OSHAssociation UK

Occupational Safety and Health Training

for

International Professional Certificate in Occupational Safety and Health

COURSE 109 GUIDE

WORKPLACE HEALTH & SAFETY

Course 109 Guide

Workplace Health and Safety

Course Contents:

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- Safety Signs
- Workplace Safety

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Revision Question

Course Introduction

Occupational Safety and Health Association (**OSHA**ssociation) has an ongoing commitment to assist and support employers and workers to work together to develop skills and put systems in place to maximize health and safety in the workplace.

This Training Manual has been designed with two critical factors in mind; firstly, the competencies required by employees who are under direct co-ordination in the workplace; and secondly, employees who are in need of skills development in Health and Safety. This Training Manual seeks to integrate these competencies and build learning from both perspectives simultaneously.

Competence-Based Assessment

The training resource materials developed for this training are based on the British legislation. The overall approach to the systematic management of **OSH** in the workplace requires the involvement of managers to establish an appropriate system, supervisors/coordinators to implement the system, and employees to contribute to the system.

This Training Manual has been developed to assist employees, particularly those with limited safety knowledge and skills, to contribute to their workplace safety. Putting appropriate evaluation, review and adjustment of the overall **OSH** system within an organization.

Course Content

Each course has activities built into it that are designed to draw on knowledge developed in the workplace such as:

- Identifying hazards in your work area
- Work station inspections for manual handling
- Listing hazardous substances at work
- Explaining evacuation procedures.

Listening Activity

At the end of each topic there is a listening activity that is centered on a story or dialogue typical of a manufacturing environment. The listening activities are best used without the aid of the written text in the first instance for two main reasons: firstly, to assist in the development of aural skills, and secondly, to assure assessment that does not rely on written skills.

Responses to the listening activities, and subsequent discussions about the potential issues that they relate to, are an important gauge of a trainee's competence.

Trainees are to report to their instructors/trainers on the activities and exercise in each topic, for the purpose of assessing their level of understanding and competencies in the training program. All the activities and evaluation exercises are to form part of the examination process for the award of certification at end of the course.

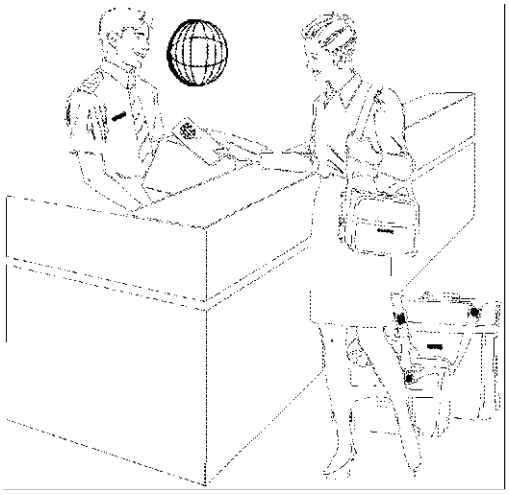
Certain trainees prefer to take the written sections home in order to access family support. We consider this flexibility an important component of their overall learning program.

Health and Safety at Work Act 1974.

It makes sure you are safe and healthy at work.
All workers, casual, part-time, full-time, contract and even students, are protected by the safety law.

Who is responsible for making the workplace safe?

Everybody!



Who is responsible for workplace safety

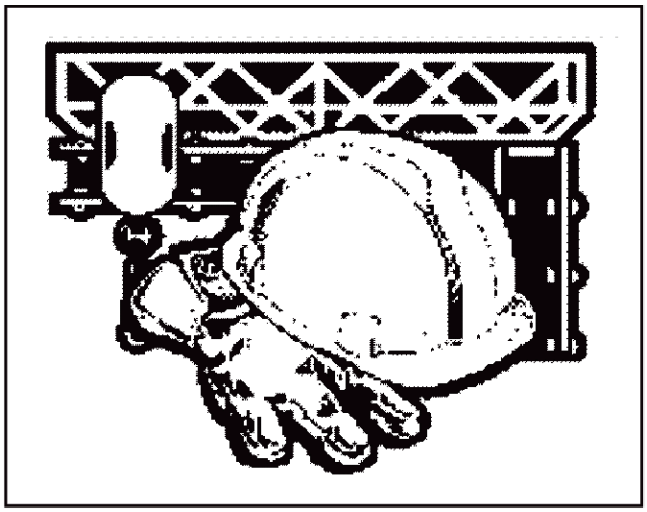
Managers, supervisors or team coordinators are responsible for making sure that the environment is safe to work in.

Some of the responsibilities include:

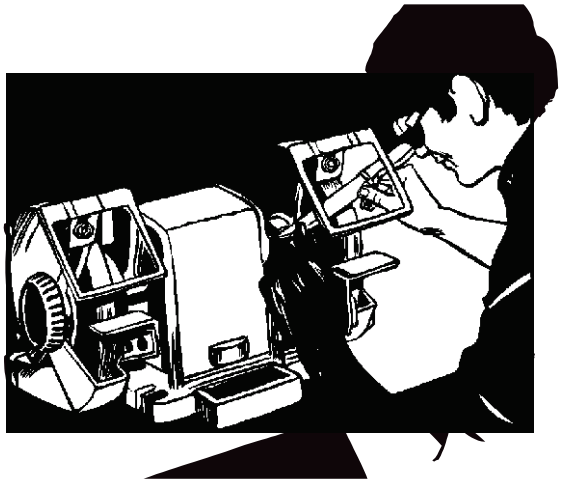
- Adequate lighting
- A clean and tidy work area

Conducieve office environment

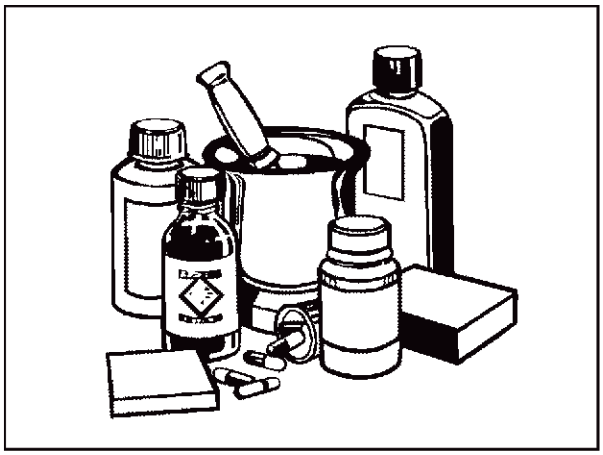
Safe machines and materials



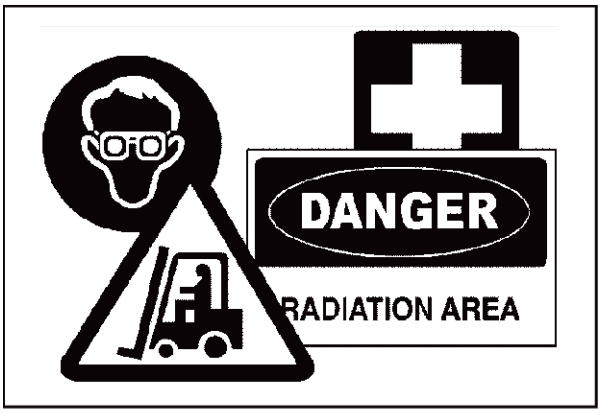
Safety equipment



Safety guards

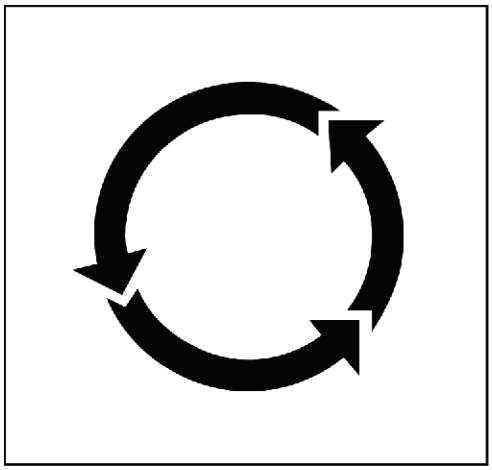


Chemicals stored separately

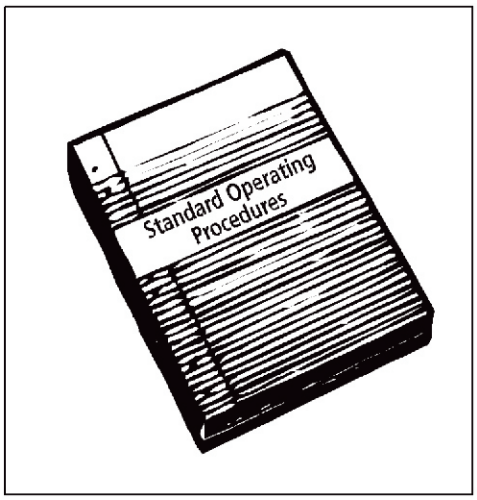


Safety signs

Safe working practices



Job rotation



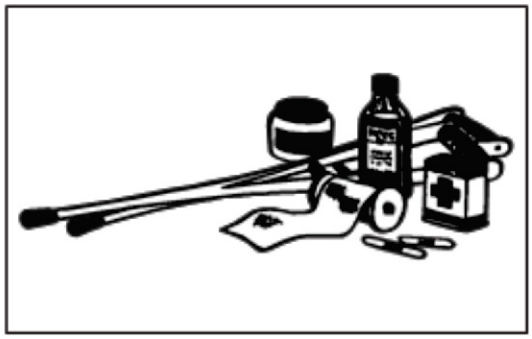
Standard operating procedures (SOPs)

•Facilities for workers

Lunch rooms

Information, instruction and training

Toilets and wash basins



First Aid equipment

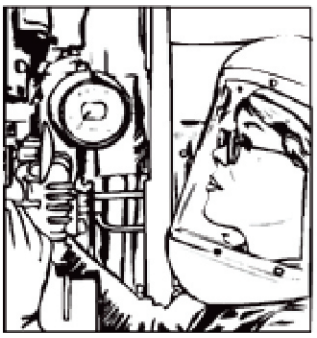
Quiz:

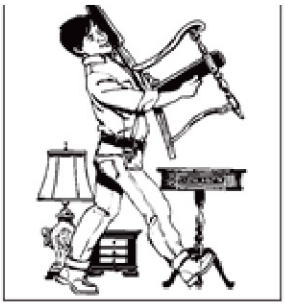
Don't move to the next page until you are done with this quiz.

What do you need to do to make the workplace safe?

Match your responsibilities with the pictures

1	2	3	4	5
Look after yourself at work **Be Careful!**	Think about the safety of other workers	Follow instructions	Use protective equipment	Do not be affected by alcohol or drugs at work





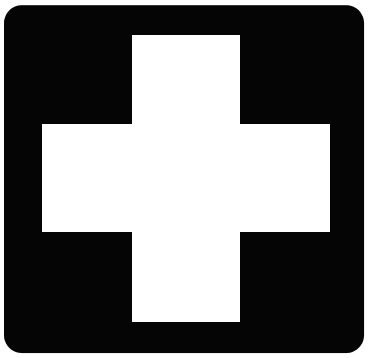
Safety Signs

The signs and symbols that you see in the workplace are to help remind you or tell you about something.

Now, do you recognize any of these signs?

Gloves MUST be worn

Beware of Forklift



First Aid

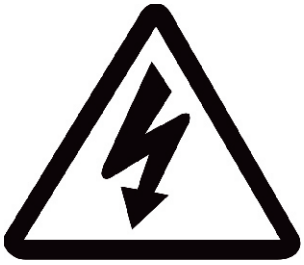
No Smoking

Safety signs

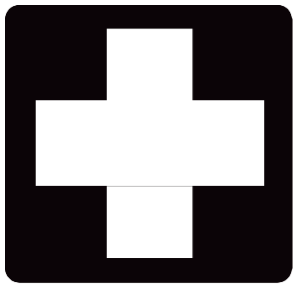
NOTE: Kindly follow the instruction and write within spaces provided. If further explanation, consult your tutor or trainer.
Do you know the meaning of the signs and colours?
Explain where you can see the following signs.

Indicate the environment and why?

Indicate the environment and why?



Indicate the environment and why?



Indicate the environment and why?

Safety signs

Safety signs with colour identification

Prohibition - You must not

Red circle sign with a diagonal line through it

Caution... Be careful
(Beware of Electricity)

Yellow triangle

Mandatory - You must wear this

Blue circle with a picture inside

Emergency

Green square

Safety signs are there so everyone sees them and always obeys what they say. Everyone needs to understand them.

Safety signs can be of different types

They can be pictures only

They can be words only

They can be both pictures and words

Quiz A:

Safety Signs

Draw three signs that you remember from where you work, or seen before and explain why!

What do they mean?

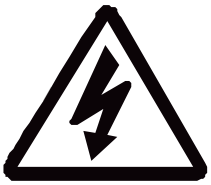
Draw	Explain
	_____ _____ _____
	_____ _____ _____
	_____ _____ _____

Quiz B:

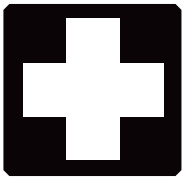
Activity

Draw a line to match safety pictures with their correct words.
NOTE: Your answers will be assessed by your tutor/trainer.

Eg. No smoking have been done for you



Beware radiation



First aid

Breathing apparatus must be worn

Hearing protection must be worn Beware electricity

Fire extinguisher

Beware forklift

Eye protection must be worn

Gloves must be worn

No smoking

Quiz C:

Listening activity

Van was walking through the factory on his way to the stores. He was happy to be at work and was smiling as he thought about the weekend ahead.

When he went through what he thought was the new entrance he noticed the red safety sign but did not pay much attention.

Next thing he heard:

"Hei! What are you doing coming through that way?
"Didn't you see the sign?
"It says... No admittance!
"That means you buddy!"

What did Van do wrong?

What do red safety signs mean?

What should Van do next time?

WORKPLACE SAFETY

How can you know if... your workplace is safe?

To get this question clear for your understanding, make a list of some of the things that might be dangerous in your workplace.

Dangers at work (brief and specific)

_____

_____

_____

_____

_____

_____

_____

_____

_____

What do you have to do if you see something at work that might be dangerous?

You need to talk to

Your supervisor... or team coordinator... or team leader about the hazard/risk

If the hazard is not fixed, your health and safety representative may be able to help you.

Occupational Health and Safety Committees

What do you understand, they do?

Health and safety committees are made up of workers and employers who meet to discuss health, safety and welfare in the workplace.

