

Earlscliffe (Sussex Summer Schools Ltd)

SAFETY IN THE SCIENCE DEPARTMENT

This document is to be kept in the Science Preparation Room, readily available for staff consultation. It should be reviewed every year.

Introduction

The School ("The Employer") has an up-to-date Health and Safety Policy of which a **copy** is kept in the Preparation Room. This policy document complements that policy and should be read in conjunction with it.

General Aims

It is the duty of ALL members of the Science staff to take reasonable care for themselves and their students, and to be aware of the cause and effects of their actions or omissions in the laboratory to be familiar with this safety policy and that of the School to look out for any revisions or disseminate any changes of which they become aware.

Responsibilities

TF overall responsibility for Health and Safety.

In the Science Department overall responsibility lies with the lead teacher (RG).

He delegates relevant supervision to the teacher of Physics (GD), apart from those aspects that are wholly applicable to Biology or Chemistry.

Responsibility for identifying INSET needs, for ensuring that these and other safety issues are raised at departmental meetings, and that there is written communication of amendments to all Science staff and the technician, is the responsibility of the lead teacher, also ensuring that policy revisions are made every year.

The Laboratory Safety Rules

These are summarised on the door of the lab. The laboratory is a much safer place to work if students follow this code. Before the lesson starts you must:

Never go into a Science laboratory without permission.

Always walk into the laboratory and never run or push anyone

During the lesson you must:

Always know exactly what you are doing. If not, ask your teacher.

Always wear safety goggles/glasses when told to do so.

Always wear a lab coat when told to do so.

Always tie back long hair

Always put your bag under the table or bench.

When working with liquids always stand and put your stool under the table. You can then move quickly out of the way if there is a spill.

Always report an accident or breakage immediately. If you spill anything on yourself, immediately wash with water and call for your teacher's help. Report any burns or cuts which occur.

Never put anything including sweets, fingers and pencils, in your mouth. Do not eat, drink or chew.

Never interfere with equipment

Never make up your own experiments.

Never put glass or solids down the sink.

At the end of the lesson:

Always wash your hands after an experiment

Rinse glassware prior to stacking

Do not leave thermometers in the sink or washing up bowls

Always wipe the tables and sink areas if they are wet. Always leave the laboratory clean and tidy.

In addition to the Safety Code students also learn the correct names and location of apparatus within the laboratory. We encourage students to use the correct names of apparatus when talking to staff and peers.

Major Components of Safety

The effective management of safety for a school science department can be seen as having six major components:

1 Risk assessment and planning

Risk assessment and planning before a lesson

Risk assessment and its role.

2 Organisation of routines during and between lessons to include:

the use of goggles, protective clothing, etc.

reporting breakages and dealing with sharp objects and broken glass

reporting accidents.

location of safety equipment

3 Specific Hazards

Safe disposal of chemical waste

Safe disposal of broken glass

Animals and plants

Radioactive sources

4 Control, to include:

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Where to find safety information e.g. COSHH file, risk assessments & CLEAPSS Hazards etc.

Regular safety checks.

5 Schedules and Checklists

For lead teacher

Other teaching members of staff

Any technicians.

6 Monitor and Review

Including procedures for reporting hazards/suspected hazards and those for reviewing risk assessments and safety in general.

Risk assessment and planning before a lesson

Every activity is assessed for risk, including carrying trays of equipment and pushing trolleys. We attempt to balance the desire to eliminate risk with the need to maintain practical work e.g. we may demonstrate an experiment in order to reduce the level of risk to students - however, we would normally do as much class practical work as is possible.

Before a lesson starts Staff should:

Have carried out a risk assessment

Have completed/filed a practical sheet for the experiment where appropriate and completed an apparatus request order for the lab technician (see below).

Have (where appropriate) included any hazard warnings - using the correct hazsymbols - on the worksheet to be given to the students. This should include any other hazards specific to this practical or to the use of the chemicals/apparatus in general. NOTE: this does not absolve the teacher responsible from also issuing a verbal warning to the students regarding specific hazards.

