RSC representatives, who exist in most workplaces that employ chemists.
- Providing potential organisers with a CD showing past *Chemistry at Work* events and / or arranging for those interested to visit another event.
- Visiting local organisers to talk them through planning a viable event, including offering advice on suitability of venues and presentations.

The four essentials

Experience shows that to be successful, a *Chemistry at Work* event needs four essentials.

1. A committed local organisation

This may be an individual or a group. However, even if working as a team, it helps to have one person taking overall responsibility for the coordination of arrangements including acting as the contact person for outside bodies. It is very helpful if the organiser has good contacts with local industry and education and can draw together teachers, science advisers, industrial representatives and people from the host venue. Where an organiser, such as an EBP, has worked closely and collaboratively with an RSC Local Section the event is usually particularly successful.

2. A suitable venue

An ideal venue will have:

- either a large number of rooms or one large hall which can be partitioned
- laboratory facilities if possible, as this widens the scope of possible presentations (although many successful events have taken place in ordinary rooms with no special facilities)
- rooms which are relatively close together so that visiting students can move quickly from one presentation to the next in rotation
- technician support (if possible)
- catering facilities
- good access and parking for presenters and for coaches bringing students to the event.

Universities, colleges of further education and sixth form colleges are often willing to provide a venue free or at a nominal charge because this allows them to promote themselves to potential students.

Venues in the past have included schools, colleges, universities, hotels, town halls, conference centres, cruise terminals, HMS Warrior, museums and even a disused supermarket and a community fire station.

3. Contacts with local organisations

RSC Local Sections and EBPs will usually have a number of contacts. It is important to think creatively about which local organisations may be suitable presenters (see Approaching possible presenters, page 11) even where chemistry is not their main business. The National Coordinator can provide contact details of RSC representatives who exist in all workplaces where there are five or more RSC members.

4. Contacts with local schools

Schools can be contacted via the Local Authority, possibly through their science adviser.

The local organiser

The local organiser deals with all local arrangements. Tasks include:

- liaising with local organisations
- securing a venue
- liaising with schools and Local Authorities
- publicity
- catering
- timetabling and smooth-running of the event
- preparation of the event booklet
- responsibility for implementation of Health and Safety procedures

If possible, it is useful to have one or more practising school teachers involved to give advice to companies and others as to the suitability of presentations. These may be active members of the RSC's Local Section or people known personally to the local organiser. They could also be involved in preparing and editing the event booklet which is given to students.

Other people who should be kept informed of arrangements, are:

- the RSC's *Chemistry at Work* National Coordinator
- the RSC Local Section Secretary
- the Local Authority science adviser.

It is useful for the local organiser to keep the National Coordinator informed of progress with the organisation of their event. This can be done informally by phone or email. Experience suggests that this can often help to pre-empt last minute problems.

Setting a date

Events can take place over one to three days. In particular, organisers of new events may consider a one-day event if organising *Chemistry at Work* for the first time. We suggest that events be run from Tuesday to Thursday inclusive. This means that Monday is available, if required, for presenters to set up their presentations and for organisers to attend to last-minute tasks, such as putting up posters and directions, and Friday is available for clearing up. Booking of the venue should be made with the host institution as early as possible.

It is important to liaise closely with local teachers when setting the dates for the event. Dates towards the end of the school summer term are popular. This is especially so if the venue is a tertiary college, as examinations are over, the students are on vacation and local schools' timetables are often more flexible at this time of year. Other popular times are March and November, however, events have been run successfully in every month of the year. It is important to ensure that chosen dates do not clash with schools' 'project weeks', work experience plans or GCSE module examinations.

Please contact the *Chemistry at Work* National Coordinator before finalising any dates. The coordinator can then ensure that there is a spread of dates for different events around the country, which facilitates participation by national companies.

Most companies will need about three or four months notice (although arrangements made too far ahead can be forgotten). As soon as the dates are fixed, initial approaches should be made to possible presenters.

Approaching possible presenters

Local organisations are the most likely to participate and are more likely to be interesting to students. Personal contacts through RSC members, RSC workplace representatives, Local Section representatives and via an EBP are important in identifying the right person to approach in an organisation. If no personal contact is available, it is worth making an approach via a company's Education Liaison Manager. Failing this, the publicity or marketing department of a big company may be able to help. As a last resort, the switchboard operator may be able to suggest who to start with.

It is a good idea to make telephone contact with the potential presenter first, then follow up with a more formal approach in writing. Colour leaflets explaining *Chemistry at Work* are available from the National Coordinator and these could be sent to prospective presenters with an introductory letter (see Appendix 2).

It is helpful to think flexibly about possible presenters and spread the net more widely than just the traditional chemical industry. This may be particularly important where a location does not have a large local chemical industry. Some examples of successful presenters include:

- local fire brigades
- local police / forensic science department / scenes of crime officers
- the armed forces
- Suppliers of school science equipment
- brewers
- paper mills
- textile companies
- oil companies
- dairy producers
- dry-cleaners
- pharmacists
- manufacturers and bottlers of soft drinks
- food processing companies
- healthcare and beauty products manufacturers
- hairdressers / stylists
- hospitals
- university chemistry departments
- sweet manufacturers
- water companies
- environment agencies.

It is important that presenters, particularly those who have not been involved with schools before, feel that they can get support when needed. Notes on giving presentations to young people are available from www.rsc.org/caw. The National Coordinator can also give a short training session for presenters at a suitable venue to give advice on giving presentations to students, and we strongly encourage local organisers to take up this offer. If presenters are unavailable for training then the National Organiser can deliver advice and support remotely via phone and email.

Some thoughts on the presentations

- Eight to ten presentations is the optimum number.
- The overall programme should be as balanced as possible, illustrating a range of chemical principles and applications.
- Presentations should involve chemistry that is easily understood by students and is appropriate to their level of science understanding. An interactive or 'hands on' approach is preferable to requiring students just to listen.
- Presenters are presenting role-models to the students. Young people who know what they are talking about will usually get a good response from the students. Girls should be given the opportunity to see women chemists who enjoy their work. Areas that have a large proportion of students from ethnic minorities could try to reflect this in their presenters.

Briefing the presenters

It is important to hold a briefing session for the presenters before the event. This could be done collectively at the proposed venue and could be combined with a training session for presenters. The presenters could then also be shown around the venue and special requirements, such as gas or water supply or blackout facilities, discussed with them. Extracts from the *Chemistry at Work* CD could also be shown to give presenters a clear idea of what the event will be like.

Keep in frequent touch with presenters so that progress with the presentations can be monitored and problems sorted out promptly.

Points for presenters to consider

1. All presenters must make sure that their equipment is safe in the conditions in which it will be used. Forms are available which must be completed by presenters who intend to do anything potentially hazardous. These must be returned to the National Coordinator three weeks before the event (see p15 and Appendix 11).
2. Presenters should bear in mind that although *Chemistry at Work* events are good opportunities for organisations as far as publicity and public relations are concerned, they are not recruitment campaigns.

The presentations

Local organisers must bear in mind that presenters may have little or no experience of presenting scientific material to young people. It is unlikely that they will be familiar with modern classroom practices or the extent of the chemistry which the students will already understand.

