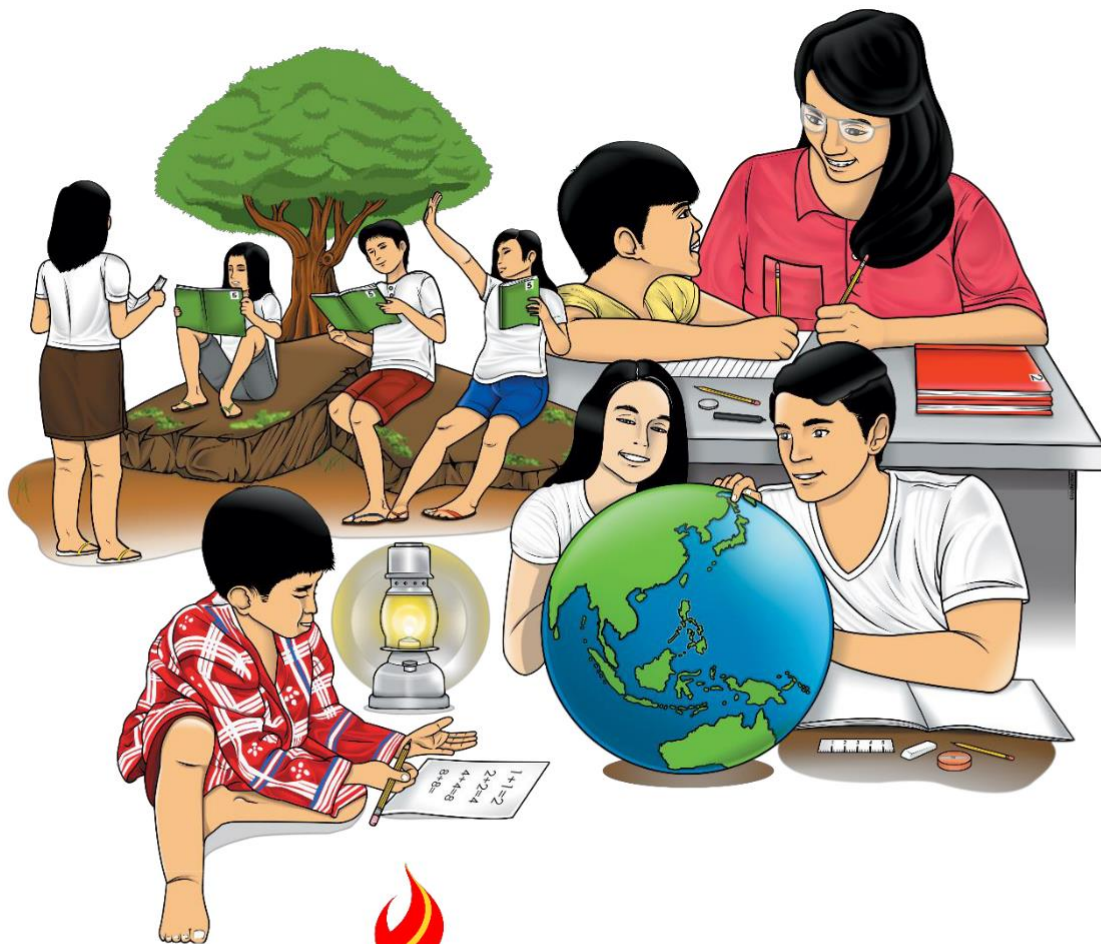


7/8

TLE (SMAW)

Module 3: APPLY SAFETY PRACTICES (OS)



TLE SMAW – Grade 7/8
Alternative Delivery Mode
Module 3: APPLY SAFETY PRACTICES (OS)
First Edition, 2020

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Introductory Message

This Self-Learning Module (SLM) is prepared so that you, our dear learners, can continue your studies and learn while at home. Activities, questions, directions, exercises, and discussions are carefully stated for you to understand each lesson.

