



FIRST AID POLICY

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FIRST AID POLICY

SECTION 1 GENERAL POLICY STATEMENT

The Board of Directors and the Principal of The Academy accept their responsibility under the Health and Safety (First Aid) Regulations 1981 and acknowledge the importance of providing First Aid for employees, children and visitors within The Gateway Academy.

The Board of Directors are committed to the Local Authority's procedure for reporting accidents and recognise their statutory duty to comply with the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995.

The provision of first aid in The Gateway Academy will be in accordance with the Local Authority's guidance on First Aid in The Academy.

SECTION 2 STATEMENT OF FIRST AID ORGANISATION

The Academy's arrangements for carrying out the policy include nine key principles.

1. Places a duty on the Board of Directors to approve, implement and review the policy.
2. Place individual duties on all employees.
3. To report, record and where appropriate investigate all accidents.
4. Record all occasions when first aid is administered to employees, pupils and visitors.
5. Provide equipment and materials to carry out first aid treatment.
6. Make arrangements to provide training to employees, maintain a record of that training and review annually.
7. Establish a procedure for managing accidents in The Academy which require first aid treatment.
8. Provide information for employees on the arrangements for first aid.
9. Undertake a risk assessment of the first aid requirements of the Academy.

SECTION 3 ARRANGEMENTS FOR FIRST AID

3.1 Materials, equipment and facilities

The Academy will provide materials, equipment and facilities as set out in National Guidance on First Aid.

The location of first aid containers in The Academy are :

- Medical room (includes portable ones)
- Science Prep Room
- Technology
- PE
- School Kitchens

The contents of the first aid box(es) will be checked on a regular basis by the Appointed Person (person in charge of Academy First Aid).

The appointed person will be responsible for all record keeping on first aid.

ITEMS FOR FIRST AID BOXES TRAVELLING FIRST AID KITS

- Guidance card/leaflet on first aid
- 1 individually wrapped sterile dressing
- Adhesive dressings (assorted sizes) 20 6
- 2 Sterile eye pads, with attachment
- 6 Individually wrapped triangular bandages
- Safety Pins
- 6 Medium sized individually wrapped sterile unmedicated wound dressings (approx 12cmx12cm)
- 6 Large sterile individually wrapped un-medicated wound dressings (approx 18cmx18cm)
- 2 Individually wrapped moist cleaning wipes
- 1 pack 2 pairs small packet Disposable gloves for wear by any personnel handling blood, vomit, excreta, etc.

In compliance with The Education (The Academy Premises) Regulations 1996 the Board of Directors will ensure that a room will be made available for medical treatment. This facility will contain the following and be readily available for use:

- sink with running hot and cold water;
- drinking water (if not available on mains tap) and disposable cups;
- paper towels;
- smooth-topped working surfaces;
- a range of First Aid equipment (at least to the standard required in First Aid boxes) and proper storage;
- chair;
- a couch or bed (with waterproof cover), pillow and blankets;
- soap;
- clean protective garments for First Aiders;
- suitable refuse container (foot operated) lined with appropriate disposable yellow plastic bags, i.e. for clinical waste;
- an appropriate record-keeping facility;
- a means of communication, e.g. telephone.

3.2 Appointment of First Aiders

The appointment of First Aiders within the Academy will comply with National Guidance on Assessment of First Aid needs. The appropriate, completed Risk Assessment is provided. The Principal will appoint a member of staff to be the Appointed Person.

The duties of the Appointed Person are to:

- take charge when someone is injured or becomes ill;
- look after the first aid equipment e.g. restocking the first aid container;
- ensure that an ambulance or other professional medical help is summoned when appropriate.

The Board of Directors recognise that the Appointed Person need not be a First Aider, however they will support any member of staff who is an Appointed Person to undertake emergency first aid training and refresher training.

In addition to meeting the statutory requirement placed upon them to provide first aid for employees the Board of Directors accept their responsibilities towards non-employees. In order to provide first aid for students and visitors, the Board of Directors will undertake a risk assessment to determine, in addition to the Appointed Person, how many emergency First Aiders are required and if appropriate an employee with a First Aid at Work certificate of competence. In implementing the outcome of the risk assessment, the Board of Directors acknowledge that unless first aid cover is part of a member staff's contract of employment, those who agree to become First Aiders do so on a voluntary basis.

Where possible first aid training will be undertaken to meet the needs of students/employees with special health needs or disabilities.

In determining who should be trained in first aid the Principal will consider each individual against the following criteria:

- reliability and communication skills;
- aptitude and ability to absorb new knowledge and learn new skills;
- ability to cope with stressful and physically demanding emergency procedures;
- must be able to leave normal duties to go immediately to an emergency.

Where pupils are travelling on a mini-bus the following items will be carried:

- ten antiseptic wipes, foil packaged;
- one disposable bandage (not less than the 7.5cm wide);
- two triangular bandages;
- one packet of 24 assorted adhesive dressings;
- two sterile eye pads with attachments;
- twelve assorted safety pins;
- one pair of rustless blunt-ended scissors.