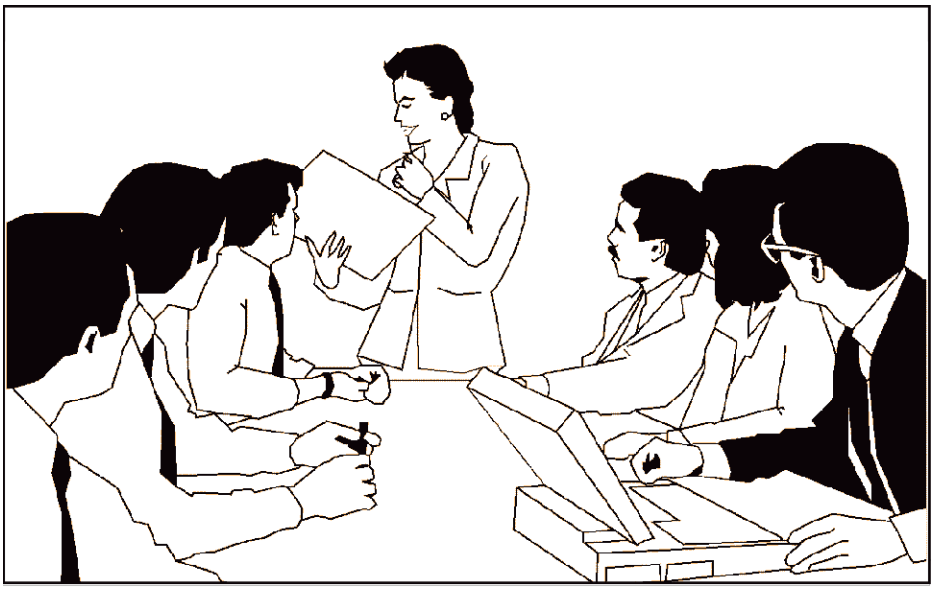
Health and safety committees assist in developing health and safety policies and consult with the employer in changes of policies or procedures.

At least half of the committee members must be workers.

The committee must meet at least every three months or sooner.

Members of the committee who represent workers are elected by the workers. They are usually health and safety representatives.

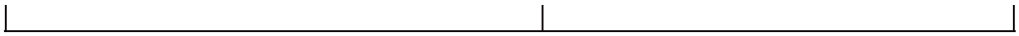
If your supervisor, team coordinator or health and safety representative cannot fix a safety problem, it should go to the committee to be discussed.



How healthy are you?

Health Assessment:

Put a cross on the line where you think you belong:



not very healthy at all healthy very healthy

How did you decide?

Talk about this in a small group, with your colleagues in the class.

What can harm your body?

Tick accordingly

- ☐ Smoking too much
- ☐ Not enough exercise
- ☐ Not feeling good about yourself
- ☐ Too much junk food
- ☐ Too much alcohol
- ☐ Worrying too much

Now, you know the criteria for a healthy worker, you need to reassess yourself on the health measurement above.

Disease

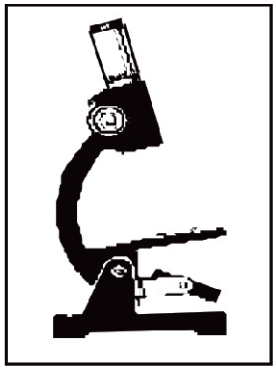
Getting a disease is not like catching a cold. Diseases usually develop slowly. If you are aware of your body and notice any changes, you might be able to get help before your health gets a lot worse.

If you are worried that you might be developing a disease, make an appointment with your doctor. They will talk things over with you and do some special tests to check your health. This is one key factor in health safety.

Hygiene is about keeping yourself, food areas and toilet areas clean.

Why is keeping clean important?

There are germs and bacteria in the air and on surfaces that can make you sick. You can only see bacteria under a microscope



What sort of things can go wrong with your body?

As a health and safety expert, you must know the body part(s) that can be affected by various diseases.

Match the diseases or illnesses with the body parts they affect. This is to give you a clear understanding.

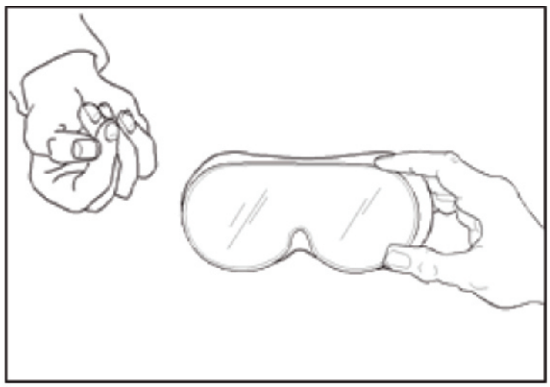
Disease/illness		Body parts affected
Lung disease	☐	☐ any part of the body
arthritis	☐	☐ ears
Hearingloss	☐	☐ spine
dermatitis	☐	☐ bones
migraines	☐	☐ lungs
backinjury	☐	☐ head
cancer	☐	☐ skin

Your answers will be assessed by your trainer/tutor, who will explain better.

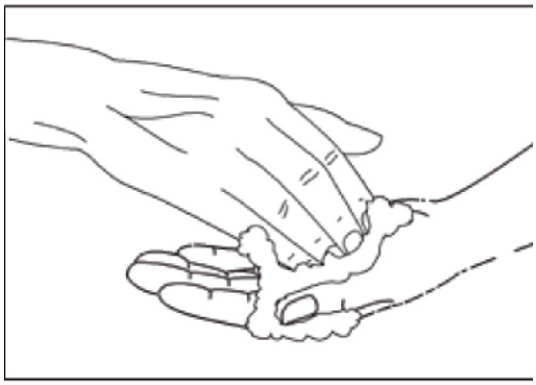
PRECAUTIONS

What can YOU do...
to make sure that you don't spread germs and bacteria at home or in the workplace?

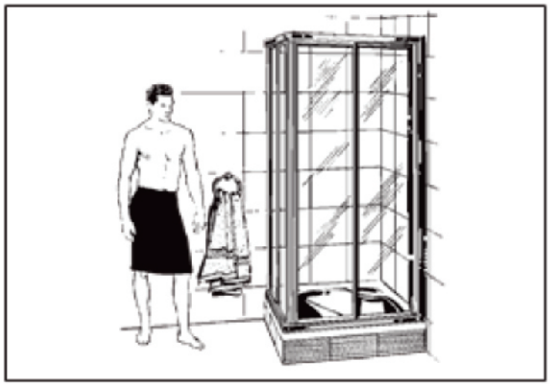
Make sure you wipe food
benches with a clean cloth



Don't share ear muffs,
gloves or masks



Wash your hands every time
you use the toilet



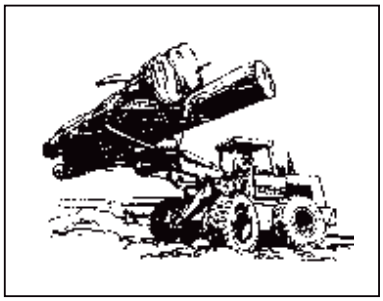
Shower regularly

Do you know...
if something in your workplace is a hazard?

Hazards are... dangers at work.

You might have a hazard to do with:

- ✓Machinery
- ✓Equipment
- ✓Raw materials
- ✓Workplace
- ✓Other workers
- ✓Your job
- ✓Poor housekeeping

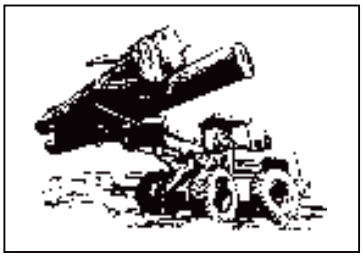


How can these things affect you... and make you less safe at work?

Let's analyze them one after the other

Machinery

You might work too close to machines that make lots of noise.

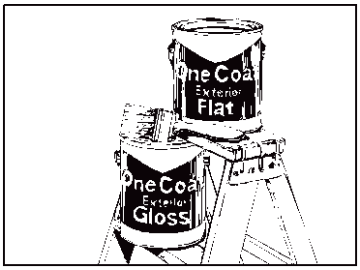


Raw materials

You might use chemicals or be near chemicals where you can breathe the fumes or where they could be spilled on your body.

Equipment

Equipment and tools may not be put away correctly and could fall down or people could get hit by them.

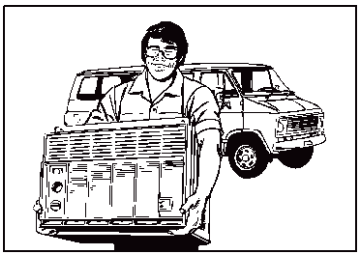


Workplace

There could be oil or water spilt on the ground where you work that could make you slip and fall.

Your job

In your job you may have to do a lot of lifting or twisting with your body or arms.



If you find a hazard at work... you must tell somebody

Who to tell?

Supervisor / team coordinator

Health and Safety representative

After you have told your health and safety representative and your team coordinator or supervisor that there might be a problem in your work area, they will need to come and have a look.

Now, let's look at this Scenario/Example!

When Van found a hazard...

Van arrived at work at 6.00am and went to start work on the cutting machine. After preparing strips he checked the machine. He noticed that the guard rail was missing which was unusual. It was there last week.

Van told his team coordinator and Derek, the health and safety representative. As the three of them inspected the machine, they asked the following questions:

Why . . . was the guard rail off?
Who . . . was last working in the area?
Why . . . wasn't there a danger tag on the machine?
Were . . . there any messages in the log book?
Was . . . the cutting machine mentioned in the last safety inspection?

A nightshift worker told Van that they usually took the rail off to make it easier and quicker to clean out the machine. This way, they were able to improve production by making an extra 15 parts per shift. Everyone seemed pleased with their extra output.

In small groups, discuss the problems with this story about Van and the hazard.

But, remember: **SAFETY FIRST**

Based on the Scenario above about Van,

How did...

Van's team coordinator and his Health and Safety representative assess the risk with the cutting machine?

Firstly they gathered information about the problem. They asked lots of questions and spoke to a lot of other people.

They decided that there were two main reasons for the hazard:

1. The guard rail on the cutting machine was heavy and got stuck easily.

2. The workers on nightshift needed more training in recognizing hazards.

They brainstormed the following ideas:

1. Get the boss to buy a new machine from Germany.

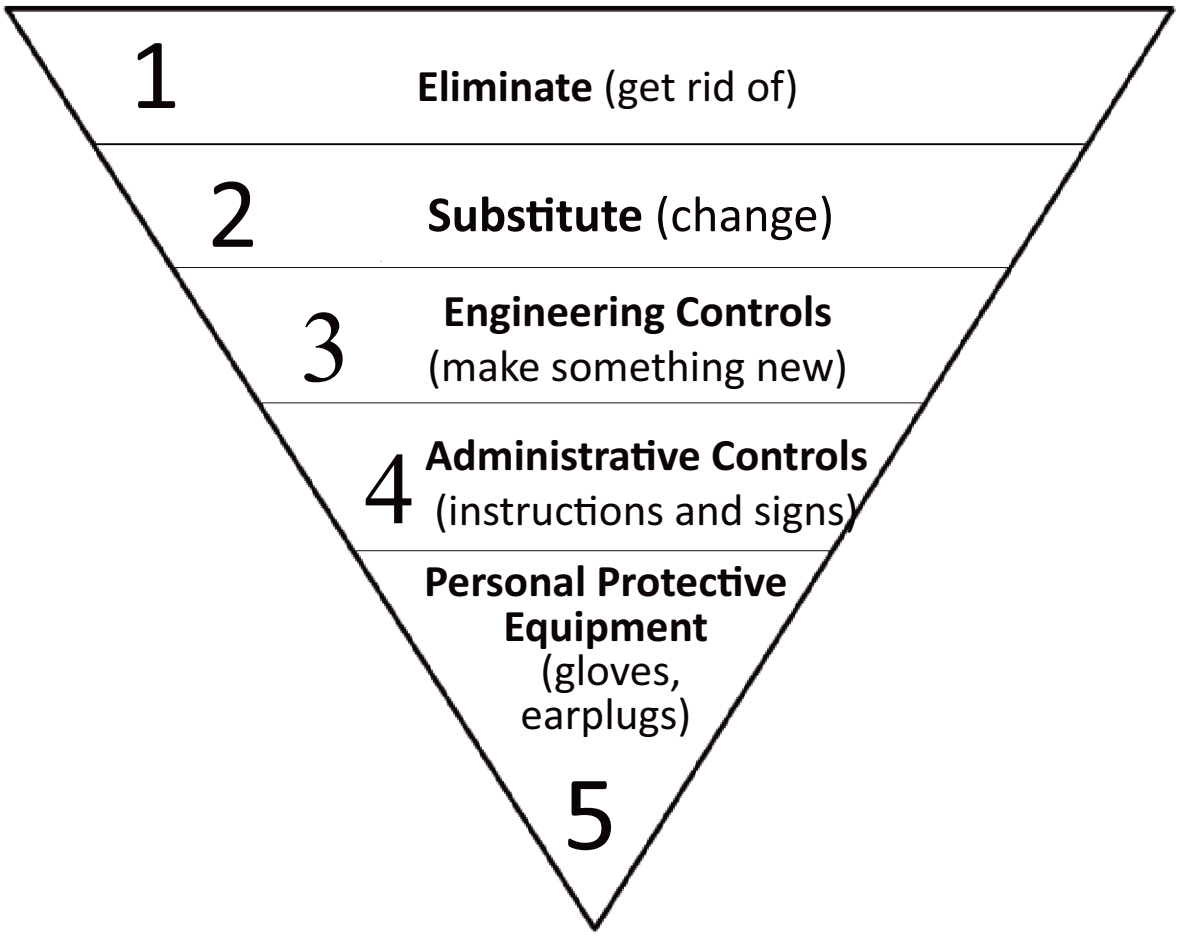
2. Change the guard rail for an infra red beam that will shut the machine down if people get too close.

3. Get maintenance to make a new guard rail that is not as heavy and doesn't get stuck.

4. Get the technical people to put up a new standard operating procedure (SOP) and teach all the workers how to use the machine.

5. Provide stronger gloves.

Then . . . .
they looked at the hierarchy of hazard control diagram



Van's team coordinator and his Health and Safety representative analyzed the problem using the hierarchy of hazard control, let's look at the controls they implemented to solve the problem in the next page.

Solution to Van's Scenario.

With all the ideas that they brainstormed, the health and safety representative told them what type of controls they were to initiate:

1. Get the boss to buy a new machine from Germany...

This control is called **elimination**. You stop the problem of having to clean the machine by getting one that cleans itself. *This is the best way to control the hazard.*

2. Change the guard rail for an infra red beam that will shut the machine down if people get too close...

This control is called **substitution**. You can stop the problem of people not using the guard and hurting themselves because the machine will stop if they get too close. *This is the best way to control the hazard.*

3. Get maintenance to make a new guard rail that is not heavy and doesn't get stuck... This control is called **engineering**. You stop the problem of having to lift the heavy guard rail so that it is lighter and easier to lift when you have to clean the machine. *This is the best way to control the hazard.*

4. Get technical people to put up a new standard operating procedure and teach all the workers how to use the machine...

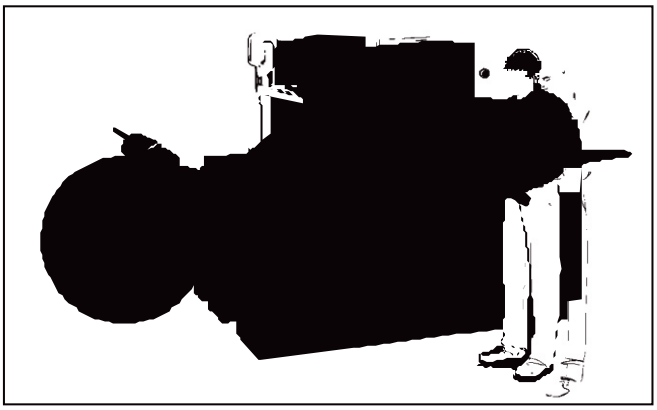
This control is called **administrative** and you can help the workers to make sure they use the machine the right way and keep safe. *This way of controlling the hazard depends on making sure everybody always uses the machine and the guard rail the right and safe way, but it is not the best.*

5. Provide stronger gloves...

This control is called using **Personal Protective Equipment**. This way does not stop people from taking the guard rail off and keeping themselves safe when they clean the machine. *This way of controlling the hazard is the last choice. You could still hurt yourself if you don't use the guard rail when cleaning the machine.*

Assessment:

What hazards are in your work area?