Each SLM is composed of different parts. Each part shall guide you step-by-step as you discover and understand the lesson prepared for you.

Pre-test are provided to measure your prior knowledge on lessons in each SLM. This will tell you if you need to proceed on completing this module, or if you need to ask your facilitator or your teacher's assistance for better understanding of the lesson. At the end of each module, you need to answer the post-test to self-check your learning. Answer keys are provided for each activity and test. We trust that you will be honest in using these.

In addition to the material in the main text, Notes to the Teachers are also provided to the facilitators and parents for strategies and reminders on how they can best help you on your home-based learning.

Please use this module with care. Do not put unnecessary marks on any part of this SLM. Use a separate sheet of paper in answering the exercises and tests. Read the instructions carefully before performing each task.

If you have any questions in using this SLM or any difficulty in answering the tasks in this module, do not hesitate to consult your teacher or facilitator.

Thank you.

The following are some reminders in using this module:

- 1. Use the module with care. Do not put unnecessary mark/s on any part of the module. Use a separate sheet of paper in answering the exercises.**
- 2. Don't forget to answer *What I Know* before moving on to the other activities included in the module.**
- 3. Read the instruction carefully before doing each task.**
- 4. Observe honesty and integrity in doing the tasks and checking your answers.**
- 5. Finish the task at hand before proceeding to the next.**
- 6. Return this module to your teacher/facilitator once you are through with it.**

If you encounter any difficulty in answering the tasks in this module, do not hesitate to consult your teacher or facilitator. Always bear in mind that you are not alone.

We hope that through this material, you will experience meaningful learning and gain deep understanding of the relevant competencies. You can do it!



What I Need to Know

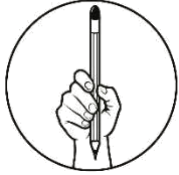
This module was designed and written with you in mind. It is here to help you master the Apply Safety Practices. The scope of this module permits it to be used in many different learning situations. The language used recognizes the diverse vocabulary level of students. The lessons are arranged to follow the standard sequence of the course. But the order in which you read them can be changed to correspond with the textbook you are now using.

This module is divided into two learning outcomes, namely:

- LO 1 – Evaluate hazard and risks (TLE_IAAW7/8OS-Of-2)**
- LO 2 – Control hazard and risks (TLE_IAAW7/8OS-0g-3);**

OBJECTIVES:

- 1. Identify work hazards in the workplace;**
- 2. Demonstrate the use of PPE in the workplace and**
- 3. Enumerate the benefits of observing safety procedure in the workplace.**



What I Know

Pre-Test

Let us determine how much you already know about the hazards and risks.

Direction: Select the letter of the correct answer.

- What mandatory rules and standards set and enforced to eliminate or
1. reduce occupational safety and health hazards in the workplace?
 - a. Hazard Identification
 - b. Risk Assessment
 - c. Occupational Safety and Health Standard
 - d. Risk Control
 2. health and safety of people or to damage the plant and equipment?
 - a. Hazard
 - b. Risk
 - c. Control
 - d. Assessment
 3. worker?
 - a. Electrical Hazard
 - b. Chemical Hazard
 - c. Physical Hazard
 - d. Biological Hazard
 4. The following are the example of physical hazard except:
 - a. Excessive noise levels
 - b. Radiation
 - c. Vibration
 - d. exposed power cable
 5. The following are the example of biological hazard except:
 - a. Fungi
 - b. Bacteria
 - c. fumes
 - d. Virus
 6. The following are the example of ergonomic hazard except:
 - a. Love problem
 - b. Skin problem
 - c. visual problem
 - d. hearing problem
 7. People who work with animals, animal products or animal wastes have a greater risk of infection because of _____.
 - a. Chemical hazards
 - b. Physical hazards
 - c. Biological hazards
 - d. Ergonomics hazards