In addition to the items set out for the first aid box in The Academy the following items will be provided:

- a) Disposable drying materials.
- b) Plastic bowls – one for cleaning wounds and one for cleaning vomit, excreta, etc.
- c) An effective cleaning solution used in accordance with instructions.
- d) Bags for 'double bagging'.

Items in (c) and (d) above will be kept locked away from access by children.

3.3 Information on First Aid arrangements

The Principal will inform all employees at the Academy of the following:

- a) the arrangements for recording and reporting accidents;
- b) the arrangements for first aid;
- c) those employees with qualifications in first aid;
- d) the location of first aid boxes.

In addition the Principal will ensure that signs are displayed throughout The Academy providing the following information:

- a) names of employees with first aid qualifications;
- b) location of first aid boxes.

All members of staff will be made aware a copy of the Academy's First Aid Policy.

3.4 Provision away from the Academy

Provision for first aid on The Academy visits and journeys will be determined by risk assessment in accordance with National Guidance on First Aid.

Extended School activities on site will be covered by First Aiders, off site will be in accordance with EV regulations.

3.5 Review of the First Aid policy

The Board of Directors will review the First Aid Policy on an annual basis and make recommendations, where appropriate to the Principal, for changes in the Academy's policy.

SECTION 4 ACCIDENT REPORTING

This section of the First Aid Policy is to comply with the Academy's Health and Safety Policy. The Board of Directors will implement the procedures in line with those of Essex Council for reporting:

- a) all accidents to employees;
- b) all incidents of violence and aggression.

The Board of Directors is aware of its statutory duty under The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995 (RIDDOR) in respect of reporting the following to the Health and Safety Executive as it applies to employees:

1. An accident that involves an employee being incapacitated from work for more than 3 consecutive days (excluding the day of the accident but not including non working days).
2. An accident which requires admittance to hospital for in excess of 24 hours.
3. Death of an employee.
4. Major injury such as fracture, amputation, dislocation of shoulder, hip, knee or spine.

For non-employees and pupils an accident will only be reported under RIDDOR:

- a) Where it is related to work being carried out by an employee or contractor and the accident results in death or major injury; or
- b) It is an accident in The Academy which requires immediate emergency medical treatment at hospital.

For each instance where the Principal considers an accident to a visitor or pupil is reportable under RIDDOR the advice of Essex Council will be sought. Where a pupil has an accident it shall be reported to the Local Authority.

All accidents to non-employees (e.g. visitors) which result in injury will be reported to the Board.

The procedure for managing accidents to pupils is provided at Annex 2 to this policy.

SECTION 5 PUPIL ACCIDENTS INVOLVING THEIR HEAD

The Board of Directors recognise that accidents involving the student's head can be problematic because the injury may not be evident (e.g. internal) and the effects only become noticeable after a period of time. In all cases, parents/guardians will be notified by telephone and in writing.

SECTION 6 TRANSPORT TO HOSPITAL OR HOME – CRITERIA FOR CALLING FOR AN EMERGENCY AMBULANCE

- a) The Principal will determine what is a reasonable and sensible action to take in the circumstances of each case.
- b) Where the injury is an emergency an ambulance will be called following which the parent will be called. It is wise and sensible to discuss with the Emergency Services the destination hospital before phoning a parent as parents often are better placed to attend the receiving hospital. Due regard also has to be given to the estimated time of arrival of the ambulance.
- c) Where hospital treatment is required but it is not an emergency, then the Principal will contact the parents for them to take over the responsibility of the child. If the parents cannot be contacted then the Principal may decide to transport the pupil to hospital.
- d) Where the Principal makes arrangements for transporting a child then the following points will be observed:
 - i) no individual member of staff should be alone with a student in a vehicle;
 - ii) the second member of staff will be present to provide supervision for the injured student; this second member of staff should, ideally, be a first aider
 - iii) at least one member of staff should, ideally, be the same gender as the student.

NB – The Academy has an insurance policy which enables all staff to transfer students to hospital in their own cars.

6.1 Criteria for calling for an Emergency Ambulance

If in doubt an Ambulance should be called. The decision of the qualified first aider should override seniority in all cases.

An Emergency Ambulance, by dialling 9999 (four nines), should be called in cases of; difficulty in breathing, heart failure, severe bleeding, unconsciousness, serious burns, suspected fractures, shock or poisoning. Due regard also has to be given to any mechanisms of injury. Injury is not always apparent when gaining signs and symptoms from a patient but the history may reveal a mechanism that only later shows as a sign or symptom of trauma.

SECTION 7 PERSONNEL

This section contains the names of employees at the Academy with a qualification in first aid or who have a first aid responsibility.

- | | |
|-------------------------|---|
| a) Appointed Persons | Gillian Masters (North)
Jan Howard (South) |
| b) First aiders at work | See list |

SECTION 8 PROCEDURE FOR COMMUNICABLE DISEASES

The Gateway Academy will follow the procedure laid down by the Local Authority.

