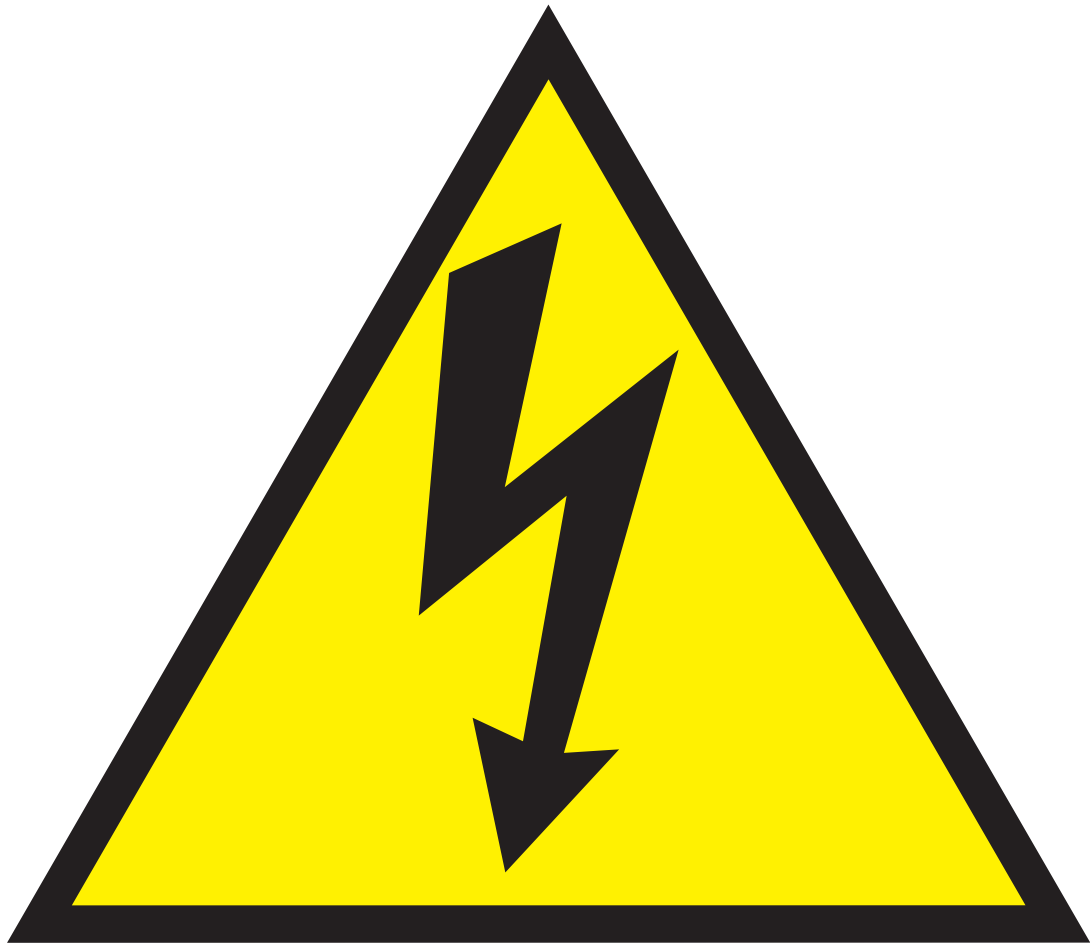


SAFETY

CONCEPTS

SAFETY SIGNAGE IN TECHNOLOGY CLASSROOMS



TECHNOLOGY
SUBJECTS
SUPPORT
SERVICE

*An Introductory Guide
for Technology Subject
Teachers*



TEACHER BOOKLET

SAFETY SIGNAGE REQUIREMENTS IN TECHNOLOGY CLASSROOMS

The Safety, Health and Welfare at Work Act 2005 places a duty on all employers and those with significant control over workplaces and workplace activities (for example, school principals and teachers) to ensure that all reasonably practicable steps are taken to ensure the safety, health and welfare of those affected by workplace activities.

In accordance with the Act, it is required that all significant hazards arising out of workplace activities be identified and that every associated risk be controlled.

Where it is not possible to eliminate or sufficiently reduce the risk associated with classroom hazards, it is necessary to ensure that those affected are made aware of their existence. One way of achieving this is through the use of safety signage.

The Safety, Health and Welfare at Work Act (General Application) Regulations 2007 Part 7, Chapter 1, Signs at Places of Work, must be read in conjunction with the 2005 Act and outlines the requirements and responsibilities in relation to the use of safety signage as a means of risk control.