Have ordered any safety equipment.

Know when to use a fume cupboard and have arranged a room swap beforehand if the assessment deemed this to be necessary.

Ordering equipment, with an eye to safety

A Science Department "Practical Requirements Order" should contain the following information:

Experiment Title: Topic:

Apparatus Quantity

Chemicals Quantity COSHH/Safety Notes

Additional Notes/Apparatus set up etc.

Risk Assessment and its Role

Risk assessment is a process that has several components:
identify hazards.

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Look at cause and effect

Examine methods of work

Investigate the safety literature for advice - relevant Hazards are provided by the Technician as indicated on the practical requirement order.

Remove hazards where possible

Estimate any costs incurred in changing practice and obtain or request relevant funding.

Implement new practices.

Review the changes - risk better or worse?

Personal Protection Equipment (PPE)

The school will provide any and all PPE required by students and staff. Teachers are responsible for ordering equipment and ensuring it is kept in good order.

PPE is the last line of protection and should not be regarded as a means to lower other safety procedures.

Any PPE provided must be used as instructed by the manufacturer and students must follow instructions given by the teacher.

Any faulty equipment must be repaired or disposed of immediately and should not be left in the Laboratory.

As part of each experiment's risk assessment a judgment must be made of what PPE is required. If the PPE is not available then the experiment must not take place until such time as the equipment is available.

Emergency procedures

Fire

In case of emergency staff should already:

Be familiar with evacuation procedures in case of fire or other emergency. Pupils should always be evacuated unless the fire is very small. Gas taps should be turned off and windows are closed.

Know the location of, and how to use, fire fighting equipment.

Staff should know the labelling, use of and location of the fire blankets, the dry-powder extinguishers and the carbon dioxide extinguishers, as well as the water extinguishers (also when not to use the latter, e.g. for electrical fires and for certain chemicals).

Injury

Staff should be aware of remedial measures to be carried out while awaiting First-Aiders.

Reporting procedures as per school accident policy should be carried out for ALL accidents involving injury

(i.e., filling in the Accidents Book in the School Office & also in the Prep. Room.)

Spillages

Know how to use the spillage kits used in the department, such as: Chemical Spillage, microbiological spillage.

For Mercury spillages: use the Mercury collector.

In addition: staff should know the location and identity of the School Health Officer (CB) and know how to use a laboratory eyewash bottle.

Emergency contacts/telephone numbers

There is a telephone situated in the adjacent office for emergency use:
(Dial 9 for outside line).

Emergency Type Body Telephone Number/Person

Serious Accident Ambulance 999

FirstAid School Sisters, SR,

First Aider

Safety Officer [TF: 07803 935385]

Chemical Spill School Science Service 01895 251496

SSERC 01316684421

Victoria Hospital/Walk-in Centre, Folkestone

Suspected damage to clothing

Fill in Science Incidents Book in Prep. Room and tell TF, plus House Manager (boarders) or parents (day).

Organisation of Routines

Students are not allowed to enter the prep room under any circumstances.

Students are not allowed to enter or to work in a science laboratory unless actively supervised.

All doors to be kept locked when not in use.

Students and staff are not to eat or drink in a science laboratory.

Glasses/goggles should generally be worn when using a Bunsen burner, using chemicals or when handling wire, rubber bands or springs.

Lab coats must be worn when students use chemicals.

Gas must be switched off at the mains at the end of the day - the location of mains taps is clearly indicated in each laboratory.

Experiments are not to be left running unless given permission by the lead teacher or teacher of Physics.

Movement of chemicals and/or apparatus should be kept to a minimum and no student should transfer chemicals.

No student may remove apparatus or chemicals from a laboratory.

Smoking is specifically prohibited at any time in the laboratories and prep room.

Teachers must maintain adequate levels of discipline and supervision to ensure safety within the laboratory.