SECTION 9 CHEMICAL SPILLS

Introduction

Several chemicals in regular use in school science can present major problems if spilt. Clearly, it is important to provide equipment and adopt working practises for students, teachers and technicians that minimise the risk of the spill occurring in the first place (e.g. solutions not put out in 2.5 l bottles), but it is also wise to make provision for dealing quickly, safely and efficiently with any spills that do occur. This provision should form part of the risk assessment for the whole activity.

In many types of laboratory, it is now the policy to provide a spill kit for this purpose and commercial kits are available. The *Highly Flammable Liquid Regulations* require a spill kit to be available during storage. The School Science Service has evaluated commercial kits and investigated the requirements for putting together a diy kit. The conclusion is that schools **should** make provision and that this is best done by putting together locally a kit based on a mineral absorbent (**cat litter**). Done this way, the cost need not be high.

The principles advocated depend on the size of the spill and its hazards.

- The smallest spills of even the most hazardous materials can usually be dealt with using a cloth or absorbent paper.
- Moderate spills (typically up to 250 ml of solution or 500 g of solid) need the detailed procedure given in *section 9.3* but the principle advocated is this:
 - act to prevent the spill spreading,
 - if the spill is giving off a hazardous vapour, control it immediately, otherwise,
 - clear up the spilt material into a bucket,
 - remove the bucket to the prep room for treatment and disposal,
 - fence off the area of the spill until it can be cleaned.

Large spills, which could be just large volumes or could be small volumes sprayed over a large area, may require a special procedure given in *Table 'Spills Requiring Special Procedures'*.

9.2 Contents of the recommended spill kits

Mineral absorbent

The cheapest supply of mineral absorbent is cat litter. One type is based on Fuller's Earth, which is often red, and the other on clay, which is often white or grey: either is suitable and safe but the latter is preferable as it does not break up once wet. It can be bought in 10 kg bags from most supermarkets. Some cat litter may be calcined and 'fizz' for a short time when applied to an acid but it is not hazardous.

Other possibilities include Vermiculite sand. Absorbents which are based on recycled **paper or sawdust** (sometimes sold for dealing with oil spills in garages or for use by caretakers for cleaning up vomit) are **unsuitable** as they are combustible.

A diy spill kit system

It is suggested that the standard kit can be made up in three variants: for the laboratory, for the prep room and for the store, with a completely separate kit for mercury spills. The laboratory kit is just enough for immediate use. The prep room kit is not only for spills in the prep room but to be taken to the scene of any other spill. The variant kept in the store represents a back-up for dealing with the laboratory spill (of up to 250 ml of reagent), materials for dealing with larger spills and for replenishing other kits. If desired, it may be omitted completely or partially with a consequent reduced capacity for dealing with large spills.

Extra spill kits Where a science department is split, there should certainly be a complete kit in every building where laboratories are situated. With large departments, it may be thought wise to put a complete kit in each storey or in each group of rooms.

In each laboratory:

1 kg of mineral absorbent. This is enough to soak up about 400 ml of liquid and, if sprinkled around the spill, it will stop a larger spill spreading while more absorbent is brought to the scene.

A notice on the wall of the procedures to be followed in case of a spill.

In the prep room:

(Kept in a container so that it can be carried to the scene of a spill. **Warning:** this is quite heavy so help may be required.)

- 1 plastic bucket;
- 1 plastic dustpan and brush;
- 3 pairs of protective gloves (natural rubber type);
- eye protection (goggles preferred);
- 3 floor cloths;
- a pack of plastic 'pedal-bin' bags (which fit over a bucket) for the disposal of small amounts of wet absorbent;
- 1 large chemical scoop
- one 2.5 kg pack of mineral absorbent;
- 0.5 kg of anhydrous technical grade sodium carbonate (to neutralise up to 250 ml of concentrated sulphuric acid, for example);

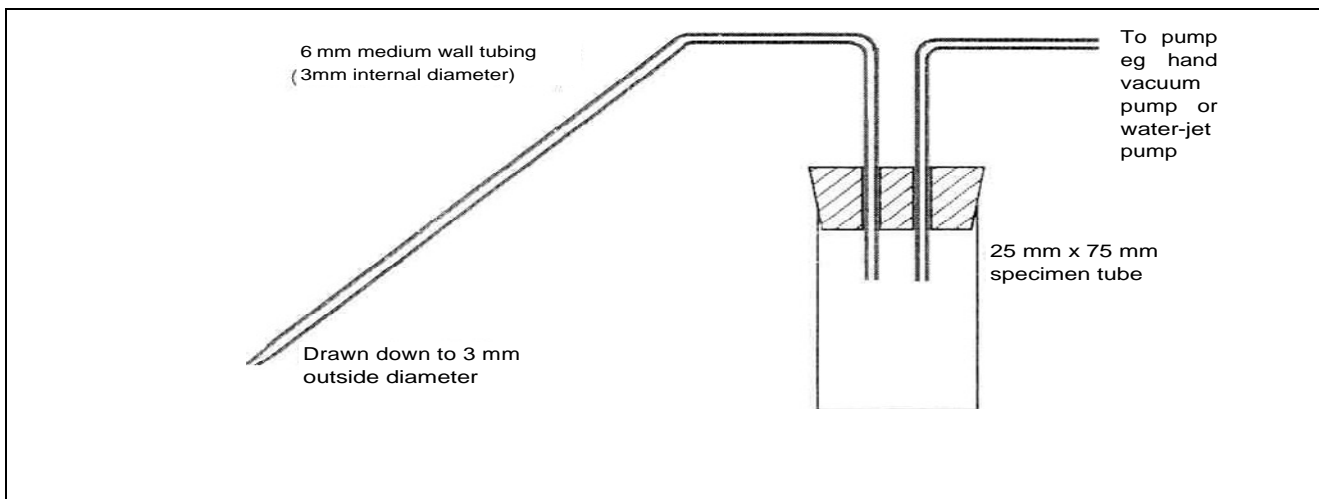
- 0.5 litre of neat dispersing agent ('Teepol' is a general purpose detergent for laboratories but others suffice and may be cheaper);
- 0.5 kg of citric acid (to neutralise up to 250 ml of concentrated ammonia solution or 2.5 l of 2 M sodium hydroxide solution);
- A copy of the procedures to be followed in dealing with a spill.

