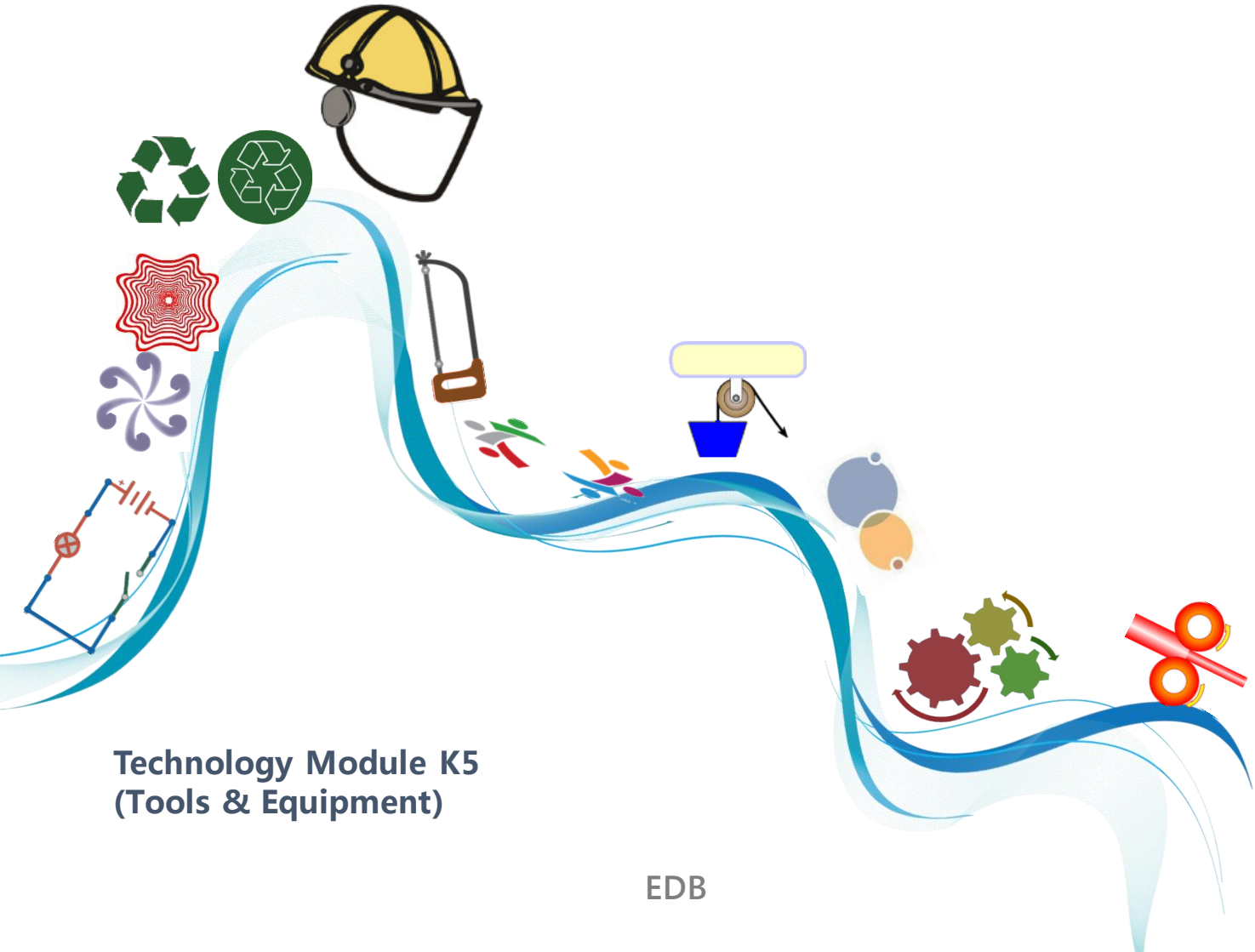
Enriched Technology Education KLA Curriculum

S1 Teaching Material

3a

Workshop Safety & Hand Tools 1



Technology Module K5
(Tools & Equipment)

EDB

Preface

To support the implementation of the Enriched Technology Education Key Learning Area Curriculum (Enriched Curriculum) at junior secondary level, the Technology Education Section of Curriculum Development Institute, Education Bureau, has developed a set of learning and teaching resource materials covering technological subjects learning element modules for teachers' reference and use.