The local organiser should try to help presenters to overcome these problems. The following are useful starting points when briefing presenters.

Planning presentations

Most presentations should last about 20 minutes. In this time the presenter should:

- briefly describe the chemical principle involved
- explain and demonstrate equipment or an experiment
- encourage participation by the students
- allow time for a few questions.

If possible, it is useful to have more than one presenter who can either share the presentation or take it in turns. It can be very tiring for one person to give the same talk several times a day for up to three days.

The students attending will normally be aged 14-16 (although some events are designed for younger age groups and this must, of course, be taken into account). They will be studying science, including chemistry, but may not understand complicated technical words or jargon. They will also not be familiar with units and abbreviations which are non-metric, and 'benzene rings' or skeletal formulae, for example, will be meaningless to any student under 17.

In general, students respond better to short sentences and everyday words. As soon as they lose a grasp of what is being said, they tend to lose interest.

Students generally do not ask for something to be clarified as they probably assume that the fact that they do not understand is a reflection of their own ability rather than a fault in the presentation. Similarly, only the most confident students answer questions in front of their classmates in this sort of situation. Some may feel that they will lose face if they answer incorrectly. If a student does get an answer wrong, it is important to be positive about their contribution, otherwise it is likely that none of the others will try to answer the next question.

Background displays enhance the presentations, but they should not contain lots of detailed text. Photographs and diagrams with a few words of explanation have more impact.

Students do not always tell you if they cannot see something you are pointing out on a screen. Presenters should ensure that it is possible to actually see visual aids from all parts of the room and check that they themselves are not obscuring the students' vision.

The presentations should be visual where possible and actively involve the students. Using volunteers from the group to help with an experiment or demonstration works particularly well. In 20 minutes or so there is only really time to tackle one or two chemical principles and no time to teach unfamiliar concepts or treat any topic in great depth. Timing is important to the running of the overall event. It is a good idea for presenters to have an additional five-minute activity in hand in case a presentation goes particularly quickly leaving an awkward silence. On the other hand, it is important that presentations do not over-run as this has a knock-on effect on the whole event.

Organising a training meeting for presenters will allow these ideas to be highlighted.

If possible, organisers could put presenters in touch with a local school teacher willing to advise on the proposed content of their presentation. Alternatively the National Coordinator can advise presenters about the suitability of proposed content.

Contacting presenters about one week before the event to confirm that there are no problems is very important.

Students with special needs

Increasingly, students with special needs are being accommodated in mainstream schools and it is therefore likely that one or more such students will attend a typical *Chemistry at Work* event, sometimes accompanied by a Learning Support teacher. 'Special needs' covers a wide spectrum – visual impairment, hearing impairment, autism, dyslexia, physical disability *etc.*

We would encourage local organisers, when inviting schools to *Chemistry at Work*, to ask if any students with special needs will be attending the event and, if this is the case, to collect as much information as possible about their needs and how they can best be catered for. There is clearly a limit to what is possible, but often small changes, to lighting or seating, for example, can help make a presentation significantly more accessible. If appropriate, it may be worth informing the presenters about any students with special needs.

Since 'special needs' does cover such a wide spectrum, it is difficult to give specific advice and it is probably best to rely on information from the school and / or support teacher. Some presentations may be more or less suitable for students with particular needs, and timetabling might be able to take this into account.

Sending a copy of the event booklet to schools beforehand would allow support teachers the chance to do preparatory work with their student(s).

Some useful websites that give advice are:

www.rnid.org.uk (for hearing impairment)

www.rnib.org.uk (for visual impairment)

Safety

It is extremely important that the presentations which the students see are safe. If a presentation is not in a laboratory, it may still be possible to do practical chemistry, but thought is needed about what and how. Groups and / or individuals taking part in the demonstrations must wear eye protection. Schools could be asked to bring this with them. Please remember that many non-scientists will be visiting the presentations and photographs may be taken by the press. We do not want students apparently unprotected or exposed to any sort of risk by the RSC or the host institution.

Risk assessments, Health and Safety and Insurance at *Chemistry at Work* events

The health and safety of everyone involved with *Chemistry at Work* events is, of course, paramount. To the best of our knowledge there has never been a reported incident / accident at a *Chemistry at Work* event in almost 15 years and after many hundreds of events, and we obviously wish this to remain the case.

RSC continually reviews and updates (when appropriate) its guidelines for Health and Safety and these form a legal requirement for all RSC events as well as being required for RSC insurance cover to be in place.

The guidelines are described in Appendix 11; the notes that follow are designed to help organisers interpret them for *Chemistry at Work* events and to make them as easy as possible to apply.

The methodology identifies three broad types of event or activity, with discernibly different levels of risk. This is called 'risk banding'.

Once scheduled, each event or activity should be allocated an initial risk banding, *ie* green, blue or red.

Green. Once an event is banded 'green', no further risk assessment is required. Allocating / banding 'green' is the entire risk assessment. The 'green guidance' simply provides prompting to good practice which should be followed for all events

Blue is likely to be most applicable to *Chemistry at Work* venues. How might your event impact on a hitherto safe venue? Examples might include bringing in electrical hazards, creating trip hazards, blocking fire exits *etc*. It is very much a tick box / checklist type of assessment which organisers should fill in (or get filled in) to be kept until after the event. The action required and filling in of the form should take no more than a few minutes. There is no need to send the form to RSC. After an event, the form would only be of interest if an incident had occurred and it was necessary to review how the precautions taken had failed to appropriately prevent this. The blue form also prompts the need for liaison between the various parties involved in the event.

Many *Chemistry at Work* presentations will need no more action than the blue form being filled in for the event as a whole.

Red forms apply to individual activities, *eg* presentations / demonstrations (not the event as a whole) where any potentially hazardous activity is to be carried out. If this is considered to be the case for a particular presentation, the presenter should be sent a copy of the red form to be filled in and returned indicating the nature of the hazard, what control measures will be taken, and how these measures will reduce the risk to an acceptable level, *eg* ensuring the audience is kept at an appropriate safe distance *etc*. The form must then be returned to the National Coordinator three weeks before the event. **If this is not done, the event cannot go ahead as an RSC-supported event.**

Copies of these forms can be found in Appendix 11. Electronic versions of the form are also available at:

http://www.rsc.org/images/Risk%20Assessment%20form_tcm18-20155.pdf

and further supplies are obtainable from the National Coordinator.

It is important to emphasize that we are trying to identify and control significant risk rather than spending time on trivial or hypothetical risk. Individual competency / judgement should be used to distinguish between the two. A red form would not be required for a talk or a slide presentation, for example.

For spectacular demonstrations involving explosions, or liquid nitrogen, for example, filling in a red form would be required. However, for such activities the demonstrator will almost certainly have previously completed a risk assessment (and be confident of his / her ability to carry out the experiment safely). In this sort of case their existing risk assessment could, in many cases, simply be attached to the red form or may just need amending slightly, say, to take into account the differences relating to a new venue. We do not wish to promote constant 're-invention of the wheel' or unnecessary form-filling. Most people working in the chemical industry will be familiar with risk assessments and may well be surprised if they are *not* asked for them.