8. Impact resulting from being struck by and struck against objects may cause serious accidents which one is referred to?
 a. Chemical hazards c. Biological hazards b. Physical hazards d. Ergonomics hazards
9. Which kind of hazard causes the deadening of a welder's hand because of an unadvisable position during welding?
 a. Physical hazard c. Biological hazard
 b. Chemical hazard d. Ergonomics hazard
10. Safety standards are mandatory rules set and enforced to eliminate or reduce?
 a. welding defects c. welding problems
 b. welding injuries d. hazards in the workplace
11. Why do we use earplug?
 a. for engineering and administrative control
 b. for workers to look fashionable
 c. to match the glasses and hairstyle of workers
 d. to avoid hearing damage
12. What is the main purpose of wearing eye protection?
 a. Keep clean and be in good condition
 b. Be capable of being disinfected
 c. Fit snugly without the interference of eye movement
 d. Provide adequate protection against hazards
13. What benefits of health and safety guidelines is primarily to guard employers and their staff from injury, and illness?
 a. Protecting your staff c. Improving productivity
 b. Reducing absences d. Saving money
14. What benefits do your colleagues and employees are ready to add a secure environment, this may improve morale and overall productivity?
 a. Protecting your staff c. Improving productivity
 b. Reducing absences d. Saving money
15. Which of the following is not a Personal Protective Equipment in SMAW?
 a. Leather apron c. Welding rod
 b. Leather gloves d. Shielded helmet

Apply Safety Practices (OS)

Occupational Safety and Health Standards (OSHS) are mandatory rules and standards set and enforced to eliminate or reduce occupational safety and health hazards in the workplace.

OSH Standards aim to provide at least the minimum acceptable degree of protection that must be granted to every worker in relation to dangers of injury, sickness, or death that may arise by reason of his or her occupation. The provision of OSHS by the government is an exercise of police power, with the intention of promoting the welfare and well-being of workers.



What's In

SMAW welding, like other welding methods, is often a dangerous and unhealthy practice if proper precautions aren't taken. In this module, we discuss the occupational health and safety practices of workers in industries. Given the illustration below, can you spot the safety and hazard precaution in the workplace?



Figure 1: Welding Hazard and safety precautions

Source: High Speed Training



Notes to the Teacher






- 1. Occupational hazards can be controlled by a variety of methods.**
- 2. The goal of controlling hazards is to prevent workers from being exposed to occupational hazards.**
- 3. It is important to recognize hazards and health and safety problems in the workplace.**



What's New

Activity 1

A. Direction: Match the pictures with the correct description of personal protective equipment.

- | | | | |
|----|---|----|--|
| 1. |  | a. | Shielded Helmet – provide eye protection from radiation, impact and scratches. |
| 2. |  | b. | It is used when grinding and chipping off slag. |
| 3. |  | c. | It is a pair of device that is meant to be inserted in the ear canal to protect the wearer's ears from loud noise or intrusion. |
| 4. |  | d. | It is very effective in protecting the skin from extremely hot temperatures. |
| 5. |  | e. | It is a durable material made from pigskin or cowhide, provides high task is involved. |

B. Direction: Identify what hazard is being illustrated in the situation below.

Choose your answer inside the box.

Physical Hazard	Chemical Hazard
Biological Hazard	Ergonomic Hazard

- _____ 1. Ignorance or carelessness of the worker
- _____ 2. Diseases caused by virus
- _____ 3. Health Problems caused by Ergonomics
- _____ 4. Mist Fine particles of a liquid float in air
- _____ 5. Psychological problems



What is It

Activity 2

Guide Questions:

Answer the following questions and write your answer in your activity notebook.

- 1. What are some health and safety hazards related to being a welder?**

- 2. What are some general safe work practices to know as a welder?**

- 3. What are the benefits of observing safety procedures in the workplace?**

Welding may be a manufacturing industry where workers might be exposed to many hazards. Industrial safety and health problems are getting major challenges in industries due to low occupational hazards awareness, lack of workplace safety and health policy, and inefficient safety management systems. Here is such information on the way to prevent hazards and risks within the workplace.