Note them down below and recommend corrective actions as did in

Van's case (brief and specific)

Quiz A:

Match the ideas...

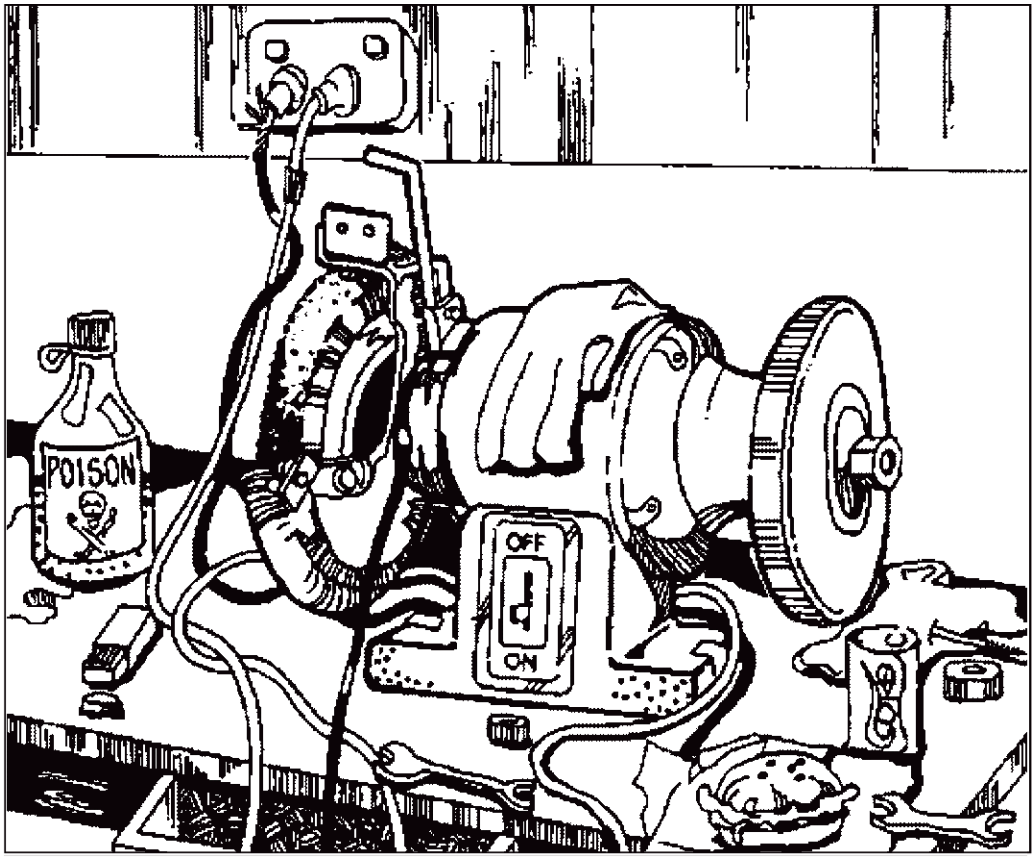
Pay attention here!

They brainstormed with the control measures. Draw a line to join together the ideas with the controls from best to last.

The more you practice as directed, the more you master it and hope you are enjoying studying?

Ideas	Control measures
Provide heavier duty gloves	**Eliminate** (get rid of)
Get the boss to buy a new machine from Germany	**Substitute** (change)
Get maintenance to make a new guard rail	**Engineering controls** (make something new)
Get the technical people to put up a new SOP and teach all the workers	**Administrative controls** (instructions and signs)
Change the guard rail for an infra red beam	**Personal Protective Equipment** (gloves, earplugs)

Circle the hazards that you can see in this workplace



List the control measures, if you were to be the Team coordinator or Supervisor at this workplace using hierarchy of hazard control.

Quiz C:

Developing your Safety writing skills

Change the words in the brackets for an easier phrase from the box below. The first one is done for you.

1. The supervisor decided to **(eliminate)** the cutting machine process.

1. The supervisor decided to **(get rid of)** the cutting machine process.

2. Van's idea was to **(substitute)** the guard rail for an infra-red beam.

2 .

_____

3. The technician thought about **(engineering)** as a solution to the dangerous cutting machine.

3. _____

4. We didn't want to rely on **(administrative controls)** to stop the workers from hurting themselves.

4. _____

5. When a workstation is very noisy, workers need to wear **(personal protective equipment)**.

5 .

_____

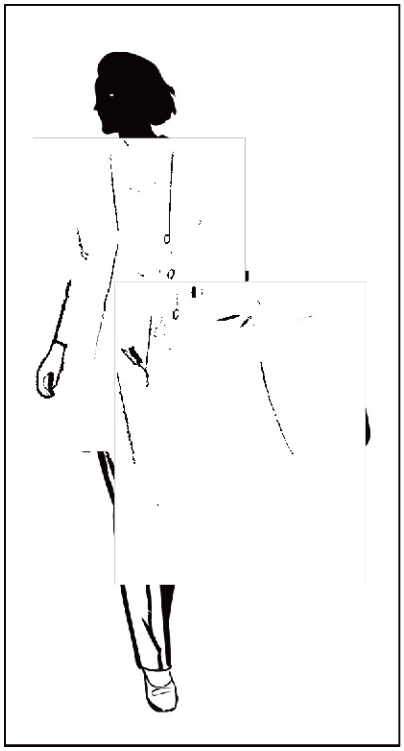
get rid of	**earplugs**	**change**
making something new		**written instructions**

Hope you enjoyed the quiz in this unit, the next unit is more impacting and interesting.

What is manual handling?

It is... picking up your child?

It is... mowing the lawn?

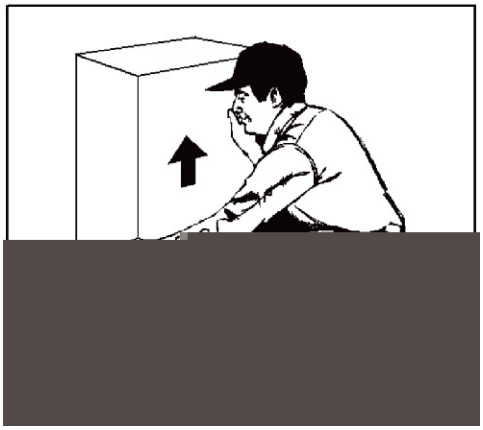


It is... going shopping
and taking it home?

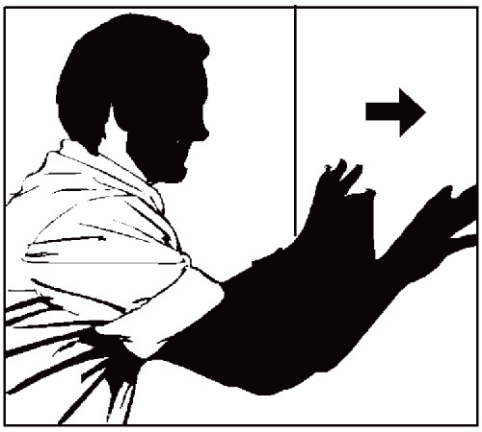
Manual handling

Meaning:

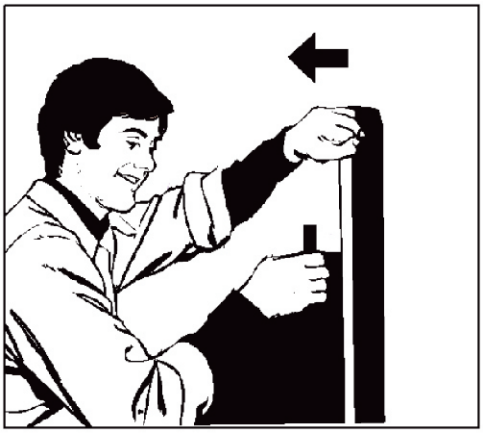
What is... lifting?



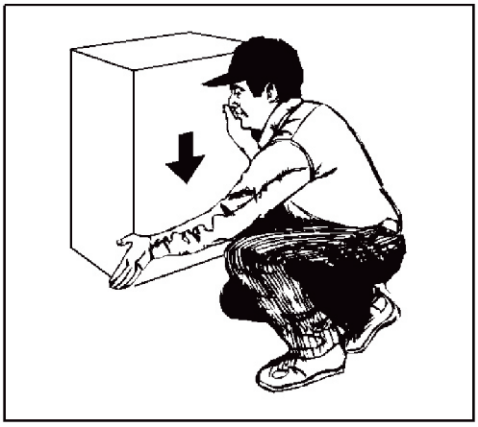
What is.... pushing?



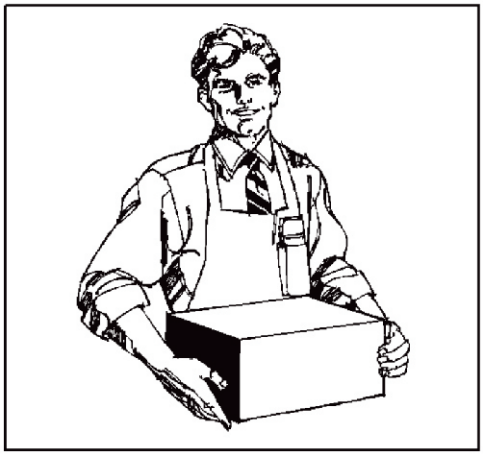
What is... pulling?



What is... lowering?



What is... carrying?



Manual Handling:

Manual handling can be defined as any task or activity that requires workers' ability with their hands and strength.

Factors to consider:

- Load
- Individual Capacity
- Task
- Environment

Each factor in turn should be assessed to determine whether there is a risk of injury. When this has been completed, the information can then be processed giving a total risk assessment.

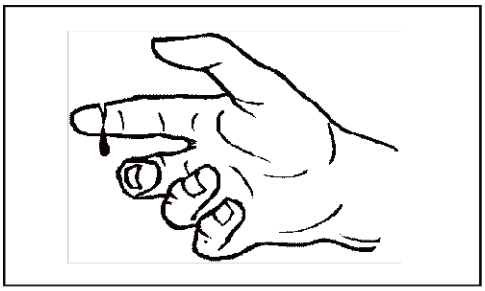
When...

lifting, pushing, pulling,

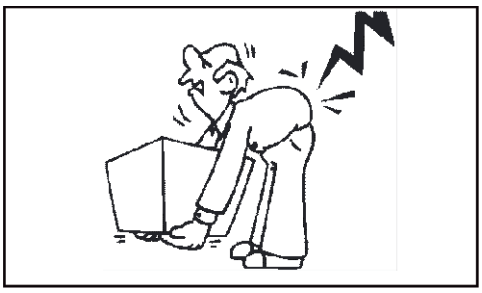
lowering and carrying...

you need to be very careful -

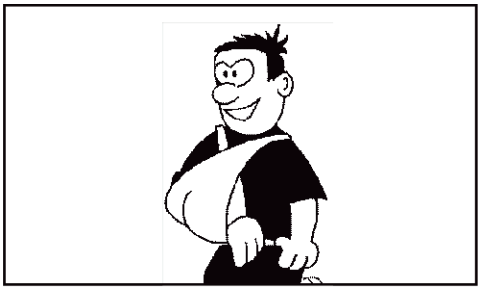
You might hurt yourself



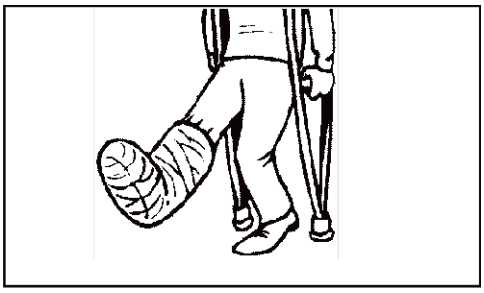
You might hurt your back,
your spine or your muscles.



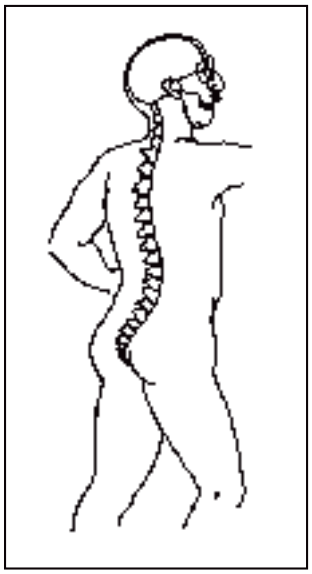
Your fingers, hand,
arm or leg might get hurt.



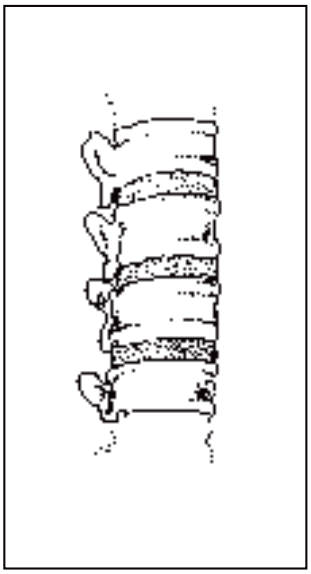
You might sprain your ankle.