This should lead to a relatively small number of presenters who will actually have to fill in the form from scratch. If organisers require help in deciding which presentations require a red form or presenters require assistance in filling in a red form, the National Coordinator should be consulted. They will be able to get authoritative advice and model risk assessments from CLEAPSS (The Consortium of Local Authorities for the Provision of Science Services). Those presenters who do need to fill in a red form should be encouraged to retain a copy for future events to save time later.

The table below gives some examples of activities that would require a red form. It is for the guidance of Local Organisers and cannot be definitive because a risk assessment includes aspects relating to the venue, the presenter *etc.* However we hope it will help organisers decide.

Red form required
Exploding balloons of hydrogen
Chip pan fire demonstration
Liquid nitrogen demonstration
Making 'slime' from borax
Making 'bath bombs'

Finally, please be aware that we wish to encourage practical, interesting and spectacular activities at *Chemistry at Work* events both demonstrations by presenters and hands-on work by students wherever possible. That is the best way of making chemistry appealing and attracting more people into chemistry. This can only be sustained longer-term by risk managing pro-actively and in the manner we describe above.

The event booklet

Every student attending a *Chemistry at Work* event is given a copy of a booklet containing a description of each presentation and explaining in more detail the chemical principles and the materials covered. Each presenter is asked to produce the text for his or her presentation (usually less than one A4 page). The booklet may also contain brief explanations of other areas of chemistry with which the presenters are involved and may give a brief outline of the background (educational and previous employment) of the presenters and the work that they now do. Students, who are often very uncertain of future careers, find this information of particular interest. The students take away the booklets which can subsequently be used as a teaching resource in schools.

Problems with the booklet sometimes arise because of the need to obtain draft material from the presenters well in advance of the event. If any significant amount of editing is done, then the edited version should be approved by the presenters before printing. Local organisers should set a deadline for submission of material by the presenters and try and make sure it is adhered to. Sample copies of booklets from previous events are available from the National Coordinator.

Points to bear in mind

1. Organisers are free to design and produce their own booklet. An A5 format is easy for the students to carry about at the event.
2. Individual booklet entries may include:
 - an account of the chemical principles used in the industry, perhaps with diagrams and pictures
 - questions or some activity for the students to do after the event
 - information about how the presenters came to have the jobs that they do.
3. If possible, it is useful to ask a local teacher to have a look at the materials submitted by the presenters, to ensure that language levels are suitable and that there are no technical terms, abbreviations or units that will confuse the students.
4. Time and cost permitting, it is a good idea to send a copy of the booklet to the teachers who will be accompanying each group 3-4 weeks before the event. This enables teachers to spend some lesson time on new concepts beforehand, so that maximum benefit can be derived from the event itself.
5. The cover of the booklet should include the RSC and Wolfson logos as well as those of other partners (the organiser's institution, host institution *etc* and presenters' organisations if possible). Appendix 3 gives the text of a suitable introduction to the booklet.
6. In some cases the Local Organiser has put this information onto a CD. A copy of the CD is then given to the teacher for later use within the school.

Invitations and publicity

The RSC provides national coverage for all *Chemistry at Work* events in its own and other publications and on its website, www.rsc.org/caw

School publicity

The RSC logo must be included on all letters and documents relating to *Chemistry at Work* along with logos of other relevant organisations such as an EBP, the venue *etc.* RSC logos are available from Joanne O'Meara (sejadmin@rsc.org) in a variety of electronic formats. A new logo was introduced in 2005. Old style logos should not be used.

Preliminary notices of the event should be sent to local schools about four to five months in advance (see Appendix 1). These could incorporate a tear off slip for replies / bookings and might include:

- a short description of the format of a *Chemistry at Work* event and its aims
- emphasis on the local aspects of the event
- a draft list of presenters, as known at the time of printing
- clear information about the dates, times and venue
- a contact name, address and phone number to whom replies and enquiries should be sent
- information about the size of groups and the fact that each group must be accompanied by a teacher
- a closing date by which reservations should be made (say six weeks before the event)
- a copy of the colour *Chemistry at Work* leaflet could also be included (available from the National Coordinator).

After the closing date, schools can be allocated places and confirmation sent out to the teachers. Some 3-4 weeks prior to the event, teachers should be sent a copy of the booklet (if ready) together with site maps (perhaps with a URL for 'multimap' for the location, see <http://www.multimap.com>), final programme / timetable, and travel and parking instructions. It is useful to emphasise in this information the nature and format of *Chemistry at Work* and ask teachers to prepare students for this by explaining what will happen at the event.

With a new event, it may be necessary to plan for a second, follow-up, notice to be sent to schools if there are places still available after the initial response. Some events start with an initial circulation of information to schools within a small radius of the venue and then increase the radius for the second mailing if required. If time allows, a telephone call to the teacher in charge of chemistry might be helpful. Email is an effective way of contacting busy teachers.

If the event is oversubscribed, consider asking if any schools are prepared to be on 'standby' ie prepared to take places at short notice if one or more schools drops out. These standby schools may well be invited to attend if a school drops out following the confirmation letter sent by organisers (see Appendix 10) one week before the event.

Media publicity

It is likely that up to 1000 students and around 50 teachers will attend an event over a three-day period. Local companies will be involved and a large tertiary or secondary institution will often be acting as the host venue. As an example of successful cooperation between local industry and education, we believe that a *Chemistry at Work* event warrants maximum publicity.

It is a good idea for the local organiser to contact local TV, radio and press well ahead of time and give them information about the nature and aims of the event, the dates and times and some information about who will be attending. The host institution may well have a press officer who may be able to help with publicity. Invitations to attend should also be sent to media representatives, together with the name and phone number of the local organiser. Remind the local media about a fortnight before the event that the event is definitely on and encourage some coverage.

Appendix 6 is an example of a press release produced for a *Chemistry at Work* event in Aberdeen and could be used as a model.

Support packs

Before a secondary school event, organisers will receive a pack of materials. This will include:

- 'RSC Chemistry at Work' laminated signs to help signpost and 'badge' the event. These have the dual purpose of indicating directions, rooms used by the event *etc* and showing that the event is supported by the RSC. We would ask organisers to use them for the second purpose even if they are not required for the first.
- RSC T-shirts for the organiser and some helpers (limited numbers to a maximum of 6).
- RSC badged pens for students.
- Packs of information for teachers attending Chemistry at Work. Careers material will be included in the pack of materials for teachers and there will be instructions for teachers on how to get extra copies of this material if they require it.

A member of staff from RSC SEI admin department will contact you 3-4 weeks before your event. If you do not hear from them you should contact Maria Pack (packm@rsc.org). You will need to provide delivery address, numbers of schools and numbers of students attending the event. If you do not receive the material 2 weeks before the event please contact seiadmin@rsc.org to confirm delivery or telephone Joanne O'Meara on 01223 432221.

The layout of the event

There are several possible layouts which could be used - from one big hall to a number of separate rooms. However, it is useful to take into account the following points when arranging the event and planning its layout.