Environmental Hazards

1. Physical Hazards. Hazards due to the transfer of energy between an object and a worker. Welders can be exposed to

- **Excessive noise levels**
- **Inadequate illumination**
- **Extreme temperature**
- **Extreme pressure**
- **Vibration**
- **Radiation**
- **Inadequate ventilation**
- **Cluttered area**
- **Ignorance or carelessness of the worker**

2. Chemical Hazards. These hazards arise from inhaling chemical agents in the form of vapor gases, dust, fumes, mist, or by skin contact with these materials.

- **Mist Fine particles of a liquid float in the air**
- **Gases- substances in gaseous state but are always airborne at room temperature.**
- **Vapor- results when substances that are liquid at room temperature evaporate.**
- **Dust- solid harmful substances are ground, cut or crushed by mechanical actions.**
- **Fumes- gas is condensed in air, chemically changed and becomes fine solid particles that float in air.**

Four Possible Routes of Entry of Chemical Hazards

- **Inhalation- breathing in toxins is the most common and dangerous route.**
- **Ingestion- toxins enter through the gastrointestinal tract.**
- **Absorption- toxins pass through the skin into the bloodstream.**
- **Injection- toxins may be injected into the body (needles, etc.)- the least common, yet most direct route of entry**

3. Biological Hazards. Hazards caused by living organisms which include insects, molds, fungi, viruses, and bacterial contamination; from defects in sanitation and housekeeping procedures, such as in the provision of potable water, removal of industrial wastes and sewage, food handling, and personal cleanliness.

Agents of Biological Hazards

- **Bacteria – simple, one-celled organisms that may or may not be harmful.**
- **Viruses – organisms that depend on a host cell for development or reproduction**
- **Fungi – may be small or large parasitic organisms growing in a living or dead plant or animal**
- **Rickettsia – rod-shaped microorganisms that are smaller than bacteria and depend on a host for development or reproduction. Microorganisms transmitted by fleas, ticks, and lice**

Common Health Problems from Biological Hazards

- **Tuberculosis (TB)**
- **Tetanus**
- **Viral Hepatitis**
- **HIV/AIDS**
- **Diseases caused by virus**
- **Upper Respiratory Tract Infection**
- **Hepatitis B Infection**
- **Acquired Immunodeficiency Syndrome (AIDS)**
- **Rabies**

4. **Ergonomic Hazards. Hazards commonly seen in the workplace, which are improperly designed tools or work areas, improper lifting or reaching, poor visual conditions or repeated motions in an awkward position that may be responsible for fatigue, stress and strain and may lead to accidents in the occupational environment. Ergonomics is the study of designing equipment and devices that fit the workers**

Effects of Ergonomic Hazards

- **low productivity**
- **high rate of errors**
- **material wastage and equipment**
- **Health Problems caused by Ergonomics**
- **musculoskeletal problems**
- **vascular problems**
- **visual problems**
- **hearing problems**
- **skin problem**
- **psychological problems**

Your employer must provide you with Personal Protective Equipment (PPE) also as instruction, policies, procedures, and training in order so that you'll perform your job role safely.

There are many types of PPE including:

1. Uniforms



Figure 2: PPE Uniform

2. Disposable aprons



Figure PPE Disposable Aprons

3. Disposable gloves – people that are allergic to latex gloves should

be offered an alternative.



Figure 3: PPE Disposable gloves

4. Eye protection such as goggles



Figure 4: Goggles

5. Hearing guards such as ear defenders or Earplugs



Figure 5: Earplugs

6. Masks to shield the mouth and nose to prevent infection via respiration

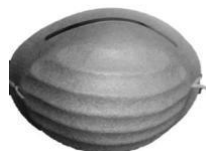


Figure 6: dust mask

You should be ready to demonstrate the way to use any PPE provided by your employer in line with their agreed ways of working.

What are the advantages of following health and safety practices?

There are numerous benefits of following health and safety practices within the workplace, and everyone benefits are based around employers having a requirement of look after their employees and anyone else who could also be on their premises.