TERMINOLOGY

Before using safety signage as a means of risk control, it is important to understand the associated terminology:

Hand Signal	A movement, position, or both, of the arm, hands, or both, in coded form, for guiding persons who are carrying out manoeuvres which constitute a hazard or danger for persons at work.*
Acoustic Signal	A coded sound signal which is released and transmitted by a device designed for that purpose, without the use of a human or artificial voice.*
Verbal Communication	A predetermined spoken message communicated human or artificial voice.*
Signboard	A sign which provides specific information or instructions by combination of a geometric shape, colours and a symbol or pictogram, without written words, which is rendered visible by lighting of sufficient intensity.*
Sign	Includes signboards and acoustic, verbal or hand signals.*
Supplementary Signboard	A signboard used together with one of the signs covered by the definition of "signboard" and which gives supplementary information, including, where appropriate, information in writing.*
Symbol or Pictogram	A figure which describes a situation or requires specific behaviour and which is used on a signboard or illuminated surface.*
Safety Colour	A colour to which a specific meaning is assigned.*
Emergency Escape or First-Aid Sign	A sign giving information on emergency exits or first-aid or rescue facilities.*
Illuminated Sign	A sign produced by a device made of transparent or translucent materials which are illuminated from the inside or the rear in such a way as to give the appearance of a luminous surface.*
Information Sign	A sign providing information other than that referred to in prohibition, warning, mandatory or emergency escape or first-aid signs.*
Mandatory Sign	A sign requiring specific behaviour.*
Prohibition Sign	A sign prohibiting behaviour likely to incur or cause danger.*
Warning Sign	A sign giving warning of a hazard or risk.*

**Definitions as found in the Safety, Health and Welfare at Work Act (General Application) Regulations 2007 Chapter 1 of Part 7: Signs at Places of Work*

THE USE OF SAFETY SIGNAGE

The primary function of a safety sign is to quickly and clearly draw attention to hazardous situations.

It should always be remembered that the use of safety signage is not a substitute for other protective and preventative measures. **It is far more desirable to eliminate hazards and risk than to make people aware of their existence!** Before resorting to the use of safety signage as a means of hazard identification and risk control, the possibility of addressing the hazard/risk in other ways should first be investigated.

Where a risk assessment has shown it to be impossible or impractical to avoid or reduce hazards in other ways, safety signage may then be used. It is important that any safety signage used be considered in relation to other existing control measures.

Example

A fixed belt sanding machine has been assessed and found to pose a significant risk of dust inhalation to its users. This risk is to be controlled primarily through the use of a local dust extraction unit. To augment this control measure, a signboard reminding users to make use of the dust extraction is installed.

Emergency escape routes, emergency exits as well as equipment used exclusively for fire-fighting purposes should be identified using specific and carefully positioned safety signage. All of these conditions should be risk assessed by a specially trained person and appropriate safety signage erected accordingly. However, as a general rule of thumb:

- All fire fighting equipment, (fire extinguishers, emergency callpoints, etc.) should be marked using appropriate safety signage (**Red**).
- Emergency exits and emergency escape routes should be clearly identified using appropriate safety signage. (**Green**)
- Any signboards used for these purposes should be permanent and should be adequately lit at all times, using artificial lighting if necessary.

The success of safety signage in the classroom is heavily dependant upon full and continual training. Students must be provided with the following information and instruction by their teacher:

- the location and meaning of each individual safety sign in the classroom,
- how to differentiate between various safety signboards based on their shapes, colours and other distinguishing features,
- the nature of the hazards and risks being controlled by the signs,
- any other relevant information.

SIMPLY PUTTING A SIGNBOARD IN PLACE IS NOT ENOUGH!

As soon as any hazard ceases to exist or pose any significant risk to safety, health and welfare the safety signboard must be removed.

Q: Why?

A: Signs left in place for even short periods after the hazard has been controlled in another way will undermine the effectiveness of the safety signage used elsewhere in the classroom.

A large number of signs should not be placed or used together.

Q: Why not?

A: Too many signs in one location will lead to a sense of "information overload" and will significantly reduce their effectiveness.

SAFETY SIGNBOARD DESIGN

Safety signboards are designed to a specific international standard. When using signboards, it is important that these standards are fully adhered to and understood by all affected persons.