- The area for the event as a whole should be as compact as possible.
- If you decide to have more than one presentation in each room or if you are using a big hall, it will probably be necessary to put up partitions between presentations to avoid distractions.
- Care must be taken to ensure that presentations involving large or heavy equipment are sited near access points or lifts.
- It is helpful to have an assembly / reception area for early arrivals, preferably with some interesting displays to look at.
- Rooms should be allocated as refreshment areas for presenters and possibly for students.
- Ideally, some form of timing mechanism such as a buzzer or bell which can be heard throughout the presentation area is needed. One system that seems to work well is to give a '2 minutes to go' warning followed by a 'move to the next presentation' signal. This allows presenters to wind up their presentation and finish answering questions if necessary.
- Direction signs should be clearly displayed so that groups can easily find each presentation. Signs outside should give directions for unloading and parking. Suitable signs can be obtained from the National Coordinator.
- Large room notices outside each presentation should give the name of the presentation, the room number and perhaps the relevant booklet page number.
- Toilets should be easily accessible and well sign-posted. If at all possible, suitable facilities (such as access and toilets) should be provided for students with special needs.
- First-aid facilities must be available and should be checked by the local organiser prior to the event.
- Fire precautions should be observed and a procedure established. This should be communicated to all presenters, teachers, guides and other staff, preferably in written notes.

It is important to check your insurance position (see p22).

Arrangements for the day

The Presenters

1. Organisers should provide a comfortable rest room for the presenters close to the event, so that they have somewhere to go during their timetabled breaks. It should have tea- and coffee-making facilities, soft drinks *etc.*
2. Organisers should ensure that all presenters are aware of the need to stick rigidly to the time allotted to each presentation.
3. Timetables for the event should give presenters information about:
 - the names of the participating schools and their teacher
 - the number of students in the group
 - the average age of the students in the group.
4. The names and locations of any support staff, such as technicians, should be provided so that help can be summoned quickly in the event of problems.
5. Instructions should be given for the reception and loading / unloading of equipment. Copies of maps should be supplied for drivers, together with names and telephone numbers of people involved such as porters and receptionists.
6. Instructions as to what to do in case of fire must be given to all presenters.
7. Remember that the team on a particular presentation may change during the course of the event. Local organisers should take time to ensure that 'new' presenters are fully briefed on all the above points.

Catering

The local organiser needs to make lunch arrangements for presenters. This could vary from a canteen lunch (if available) to the provision of sandwiches. Some presenters like to make their own arrangements and go off site to a local pub or cafe for lunch.

The budget provided by the RSC allows for refreshments and meals to be provided for those presenters who cannot claim expenses from their own companies. If presenters are going to be using facilities provided by the host institution, then this should be arranged in advance and the procedure for reimbursing presenters should be established.

Students may have a timetabled break during their morning or afternoon at the event. Some institutions may provide refreshments free of charge, others may have snacks and drinks available for sale through their catering facilities. If possible, refreshments should be available for students even if only *via* vending machines.

Guides

Guides to lead groups from one presentation to the next can be extremely useful, particularly if the venue has a complex layout. These guides could be staff, technicians or students who are familiar with the organisation and layout of the event. They should each have a copy of the timetable and plan of locations.

A brief meeting before the event should ensure that guides know the procedure in case of fire or other emergency.

Insurance

With any event it is important to actively promote maximum co-operation and liaison amongst the parties involved - in this case, the school, the venue, the presenters and RSC. It is appropriate that we make certain insurance assumptions regarding our events and the various parties involved.

Schools - It is acceptable to assume that all schools carry appropriate insurance regarding the pupils' and teachers' / supervisors' attendance at *Chemistry at Work* events. It is likely that they will carry out their own risk assessment covering attendance at the event. We should provide them with as much information as they need to appropriately undertake that assessment.

Venues – Where we book a reputable venue, it is acceptable to assume that they hold appropriate and necessary insurance to operate in that way.

Presenters - This may be the area of biggest insurance doubt. The extent of a presenter's own insurance (normally through their employing organisation) should be confirmed as suitable prior to their being asked to participate.

RSC insurance

The RSC insurance will cover all activities which are deemed to be within its normal 'business remit'. Clearly, *Chemistry at Work* and similar programmes form part of that business.

However, it is a pre-requisite that we actively manage all our events in order that significant risk is identified and appropriately and reasonably controlled. The RSC has a 'Procedure for Risk Management of Events Organised by Local Sections or other Groups of the RSC' which provides detailed guidance on how this can be achieved. This procedure should be used in respect of all events/presentations/demonstrations. **Failure to adhere to this procedure could invalidate the relevant RSC insurance cover.** This procedure is described on p15 and in Appendix 11.

Timetabling

Each school group normally spends one half-day at the event. Actual times can be varied to fit in with school timetables and the travelling distances involved, but the times are typically 9:45 am - 12:30 pm and 1:00 pm - 3:30 pm. During their visit, each group should see around six presentations.

Rest periods for the presenters and breaks for the students should be timetabled around the middle of each half-day session if possible. Each presenter and school group should be given a copy of the relevant half-day timetable.

It is important to have some contingency plan to allow for the late arrival of a group or a last minute cancellation from a school or presenter (see p27, *Coping with emergencies* on the day). Schools that are unable to be allocated places may be willing to come in at short notice if there is a late cancellation.

School groups should be asked to arrive 10 or 15 minutes before the start of the first session as this enables all groups to start together and on time. Some events include an initial lecture / talk at the start of each session and this can be a useful 'buffer' as latecomers can miss this and go straight to the first presentation. Some events have a spectacular finale at which all the students are present.

A suggested timetable

This is a possible scheme for a half-day composed of seven 20-minute sessions for an event with 10 presentations and 10 school groups (A-J). Breaks for presenters and schools are during sessions 3-5 but 4-6 would also be suitable. If catering facilities cannot cope with so many students having a break at one time, then breaks can be spread over more sessions.

Session number	Presentation number										Break	Break
	1	2	3	4	5	6	7	8	9	10	Student group	Presenter
1	A	B	C	D	E	F	G	H	I	J	None	None
2	J	A	B	C	D	E	F	G	H	I	None	None
3	I	J	A	-	C	D	-	F	G	-	B, E, H	4, 7, 10
4	H	-	-	A	B	-	D	E	-	G	I, J, C, F	2, 3, 6, 9
5	-	H	I	J	-	B	C	-	E	F	G, A, D	1,5, 8
6	F	G	H	I	J	A	B	C	D	E	None	None
7	E	F	G	H	I	J	A	B	C	D	None	None

Each presenter sees six school groups and has one break. Each school group sees six presentations and has one break. If you choose not to timetable breaks, the sessions could be arranged so that groups see seven presentations. With a 5-minute 'change-over' time between each, this is 2 hours 25 minutes. Many organisers have found this to be very successful, as it is flexible enough to allow a presentation to finish a minute or two late, without disrupting everyone else.

Countdown checklist

These timeframes are for guidance only and may, of course, be varied, particularly by those with prior experience of organising *Chemistry at Work* events.

