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**Safety in Secondary Science KS3 & KS4**

**Risk Assessments in Secondary Science**

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**See also:**

* CLEAPSS *Laboratory handbook – Chapter 2.2.2: Risk assessments* (pages 211 – 213)
* CLEAPSS *Guide G77: Science for secondary-aged pupils with special educational needs*
* CLEAPSS *Guide L196: Managing risk assessment in science*
* CLEAPSS *Guide G238: Health and safety induction and training of science teachers*
* CLEAPSS *Guide PS 009: Science class sizes, laboratory sizes and possible effects on safety*
* CLEAPSS *Guide PS 090: Making and recording risk assessment in school science*
* CLEAPSS *Student safety sheets*
* CLEAPSS *Hazcards including emergency Hazcards*

**Risk assessment**

It is the legal responsibility of all science teachers and technicians to take every reasonable precaution to ensure the safety of themselves, pupils and colleagues. This involves identifying hazards and the risks they may present.

A hazard is something with the potential to cause harm. A risk is the likelihood of a hazard causing harm in practice.   
Risk assessment is a matter of professional judgement which will be informed by any guidance or advice offered by the employer and any guidance or advice offered by the scheme of work from which the teacher is working.

Teachers and technicians should not overlook general risks such as trailing leads, lifting heavy objects or reaching for objects on high shelves. The majority of incidents in schools arise from situations such as these.

**Risk assessment – exposing pupils to hazards**

Before exposing pupils to any hazards teachers must use

their professional judgement to ensure that:

* work involving hazards is sufficiently necessary to justify the risks involved
* risks have been recognised, assessed and minimised by careful experimental design. Such an assessment will involve consideration of:

– expertise of the science teacher

– size of the space in which pupils are working – facilities provided

– number of pupils involved (see CLEAPSS *Laboratory handbook*, page 209, and CLEAPSS *Guide PS 009*)

– nature of the activity

– nature of any physical, emotional or behavioural needs of pupils

* pupils understand the risks and have been given clear instructions about proper procedures
* pupils are aware of the appropriate action to take in the event of an emergency
* appropriate protective measures have been employed, eg: the wearing of personal protective equipment, such as safety goggles, gloves, aprons, etc, use of fume cupboard or safety screens.

Science departments have a responsibility to help pupils develop their awareness of hazards, the risk they might present and sensible ways to minimise that risk. This can be achieved by sharing the risk assessment process with pupils. As well as being good practice, the development of risk assessment skills is a requirement of many Key Stage 4 qualification specifications.

Where risks are significant, the conclusions drawn and control measures must be recorded. This is most efficiently done within the scheme of work which teachers use to plan their work. They may also be incorporated on worksheets and shown on lesson plans.

**Risk assessment – exposing teachers and technicians to hazards**

Before exposing themselves or colleagues to any hazards, teachers and technicians must use their professional judgement to ensure that:

* work involving hazards is sufficiently necessary to justify the risks involved
* risks have been recognised, assessed and minimised by careful planning. Such an assessment will involve consideration of:

– expertise of the science teacher or technician

– size of the space in which the teacher or technician is working

– facilities provided

– nature of the activity

* they understand the risks and have been given appropriate training in the correct procedures
* they are aware of the appropriate action to take in the event of an emergency
* regular (at least annually) training for teachers and other staff who work in science laboratories in immediate response measures (see CLEAPSS Emergency Hazcards)
* appropriate protective measures have been employed, eg: the wearing of safety goggles or gloves, use of fume cupboard or safety screens.

Where risks are significant, the conclusions drawn and control measures must be recorded. It may be appropriate to do so in the scheme of work. But where the risk assessment is for a procedure used by a technician or teacher away from pupils, it may be more appropriate to record this in a separate document.

**CLEAPSS and COSHH**

Hazardous substances are specifically legislated by COSHH (Control of substances hazardous to health) Regulations. In order to be compliant, schools need to conduct a risk assessment when using any hazardous substance.   
  
**Following CLEAPSS guidance on risk assessments will ensure that schools are compliant with COSHH**. It is important that schools can demonstrate that they act on CLEAPSS guidance.