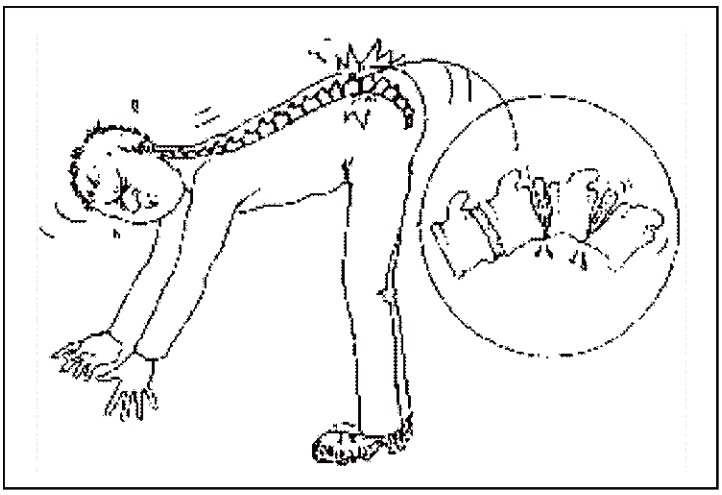
Lifting, pushing, pulling and
moving objects... can hurt your body



This is your back



spine

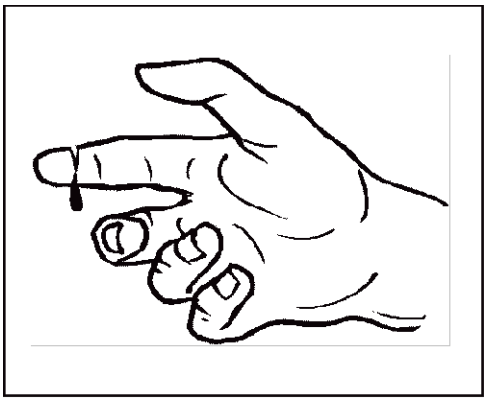


This is what can happen to your back

These parts of your body could be injured or hurt:

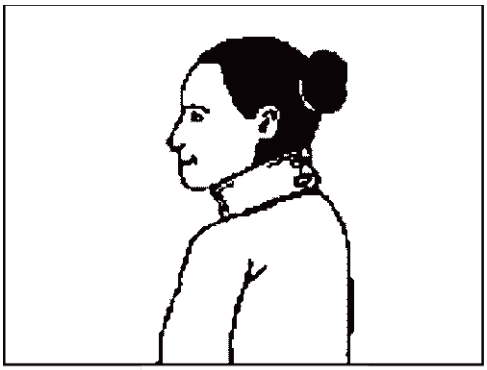
Skin

You can get cuts and bruises



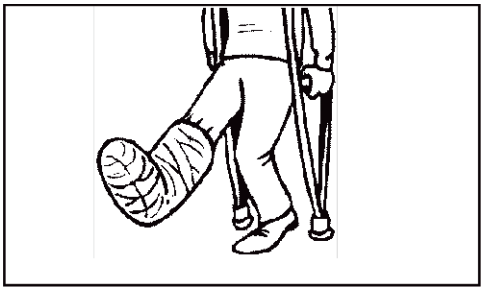
Muscles

You can sprain or strain your muscles



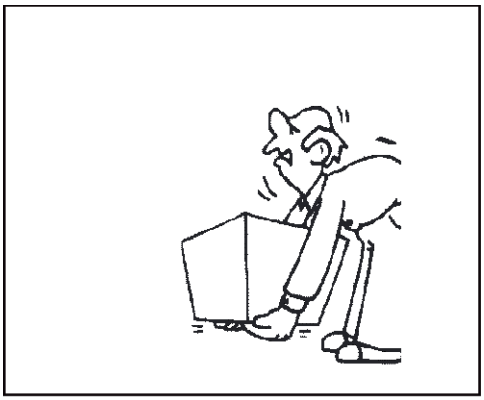
Bones

You might break your bones



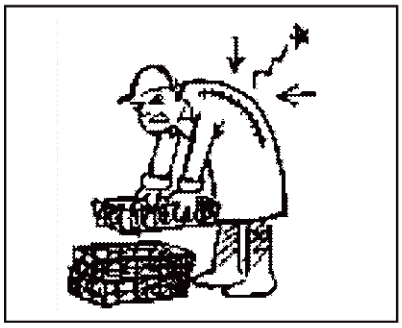
Spine

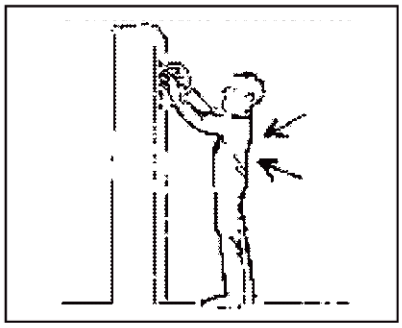
You might hurt your back

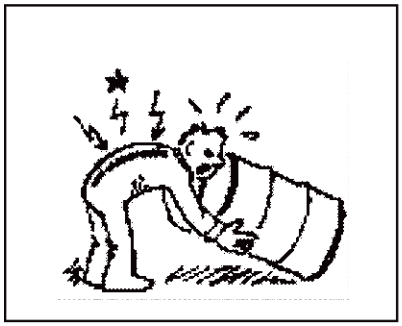


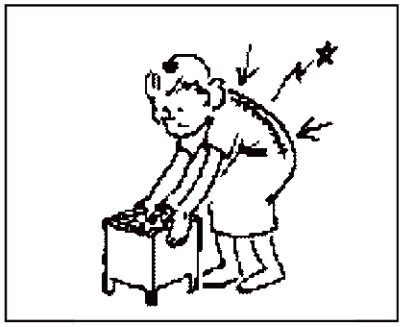
Do you do any of these jobs?

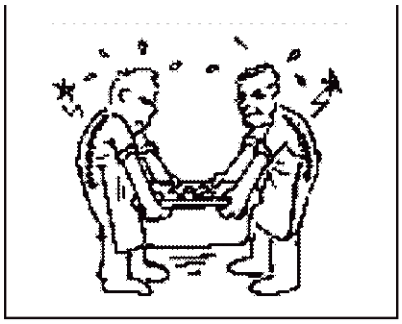
Please tick the appropriate boxes that reflect your daily activity/task.

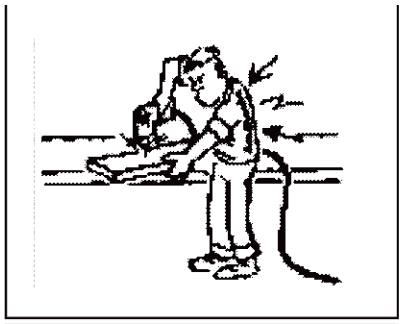
☐ 

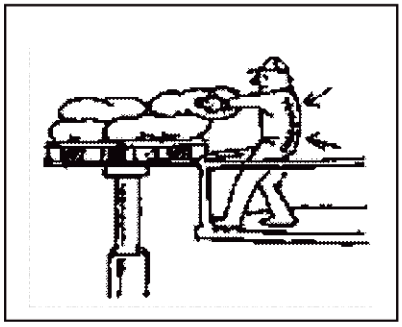
 ☐

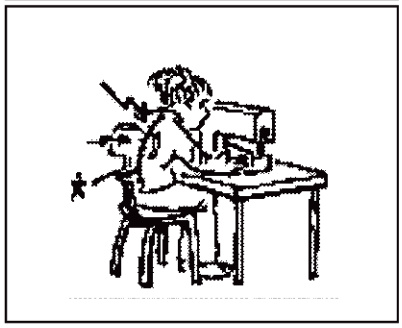
☐ 

 ☐

☐ 

 ☐

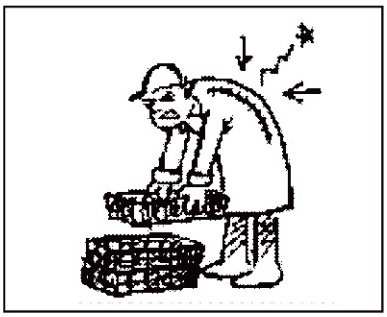
☐ 

 ☐

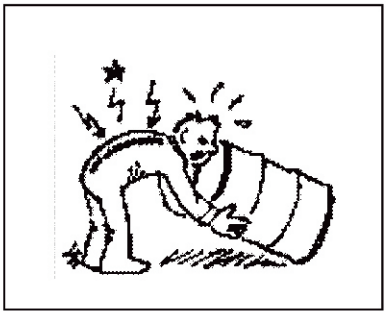
These are some ways...

that you might do your work now and how you can change it so that you don't hurt yourself.

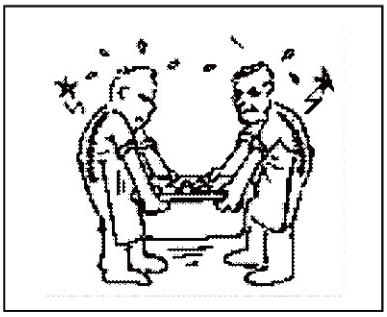
Problems



Liftingobjects



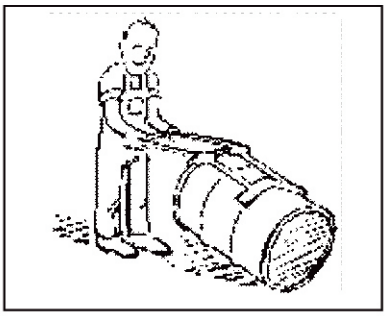
Movinga drum



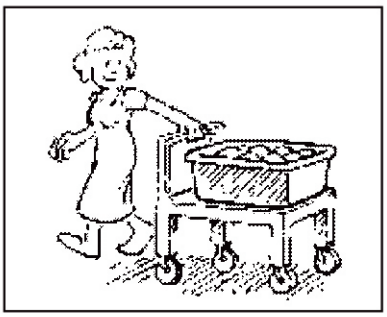
Two people are carrying a heavy tray

Solutions

Usinga machine... to lift the objects



Usinga drum tilting lever... to stand the filleddrum up

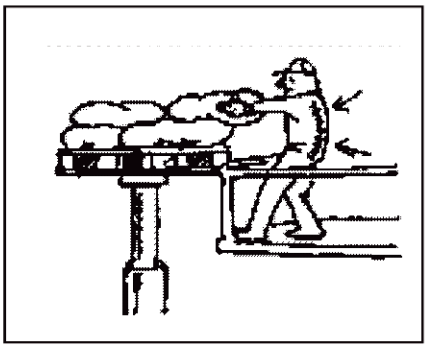


One person is wheeling the tray on a trolley

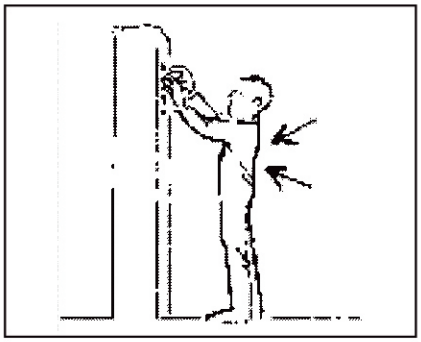
These are some ways...

that you might do your work now and how you can change it so that you don't hurt yourself.

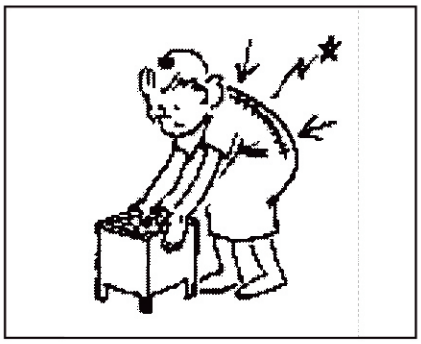
Problems



Unloading heavy bags from a pallet by hand

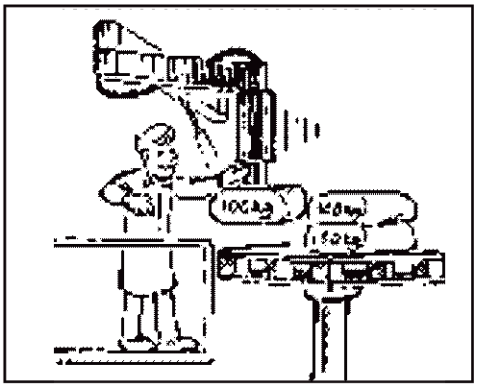


Thebuttons are above shoulderlevel

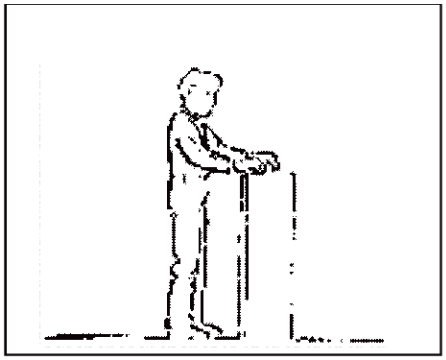


She has to lift the metal bin to empty it

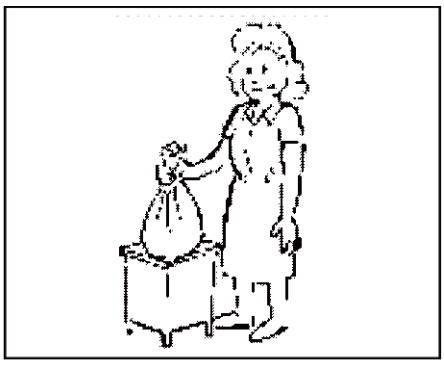
Solutions



An electric machine unloads the bags from a pallet



The buttons are below shoulder level



She only has to lift the plastic bag insert which is inside the bin

Individual lifting

If you have to lift anything, this is the way to make sure that you don't hurt yourself.

Always, follow this training technique of lifting load. Now,

Plan the lift. If the load is too heavy, get help.

If possible, place your feet apart.

Bend your knees and hold the load firmly with both hands.

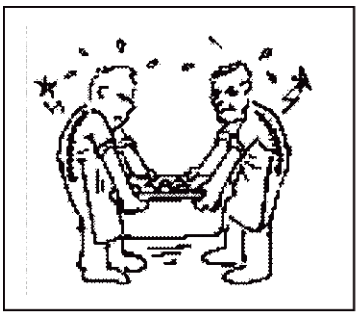
Raise your head and pull your chin in to keep your back straight.

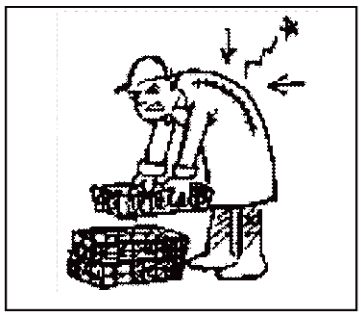
Lift the load to your waist slowly by straightening your legs, keeping your elbows close to your body.

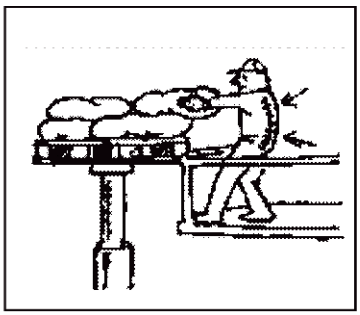
To put the load down, bend your knees and keep your back straight.

If you feel pain in...
your back, shoulders, legs, arms,

or hands when doing your work...







…you need to tell someone before the pain gets worse.

You need to tell your...

Health and safety
representative and....
your supervisor.

They can help you to change
what you do so that you
don't hurt yourself

Assessment A:

Workplace Activity

Think of a job you do where you could hurt your back, arms or legs.

Why is there a risk?

What is the risk level (Low/Medium/High)?
Why?

Do you have to carry heavy things?

How could you change this job to make it safer?

NOTE: Your answers will be assessed by your trainer/tutor

Quiz:

Fill in the gaps in the sentences

Using the words from the list below.

Van had a _ _ _ _ _ _ _ with his job. He was finding it very difficult to push the _ _ _ _ _ _ _ . He did not want to take a _ _ _ _ with his _ _ _ _ . Van decided to talk to his supervisor.