In the store:

- Eye protection (a face shield) may be better than goggles);
- 20 kg of mineral absorbent
- 5 heavy-gauge polythene bags suitable for disposing of the wet absorbent after treatment and other plastic bags, gloves, etc as spares;
- 5 kg of dry sand (an optional cheaper material to cope with a corrosive solid or an extra-large spill;
- 5 kg of anhydrous technical grade sodium carbonate, (to cope with up to 2.5 l of concentrated sulfuric acid, for example);
- 2.5 litres of dispersing agent.

(No extra citric acid is required apart from replenishing stocks. If there were a spill of 2.5 l of 880 ammonia solution in the store, it would be very dangerous to enter that store without breathing apparatus and so the fire brigade should be called.)

A Mercury Pooter



For mercury spills:



The special kit for mercury spills should contain:

- mercury pooter or syringe (see diagrams);
- 1 small polythene bottle to take recovered mercury;
- 250 g precipitated copper powder;
- 1 empty bottle, wide mouth (large enough to take the copper powder);
- 100 ml 2 M hydrochloric acid;

- 250 ml polypropylene beaker;
- a mixture of 500 g flowers of sulfur and 500 g calcium hydroxide
- 1 cheap paintbrush about 3 cm wide;
- 10 wooden spatulas (tongue depressors);
- 2 wooden strips 500 x 30 x 5 mm (eg old half-metre rules).

Labels

These labels may be copied and stuck onto the relevant containers.

<p>Mineral Absorbent 1 kg</p> <p>Date</p> <p>The contents of this pack are sufficient to absorb approx 400 ml of spilt liquid.</p>	<p>Dispersing Agent 500 ml</p> <p>Date</p> <p>The contents are sufficient to emulsify approx 500 ml of spilt organic liquid.</p>
<p>Sodium Carbonate 500 g</p> <p>Xi</p> <p>Date</p> <p>Sufficient to neutralise approx 250 ml of spilt concentration acid.</p>	<p>Sodium Carbonate 5 kg</p> <p>Xi</p> <p>Date</p> <p>Sufficient to neutralise approx 2.5 l of spilt concentration acid.</p>
<p>Dispersing Agent 2.5 l</p> <p>Date</p> <p>The contents are sufficient to emulsify approx 2.5 l of spilt organic liquid.</p>	<p>Copper Powder 250 g</p> <p>Date</p> <p>To be mixed with hydrochloric acid to form a paste.</p>
<p>Citric Acid 500 g</p> <p>Date</p> <p>Sufficient to neutralise approx 250 ml of spilt concentrated ammonia or 2.5 l of 2 M sodium hydroxide solution.</p>	<p>Dry Sand 5 kg</p> <p>Date</p> <p>Sufficient to absorb a large spill of liquid or mix with 50 g of a corrosive solid.</p>
<p>Hydrochloric Acid 100 ml</p> <p>Xi</p> <p>Date</p> <p>To be mixed with copper powder to form a paste.</p>	<p>Lime/Sulfur Mix 500 g</p> <p>Xi</p> <p>Date</p> <p>To spread over areas where mercury has been cleared but may be in cracks.</p>
<p>Mercury-contaminated waste</p> <p></p> <p>Date</p>	<p>Recovered Spilt Mercury</p> <p></p> <p>Date</p>

9.3 Treatment and disposal of the spill

Once the spilt material has been collected into a bucket, the contents need treatment and eventual disposal.

The relevant *Hazcard* includes advice on the treatment and disposal of the chemical and the following general procedure can be used as an outline for the process which applies to everything except mercury for which a separate procedure is listed. It is expected that these procedures will be copied and put in the department safety file and/or placed with the spill kits.

The recommended treatment procedures below assume that the school has 'mains drainage'. Where this is not the case and the waste water does not go down a foul-water drain but into a septic tank (for example), see the separate advice, *Special procedure for schools without mains drainage*.

9.4 Managing a spill incident

A spill of a hazardous chemical is an emergency which needs to be dealt with safely and efficiently, using an established procedure. Teaching staff, technicians and students will need to co-operate and work as a team to deal effectively with a serious or even a moderate spill so all three groups will need some training which should not be entirely theoretical.