Secondary science departments should keep an up-to-date record of their chemical stock, and a copy of this should be kept by the school’s health and safety officer, and by the site manager.

**Guidelines for a policy**



**Safety in science at Key Stages 3 and 4 June 2012**

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**See also:**

* CLEAPSS *Guide G223: Model science health and safety policy*
* CLEAPSS *Guide PS 058: Open evenings.*

Schools must have a health and safety policy within which the science department must operate to ensure the safety of all pupils, staff (including ancillaries such as cleaners) and visitors.

In order to ensure that every member of a science department has the same understanding of safety, it is recommended that the school policy should be complemented by a department-specific policy. It is also recommended that the policy should be reviewed during the Summer Term, and discussed at the first departmental meeting in each academic year.

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| **See also:**   * CLEAPSS *Laboratory handbook – Section 3* * CLEAPSS *Laboratory handbook – Section 8* * CLEAPSS *Guide PS 014: Laboratory furniture and fittings: suppliers and manufacturers* * CLEAPSS *Guide PS 082: Using laboratories for non-science activities* * *Building Bulletin 80*, DfES 2004 revision |

**Use of laboratories**

**Safety in science is promoted where there is:**

* safe use of laboratories
* a suitable layout of laboratories, preparation rooms and storage
* appropriate facilities.

Whilst the deployment of support staff, including teaching assistants and higher-level teaching assistants, is a matter for individual schools, they must not be left to supervise practical work.

Staff, other than qualified science teachers who are required to supervise or teach in laboratories, must be made aware of hazards and risks within a laboratory.

Where laboratories have to be used as tutor bases it must be recognised that the environment is potentially hazardous and a risk assessment should consider how and by whom:

* pupils will be supervised
* laboratory rules will be applied
* gas and electricity will be isolated
* any supervisor will be made aware of hazards.

**Before using the room for activities that are hazardous, consideration must be given to the:**

* size of the space
* facilities available
* number of pupils involved
* nature of activity and potential risks

nature of any physical, emotional or behavioural needs of the pupils

**Code of practice for pupils**

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| **See also:**   * CLEAPSS *Guide L223: Model health and safety policy for science departments.* |

Pupils must be made aware of all general rules on the first occasion that they use a laboratory and reminded of them at frequent intervals. Pupils who are late admissions to the school must be given individual instruction.

Teachers must make pupils aware of any special rules that apply to a particular procedure where there is some risk. This should normally take place at the start of such lessons.

A list of general rules, together with any rules special to the procedure, must be clearly displayed in every laboratory.

Set out below are some aspects which should be included when a department is drawing up its own general rules for pupils, taken from CLEAPSS *Guide L223*.

**Laboratory rules**

The biggest danger in the laboratory is ***you!*** You are at risk when you do not understand the hazards or you are careless, or both. The person most likely to suffer from your mistakes is ***you!*** Report any accident or breakage to your teacher.

**1** Only enter a laboratory when told to do so by a teacher. Never rush about or throw things in the laboratory. Keep your bench and floor area clean, with bags and coats well out of the way.

**2** Follow instructions precisely, check bottle labels carefully and keep tops on bottles except when pouring liquids from them, only touch or use equipment and materials when told to do so by a teacher, never remove anything from the laboratory without permission.

**3** Wear personal protective equipment, such as goggles, gloves, aprons, etc., when told to do so and keep it on from the very start until all practical work is finished and cleared away.

**4** When using naked flames (e.g.: Bunsen or spirit burners or candles), make sure that ties, hair, baggy clothing, etc., are tied back or tucked away.

**5** Always stand up when working with hazardous substances or when heating things so you can quickly move out of the way if you need to.

**6** Never taste anything or put anything in your mouth in the laboratory. If you get something in your mouth, spit it out at once and wash your mouth out with lots of water. Tell your teacher.

**7** Always wash your hands carefully after handling chemicals, microbes or animal and plant material.

**8** If you are burnt or a chemical splashes on your skin, wash the affected part at once with lots of water. Tell your teacher.

**9** Never put waste solids in the sink. Put them in the bin unless your teacher instructs you otherwise.

**10** Wipe up all small spills and report bigger ones to your teacher.