Laboratories may be used as Tutor rooms for Sixth Form classes in the understanding

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that the students do not interfere with any of the apparatus, visual aids, etc. Any infringement of this is to be treated as a serious disciplinary measure.

Specific Hazards

Safe disposal of chemical waste

Many chemicals commonly used in schools can usually be disposed of by washing down the sink well diluted with large quantities of water. If in doubt consult the lead teacher. Metal powders necessitate special care.

Small quantities of volatile liquids are collected and burned or evaporated off during the School holidays. Toxic substances should be avoided where possible, as for one thing it is expensive to have outside firms come to remove them for disposal.

Reference should be made to TOPICS OF SAFETY, Chapter 13 (COSHH Regulations) which makes it clear what chemicals we are allowed to put into the drain, in a very diluted form. See also CLEAPSS laboratory handbook.

Safe disposal of broken glass

There is a broken glass container in the laboratory.

Animals and plants

Section 14 of the CLEAPSS Laboratory Handbook covers all aspects of work with living material in schools. This advice will be followed. Any queries should be referred to the lead teacher, who also deals with Fieldwork Safety Guidelines.

Regarding pupils' blood- and cheek-cell sampling, being aware of the Department of Education's strong advice against this, reference should always be made to the lead teacher before any such sampling is envisaged. (the school accepts the advice on blood sampling but, following the advice of The Institute of Biology, considers that cheek-cell samples may be taken with a cotton-bud or similar where sterile procedure can be ensured.)

Staff should be sensitive to the feelings of our students in the dissection of offal and its safe disposal. Disposable gloves, dissection boards/trays, disinfectant spray and absorbent paper must be used for dissection work.

Radioactive sources

The employer's Radiation Protection Supervisor is GD.

The local rules for the use of ionising radiations are kept in the prep room.

The closed radioactive sources are to be kept in a locked lead lined box in the prep room.

Details of these and other sources are to be kept on file, clearly labelled, in the prep room.

Control

Where to find information

The COSHH Regulations 1988. These require employers to provide:

RISK ASSESSMENTS before use of substances considered as hazardous health. The use of the following sources is recommended: TOPICS IN SAFETY; especially chapters 7 and 8 for chemicals, and chapter 5 for microorganisms.

The School's "Health and Safety Policy".

Animals and Plants in School: "Legal Aspects" (DES. 1989).

DES. booklet 'Microbiology: An HMI. Guide for schools and Non-advanced Further Education'.

CLEAPSS Laboratory Handbook

stored in the Prep room.

Hazcards - listing chemical hazards.

The full set is stored in the Prep room.

Regular safety checks:

Electrical equipment is regularly monitored by teaching staff. In addition the whole stock of electrical equipment is checked and PAT Tested as arranged by TF (carried out March 2013).

The Department has a **microwave oven** for preparing small amounts of microbiological media.

Chemicals kept in storage are inspected annually for signs of deterioration and container corrosion.

Maintenance of **fire fighting equipment** is regularly carried out by TF (Impact Safety, Dover).

Maintenance and cleaning of Staff **Laboratory coats, visors, safety screens**. These are cleaned and disinfected, as necessary by the science staff,

Safety Glasses are inspected and cleaned as necessary by the staff.

Maintenance and use of a **refrigerator** - the contents of a refrigerator should be regularly inspected (monthly). At no time are food and drink for human consumption to be stored in such a science fridge.

The fume cupboard is checked annually by a firm organised by the lead teacher (April 2013).

NB In order to facilitate the regular maintenance of the fume cupboard the Test Report is kept by the lead teacher on the Prep room shelf with the safety files.

Student teachers and new teaching staff are to be given an induction programme that includes training in safety procedures, with new Science staff being trained on the use of new equipment, by the lead teacher.

Our **system of storage** is based around:

Our usual non-flammables are kept on the chemical shelves in the Prep room in an alphabetical arrangement.

Chemical bottles are clearly labelled with name of the chemical and any necessary hazard symbols.

Flammable chemicals are stored in a special secure storage cupboard outside of the laboratories.