Time ahead	Presenters	Schools	Other
6 months +	Initial approach to local organisations	Contact LA re schools in local area	Check use of host institution. Make room bookings.
6-4 months	Confirm presenters will attend	Introductory letter	
3 months	Deadline for material for Event booklet Send risk assessment red forms to presenters		Complete the blue risk assessment form for the venue
2 months			Booklet edited
6 weeks	Presenters visit to check arrangements & briefing meeting (combine with presenters' training if appropriate). Remind presenters to check insurance cover. Check that red risk assessment forms have been returned and forward these to the National Coordinator	Final notice to schools. Timetable drawn up. Bookings & guides confirmed. Remind schools to check insurance cover.	Double check room bookings. Booklet printed. Remind venue to check insurance cover.
4 weeks		Single copy of event booklet to teachers.	Notices to media. Tour for guides.
2 weeks		Final information about parking <i>etc</i>	Refreshment arrangements confirmed. Media reminded.
Day before	Setting up		
The Event			
Day After	Dismantling of equipment		
Shortly After	Thank you letter to presenters and an invitation to next year's event!		

Feedback and evaluation

We would strongly encourage all organisers to evaluate the success of their event. Sample questionnaires for this are found in Appendices 7 and 8. You may wish to customize these to make them as appropriate as possible for your audience.

We also ask for a short evaluation proforma to be filled in and returned to Maria Pack (packm@rsc.org). The proforma is shown below. We stress that this is only to evaluate the *Chemistry at Work* programme as a whole and not to compare one event with another.

Location

Date

Organiser

Name of school	School type	Number of students	Number of teachers	Contact name and email of lead teacher

Please complete one of these forms for each day of each event.

Chemistry at Work website

There is a section of the RSC website dedicated to *Chemistry at Work*. The URL for this site is www.rsc.org/caw.

The site contains:

- a calendar of forthcoming events and events that have taken place in the current year as well as reports of recent events
- the Handbook for organisers, downloadable as Word or pdf files, updated as necessary
- the *Chemistry at Work* Quickstart guide – an overview of organising a *Chemistry at Work* event for first timers, downloadable as Word or pdf files
- introduction to *Chemistry at Work*, notes on giving presentations to young people
- notes for presenters - a guide to *Chemistry at Work* and tips for giving presentations for young people. These are available in different versions tailored to primary and secondary age groups.
- tips for organisers.
- contact details for RSC Local Sections are available at <http://www.rsc.org/Membership/Networking/LocalSections/index.asp>

Coping with emergencies on the day

Even the best-prepared events hit unexpected problems on the day. Indeed an event with no hitches at all is extremely rare. Two examples are given below.

What happens if a school does not turn up?

It is best to try to prevent this by contacting schools a few days before the event to make sure that all is well and that they know the start time and the need to be there on time. If a school pulls out with some notice you may have a reserve school that may be able to attend.

When a school fails to arrive on the day this causes problems. To avoid upsetting presenters (who may find that they have given up work time but then do nothing) it may be possible to split groups into smaller numbers. Do beware though of the need to have a teacher with each group of students at all times. An alternative is to rearrange the timetable for the day giving each presenter some 'non-contact time' (they may like to visit other presentations in this time).

What happens if a presenter does not turn up?

It is essential to have a back-up plan to cover this eventuality.

It may be possible to merge groups of students but this may lead to mixing groups from different schools with consequent problems for supervisory teachers.

It may be possible to build flexibility into the programme in advance, giving free time to presenters; this free time could then be removed to cover a missing presenter.

Child Protection Act

People who work regularly with children may be required to apply for appropriate clearance. Further details may be found at

<http://www.governornet.co.uk/publishArticle.cfm?contentid=410&topicAreald=28&pageStart=1&sortOrder=title&searchWhere=all&searchString=Child%20protection%20act>

and

www.disclosure.gov.uk

A Science and Engineering Ambassadors (SEAS) scheme is in existence and details are available from

<http://www.stemnet.org.uk>

This may be of interest to presenters who intend to work with children on a regular basis.

We have authoritative advice that presenters at *Chemistry at Work* events do not need clearance since:

- there is no regular contact with children
- children at *Chemistry at Work* events will be supervised at all times by their teachers.

However, we would offer the following common-sense advice to all presenters:

- avoid physical contact with students
- avoid being alone with students
- avoid over-familiar language with students
- do not give out personal contact details to students (eg business cards). (If students request more information about a presentation then this should be passed on *via* the teacher.)

Taking images of students at events

Many organisers wish to take photographs of presentations at their event for publicity purposes. These may include students who are at the presentations. In the case of the latter it is important that organisers check that they have permission to use these images.

We suggest the use of the following phrase in the introductory letter to schools (Appendix 1): 'Photographs of students may be taken at *Chemistry at Work* events and used for a variety of purposes in both print and web forms. Please let me know if you do *not* wish photos to be used in this way.'

Taking images that only include the backs of students is usually acceptable.

Students should not be identified by name under any circumstances without express permission.

Appendices

The text of this booklet (including the appendices) is available for download in Word or pdf format from www.rsc.org/caw. The sample letters *etc* may be copied and customised.

(1) Example introductory letter to schools

This should be addressed to the teacher in charge of chemistry [name if known].

Dear Colleague [or name]

Chemistry at Work

I am writing to invite you to bring a group or groups of students of [age group] to a *Chemistry at Work* event to be held on [date] at [venue].

The principal aim of *Chemistry at Work* is to show the many ways that the chemistry which students are studying at school is used in the real world. The events provide school students with the chance to see representatives of local companies and other organisations explaining how they use chemistry in their work. The enclosed leaflet provides more information about *Chemistry at Work* events.

At the event, your students will have an opportunity to:

- see and meet people who use chemistry in their work
- see how the chemistry they learn in school is put into practice by a variety of organizations
- be shown the importance of chemistry and science to our society.

How the event is set up

- A number of organisations will give presentations about how they use chemistry in their work.
- Groups of 15-20 students and their teacher will spend about 20 minutes at each presentation.
- Each group will spend half a day at the event and see about six presentations.
- The presentations will be appropriate for the [age group of students] and, where possible, will involve active participation by some or all of the students, eg helping with an experiment, recording results, or answering questions.
- Companies will be encouraged to include employees at a variety of levels, eg post-GCSE or GNVQ entry, post-A level entry and graduate entry.
- Students will be given booklets containing short descriptions of each presentation and the chemical principles demonstrated.

Please note:

1. We are unable to accommodate unaccompanied groups, therefore, each group of 15-20 students **must** be supervised by a teacher.
2. There is no admission fee to the event. However, schools are responsible for organising their own transport to and from the venue.
3. These events are highly structured and necessitate careful timetabling, therefore it is very important that schools arrive in good time for the start of the visit and are able to stay until the end. For the same reasons, notice of at least two weeks is necessary for alterations to, or cancellation of, bookings. **Demand for places is always high so we advise that you book early.**
4. Schools and / or Local Education Authorities will normally have in place insurance to cover pupils on educational visits out of school. This should cover a visit to a *Chemistry at Work* event. However you are recommended to check that appropriate cover is in place.