The following points should be noted

- Signboards should be made of suitably robust materials. There are no standard sizes for safety signboards but their dimensions and features should make them easy to see and understand depending on the hazard being controlled (e.g. a safety signboard on a power tool need not be as large as one mounted high upon a classroom wall).
- Since 1 November 2007, any newly erected signboards must not contain text. This is because the message of a safety sign is intended to be understood by all persons, regardless of their spoken language.
 - The design of symbols and pictograms must be as simple as possible - any incomprehensible details must be omitted.
 - Text may be included on a supplementary signboard provided that it does not adversely affect the effectiveness of the signboard (i.e. the signboard should be readily understood without reading the text).
- Where a signboard is already in place before 1 November 2007 and contains text it may remain in place until 1 January 2011, after which date it must be replaced by a signboard without text.

SAFETY SIGNBOARD DESIGN

The standard system for signs and signboards is based on the familiar "traffic-light" colours:











- **Red** = Prohibition (fire safety)
- **Yellow** = Caution
- **Green** = Positive action (safe way or safe condition)

A fourth colour is also used:

- **Blue** = Mandatory (information)

The shapes of safety signboards are also standardised:

- Discs = Prohibition & Instruction
- Triangles = Warnings
- Squares & Rectangles = Emergency/Safe Action/Information)

SAFETY COLOUR	MEANING	SHAPE	EXAMPLE
RED	• Fire-fighting equipment		
	• Prohibition		
YELLOW	• Hazard • Caution • Possible Danger		
GREEN	• First-Aid • No danger • Safe condition • Positive action		
BLUE	• Mandatory • Information		

Supplementary signs (for text) must also be designed to a specific standard:

background: white, wording: black **or** background: safety colour, wording: contrasting colour.

SAFETY SIGNBOARD LOCATION

How signboards are positioned around the classroom is equally important.

There are no hard and fast rules about the location of safety signboards within the classroom. **Signboards need to be positioned to take account of individual classroom conditions.** For this reason, the location of safety signboards around the classroom should be informed by a risk assessment specific to each individual classroom.

Where signboards are used to control hazards, they must be positioned in the line of sight of those at risk by the hazard and so that they are likely to be seen before any related hazard is encountered.

Signboards should be installed in clearly visible and well lit locations, and should not be easily obscured (for example, by the opening of a door or by hanging up coats.)

Example 1. *To reduce the risk posed by a metal cutting bandsaw, it has been decided that the operator must wear eye and hearing protection while using the machine. To help convey this message to the operator, safety signboards will be used - where should they be positioned?*

The signboards should be positioned in a location where they are likely to be seen by the operator before using the machine and for as long as they will be exposed to the hazard. In this case, a suitable location for the safety signboards would be on the machine itself at eye level, facing the operator. An unsuitable location for the signboard would be at the door to the classroom or to the side of the machine where the operator is unlikely to look.

Example 2. *A Technology classroom has implemented a policy whereby no coats or schoolbags are allowed inside the classroom. This policy will be reinforced using a safety signboard - where should it be positioned?*

Safety signboards need to convey their message to their target audiences in plenty of time and before they are exposed to the hazard. A sign at the back of the classroom to convey the message in this case will be of little use because by the time students see it, they may already be inside the classroom with their coats and bags.

Therefore a signboard informing students that no coats or bags are allowed inside the classroom should be placed at the entrance to the classroom where it is visible to students before they enter.

Example 3. *A belt sander has been found to present the risk of entanglement and this information is to be conveyed to the operator through the use of a safety signboard - where should it be positioned?*

The signboard needs to be placed where it is likely to be seen by the operator before its use. One possibility is to place it on the box/case of the tool itself. However, unless the tool is guaranteed to return to this case after every use this will not suffice. The tool may pass to another user who will not see the signboard on the case. To prevent this, the signboards may be attached to the actual tool. However if they are to fit on some tools, the signboards will have to be very small and may become worn and difficult to understand with frequent use. An alternative is to designate an area in which the belt sander may only be used. The safety signboard(s) can now be displayed clearly in this area, where they are likely to be seen by operators of the tool at all times.

Example 4. *A particular metalwork classroom has been found to use a number of hazardous substances. The risk associated with these substances is to be partially controlled through the use of safety signboards - where should they be positioned?*

A safety signboard should be used to identify any storage areas for such substances. Additionally, suitable hazard communication symbols should appear on any containers used to store or prepare hazardous substances. Again a designated area (in which these materials may only be used) may be adopted. The safety signboard(s) can now be displayed clearly in this area, where they are likely to be seen by the users at all times.