

Laboratory Safety Management

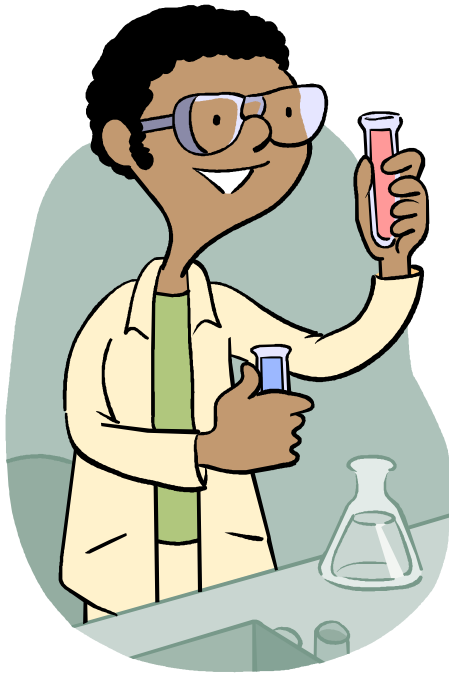




Outline

- ◆ Discussion
- ◆ Laboratory Safety Management
 - Responsibility
 - Safety awareness
 - Risk assessments
 - Staff training
 - Monitoring and review

Why does it matter?



- ◆ Safe working protects:
 - You
 - Other lab workers
 - Cleaners
 - Visitors
 - Your work

Why accidents happen?

Careless

Inadequate
Safety Training

Inadequate
Instructions

Unsafe
Experiments

Over crowding

Inadequate Equipment

Inadequate Facilities

Misbehavior

Inadequate
Preparation

Ignorance

Poor
Laboratory
Management

Teaching
Experiences



Education Regulation

- ◆ The responsible person shall ensure that all necessary safety precautions are adopted in the laboratory

Science Teacher's Legal Liability

- ◆ Did he/she use appropriate activities for the grade level?
- ◆ Did he/she give careful instruction of all aspects of the activity?
- ◆ Did he/she teach safety rules, and satisfy himself/herself that the students understood the activity and safety requirements (safety tests are helpful)?
- ◆ Did he/she carefully supervise the activity?
- ◆ Did he/she strictly enforce safety rules?

Students role

- ◆ Know and follow all safety rules
- ◆ Be alert in the laboratory
- ◆ Do not attempt unauthorised activities
- ◆ Exercise proper experimental techniques
- ◆ Consider the safety of oneself and the others
- ◆ Read and study lab manual before coming to class
- ◆ Report lab accidents to teacher immediately
- ◆ Keep area clean.
- ◆ Proper disposal of biological and chemical waste.
- ◆ Do not enter preparation or store rooms
- ◆ ...

Safety Rules

Teachers role

- ◆ Ensure the safety of all practical activities and must be thorough in preparation
- ◆ Try out experiments in advance
- ◆ Check that technicians know how to carry out safely the requested hazardous operations
- ◆ Issue students with safety rules and explain what they mean and why they are necessary
- ◆ Give clear instructions to students and remind them of the potential hazards and safety precautions
- ◆ Provide sufficient supervision and guidance to students during experiments
- ◆ Insist students to use proper PPE
- ◆ Never leave students unsupervised in the lab
- ◆ Familiarise with the operation of safety facilities and emergency procedures
- ◆ ...

Laboratory Technicians

- ◆ Have responsibilities for each other's safety and should warn each other of hazardous situations
- ◆ Co-operate with safety policies of panel, school and EMB, etc.
- ◆ Prepare, operate and maintain apparatus and equipment
- ◆ Procurement of stores and equipment
- ◆ Tryout experiments
- ◆ Aid in class demonstrations
- ◆ Assist teachers in supervising students performing experiments
- ◆ Observe all the normal safeguard in a laboratory
- ◆ Familiarize with the operation of safety facilities and emergency procedures
- ◆ Check regularly to ensure all safety measures are in place
- ◆ Supervise the work of other LTs / laboratory attendants

School Authority

- ◆ Ensure school complies with the Education Ordinance
- ◆ Builds up an effective management system
- ◆ Draw up safety policies, administrative and operational procedures
- ◆ Set up an accountability mechanism for such policies and procedures including how to handling **emergencies**
- ◆ Provide necessary safety facilities and equipment
- ◆ Support professional development on safety