They decided that the best _ _ _ _ _ _ _ _ was to replace the wheels on the trolley.

Use words from this list.

back	risk	solution
trolley	problem	

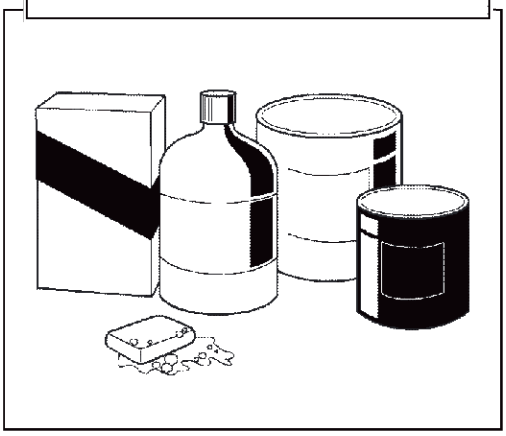
Hazardous substances or chemicals...

can make you sick...
or injure you...

if you come in contact with them.

Some common products...
that contain chemicals

- Petrol
- Alcohol
- Battery
- Acid glue
- Oil-based paint
- Cleaning products
- Fluid pesticides
- Cigarettes
- Hair dye



Assessment A:

Can you list some hazardous substances at your workplace?

_____

_____

_____

_____

_____

Do you know what these chemicals do to your health?

_____

_____

_____

_____

_____

Do you know how to protect yourself from them?

_____

_____

_____

_____

_____

Assessment B:

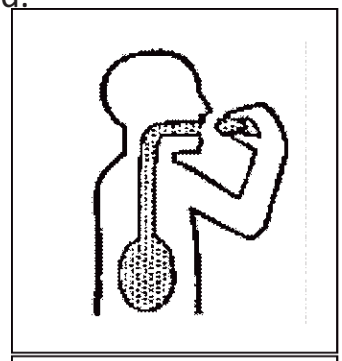
Label each diagram correctly

1. Inhalation

2. Skin or eye contact

3. Eating or drinking

Identify the image with the right word above. The more you practice is the more you understand.



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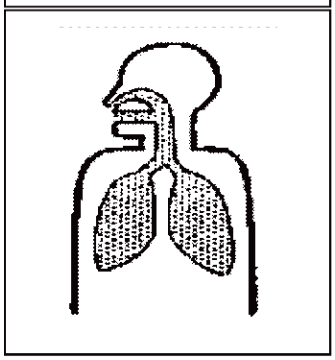

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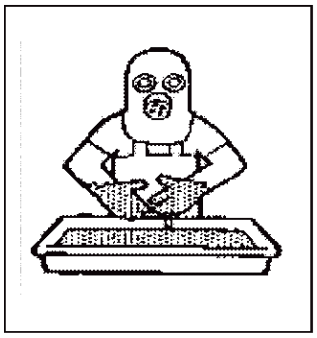
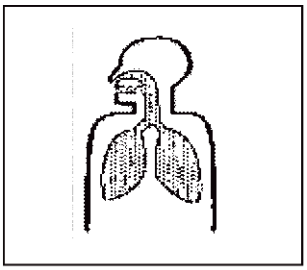


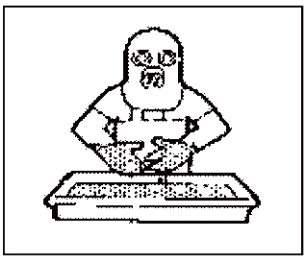
_____

How do... Hazardous Substances enter the body?



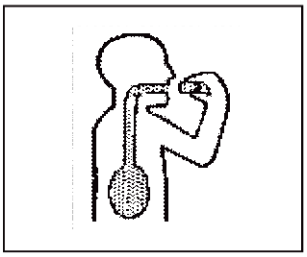
Inhalation (breathing in)

Breathing in of vapours and dust is the main way that hazardous substances enter the body. In the lungs, chemicals are absorbed from the air directly into the bloodstream and are carried to all parts of the body. Dust particles are not absorbed into the blood, but they can penetrate the lung and remain there, causing a lot of damage.



Skin or eye contact

Some chemicals can enter the body easily through the surface of the skin while others can enter through cuts or scratches on the skin.



Eating or drinking

People can swallow food and drink which has been contaminated with chemicals in the workplace, or through chemicals on their hands. Dust particles in the air can be swallowed.

How does it affect you?

How do...
Chemicals affect your body?

- Headaches
- Dizziness
- Sleepiness
- Itchiness / rash
- Nausea(feeling sick)
- Burns to skin or Eyes
- Vomiting
-
- Hard to breathe
- Coughing
- Cancer
- Death
- Unconsciousness

How do we...
keep ourselves safe from these chemicals?

Know what you are working with!

You can find out information about a chemical from:

Material Safety Data Sheets (MSDS)

These will give you information on the chemical, its health hazards and how to handle them safely.

How do you get it?

-From your supervisor or team coordinator
- From your health and safety representative
- From the chemical supplier

List some chemicals used in your workplace

What part of the body do they affect and how?

Chemical in your workplace	Body part	How does it affect you?

Make sure you know where the MSDS folder is kept in your work area.

If you decide the chemical may affect you... you can

- ✓ **Eliminate...**

  the chemical

- ✓ **Substitute or replace...**

  the chemical with a safer one

- ✓ **Use engineering controls such as...**

  putting in good exhaust ventilation

- ✓ **Use administrative controls such as...**

  changing the way the job is done or attending safety training

- ✓ **Use personal protective equipment such as...**

  wearing gloves or a mask

Personal Protective Equipment (PPE)

If you cannot eliminate, substitute or change the way you work with the chemical, you need to wear your Personal Protective Equipment (PPE).

Quiz:

Fill in the gaps in the sentences...

Exposure to a _ _ _ _ _ _ _ _ _ substance may cause illness or injury.

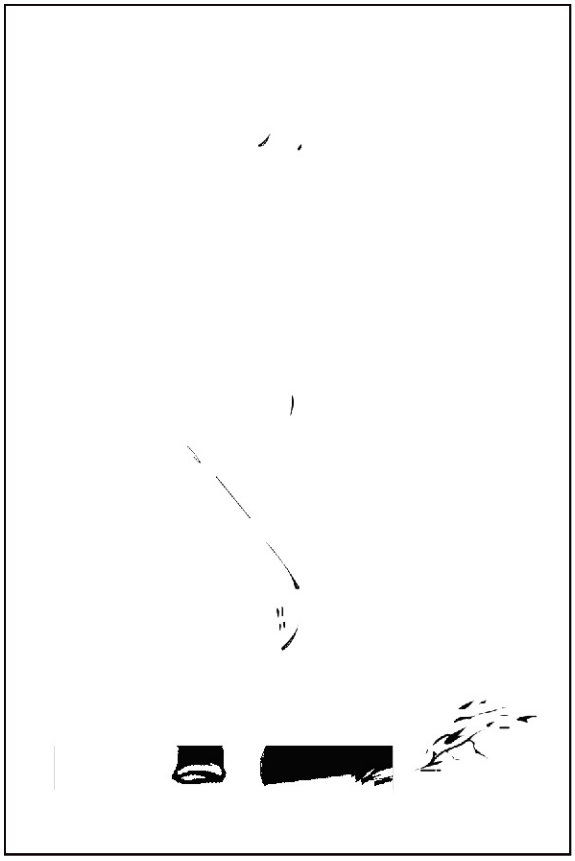
To _ _ _ _ _ _ _ yourself from a hazardous _ _ _ _ _ _ _ _ _ you should first try to _ _ _ _ _ _ _ _ _ the substance.
You need to wear your personal protective equipment to ensure you do not _ _ _ _ _ _ chemicals through your skin.
One way to check whether a chemical is a _ _ _ _ _ _ to you, is to look at the Material Safety Data Sheet.

Use words from this list.

hazard	**absorb**	**eliminate**
substance	**protect**	**hazardous**

What is sound?

Sound is caused by the vibration of air particles like waves in the sea. Noise is unwanted sound. Many workplaces are very noisy and this can affect your hearing over a long period of time.

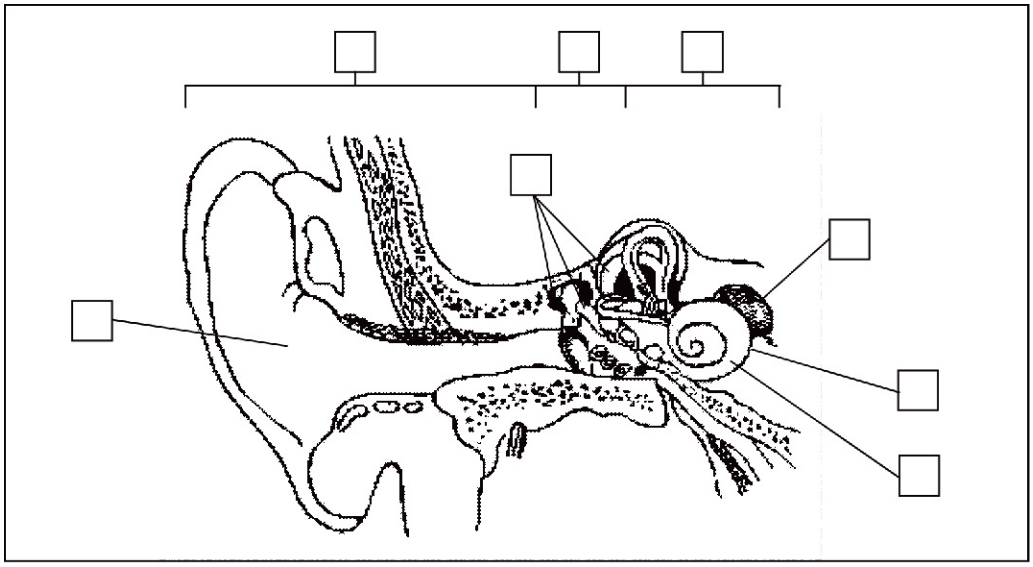


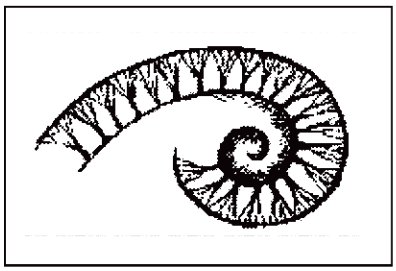
The ear... how does it work?

The ear has three main **section**s - outer, middle and inner ear.

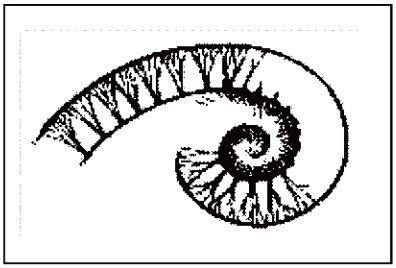
Label the diagrams to show:

1	outer ear	5	inner ear
2	ear drum	6	Cochlea
3	bones	7	Hairs
4	middle ear	8	auditory nerve





Cochlea of a person with normal hearing



Cochlea of a person with severe hearing loss

The ear... how does it work?

When sound waves enter the ear they strike the eardrum making it vibrate. The vibration is passed on to three bones in the middle ear which vibrate the fluid in the cochlea.

The tiny hair cells in the cochlea pick up the movement from the fluid and change it into electrical impulses for the brain.

The thousands of hair cells in the cochlea are like grass on a lawn. If the traffic on the lawn increases, the grass is flattened. If the traffic stops for a while, the grass stands up again. However, if the traffic remains heavy, the grass will remain flat and will die off.

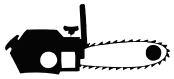
Too much noise will have the same effect on the ear.

When sound waves enter the ear they strike the eardrum making it vibrate.

Measuring noise

Sound intensity is measured in units called Decibels (dB). The following diagrams give examples of common noises and their decibel values from low to high. The chart below shows the noise levels produced by various noise sources.

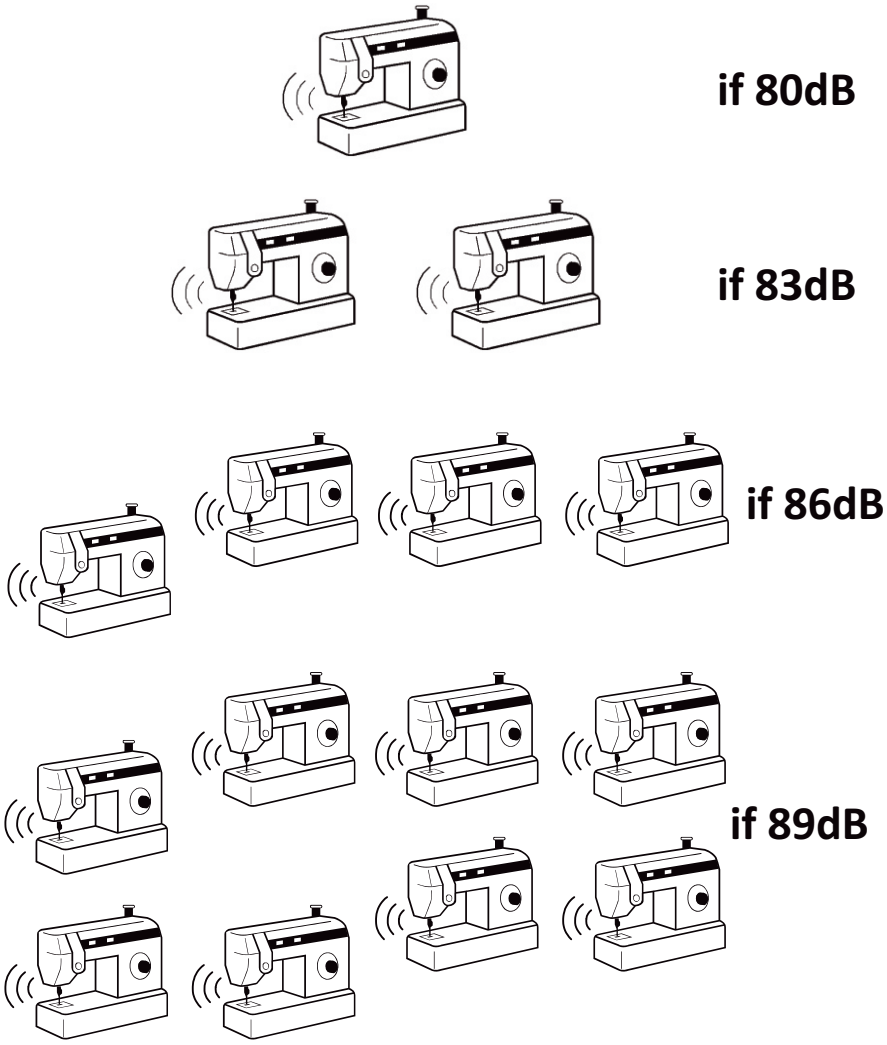
Effect on people	Sound level in dB	Sound source
a lot of damage	140	Jet Engine
	130	Rivet Hammer
	120	
		Pain threshold
damaging	110	Chain saw
	100	Sheet-metal workshop
	90	
		General standard in Australia for eight hours
	80	Heavy traffic
	70	Normal conversation
irritating	60	Low conversation
	50	Quiet radio music
	40	Whispering
	30	Quiet urban room
	20	Rustling leaves
	10	
	0	Hearing threshold



If the sound level increases by three dB then the sound intensity doubles.