Photography

Photographs of students may be taken at *Chemistry at Work* events and used for a variety of purposes in both print and web forms. Students will not be identified by name without express permission. Please let me know if you do *not* wish photos to be used in this way.

Students with special needs

Please let me know if any students with special needs (eg visual impairment, hearing impairment, autism, dyslexia, physical disability) will be attending the *Chemistry at Work* event. For any such students please give as much information as possible about their needs so that as much as is reasonably possible can be done to take account of these needs.

For bookings and enquiries relating to this event please contact the local organiser:

[Contact details of local organiser]

Yours sincerely

.....

INSERT TEAR OFF REPLY SLIP FOR BOOKINGS ETC

(2) Example introductory letter for organisations

This should be addressed to a named contact where possible. Refer to earlier phone contact if appropriate.

Dear [name of contact]

Chemistry at Work

We would like to invite your organisation to participate in a *Chemistry at Work* event to be held on [date] at [venue].

The Royal Society of Chemistry has been sponsoring *Chemistry at Work* events since 1991. Our aim is to show young people the part that chemistry plays in their everyday lives. By doing this, we hope to highlight the positive aspects of chemistry as a rewarding and wealth-creating activity that is central to our way of life. We hope that the events help students to understand the importance of chemistry to our society and perhaps encourage them to consider chemistry as a career. The enclosed leaflet provides more information about *Chemistry at Work* events.

A number of organisations are invited to participate in each *Chemistry at Work* event by putting on a presentation illustrating the use of chemistry in their particular workplace. By taking part, your company will have the opportunity to:

- present itself directly to local students and teachers
- show a positive image of chemistry generally
- demonstrate how chemistry can be put into practice
- meet young people keen to enter a career in chemistry
- positively influence those who have not yet decided on a career path
- give your own staff an opportunity to learn new communication skills thereby promoting staff development.

How the event works

- Groups of about 15-20 students and their teacher spend about 20 minutes at each presentation.
- Over the course of a typical three-day event each presentation is visited by up to 1000 students and 50 teachers.
- Where possible, presentations involve some active participation by the students eg helping with an experiment, recording results and answering questions.
- More than one presenter from the company is normally needed. Young presenters usually get a good response, although, above all, it is important that the presenters chosen are practising scientists who are enthusiastic about their work. We particularly encourage young presenters, female presenters and those from ethnic minorities, who are often under-represented.
- To help companies choose a suitable topic and to make sure it is pitched at the correct level, the local organiser may be able to arrange for presenters to meet local teachers and others for advice. The Royal Society of Chemistry also runs half-day training workshops for participants wishing to improve their presentation skills. RSC certificates of participation in these training workshops are available.
- Companies taking part contribute a short description of their presentation for the event booklet which students are given and which is often used as a teaching resource in school.

If you would like to discuss taking part in this *Chemistry at Work* event please contact:

[Name and contact details of local organiser]

For more general enquiries about *Chemistry at Work* please contact the RSC's National Coordinator:

Dr Maria Pack
RSC *Chemistry at Work* National Coordinator

Email packm@rsc.org or chemistryatwork@rsc.org

(3) Introduction to event booklet

This *Chemistry at Work* event is one of a number which are being held throughout the UK this year. *Chemistry at Work* aims to introduce school students to their local chemical industry and to demonstrate how the chemistry which they are learning at school is used by a variety of people in their work. The presenters represent a wide range of companies and other organisations. Through interactive presentations they explain applications of chemistry in an easily understandable way.

To students

This is no ordinary event; you will visit a number of presentations and at each you will see a short talk or demonstration. You will be given a chance to ask questions and presenters may sometimes ask for volunteers to help with the demonstrations or experiments. The event should give you lots of ideas and examples of how chemistry is used in everyday life. We hope that as well as learning some chemistry you will get some ideas for possible careers in chemistry and science in general. Chemistry is an important subject and is vital for many careers, for both boys and girls. You can choose to start a career in chemistry after GCSE (Scottish Standard Grade), AS, A2 or GNVQs (Scottish Higher) or after a degree.

To teachers

Advancing the chemical sciences – A leading international organisation with more than 47,000 members, the Royal Society of Chemistry (RSC) is at the heart of a worldwide network of over 300,000 scientists.

Our activities focus on addressing the key issues facing society today, such as providing a clean, sustainable environment, enhancing the quality of people's lives and increasing prosperity.

Inspiring the next generation – The RSC is dedicated to advancing the chemical sciences and committed to securing a vibrant and sustainable science base. Good teaching inspires students and can spark a life-long interest in the chemical sciences. We provide the widest range of quality classroom resources and support for both teachers and students.

Activities for students

- **ChemNet** – a network for post-16 Chemistry students
- **Support with choosing university courses**
- **Chemistry at Work** – experience chemistry in the world of work
- **Prizes and competitions**

Activities for teachers

- **Practical Chemistry** – high-quality experiments and demonstrations
- **Labskills** – carry out pre-work ahead of practical classes
- **Chemistry for Non-Specialists** – specialist training programme for those teaching secondary Chemistry
- **Prizes and awards** – recognising and rewarding excellence

For details of these and many other activities organised by the RSC or for careers information, please contact:

Education Department
The Royal Society of Chemistry
Thomas Graham House
Milton Road, Science Park, Cambridge CB4 0WF

Tel: 01223 432251
Fax: 01223 432133
Email: education@rsc.org
Website: www.rsc.org/education

(4) Acknowledgements page for the event booklet

This event was jointly organised and sponsored by The Royal Society of Chemistry and **[name of host institution/venue/other relevant organisation(s)]**.

We are grateful for the support of the following organisations without whom we would not have been able to organise this *Chemistry at Work* event.

[List of Participating Organisations]

(5) A typical *Chemistry at Work* programme

List of Presentations

1. Lilly Industries Limited
What is chromatography?
2. The Army
Testing fuels in the field
3. United Kingdom Atomic Energy Authority
Solvent extraction
4. SmithKline Beecham Pharmaceuticals
Purification techniques in chemistry
5. Hamiltons Dry Cleaners
The chemistry of dry cleaning
6. Metropolitan Police Forensic Science Laboratory
Chemistry and crime
7. Esso Petroleum
Diesel fuel quality and performance and the role of chemical additives
8. The Wellcome Foundation Limited
Scaling up safety without big bangs and blunders - controlling chemical reactions

Appendices (6) – (8) are samples of material produced by organisers of previous *Chemistry at Work* events. Please feel free to adapt them as required. Our thanks go to the authors of the material.

(6) Sample press release

**For immediate release
Monday June 14th 1999**

Chemistry works!

School students from all over Grampian will be taking part in *Chemistry at Work* at Aberdeen University from 16th-18th June 1999. The event shows how the chemistry studied at school is put into use in the real, everyday world and is organised by SATRO North Scotland on behalf of the Royal Society of Chemistry and hosted by the Chemistry Department of the University of Aberdeen.

