Safe use of elementary tools, materials and equipment:
Engineering structures and mechanisms: Industrial Technology

In this activity you will learn about government legislation regarding OH&S issues and the range of potential hazards found in the work environment.

This material addresses aspects of the following syllabus outcome:

5.1.1 The student identifies, assesses and manages the risks and OH&S issues associated with the use of a range of materials, hand tools, machine tools and processes.

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Safe use of elementary tools, materials and equipment

The risks associated with operating elementary tools can be reduced by the use of some very basic safe working practices.

Activity 1

For each of the elementary tools listed below, match the name to the correct safe usage procedure in the table.

Ball pein hammer, hacksaw, cold chisel, file

Tool	Safe usage procedure
	Never used without a handle as the tang could cause injury.
	Ensure the teeth on the blade point forward and that it has been tightened into position to prevent breakage.
	Check for loose heads or split handles.
	Never use without eye protection.

The risks associated with operating equipment can be reduced by the use of some very basic safe working practices.

Activity 2

Read the incomplete safe working practice statements below. Insert the appropriate missing words from the table so that each statement reads correctly.

unauthorised	off	identified	regular	feeding	lighting
stop	problem	cleaned	isolated	machine	adequate signage

Safe working practices for machines

- Use mechanical _____ wherever possible.
- Maintain machines and guards on a _____ basis not just when there is a _____.
- Ensure adequate _____.
- Ensure that emergency _____ buttons are clearly _____ and have _____ _____.
- Ensure that machines are switched _____ and _____ when not in use or when being _____.
- Ensure that _____ persons cannot access _____ areas.

Personal protective equipment

Personal protective clothing, overalls, hand protection and foot protection are often necessary and respiratory protective equipment may be required when dangerous dusts are present. Personal protective equipment (PPE) includes clothing, equipment and substances designed:

- to be worn by a person
- to protect the person from risks of injury or disease.

PPE is only to be used in the workplace where it is not reasonably practicable to control hazards at the workplace by other means. The following list itemises parts of the body for which personal protective equipment is commonly used, and some common sources of risk, which may be controlled by PPE.

Whole of body:	ultraviolet (UV), flying wood chips, sparks
Head:	falling objects, striking objects
Face:	flying wood chips, sparks, UV
Eyes:	flying wood chips, sparks, UV, bright lights
Hearing:	excessive noise
Respiratory:	dust, fumes, vapours
Hands:	abrasion, sparks, irritant substances, vibration
Knees:	shock, abrasion
Feet:	crushing, slipping, abrasion, irritant substances, wetness, electric shock, static electricity, puncture, cold/heat.

Activity 3

Examine the following engineering workshop tasks listed below. Identify the minimum PPE you would need to wear from the list provided below in order to safely carry out the task listed. Select the most appropriate PPE then record in the correct place in the table.

overalls	apron	hair restraint	dust mask	face mask with filtration canister(s)
shoes with firm leather uppers	safety glasses	welder's leather gloves	ear protection	

Practical task	**Minimum PPE requirements**
1. Filing a piece of steel.	
2. Using a hacksaw.	
3. Cutting a piece of steel plate in the vice with a cold chisel.	
4. Brazing two pieces of steel together.	
5. Applying enamel paint to a steel component in an enclosed area.	
6. Using an electric portable drill to insert holes in a piece of aluminium.	