Teachers will probably be the adults nearest to a spill and will need to assess the situation quickly and accurately. Technicians may be involved with a spill in one or both of two ways:

- (a) the spill may occur as a consequence of their work;
- (b) they may have to do the clearing up after a spill caused by someone else.

In both cases, the technicians need accurate information about the nature of the spill and they need to be fully familiar with, and to have practised, the clearing up procedure.

Students should be taught to deal effectively with minor spills and encouraged to report the more hazardous ones immediately.

A suggested procedure

The following check list indicates the general procedure for dealing with a spill; this (or something like it) should be used as the basis for in-house training exercises with simulated spills.

Possible evacuation of the laboratory The spilt chemical may produce a vapour in the atmosphere which could cause distress, so windows and doors should normally be opened to allow ventilation. However, some chemicals will release so much vapour of a harmful or toxic nature that immediate evacuation of the room is required. These chemicals are identified in the table below.

If such a spill occurs, staff should execute evacuation procedures similar to those during fire practices. If it is

possible to open windows on the way out, then this should be done but it should not take preference to the health of the students and the staff. If the spill is too large to be dealt with safely by staff without breathing apparatus, the fire brigade must be called.

Possible injury

During the spill, a student or a member of staff may be injured by glass, overcome by fumes, or be splashed by the chemical on the skin or clothes. *Hazcards* attempt to cover all the major substances used in schools and these should be consulted whilst immediate remedial measures are applied.

Clearing up the spill

Corrosive solids are best mixed with sand as for disposal while all liquids are first controlled with mineral absorbent. As much as possible of the spilt solid or mineral absorbent is then scooped into a bucket before washing down the area. If the spilt solid is a substance known to be insoluble in water, then water may be sprinkled on the spill to avoid raising dust. It is not advisable to use a vacuum cleaner.

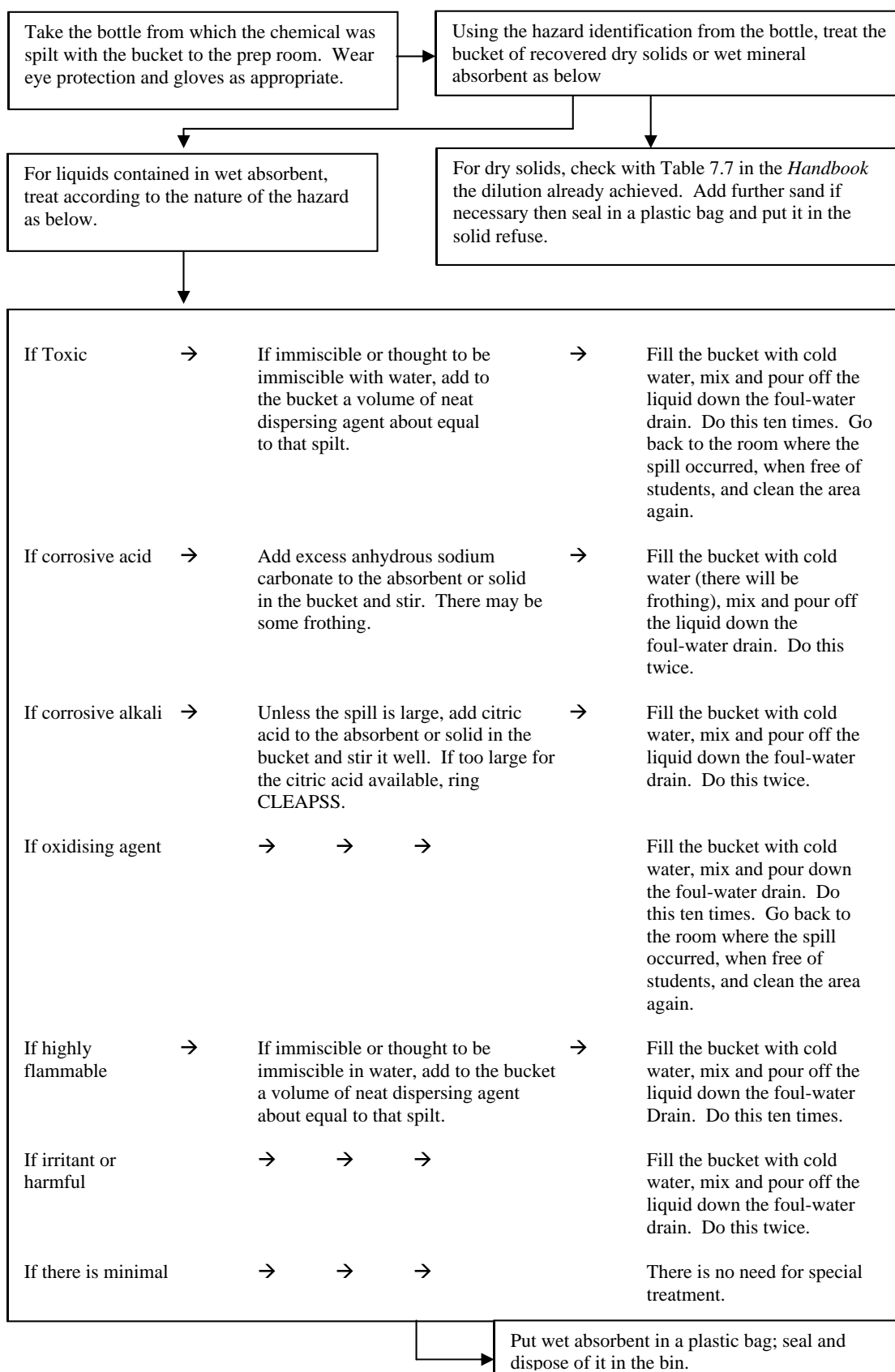
In the case of spills of oxidising agents and toxic chemicals, it is specially important to wash and rinse the area of the spill thoroughly so that no impregnation of the surface by the chemical occurs.