Benefit 1 – Protecting your staff

Following health and safety guidelines is primarily to guard employers and their staff from injury, illness, or coming into the other sort of harm within the workplace. One of the most benefits of following health and safety practices is to stop common workplace injuries like back pain, falling from a height, asthma, injuries from slips and trips, and asbestos-related illness.

Benefit 2 – Reducing absences

Following health and safety guidelines and maintaining a secure workplace will reduce the danger of work-related illnesses and injuries, and thus reduce staff absences. Employers therefore also economize on the direct costs of absences, like paying salaries.

Benefit 3 – Improving productivity

If your colleagues and employees are ready to add a secure environment, this may improve morale and overall productivity.

Benefit 4 – Saving money

By maintaining health and safety practices within the workplace, and thus reducing absences and improving productivity, you'll be saving money by retaining staff. The money spent on absences and recruitment processes will decrease, and therefore the business' profits will increase.



What's More

Activity 3

A. TRUE OR FALSE: Read and analyze each statement below. Write TRUE if the statement is correct and FALSE if the statement is incorrect on the space provided.

_____ 1. Biological Hazards is due to the transfer of energy between an object and a worker.

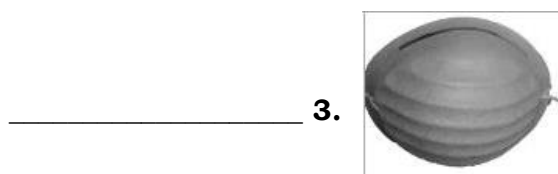
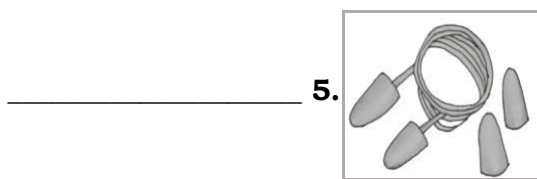
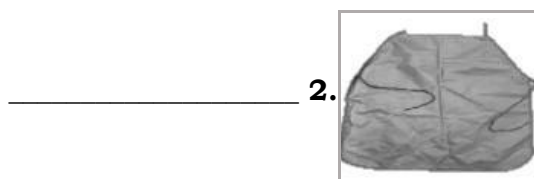
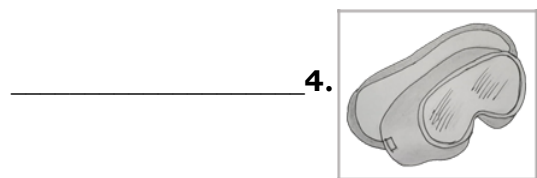
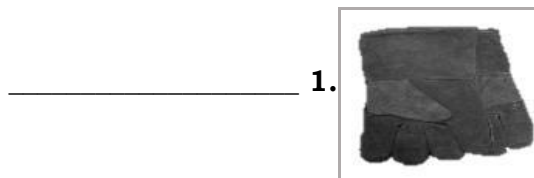
_____ 2. Physical Hazards is caused by living organisms which include insects, molds, fungi, viruses, and bacterial contamination; from defects in sanitation and housekeeping procedures, such as in the provision of potable water, removal of industrial wastes and sewage, food handling, and personal cleanliness.

_____ 3. Ergonomic Hazards commonly seen in the workplace, which are improperly designed tools or work areas, improper lifting or reaching, poor visual conditions or repeated motions in an awkward position that may be responsible for fatigue.

_____ 4. Following health and safety guidelines and maintaining a secure workplace will reduce the danger of work-related illnesses and injuries.

_____ 5. One of the most benefits of following health and safety practices is to stop common workplace injuries.

B. Identify what PPE is being illustrated below?





What I Have Learned

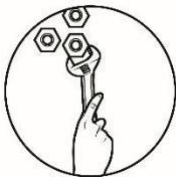
Activity 4

You are about to complete this module; I am sure you may be able to answer the following questions:

- 1. What are the hazards of welding?**

- 2. What are the safety precautions used in welding and its personal protective equipment?**

- 3. Why is safety important in welding?**



What I Can Do

Activity 5

Suppose to be you are a welder and you are in a workplace. Describe one unsafe situation you might find at work situation.