The purpose of providing this set of teaching resource materials is to enable teachers to adopt the related technological subjects learning element modules under the Enriched Curriculum for students to acquire thorough understanding and mastery of the three key aspects in Technology Education Key Learning Area, viz. the technological understanding, technological capability and technological awareness, using a flexible approach with reference to the suggested learning progress.

The content of this learning and teaching resources was compiled with project approach. It gives students a purposeful and meaningful learning context through a series of diversified activities such as design projects, case studies, technological exploration and simulation experiments, and thus arouses their interest in technology and devotion in learning, as well as nurtures their ability in problem-solving, realisation, innovation and spirit of entrepreneurship.

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Relevant Knowledge

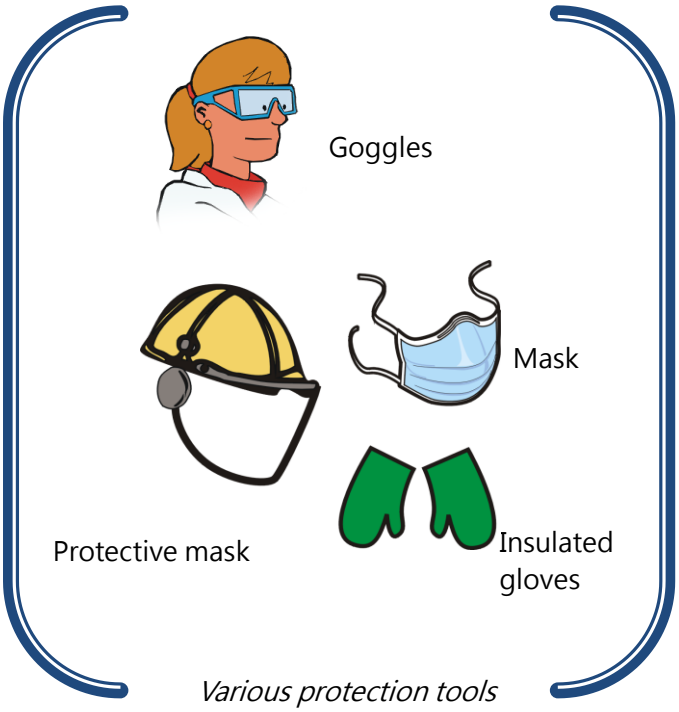
1. Safety equipment and workshop safety rules

During the process of making workpieces in the workshop, we often need to use different hand tools and machines. If the importance of workshop safety is ignored, not only the tools and machinery will be damaged, more likely body injury can happen, even other students can get hurt also. Therefore, when students are working in the workshop, they must observe and comply with the workshop safety rules.

(a) The appearance, clothing and safety equipment

	Points to note	Reasons
(i)	Put on protective clothing such as aprons or work uniform	Avoid making the school uniform dirty, and has the function of body protection.
(ii)	Students with long hair should put on caps or tie up their hair.	Avoid accidents caused by the sight being obstructed or hair being rolled into the machine.
(iii)	Put on protective and strong shoes, do not wear sandals or sport shoes.	Avoid foot injury caused by hard objects or tools falling down accidentally.
(iv)	The clothing should be tidy, such as removing the necktie, rolling up the sleeves, buckling the buttons, and so on.	Avoid loose clothing being embroiled by the rolling machine.
(v)	Put on appropriate protection equipment, such as goggles, earmuffs, masks and insulated gloves.	Avoid the relevant organs being injured.
(vi)	Take off the watch, ring and other accessories.	Avoid these objects being rolled into the machine.

Appropriate and inappropriate clothing & hairstyle in the workshop



Various protection tools

(b) Guidelines for working

Points to note when working:

(i) Students are not allowed to enter the workshop without teacher's permission.