School pupils will see and meet industrialists and people who use chemistry in their work and take part in demonstrations. Presentations vary from a look at how chemicals are used to put out fires (Grampian Fire Brigade), their importance in the manufacture of paper (International Paper UK) to their value in water treatment (North of Scotland Water Authority). Eight different organisations are taking part.

Event organiser, xxx of SATRO North Scotland said 'This is an excellent idea, showing pupils the relevance of what they are studying at school and demonstrating the wide range of job opportunities in the chemical and pharmaceutical industries'.

Notes to Editors

For further information contact xxxxxxxx at SATRO North Scotland. Tel: xxxxxxxx or Fax: xxxxxxxxxxxx
Email: xxxxxxxxxxxx

This event is organised by SATRO North Scotland on behalf of the Royal Society of Chemistry and follows a highly successful pilot event held last summer. The Royal Society of Chemistry has been sponsoring such events since 1991 at venues all around the UK. *Chemistry at Work* is intended to show the positive image of chemistry as a rewarding and wealth-creating activity which is central to our way of life.

The event is aimed at 14-16 olds. Local schools taking part include.....

Demonstrations for the event will be provided by the following organisations: BP Amoco, Nalco/Exxon Energy Chemicals, TR Oil Services Ltd, Grampian Fire Brigade, International Paper (UK) Ltd...etc

The event runs from Wednesday 16th June to Friday 18th June 9.30am-3.30pm on the first floor of the Meston Building, University of Aberdeen. Photo opportunities available by arrangement.

(7) Chemistry at Work – teachers' survey

Name:..... School:.....

[Some organisers may prefer responses to be anonymous.]

Year class of pupils accompanied to event (please circle) S3 S4 S5 S6

1. What presentations did your pupils visit and how did you rate them? – rating of 5 (well presented) to 1 (poorly presented).

Display

	5	4	<u>3</u>	2	1
A. Rowett Research Institute <i>Model Diets</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. University of Aberdeen – <i>How Things Break</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. International Paper – <i>Strength of Paper</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. NOSWA – <i>Chemistry in Water Treatment</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. BP Amoco – <i>A North Sea Health Check</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F. Grampian Fire Brigade – <i>Fighting Fires</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G. University of Aberdeen – <i>Technician Skills</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
H. RGU – <i>Colourful Chemistry</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Very much Not at all

2. Of what benefit was *Chemistry at Work* to your pupils?
3. How much do you think the pupils enjoyed it?
4. Do you think the presentations were pitched at the right level?
5. Were the presentations relevant to the curriculum?
6. Were the arrangements for attending the event efficiently organised?
7. What aspects of chemistry were missing, and in your opinion, should be included next year if possible?
8. Was the time of year suitable? YES/NO

If no, what time of year would be preferable?

9. Any other comments? Are there any improvements/changes you would suggest for a future event?

Please hand in your questionnaire before you leave or post to SATRO North Scotland....etc

(8) Chemistry at Work – students' survey

Name:..... School:.....

[Some organisers may prefer responses to be anonymous.]

1. What presentations did you visit and how did you rate them? – rating of 5 (very enjoyable) to 1 (didn't enjoy at all)

Display

	<u>Enjoyment Rating</u>				
	Very much 5	4	3	2	Not at all 1
A. Rowett Research Institute – <i>Model Diets</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. University of Aberdeen – <i>How Things Break</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. International Paper – <i>Strength of Paper</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. NOSWA – <i>Chemistry in Water Treatment</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. BP Amoco – <i>A North Sea Health Check</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F. Grampian Fire Brigade – <i>Fighting Fires</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G. University of Aberdeen – <i>Technician Skills</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
H. RGU – <i>Colourful Chemistry</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- | | A lot
1 | 2 | 3 | 4 | Not much
5 |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 2. Did you learn anything new about chemistry? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

3. Would you have liked more time at *Chemistry at Work*?

Yes No Just right

4. Any other comments ? Are there any improvements/changes you would suggest for a future event?

(9) Sample Guidance Notes for Presenters

Chemistry at Work 18, 19, 20 May 1999

Outline Guidance for Presenters

Dates:	Set Up: Monday 17 May 1999 Event: Tuesday 18 May – Thursday 20 May 1999 Pack up: Thursday pm or Friday 21 May 1999
Venue:	Anglia Polytechnic University, David Building, East Road, Cambridge
Cost:	There will be no charge to companies taking part. We are, however, grateful for sponsorship which may be cash or in kind and could be targeted to, say, the brochure printing or reception catering.
Audience:	14-15 year old students. It is anticipated that about 1200 students will take part.
Presentations:	A 20-minute presentation to show chemistry being used in the workplace. Presentations should be appropriate to the age and experience of the audience (they will be six months into GCSE courses but assume that they know little chemistry), visually exciting and, if possible, interactive. The presentation will be repeated 12 times in a day (see Visit structure below).
Facilities:	<p>We will provide tea, coffee and lunch subsidy for presenters. (Most adjourn to the 'Tram Depot' opposite). Presentations will be sited in lecture rooms and labs. Presenters can expect the use of normal services and audiovisual support associated with a chemistry faculty. Since we are using laboratory space all pupils ought to wear safety specs. It would be helpful if you could provide (and take away with you at the end) 25 pairs. We will have a small supply of extra ones. We have been promised support from the resident technicians.</p> <p>We would ask that requests for specific requirements are negotiated with xxx, Principal Technician. Please ask and we will do our best to provide.</p>
Visit structure:	Pupils will be divided into groups of 15-25 and will visit for half a day. Typically a school may send two or three groups. A group will visit six presentations.
Insurance:	The RSC has in place insurance to cover the event but you are recommended to check the terms of your own organisation's cover.
Publicity/publications:	<p>The organisers will generate press releases. Companies are also encouraged to use their own media resources and, of course, as many handouts as they may wish to give visitors during the day. There will be a VIP reception on Wednesday evening.</p> <p>Each child will receive a booklet outlining each presentation and providing some background information for use back at school.</p> <p>Please do not hesitate to contact xxx at Mid Anglia SATRO if you need help. Tel..... Fax.....Email.....</p>

(10) Sample confirmation letter from organisers to schools

This should be addressed to the teacher in charge of chemistry [name if known].

Dear Colleague [or name]

Chemistry at Work

I am writing to confirm that we can offer place for xxx students from year(s) xx to attend a *Chemistry at Work* event at _____ on _____.

We are looking forward to welcoming your students to the event.

We will assume that the number of students stated above is the actual number that will attend on the day. Please let us know immediately if the number changes or if you are unable to attend, so that place can be made available to other schools.

A map is enclosed (**and / or URL to multimap page**).

When you and your students arrive please [**insert parking and drop off arrangements**].

The event is carefully timetabled and it vital that your party arrives on time.

Can we remind you that to comply with the Child Protection Act each group of students must be accompanied by a teacher at all times.

As some of the presentations may include experiments, please bring with you eye protection for each student. If protective clothing is required it will be provided at the event.