Poisonous chemicals are stored in a special "poisons" locked cupboard in the Prep room.

The very few specific hazardous chemicals are stored, clearly labelled, in the prep room. Acids are stored in the prep room, clearly labelled.

Bench solutions are stored as above.

Radioactive sources are stored in a locked, labelled chest in the Prep Room and the documents referring to purchase, use and checks must be kept in a separate place in the lab.

The prep room door must be clearly labelled with all relevant warning symbols and signage.

Schedules and Checklists

Lead teacher

Must monitor and implement the aims, regulations, schedules and checklists of the safety policy.

Raise safety issues in departmental meetings.

Check storage of chemicals has been safely organised according to directions in "Safety in Science Laboratories" and "Topics in Safety". In particular must annually check and report in writing to TF that the chemical stores comply with the recommendations in these booklets, and that the stock of chemicals is in a safe condition.

Physics teacher must check radioactive sealed sources for leakage at least every two years, and report to lead teacher.

Teaching Members of Staff

Daily

Must implement the aims, regulations, schedules and checklists of the safety policy.

Be aware of all possible hazards associated with any experiment and make appropriate risk assessments.

Wash hands after using chemicals or handling animals.

Lock all doors on leaving a room and at the end of the day .

Try to ensure pupils are not left on their own in a laboratory.

Use protective equipment and instruct pupils accordingly.

Ensure labs are left safe and clean, with experiments/equipment turned off and that chemicals are returned to the prep room whenever possible.

Check apparatus and equipment for safety before use.

Check gas is turned off after use.

All keys for cupboards, etc, to be returned to the prep room cupboard.

Ensure glassware for washing up is rinsed and stacked safely (no thermometers).

Provide **hazcards** with each chemical used, when requested.

Date stamp all chemicals as they arrive and keep stock lists up-to-date.

Weekly

Check eye-wash stations have sealed and in-date wash bottles and that replacements are available.

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Check surfaces and sinks in each laboratory are cleaned and ensure drains are functioning.

Check store rooms, in particular chemical stores and greenhouse.

Refill chemicals in bench reagent dropping bottles, as necessary.

Ensure there is an adequate supply of de-ionized water available.

Termly

Clean and inspect fume-cupboards for deterioration and damage.

Inspect gas & water taps for damage.

Check that First-Aid kits kept in Prep Room and laboratories are replenished.

Check that Fire-fighting equipment is in place and has not been used.

Check bunsen burners and hoses.

Disinfect safety glasses and replace any badly damaged stock.

Annually

Ensure inspection, maintenance and record details of mains operated portable electrical equipment.

Inspect, maintain and record details of pressure cooker.

Ensure Fume cupboards are checked and filters replaced, if necessary.

Stock check all chemicals.

Check labels on storage bottles.

Check for unwanted/unusable chemicals. Dispose of these safely.

Monitor and Review

Procedures for reporting safety matters

Reporting of a smell of gas, faulty equipment, including faulty and/or inadequate fire-fighting equipment.

Always inform the lead teacher and Science colleagues and TF (who is the School Safety Officer).

Once the lead teacher has been informed it will be his/her responsibility to make appropriate decisions, such as:

immediately taking the relevant piece of equipment out of service.

organising a replacement item of equipment

Safety matters are a regular item on the agendas of the Department meetings.

Procedure for Circulating Safety Information.

NB: In the following section the term staff refers to both teachers and technicians.

On receipt of a safety document the contents are analysed and categorised by the lead teacher ('LT') under one of three headings:

immediate action required - staff are verbally informed by the LT and are asked to read their own copy of the circular as soon as possible. The Practical Requirement orders and related Risk Assessments are then altered, as appropriate. The document will then be

discussed at the next departmental meeting.

Medium/long term action required - the document is circulated to all Science staff and then filed. The practical requirement orders and related risk assessments are then altered as appropriate. The document will be discussed at the next department meeting.

No action required - if the contents confirm what we already practise then the document will still be discussed at the next department meeting and filed.