Inquiry

After the spill has been dealt with, the clearing up operation should be examined to see if the existing procedures ran smoothly and to see if there should be any improvements or extra training. It may be useful to discuss the incident and its aftermath with other science teachers and technicians at a departmental meeting. Naturally, if shortcomings are found, then further action, e.g. practice or looking at the activity that caused the mishap, can be taken.

Treatment and disposal procedure – general

This procedure should be followed **once the spilt chemical has been absorbed** (if necessary) and **transferred to a bucket**.



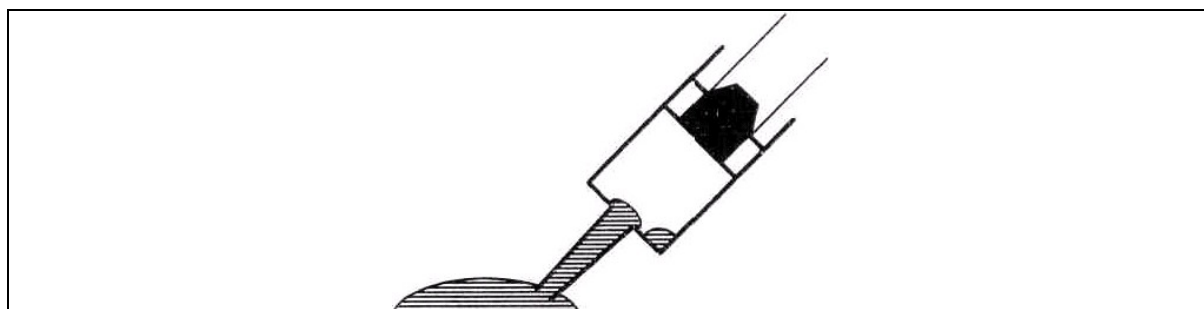
Treatment procedure – mercury

Neither a vacuum cleaner nor an unprotected vacuum pump may be used to collect a mercury spill.

Four stages of treatment are advisable:

1. Recover of as much of the spilt mercury as possible for purification using the following instructions.
Remove any rings, bracelets, watches etc, open windows and put on gloves.
Gather the bulk of the mercury together using strips of wood (wooden spatulas or half-metre rules).
Connect the pooter to a vacuum pump and use it to collect up the bulk of the mercury. Hold the specimen tube as nearly upright as possible and, if a rotary pump is used, make sure a trap is fitted in the vacuum to protect the pump.
If a pooter and pump are not available, or the volume spilt is very small, use a plastic syringe, as shown in diagram, but it may need emptying more frequently.
Empty the recovered mercury into the bottle prepared in the kit.

A plastic syringe used to suck up mercury



2. Clearing remaining small drops.

From smooth surfaces:

Mix some copper powder with enough 2 M hydrochloric acid to make a thick paste in the beaker. Use wooden spatulas to spread this paste over the contaminated area. The paste will pick up mercury drops.

Sweep up the paste with the paint brush and put it in the bottle for mercury-contaminated waste.

From rough surfaces and cracks:

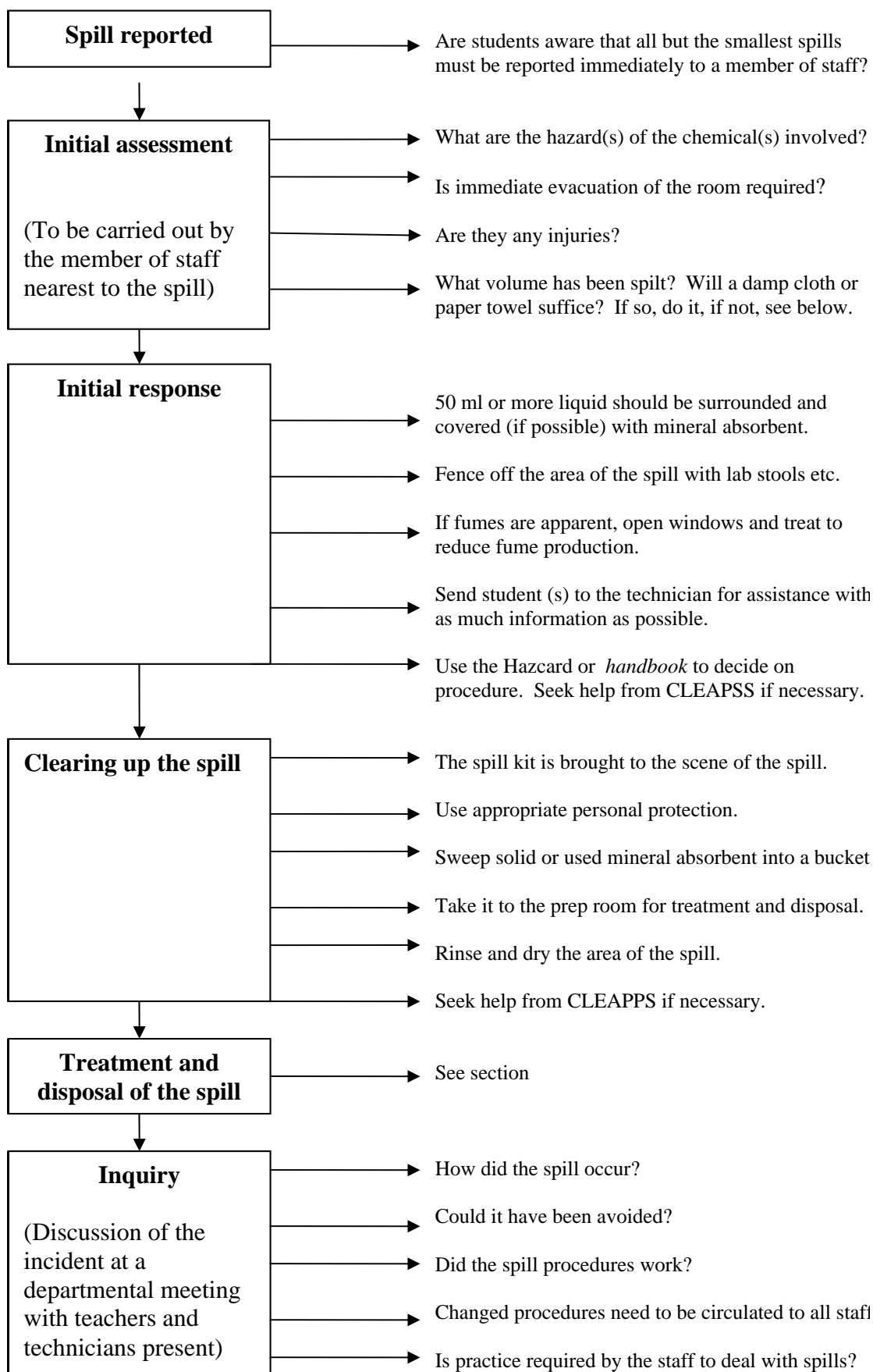
Heat some of the lime/sulfur mix with a little water to make a smooth slurry. Spread this over the contaminated area and leave to dry. It reacts with the mercury to form a sulfur compound.

When dry, using the paint brush, sweep up as much of the mix as possible and put it in the bottle for mercury waste.

Dust dry lime/sulfur mix over the area and brush it into any cracks.

3. Wash all the equipment and arrange for storage of the mercury-bearing waste.
4. Bottles of waste should be stored along with other toxics until sufficient has been collected for transmission to a specialist mercury-waste contractor.

A possible management check list for dealing with spills



Spills requiring special procedures

Chemical	Action if the spill is reasonably small	Action if the spill is so large that breathing apparatus might be required
Concentrated ammonia solution	Wear goggles and gloves. Apply the mineral absorbent and citric acid to the spill.	Evacuate the room and call the fire brigade unless the existing ventilation will disperse the fumes.
Concentrated hydrochloric acid	Wear goggles and gloves. Apply the mineral absorbent and sodium carbonate to the spill	Evacuate the room and call the fire brigade.
Concentrated nitric acid	Wear goggles and gloves. Apply the mineral absorbent and sodium carbonate to the spill	Evacuate the room and call the fire brigade
Bromine	Wear goggles and rubber gloves. Cover it with a slurry of sodium carbonate. Open outside windows and wait for any fumes to disperse. Mix with absorbent and clear up into a bucket. Mop the area of the spill. Fill the bucket with water and drain several times before disposing of the wet absorbent in the bin.	Evacuate the room and call the fire brigade.
Phosphorus	Wear goggles and gloves. Cover with sand and then thoroughly soak the sand with water. Evacuate the room of non-essential persons. Fill a reagent bottle with water. Using tongs, pick out all the pieces large enough to handle, rinse and put them into the bottle. Keep watching the spill for any signs of fire. Transfer the sand and small pieces to a safe place (e.g. a fume cupboard) and allow to dry when the remaining small pieces will burn away.	
Fuming halides (e.g. phosphorus chlorides, sulfur chlorides, silicon tetrachloride and other fuming liquids).	Wear goggles and gloves. Cover with mineral absorbent, open windows and deal with as for concentrated acids (above).	Cover with sand and then thoroughly soak the sand with water. Evacuate the room and call the fire brigade.
Mercury	See <i>Hazcard</i> and see section 9.2 for details of the special kit.	There is no need to evacuate the room or call the fire brigade. Follow the instructions in section 9.3. Do not use a vacuum cleaner to clean area.