(ii) Do not work in the workshop alone.

(iii) Students are not allowed to use any machines or tools without teacher's permission.

(iv) Do not play or run in the workshop.

(v) In case of accidents in the workshop, press the emergency switch immediately and inform the teacher.

(vi) Do not put the sharp edge of any tool inside the pockets of your clothes or trousers while carrying tools, you should hold the handle of the tool by hand and point the sharp edge downward.

(vii) Report to teacher in case of damage of tools.

(viii) Choose appropriate tools or machines to work with different working procedures.

(ix) Tools must be used according to correct methods, and must not be used improperly.

Emergency switch

2. Commonly used measuring tools

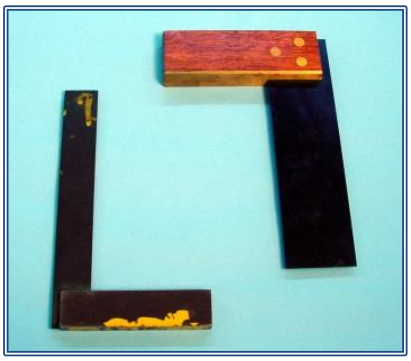
(a) Measuring and marking out tools

(i) **Steel rule**

Steel rule is used to measure, assist marking out and testing the flatness of surface.

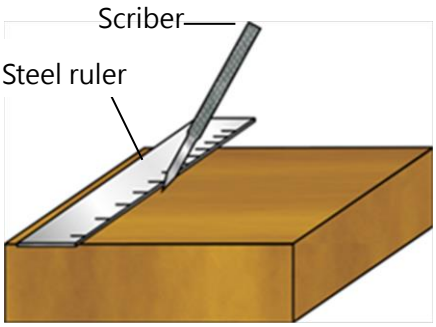
(ii) **Self-retracting tape**

Self-retracting tape (measuring tape) can be used to measure the length of workpiece which is one metre or longer, it can also be used to measure some curved surfaces or cylindrical objects.



(iii) Try square

Try squares can be grouped into woodwork and metalwork try squares, which is used to assist drawing and measuring objects' interior and exterior right angles.



(iv) Scriber

Scriber is the tool to draw lines on the surfaces of metal and plastics. Lines are clearly visible after being marked.

(v) Ball-pin hammer

The flat end is for general hammering work. The round head is designed to join the rivets.

(vi) Centre punch

Centre punch is used to engrave marks on metal surfaces to facilitate alignment and guide drill bits for drilling purposes. It works together with the hammer.

3. Glossary of terms

工場安全	workshop safety	鋼尺	steel rule
護眼罩	goggles	拉尺	measuring tape
手套	gloves	直角尺	try square & engineer's square
保護面罩	protective mask	畫針	scriber
口罩	mask	圓頭鐵錘	ball-pin hammer
圍裙	apron	接合鉚釘	rivet
緊急掣	emergency switch	中心衝	centre punch

Lesson Activities

1. State three kinds of inappropriate clothing in the workshop.

   a. _____

   b. _____

   c. _____

2. How to handle when carrying tools within the workshop.

   a. _____

   b. _____

3. What should be done when students found that tools and machines are damaged, or when an accident is being witnessed?

   a. _____

   b. _____

4. Discussion question: An industrial accident

Worker died of head bumping the angle bar **28/03/2013**

【Hong Kong Daily】Deadly accident at YauMaTei public cargo working area

Yesterday at about 3:00pm, worker Chan Tai Ming (aged 27) stood inside the bucket of a crane truck for lifting goods in the rain, he fell down because of suspected slippery floor with his head crashed into the sharp edge of the angle bar on the truck body's planks. The ambulance rushed to and took the victim to hospital, but unfortunately after the rescue he was certified dead. His mother rushed to the hospital, felt extremely sorrow and dissolved in tears after learning about his son's death. The Labour Department is investigating the cause of the accident.

After discussion with your classmates, write down what you think is the cause of the accident:

Environment:

_____

Placement of items at the site:

_____

Personal protection:

_____