For example:

83dB is double the sound intensity of 80dB and can cause twice as much damage to your hearing.



Measuring sound...

Intensity

measured in decibels (dB)

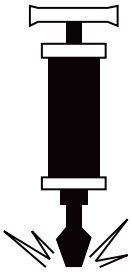
Frequency

from *low*, such as thunder

to *high*, such as a chainsaw

Exposure time

above 85dB for a short time only



Hearing loss

If you have a hearing problem it can be either permanent or temporary hearing loss. You will probably not hear the higher frequency sounds.

Measuring noise at work

Noise is measured at work using a noise meter. It is important to measure

the intensity and the frequency. This is done using a scale called decibels (dB).

A worker should not be continuously exposed to a noise level above

85 decibels.

What happens if the noise level is too high?

_____

_____

_____

_____

What happens if the noise level is measured and it is too high?

Remember... the different ways of controlling hazards.

Noise is a hazard so it is a problem to be solved like any other potential danger at work.

1. Isolate or enclose the sound

Eliminate or substitute.

2. Use engineering to change the machine

Engineering controls.

3. Use job rotation

Administrative controls.

4. Use hearing protection

Personal protective equipment.

Any of the hierarchy of hazard control above can be used.

Assessment:

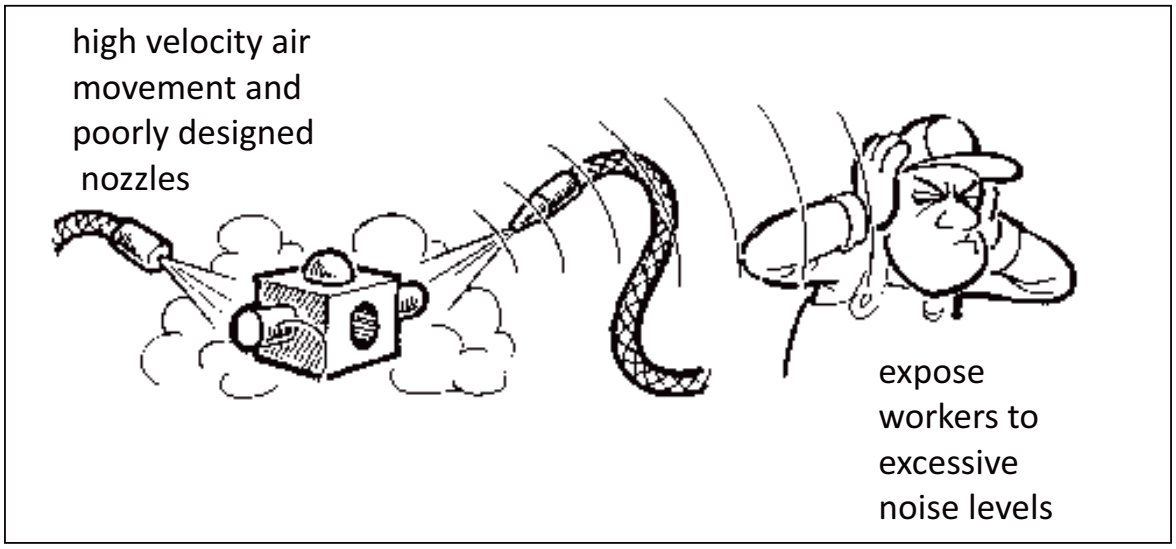
Foundry case study

A foundry used air jets in its dye-casting plant to clean the finished castings. Each casting was cleaned by blasts from six air jets and this produced noise levels of more than 108 decibels in peak periods.

Is a noise level of 108 decibels (dB) a workplace hazard?

What could they do to reduce the noise level?

Which of the five control measures did you choose?



Possible solutions...
to the foundry noise problem

1. Isolate the noise problem

by separating the worker from the air jets area.

Eliminate

2. Change the machine using

engineering by replacing

the nozzles on each air jet.

Engineering control

3. Use job rotation

by moving workers through different jobs so they do not spend all day in the dye-casting plant.

Administrative control

4. Use hearing protection

by wearing ear muffs when working in the dye-casting plant.

Personal protective equipment

Activity

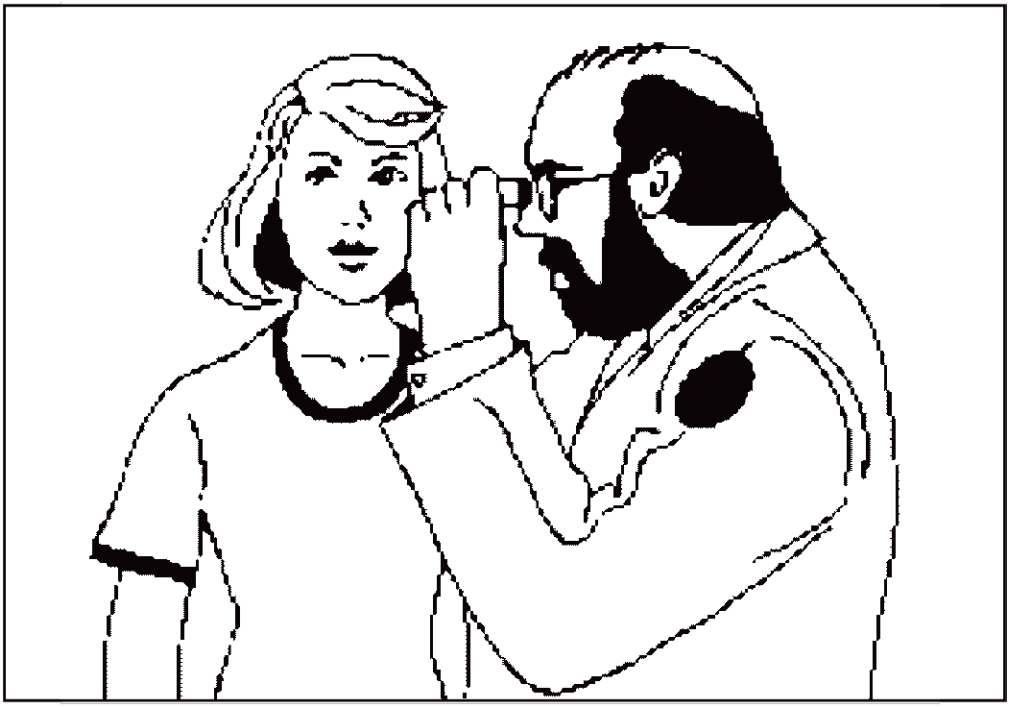
In small groups think of a noise problem in your workplace.

Try to come up with a solution by working through the four levels of control.

Safety tips...
Avoiding noise problems

What can you do to help yourself and others?

- Close doors designed to reduce noise.
- Report any noise problems with machines.
- Make sure you know how to correctly use your ear protectors.
- Have your hearing checked by a doctor.



Quiz:

Can you find the following words in the grid?

The first word has been done for you...

~~threshold~~	exposed	fluid	sound
intensity	impulses	irritating	noise
decibels	ear	bones	

i	r	R	i	t	a	t	i	n	g
d	f	A	n	b	w	h	b	w	e
e	l	B	o	o	p	r	l	s	e
c	u	C	u	n	i	e	o	l	a
i	i	N	t	e	n	s	i	t	y
b	d	E	q	s	d	h	e	a	r
e	w	X	e	x	p	o	s	e	d
l	p	I	m	p	u	l	s	e	s
s	o	S	o	u	n	d	w	s	e

Brainstorm...

all the machines and equipment that you can think of in your workplace.

_____ _____

_____ _____

_____ _____

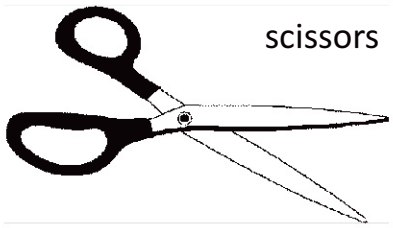
_____ _____

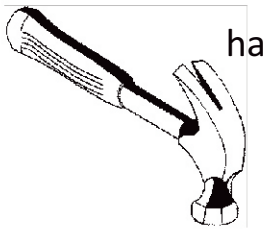
_____ _____

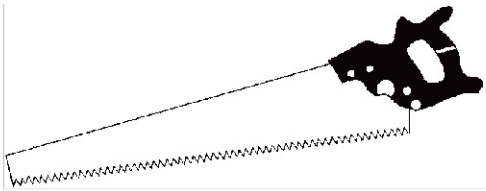
_____ _____

Almost all the equipment, machinery and appliances that you use at work is called plant.

Except... manually powered tools such as:







Hazards... are dangers at work

How many hazards can you think of in your workplace?

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

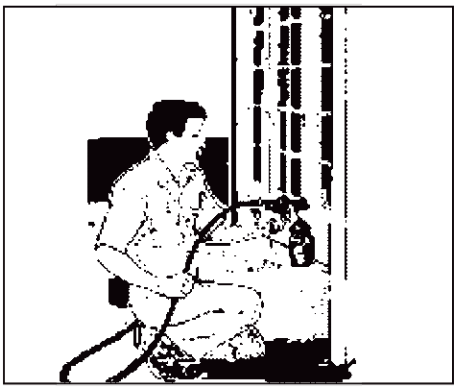
There are many hazards that affect machinery such as:

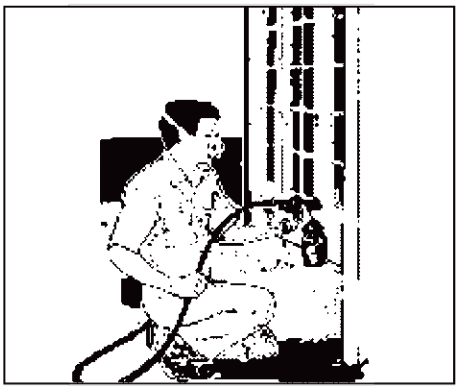
- Mechanical hazards
- Noise
- Vibration
- Heat
- Electrical hazards
- Chemical exposure
- Laser radiation

What have they done?

In the second picture of each pair, the operator has done something to make the job safer.

Observe them carefully





Machine and Equipment Hazard

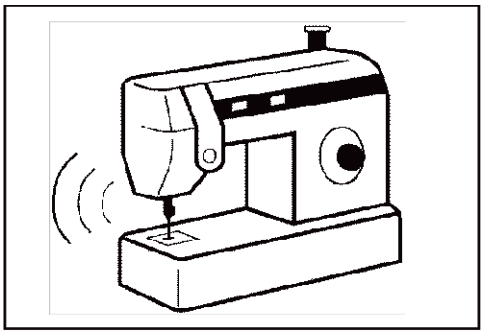
Machine and Equipment Hazards ... can be divided into categories

Hazards	Examples
Physical	noise heat from the machine moving machinery repetitive jobs poor design
Chemical	solvents, cleaners, acids dusts and powders like asbestos fumes from hot metals, petrol and gases smells from paints, plastics and pesticides
Biological	rusty machine parts unclean work area and facilities
Psychological	long shifts without proper breaks
Electrical	broken or frayed cords exposed wires faulty electrical wiring

Assessment A:

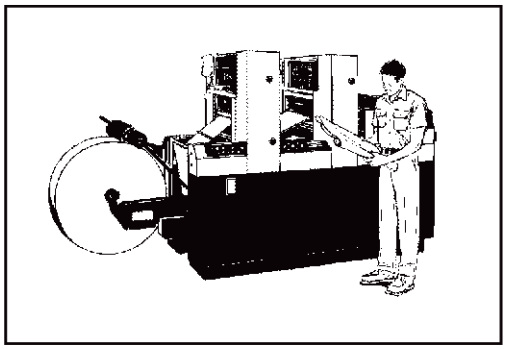
Hazards

A sewing machine is a piece of equipment that can be a hazard.



What sort of hazards do you have to be careful of with a sewing machine?

A press is another potential hazard.



What sort of hazards do you have to be careful of with a press?

Machine guarding

Guards protect operators from getting their hands, hair or other parts of their body or clothing caught in a machine.

They also protect you from things flying out of the machine or falling objects.

There are four types of guards:

1. Fixed guards;
2. Interlocking devices which stop the machine when the guard is open;
3. Two-button controls; and
4. Sensory guards that are sensitive to movement.

What sort of guards are there in your workplace?

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

BE RESPONSIBLE!

REMEMBER

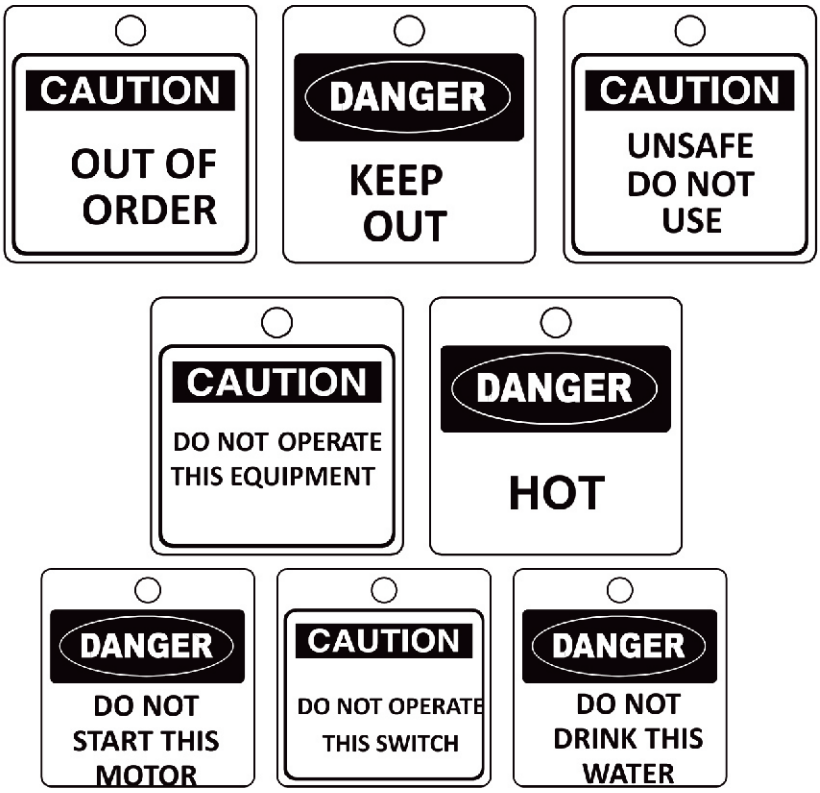
Never remove a safety guard

Isolation and Tagging Procedure

Isolation: Power should always be turned off when maintenance people are fixing a machine. There will be a tag on the machine.

Here are some isolation tags you can apply at workplace.