9.5 Special procedure for schools without mains drainage

Where schools are not connected to mains drainage system, it is not possible to pass solutions or suspensions in to a 'foul-water drain'. In these cases schools are usually provided with a large septic tank in which the effluent is digested by bacteria, usually anaerobically. This tank must be considerably larger than that used for a single house and dilution of ordinary amounts of chemicals to safe levels is still possible. The action of the tank will be destroyed by large amounts of oxidizing agents or large amounts of anything which kills bacteria.

The problem arises after a medium or large spill. In this case, the bucket containing the collected spilt material should be treated with the minimum amount of water: just sufficient to ensure that the neutralization has worked effectively. (There should not be enough water to pour off.) The wet absorbent can then be tipped and shaken into a large, heavy-gauge plastic bag for disposal via the ordinary refuse.

Care should be taken to limit the amounts of heavy metal salts which flow into the tank because compounds of mercury, lead and other metals collect in the sludge which is pumped out at regular intervals and eventually recirculated to the environment.

9.6 Chemical hazards

The *Chemicals (Hazard Information and Packaging for Supply) Regulations 1994* commonly known as CHIP2), compel suppliers of chemicals to provide information about the hazards of chemicals to their customers. These Regulations include hazard data on many hundreds of chemicals and schools are supplied with such information on safety data sheets, on labels on the bottles and in the catalogues. This information may be printed in full, given as a hazard warning sign or conveyed via a code called a Risk number as used in *Table 'Hazards of Cobalt Chloride'*. The hazard information in CHIP2 is also conveyed on *Hazcards*.

**The existence of a hazard warning in any of these sources
should be treated as a trigger to consult a risk assessment.**

As research into the hazards of chemicals is continuing all the time, there may well be annual amendments to these Regulations (e.g. the CHIP96 (*Amendment*) *Regulations* which did not affect school science). Should there be any major changes which affect school chemicals, then that information and its consequences will be published in the *CLEAPSS Bulletin*.

Unfortunately, not all school chemicals with hazards are included in the Regulations. In this case, suppliers are under an obligation to pass on their own hazard information and this can vary between suppliers, especially if a company is based in a different country and exports to this one. *Table 'Hazards of Cobalt Chloride'* shows how different suppliers have classified cobalt chloride. These differences are brought about either by incomplete research or the prospect of litigation so that 'catch-all' hazards are used. CLEAPSS advice is to handle cobalt chloride as any other HARMFUL chemical.

There are two major classes of hazard, physico-chemical (e.g. explosive, oxidising and flammable hazards) and those which affect health. The latter has been recently expanded to cover not only the chemicals with poisonous properties but also those which are carcinogens, sensitisers and teratogens. A third class has recently been added covering

those chemicals harmful to the environment. Each of these is considered in a sub-section below.

Table 'Hazards of Cobalt Chloride'

Supplier	Description of hazards	Risk No
Aldrich	Harmful by inhalation, in contact with the skin and if swallowed; irritating to the eyes, respiratory system and skin; possible risks of irreversible effects.	(R20/21/22) (R36/37/38) (R40)
Beecroft	Harmful by inhalation, in contact with the skin and if swallowed; irritating to the eyes, respiratory system and skin; possible risks of irreversible effects.	(R20/21/22) (R36/37/38) (R40)
Breckland Scientific supplies	Harmful by inhalation and if swallowed.	(R20/22)
Griffin and George	Harmful if swallowed; may cause sensitisation by skin contact; may cause cancer.	(R22) (R43) (R45)
Hogg	Harmful if swallowed; may cause sensitisation by skin contact; may cause cancer by inhalation.	(R22) (R43) (R49)
Merck	Harmful if swallowed; May cause sensitisation by skin contact and inhalation.	(R22) (R42/43)
Philip Harris	Harmful if swallowed; possible risks of irreversible effects; may cause sensitisation by skin contact.	(R22) (R40) (R43)
Scientific and Chemical Supplies	Harmful if swallowed; may cause sensitisation by skin contact.	(R22) (R43)
Timstar Lab Supplies	Harmful by inhalation and if swallowed	(R20/22)

9.7 Physico-chemical hazards

Explosive chemicals

These substances 'may react exothermically without atmospheric oxygen thereby quickly evolving gases, and which, under defines test conditions detonate, quickly deflagrate or upon heating explode when partially confined.

The information conveyed by this classification and risk numbers R1 to 6 is a little extreme for laboratory use; substances such as ammonium dichromate may explode when handled in bulk but it would probably be extremely difficult to persuade 200 g in a laboratory bottle to detonate. However, picric acid has been known to explode when dry and, in any case, is a chemical the use of which 'should be avoided if possible' since it would be used very rarely and hence would be likely to dry out.

It would be wise not to open any old bottle of picric acid that may be found hidden in long-forgotten cupboards: contact CLEAPSS for advice.