[**Contact details of organiser**]

CC Headteacher

(11) Health and safety

Royal Society of Chemistry Procedure for Risk Management of Events Organised by Local Sections or Other Groups of the RSC

This document describes a methodology for applying risk management to events organised by Local Sections, the Subject Groups & Sectors, Regions and any other member group of the RSC. Not only is it a **strict legal requirement** to effectively manage the risks created by such events, but it is necessary for the profession to demonstrate that it applies the highest standards of professionalism to all its endeavours, and in so doing, meets its **duty of care** towards anyone who may be affected by its activities.

The methodology recognises that some events are inherently more hazardous than others, and applies a first-stage assessment on the basis of the type of event. The risk management methodology subsequently applied is based on this first-stage assessment. This type of approach is known as *Risk Banding*.

The methodology identifies three broad types of event, with discernibly different levels of risk, and specifies risk management activities accordingly. The bands and processes are summarised below:

	Red Events	Blue Events	Green Events	
Red	Blue	Green	<ul style="list-style-type: none"> Outings to public places of interest Social outings, such as to restaurants, dog racing <i>etc.</i> Supervised factory or other workplace visits 	No further formal risk assessment procedures need to be applied. Follow Green Guidance. No requirement for record keeping.
Red	Blue		<ul style="list-style-type: none"> Lectures (whether or not open to the general public), open days <i>etc.</i> not involving hazardous substances or agents Public or Society meetings 	No detailed formal risk assessment procedures need to be applied. Follow Green Guidance and use Blue Event form to ensure all risk issues are considered. Keep copy of form as record.
Red			<ul style="list-style-type: none"> Lectures involving demonstrations where hazardous substances or agents are used Open days, science days <i>etc.</i> where hazardous substances or agents are used Any event involving explosions or deflagrations of any kind 	A specific risk assessment for the most hazardous elements of the event needs to be produced. This may need to be a collaborative effort between the organiser, demonstrator/presenter, venue management and other parties involved. Use the Red Risk Assessment forms to determine appropriate controls. In addition, Green Guidance and the Blue Event form should also be used. A copy of the Red Assessment must be submitted to Pauline Meakins at the RSC, at least two weeks in advance of the event.

Green Guidance – Good Practice for all events

Events designated as 'Green' are those which could be classified as 'everyday' events, or to put it another way, events or activities that someone might attend in their private life, such as visits to restaurants, public places, public shows (not organised by the RSC) or supervised factory visits (where the risk management aspects are entirely taken on by the host).

Clearly for this type of activity, detailed risk management is not required by the organiser. However, the following points may be relevant during the planning of the event or activity. These points are not necessarily health & safety issues, but may help contribute to a successful event.

- **Access for the disabled.** If there are any disabled people in the group, check on the nature of their disability, and ensure that access and other facilities will be suitable.
- **Coach hire.** Use a coach company that is reputable and has modern vehicles. In particular, make sure that the vehicles are fitted with seat belts for all passengers. Coaches with toilets and air conditioning are widely available, and facilities such as these can make outings & visits much more pleasant, particularly for the older folk.
- **Dietary requirements.** If the event involves food & catering, try to use venues and suppliers that can cater for people with specific requirements, such as vegetarians or those with specific allergies or food intolerances. If necessary, compile a list of such requirements and notify the caterers in advance. Some people with allergies and intolerances may wish to speak to the caterers directly, in which case make sure that the contact details are available.
- **Do your research.** Use venues that come recommended by others, where possible, and check to see that they are appropriate to your group. For example, a group of aged scientists may not appreciate a visit that involves lots of walking, few lavatories and nowhere for a cup of tea.
- **Domestic arrangement briefings.** Make sure that the group is briefed on the domestic arrangements, such as fire procedures, any special medical arrangements required, locations of facilities *etc.*
- **Get feedback.** After an event, ask people to let you know what they thought of the venue and other aspects of the day, so you can take account of any issues in future.

Blue Event – Planning the event, checking the venue

Event:	Date:
Action	Comments
<i>N.B. Any event has the potential to create hazards in a hitherto safe venue. For example, blocking a fire exit, trailing cables, bringing in unsafe electrical equipment</i>	
Planning an event	
Co-ordinate with the venue management, the presenter and any other relevant parties. The primary responsibility is on the person in control of the premises, but there is a legal obligation to co-ordinate and co-operate with them. Therefore at least discuss with them: <ul style="list-style-type: none"> • the nature of your event, • and any special controls or arrangements necessary, such as ventilation, additional types of fire extinguisher, or use of non-venue electrical equipment, • Emergency arrangements 	
If it will be necessary to move heavy equipment, check that appropriate equipment, such as a trolley, is available, or that able helpers, trained in lifting, will be present.	
On the day of the event <i>Carry out an inspection which includes the following:</i>	
Check for trip hazards caused by leads or other equipment. Move equipment or use cable walkovers or tape	
Ensure that fire exits are unlocked and unobstructed, and that exit routes have no obstructions. Make sure fire doors are not held open (unless by design)	
Check that all electrical equipment is in good condition and working order. Carry out a visual condition check, and look for inspection & test labels where appropriate	
Check that all equipment is located safely; away from edges or where it may get knocked, and on purpose-made stands where appropriate	
Check that the room arrangement allows safe access and egress	
Check fire extinguishers are present, which are appropriate for the type of fire hazard present	
During the event	
Make attendees aware of emergency exit routes and procedures, including muster points	

Use this form as a checklist, and to make a record of your actions (with additional notes if appropriate). Keep this as your records. Only send a copy to the RSC if it has been completed in connection with a Red Event

Red Assessment – A closer look at the more hazardous aspects

Forwarded to RSC (date):

Signed (organiser):

Demonstration/Activity Risk Assessment Pro-forma	
Event:	Date:
Venue/host:	Organiser & Section:
Presenter/demonstrator:	Composition of audience (& estimate of number):
Description of demonstration/activity:	
Hazard 1. Description of hazard (chemicals, activity and harm):	Control measures (other than 'minimum requirements' shown below):
Who could be harmed? (presenter, audience, both, other – specify)	
Hazard 2. Description of hazard (chemicals, activity and harm):	Control measures (other than 'minimum requirements' shown below):
Who could be harmed? (presenter, audience, both, other – specify)	
Minimum safety requirements for demonstrations/activities	
<ul style="list-style-type: none"> • Minimum quantities of hazardous substances used and present at the demonstration/activity • Maximum dilutions (minimum strength) of substances • Appropriate PPE (personal protective equipment) to be worn by presenter and assistants, to include, in all cases: <ul style="list-style-type: none"> ○ Laboratory coat ○ Eye protection ○ gloves and other PPE as necessary, such as dust, fume masks 	<ul style="list-style-type: none"> • PPE to be in good condition and of the correct specification for the hazard, appropriately CE marked • Appropriate fire extinguishing equipment, according to the materials present (over and above the equipment provided by the venue), including fire blankets. • Adequate ventilation, whether local or general • Adequate hygiene facilities are present/available • Appropriate inhibitors/neutralisers present & available (inc. eyewash bottles if necessary) • Warn attendees of any impending bangs, flashes or stroboscopic effects
Signed (demonstrator/presenter)	
<i>A presentation may consist of several demonstrations – the demonstrator/presenter must complete an assessment for each. Continue on further sheets as necessary</i>	