Which ones have you seen in your work area? (Tick)



Write if you can remember more

_____

_____

_____

_____

_____

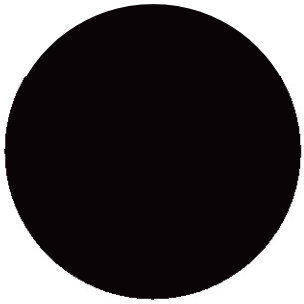
BERESPONSIBLE!

Read and obey all tags that you find placed on products, tools, equipment or machinery.

What Personal Protective Equipment do you wear in your workplace?

Glasses

Earmuffs



Clothing

Boots

BE RESPONSIBLE!

Wear the proper Personal Protective Equipment.

Machine and Equipment Inspection Sheet

Work in a group of two or three people. Look at a work station with machines and equipment that people use.

Think about the following questions and then discuss your answers when you return to the training room.

1. Names of group members _____

_____

_____

2. What is today's date? __ __ / __ __ / __ __
3. What is the name of the workstation? _____
4. Who is the supervisor or team coordinator for the workstation?

_____

5. What jobs are you inspecting? _____

_____

6. Is there enough space around the machine for people to work? Yes No
7. Are the guards in place? Yes No
8. Are the stopping and starting devices easy to reach? Yes No
9. Is the machine and the area around it clean? Yes No
10. How much noise can be heard from the machine? _____
11. Do people using the machine have to do any bending or reaching? Yes No
12. Is the bench height suitable for the people working the machine? Yes No
13. Is the floor around the machine clean? Yes No
14. Does anything fall from the machine such as drips, cut pieces of plastics or metal? _____

_____

15. Has the operator been correctly trained in safe machine operation? Yes No

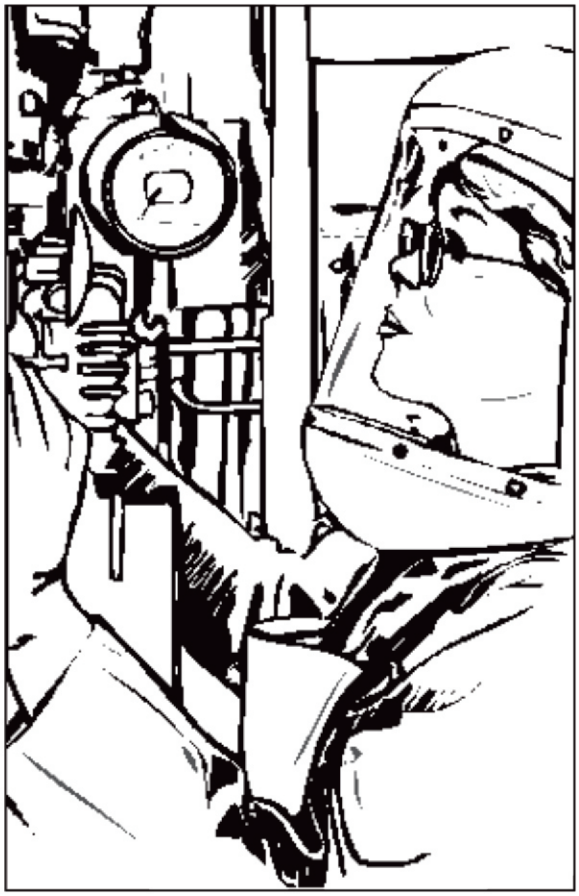
What is...
Personal Protective Equipment?

Personal protective equipment is clothing or equipment that protects you while working!

It protects you from associated hazard in your workplace and is always the last option in the hierarchy of hazard control.

They are:

- Helmet
- Hand glove
- Nose mask
- Safety shoe
- Coverall
- Eye goggle
- Face shield

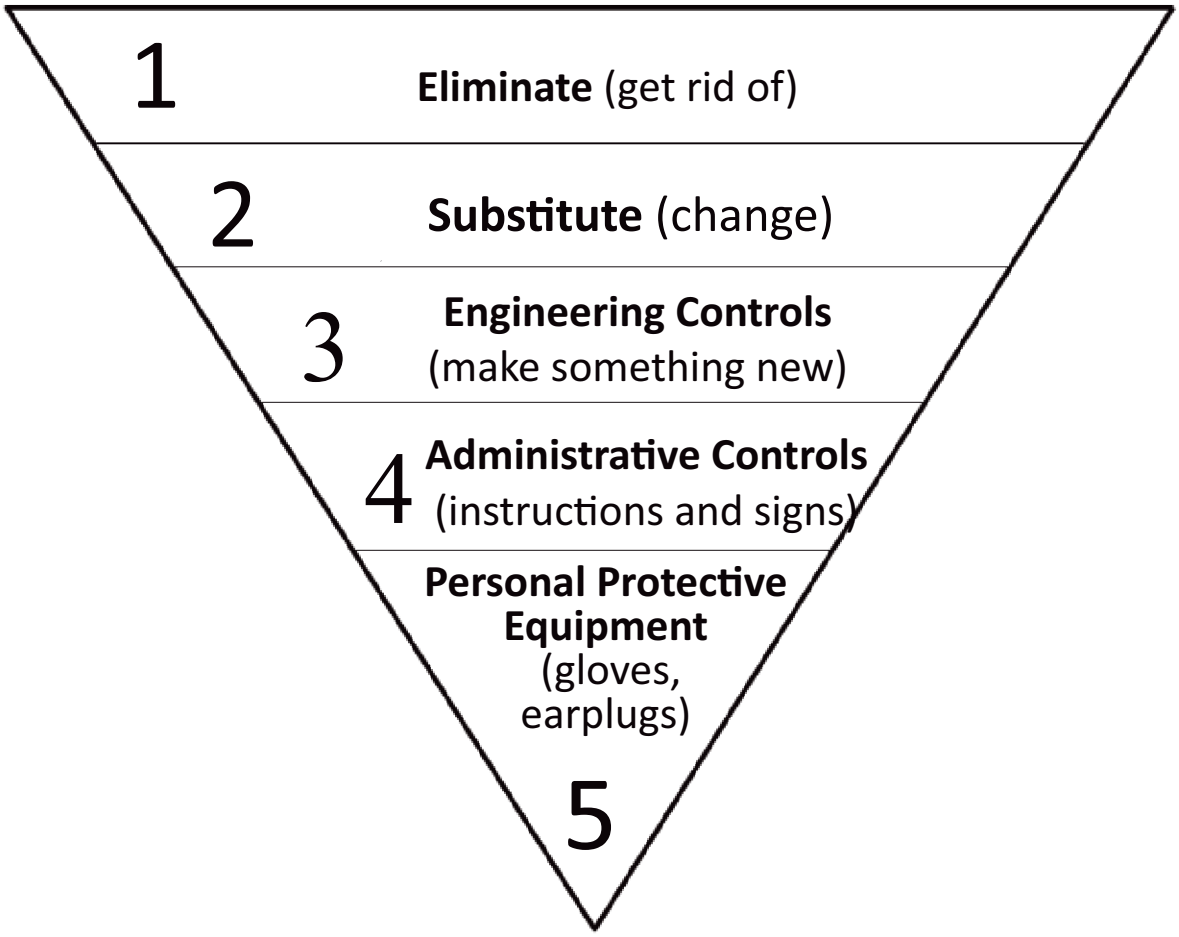


Head protection

Remember...

Personal Protective Equipment is the last measure of control. You should look at the other measures first.

You must always follow the hierarchy of hazard control when dealing with hazards in your workplace.



What...
do you have to do with your
Personal Protective Equipment?

1. Wear it when you need to.

2. Look after it and keep it clean.

3. Use it properly.

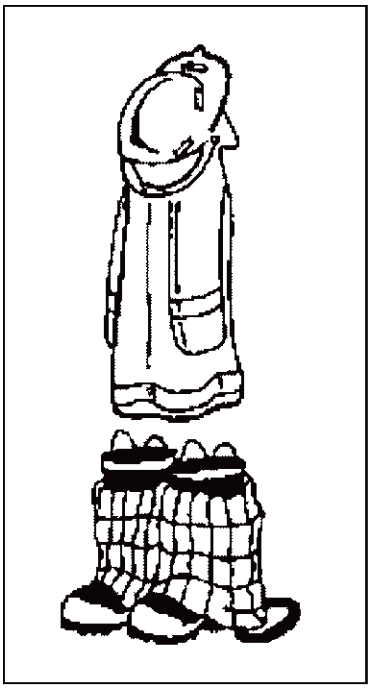
What...
does your employer have to do?

1. Provide you with personal protective equipment.

2. Train you on how to use it properly.

3. Replace equipment if broken.

4. Make sure it fits you.



Note that whatever PPE does not
Fit the worker, it creates room
for more hazard

When...
do you wear your Personal Protective Equipment?

When... you feel unsafe.

When... told by your supervisor or team coordinator or your workmates.

When... your Material Safety Data Sheet tells you to.

When... a warning sign tells you.

Face shields

Gloves and boots

Hearing protection

If there is a chance of injury

Wear your Personal Protective Equipment

Assessment A:

Listening activity

John: "These safety glasses are so uncomfortable, they hurt me behind my ears. I didn't wear them before and I don't want to wear them now."

Van: "But you know that you need to wear them."

John: "No I don't. I've been working here over a year now and no-one's hurt their eyes yet."

Van: "Well, only two years ago, I was working at the lathe without my safety glasses and a piece of metal hit my eye."

John: "Oh, really."

Van: "Yes, I had to go to the hospital and have the metal removed. It took me two months to see properly out of that eye."

John: "That's terrible, I had no idea how important safety glasses were."

Van: "Yes, if only I'd worn my safety glasses, none of this would have happened."

John: "OK, I guess it's important for me to wear my safety glasses. I'll just have to get used to them."

Van: "That's good John!"

Why doesn't John want to wear his safety glasses? Why

_____

_____

is it important for him to wear the safety glasses?

_____

_____

Have there been any eye injuries at your workplace? If so, describe an accident where someone injured his eye.

_____

_____

What personal protective equipment do you wear at your workplace?

_____

_____

Quiz:

Can you find the following words in the grid?

The first word has been done for you...

~~protective~~	Mask	personal
gloves	Earplugs	glasses
apron	Respiratory	boots
measure	Properly	

r	e	s	p	i	r	a	T	o	R	y	A	b	e
w	a	l	d	b	l	w	E	p	U	w	I	g	a
s	r	a	b	c	d	e	F	g	H	i	J	l	s
a	p	e	r	s	o	n	A	l	K	t	Q	w	l
b	l	t	o	o	t	b	M	n	O	p	Q	e	s
o	u	w	x	y	z	a	O	j	O	l	V	g	t
l	g	l	a	s	s	e	S	o	B	i	W	d	e
a	s	q	d	g	i	o	S	i	T	i	E	f	p
m	n	a	u	w	a	b	P	c	M	s	A	e	p
w	a	e	p	c	a	b	E	x	E	f	W	a	v
n	e	e	m	r	i	t	E	a	V	u	Q	r	s
l	w	c	o	q	o	x	C	g	P	w	E	f	l
s	b	s	e	r	o	n	P	t	G	h	L	o	a
o	l	l	p	r	o	p	E	r	L	y	F	p	v
v	w	u	k	i	b	w	T	g	O	i	S	t	w
o	d	s	g	l	w	o	U	d	V	e	E	l	d
y	a	w	c	v	a	e	L	q	E	t	X	y	z
m	c	g	o	a	x	m	E	a	S	u	R	e	k

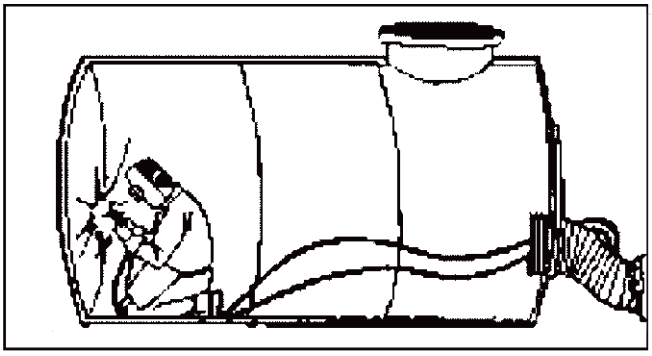
What is a confined space?

A confined space is an enclosed or partly enclosed space. Workers do not normally work there.

1. It may be hard to enter and exit.
2. It may have low oxygen levels or chemicals may be present.
3. It may not have normal air pressure.
4. It may cause a person to be crushed or suffocated.

Some examples are:

- a chemical storage tank
- a boiler pressure vessel
- a pipe
- a furnace



Employee performing welding work

Can you think of any examples of confined spaces in your workplace?

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

What are the risks?

In such an environment/confined space

You could be...

- harmed by chemicals in the air;
- affected by low levels of oxygen;
- harmed by flammable gases;
- crushed or suffocated by grain, dirt or flour;
- trapped and it could be difficult to rescue you.

Whatare...
your Supervisor's or team coordinator's responsibilities?

1. Decide if you need to enter the confined space to do the job.

2. Know the risks in the confined space.

3. Know the emergency and rescue procedures.

4. Make sure there is someone watching you from outside.

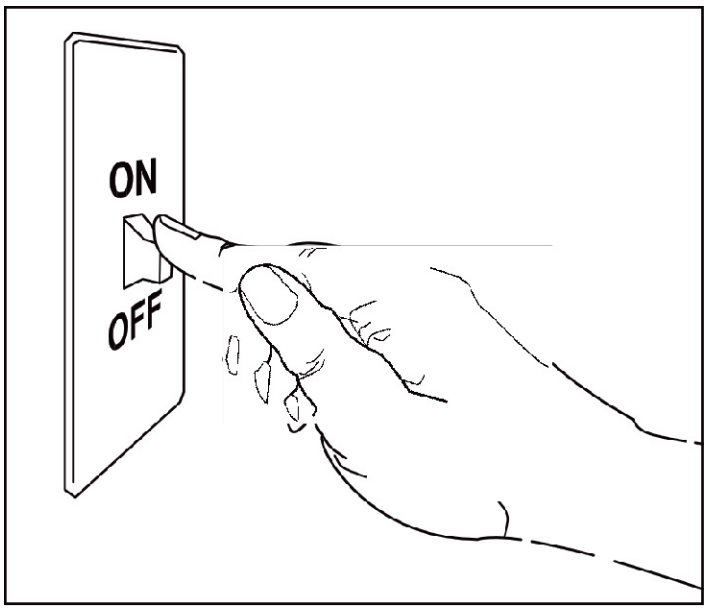
5. Give you training in working in confined spaces.

6. Have a procedure for 'signing in' and 'signing out' of the confined space.

It is important for you to 'sign out' before the space can be used again.

What must the worker do...
before entering a confined space?

1. Check if there is a safe level of oxygen.
2. Check if there are not dangerous levels of chemicals in the air.
3. Check if there are flammable gases.
4. Check the temperature... it should not be too hot or too cold.
5. Be protected from germs.
6. Make sure all machines are turned off.



AND most importantly:

You must have been specially trained in working safely in a confined space. You must wear your personal protective equipment and obtain your **Permit to Work (PTW)** from your Supervisor/dept.

Quiz:

Can you find the following words in the grid?