Reporting of Laboratory Accidents

Designing Safety Poster



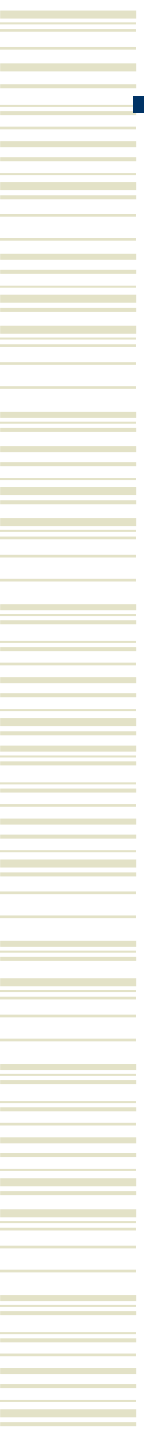





Are your experiments safe?

- ◆ Teachers must be careful when selecting experiments from various sources.
- ◆ As needed, teachers should consult science journals and publications to keep current on safety techniques
- ◆ Discuss with your colleagues including science teachers and laboratory technicians

Risk Assessment

- ◆ No experiment is completely safe and without risk
- ◆ Any experiment worth doing is **worth doing safely**

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- ◆ Determine **hazards** and evaluate **risks**
 - ◆ Use all relevant **available data**
 - ◆ Determine **controls** needed to minimise those risks
 - ◆ **Document** the assessment
 - ◆ **Agree** it with your supervisor
 - ◆ **Use** those control measures

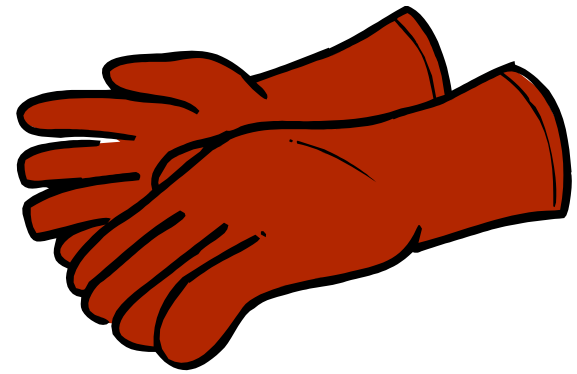
Reducing the Risks

- ◆ Using safer alternatives
- ◆ Modifying experimental procedures
- ◆ Reducing the scale of experiments
- ◆ Use a safer form of that substance

Using protective measures



Wearing appropriate PPE



- ◆ Never eat, drink or smoke in a laboratory
- ◆ Never apply cosmetics
- ◆ Never touch your face, mouth or eyes
- ◆ Never suck pens or chew pencils
- ◆ Always wash your hands before you leave and especially before eating



Protecting your health



- ◆ If you have an allergy to lab materials or suffer from a medical condition which may affect you in the laboratory (eg diabetes or epilepsy), ensure that you protect your self

Monitoring and Review

- ◆ See whether management system and practices is working as planned and risk control measures are effective and maintained
- ◆ Enquiries at departmental meetings
- ◆ Discussions with teachers/LTs/students
- ◆ Schemes of work, student worksheets, laboratory request forms, accident records, etc.
- ◆ Occasional lesson observations
- ◆ Safety Inspection /Audits
- ◆ Keep record of monitoring e.g. inspection checklists
- ◆ Standing Committee on Laboratory Safety

Good Laboratory Practices



Spectacle Cabinet



Distribution of Equipment



Flexicam



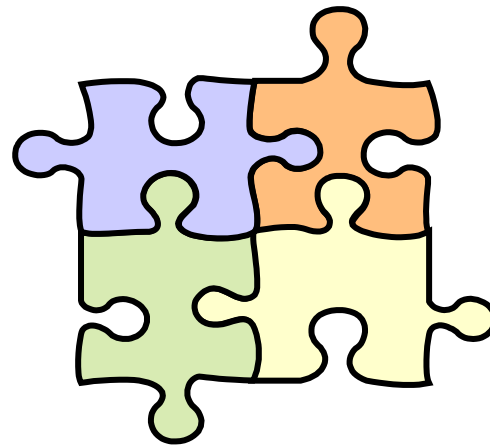
“Bunsen Burner Screen”



“Yellow Line”

Manage a Safe L&T Environment

Good Bye!





References



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