- 1. What if there is someone injured or health problem could result hazardous in your workplace? What will you do?**

- 2. How can you prevent an unsafe working condition?**



Assessment

Post-Test

Let us determine how much you already know about the hazards and risks.

Direction: Select the letter of the correct answer.

1. What mandatory rules and standards set and enforced to eliminate or reduce occupational safety and health hazards in the workplace?
 - a. Hazard Identification
 - b. Risk Assessment
 - c. Occupational Safety and Health Standard
 - d. Risk Control

2. What is a situation in the workplace that has the potential to harm the health and safety of people or to damage the plant and equipment?
 - a. Hazard
 - b. Risk
 - c. Control
 - d. Assessment
3. What hazard is due to the transfer of energy between an object and a worker?
 - a. Electrical Hazard
 - b. Chemical Hazard
 - c. Physical Hazard
 - d. Biological Hazard

4. The following are the example of physical hazard except:
 - a. Excessive noise levels
 - b. Radiation
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 - d. exposed power cable

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 - b. Bacteria
 - c. fumes
 - d. Virus

6. The following are the example of ergonomic hazard except:
 - a. Love problem
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 - d. hearing problem

7. People who work with animals, animal products or animal wastes have a greater risk of infection because of _____.
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 - d. Saving money
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 - b. Reducing absences
 - c. Improving productivity
 - d. Saving money
15. Which of the following is not a Personal Protective Equipment in SMAW?
- a. Leather apron
 - b. Leather gloves
 - c. Welding rod
 - d. Shielded helmet



Additional Activities

Activity 6

Tools word search. Find the ten (10) common hazards encountered by a welder and its personal protective equipment.

G	L	O	V	E	S	R	E	D	M	S	S
H	A	A	P	R	O	N	S	X	M	S	P
L	C	L	L	G	U	L	P	R	A	E	H
D	I	K	G	O	O	G	L	E	S	S	Y
C	G	G	H	N	E	S	R	S	K	S	S
V	O	R	Y	O	D	F	R	S	W	S	I
I	L	J	E	M	C	F	G	S	S	W	C
R	O	U	N	I	F	O	R	M	S	S	A
I	I	H	K	C	H	E	M	I	C	A	L
J	B	A	L	J	L	O	Y	B	K	O	G

1. _____

6. _____

2. _____

7. _____

3. _____

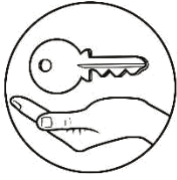
8. _____

4. _____

9. _____

5. _____

10. _____



Answer Key

		.15 C
		.14 C
		.13 A
		.12 D
		.11 D
.10 A	C	.5
.9 D	D	.4
A.8	C	.3
C.7	A	.2
.6 A	C	.1
PRETEST		

.5 Ergonomic hazard	
.4 Chemical hazard	
.3 Ergonomic hazard	
.2 Biological hazard	
.1 Physical hazard	
	.B
	C .5
	B .4
	A .3
	D .2
	E .1
ACTIVITY 1	

.5 earplug	
googles.4	
apron.3	
gloves.2	
mask.1	
	B.
	.5 true
	.4 true
	.3 false
	.2 false
	.1 false
	A.
ACTIVITY 3	

		.15 C
		.14 C
		.13 A
		.12 D
		.11 D
.10 A	C	.5
.9 D	D	.4
A.8	C	.3
C.7	A	.2
.6 A	C	.1
POST TEST		

UNIFORM	
EARPLUG	
ERGONOMIC	
BIOLOGICAL	
CHEMICAL	
PHYSICAL	
GOOGLES	
APRON	
MASK	
GLOVES	
ACTIVITY 6	

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