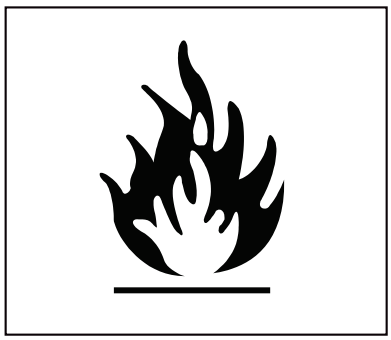
Three of the words have been done for you...

Do the remaining!

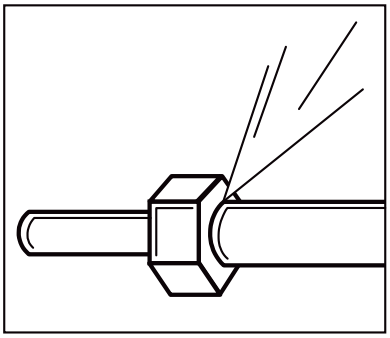
~~enclose~~	Space	enter	Exit
pipe	Risk	flammable	confined
~~air~~	Tank	~~oxygen~~	Trapped
crushed	signout	License	suffocate

s	u	f	F	O	c	A	t	e	f
s	o	t	A	N	k	a	w	o	l
i	p	r	e	E	x	l	t	x	a
g	l	a	a	N	l	R	w	y	m
n	i	p	c	T	c	B	w	g	m
o	c	p	s	E	p	L	q	e	a
u	e	e	t	R	p	I	o	n	b
t	n	d	r	I	s	K	p	s	l
w	c	r	u	S	h	E	d	e	e
b	e	c	o	N	f	I	n	e	d

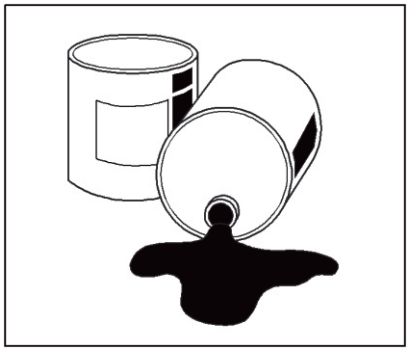
An emergency is...



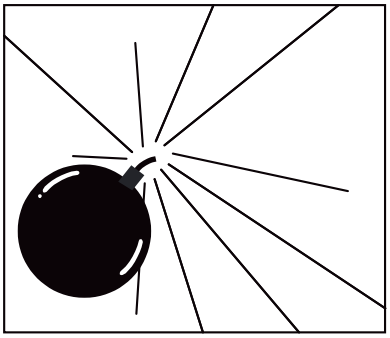
A fire



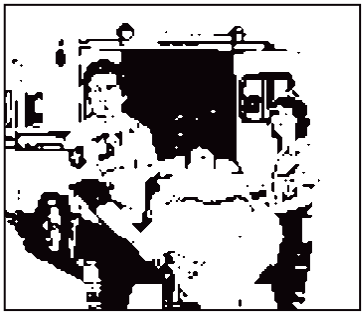
A gas leak



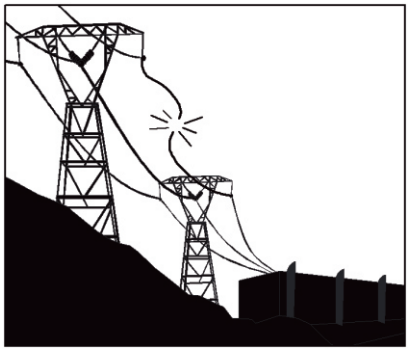
A chemical Spill



A bomb threat



A serious injury



A power failure

What will you do in an emergency?

Cross out what you would not do:

1
go to the bathroom

2
find a first aid officer

3
tell your fire warden

4
ring home

5
go home

6
make sure you clear out your locker

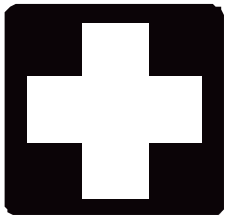
7
warn other workers in danger

8
tell your supervisor or coordinator

9
ring the emergency number

10
scream and run out of the building

What is First Aid?



First Aid is the provision of initial care for an illness or injury

You need first aid if you hurt yourself:

1. If you... get a scratch;
2. If you... cut your finger;
3. If you... spill a chemical on your hands or in your eyes;
4. If you... burn yourself;
5. If... something gets in your eye; or
6. If you... sprain/strain a muscle like your ankle

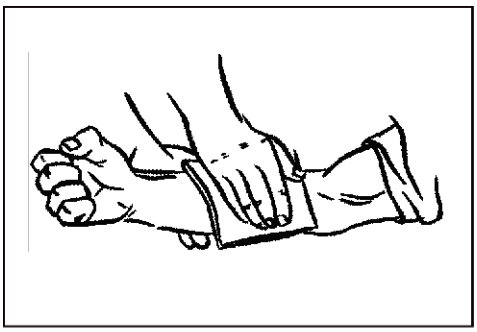
It is usually performed by a non-expert, but trained personnel to a sick or injured person until definitive medical treatment can be accessed.

Sprained/strained muscles

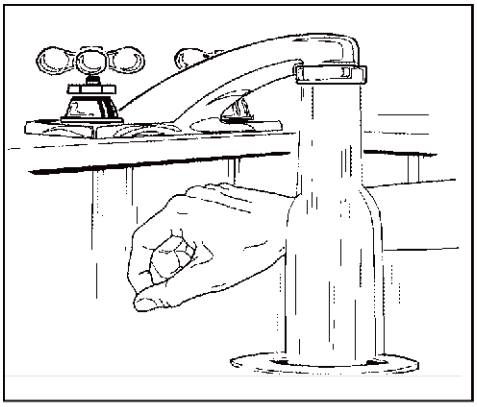
Something gets in your eye

What do you do... if someone needs first aid immediately?

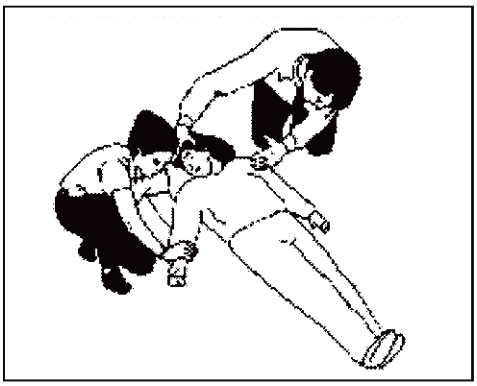
Stop the bleeding.
Apply pressure to the wound and elevate.



Wash burns to skin under cold running water.

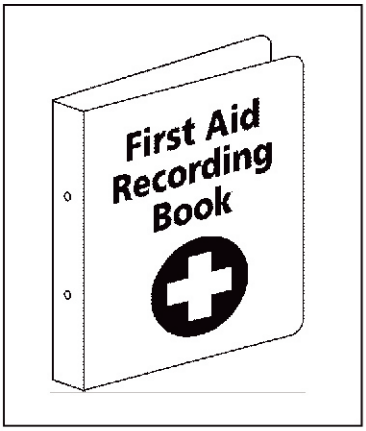


If someone has chest pain, stay with them and get someone else to get urgent medical help.

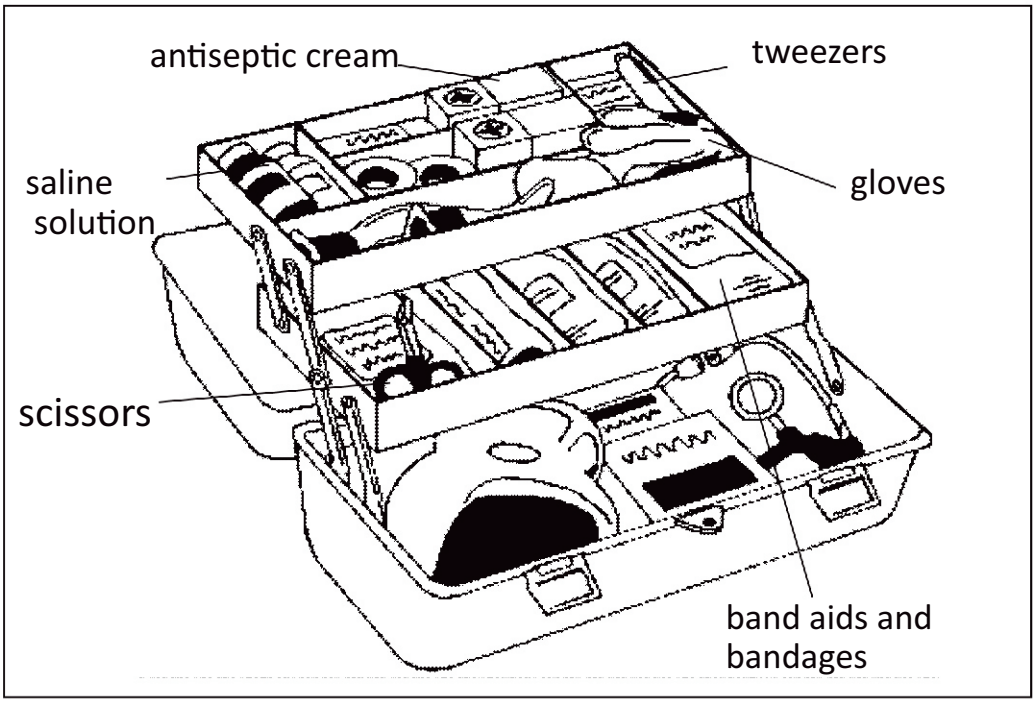


Do you have a first aid Manual... at home or in your car?

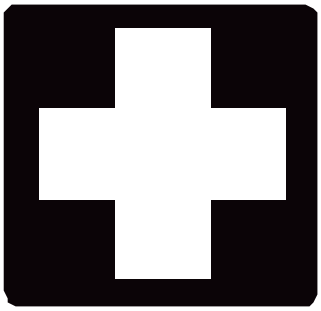
Here are some items that you can find in a first aid Manual:



First aid recording book



Assessment:



You need First Aid...
so that you can get help if you have an accident or feel sick.

What are the common injuries that happen and need first aid in your workplace?

_____

_____

_____

_____

You should have a first aid office and a first aid officer or health nurse at work, If you need first aid at work:

Who do you tell and where do you go to get help?

_____

_____

_____

_____

What if you're on night shift?

_____

_____

_____

Emergency in Case of Fire

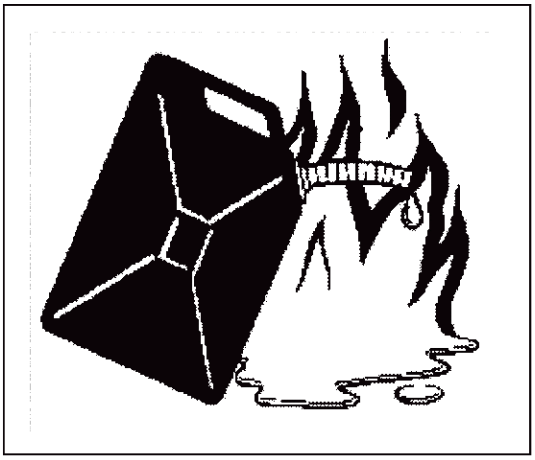
Fires... how do they start?

A fire will only start if you have all of these things together: fuel, heat and oxygen.

fuel + heat + oxygen = fire

---

solvent + a spark + air = fire



BE RESPONSIBLE!

Make sure that you don't start a fire. Always keep fuel, heat and oxygen separate

Evacuation

Evacuation steps...

1. Shut down your machine.

2. Go straight to your department assembly point.
   Do NOT go to your locker.

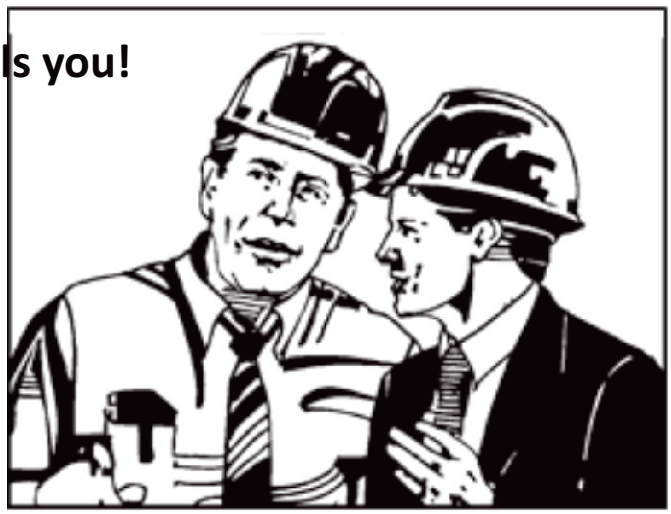
3. Your warden will count everybody.
   Do everything that the warden tells you to.

4. Walk, DO NOT RUN, to the section assembly point outside the building.

5. Your warden will count everybody again.

Stay at the assembly point until your warden tells you what to do.

In an evacuation, the warden is the person in charge.
Do everything he/she tells you!



EXIT

Evacuation

What is Emergency Evacuation:
It is the immediate and rapid movement of people away from the threat or actual occurrence of a hazard.

NOW;
Do you know what the evacuation procedure is in your workplace?

_____

_____

_____

_____

Do you know what happens when there is an evacuation?

_____

_____

_____

_____

What do you have to do if you are told to evacuate?

_____

_____

_____

_____

Assessment A

Fire Prevention

Try your ability on these questions and discuss with your trainer or tutor for necessary explanation

Why are chemicals and gases kept separate from each other?

_____

_____

_____

_____

What precautions should someone take before they start welding?

_____

_____

_____

_____

Where does dust build up in your workplace?

_____

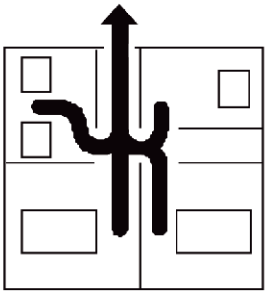
_____

_____

_____

Who is the fire warden in your department?

Meeting Place



What number do you ring at work in an emergency?

How do you exit the building in an emergency?

Draw a map showing your workstation and the route you would use to get out in an emergency.

Try your ability!

My escape route

Quiz:

Congratulations, that is the last quiz for you!

Can you find the following words in the grid?

The first word has been done for you...

Hope you enjoyed your training and study?

~~elevate~~	aid	procedure	Pressure
danger	solvent	emergency	Prevention
gas	scissors	fire	Sprain
injury	heat	fuel	

e	a	P	i	n	j	u	r	Y
l	m	R	g	a	s	s	p	T
e	g	E	p	g	o	p	m	N
v	p	V	r	s	l	r	d	O
a	o	E	o	g	v	a	a	U
t	l	N	c	p	e	i	n	E
e	w	T	e	s	n	n	d	S
m	a	I	d	b	t	a	c	K
l	x	O	u	o	n	i	r	Y
i	c	N	r	g	s	f	m	P
f	p	R	e	s	s	u	r	E
r	i	R	o	w	l	e	h	G
t	n	R	b	l	p	l	s	Q
o	s	H	e	a	t	b	j	U