Basic Agricultural Production and Natural Resources Conservation Level-I

Based on Version-3 March 2018 OS.

Training Module –Learning Guide 23-26

Unit of Competence: Familiarize with Basic Facilities, Machinery and Equipment Operations

Module Title: Familiarizing with Basic Facilities, Machinery and Equipment Operations

TTLM Code: AGR BAN1 M06 TTLM 0919v1

October 2019

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This module includes the following

Learning Guides

LG 23:- Familiar with basic facilities, machinery and equipment operations

LG Code: AGR BAN1 M06 LO1-LG-23

LG 24:- Prepare basic facilities, machinery and equipment for use

LG Code: AGR BAN1 M06 LO1-LG-24

LG 25:- Clean up and store machinery and equipment

LG Code: AGR BAN1 M06 LO1-LG-25

LG 26:- Complete documentation

LG Code: AGR BAN1 M06 LO1-LG-26

Instruction Sheet	Learning Guide #23

This learning guide is developed to provide you the necessary information regarding the following **content coverage** and topics:

- Selecting ,using and maintaining personal protective clothing and equipment
- Identifying and selecting basic farm facilities, machinery and equipments
- Familiarizing facility, machineries and equipments
- Recording facilities, machinery and equipment
- Identifying work place OHS hazards

This guide will also assist you to attain the learning outcome stated in the cover page. Specifically, **upon completion of this Learning Guide, you will be able to**:

- Select ,using and maintaining personal protective clothing and equipment
- Identify and select basic farm facilities, machinery and equipments
- Familiarize facility, machineries and equipments
- Record facilities, machinery and equipment
- Identify work place OHS hazards

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described
3. Read the information written in the information “Sheet
4. Accomplish each “Self-check respectively.
5. If you earned a satisfactory evaluation from the “Self-check” proceed to the next or “Operation Sheet
6. Do the “LAP test”

Information Sheet-1	**Selecting ,using and maintaining personal protective clothing and equipment**

1.1 Personal protective equipment:

Is to include that prescribed under legislation, regulations and enterprise policies and practices. Face masks are available for rubbing back and painting.

1.2 Selecting personal protective clothing and equipment

Suitable *personal protective clothing and equipment* is selected, used, maintained and stored in accordance with Occupational Health and Safety requirements.

Select PPE based on the PPE Hazard Assessment

Consider these factors when selecting PPE:

- Type of hazardous materials, processes, and equipment involved
- Routes of potential exposure (ingestion, inhalation, injection, or dermal contact)
- Correct size for maximum protection
- Minimal interference with movement

Personal protective clothing and equipment may include:

- Boots
- Hat/hard hat
- Overalls
- Gloves
- Protective eyewear
- Hearing protection]
- Respirator or face mask

- ✡ Sun protection, e.g., sun hat, sunscreen

Different types of PPE are described below

Foot protection

Workers must wear closed-toe shoes at all times to protect feet from chemical spills and sharp objects. ***Steel-toed footwear*** and puncture-resistant soles. Slip-resistant shoes for anyone who works in wet environments.

Eye protection: Use safety glasses for minor splash hazards, ***goggles*** for moderate hazards, and goggles combined with a face shield for severe hazards.

Hand protection: Hand protection is indicated for the possibility of severe cuts, lacerations, or abrasions, punctures, temperature extremes, and chemical hazards. (Nit rile loves are usually a good choice for general use.) Use heavy-duty gloves for non-incidental contact and gross contamination.

Body protection: Protective clothing includes ***lab coats, smocks, scrub suits, gowns, rubber or coated aprons, coveralls, uniforms, and pierce-resistant jackets and vests***.

Head protection: ***Hard hats*** must be worn by electricians, construction workers, and any other workers when there is a danger of objects falling from above.

Self-Check- 1	**Written Test**

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. What are the factors that determine the selection of PPE? (4 points)
2. What are the Personal protective clothing and equipment used in operating machinery?(5 points)

Note: **Satisfactory rating – 5 points and above** **Unsatisfactory - below 5 points**

You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

Short Answer Questions

	equipments

2.1 Basic farm facilities, machinery and equipments

- **Mowers:** it is a simple machine can be operated simply by hand or can be pulled by tractors for removing or leveling lower growing plants and grass.

- **Pumps:** Modern hand operated community pumps are considered the most sustainable low cost option for safe water supply in resource poor settings, often in rural areas in developing countries, a hand pump opens access to deeper groundwater that is often not polluted and also improves the safety of a well by protecting the water source from contaminated materials and other impurities. So pumps play an important role in lifting water from the ground.
- **Air compressor:** it is small engine machine operated by electric power supply, used for removing dusts and other unwanted material from machinery and from work place.
- **Generator**: it used as an alternative electrical power source when there is no potential source for generating electrical power.

- **Combiner:** it is an agricultural machine used for harvest crops and it also clean and separate the chaff from the grain so combiner has an important role in agricultural processing.

- **Tractor:** there are different types of tractors based on their power take off (PTO) but their function is the same like:
  - To plough the land using different equipment like disk plough, mold board, rotary tiller
  - To pull an implement for transporting agricultural products from place to place
  - To clean an agricultural area
- **Moldboard:** it is agricultural equipment attached to the three point linkage on the tractor for plowing an agricultural land.
- **Disk plough:** it is also agricultural equipment attached to the power take off (PTO) of the tractor for plowing land.

2.1 Hand tools equipment

- ***Spade:*** There are many jobs in agriculture that require the use of hand tools. A spade, commonly used in gardens, is good for digging because of the flat, sharp shape. A rake, usually with a long handle and a finger-like base, is used in gardening and clean-up. A shovel allows you can scoop and carry because of the size and shape of the base. A hand-held, fertilizing sprayer can be used to fertilize crops in specific areas.

- ***Rakes***: Rakes work a lot like pitchforks in that they can turn over soil so that plants can get more nutrients. The difference is that the prongs on a rake create a right angle next to the handle, where as a pitchfork is only slightly curved.

<table>
<tr><td colspan="2">Pick axes and mattocks</td></tr>
<tr><td>  </td><td>How is it used?
▪ Picks and mattocks are used to work soil that is hard, rocky or root filled.
▪ A pick has a pointed tip on one end and a chisel like tip on the other.
▪ Mattocks are used for loosening soil that is root filled.
▪ Mattocks have an axe-head on one side and a flat
hoe like head on the other</td></tr>
<tr><td colspan="2">Spades</td></tr>
<tr><td>Hand Tool
  </td><td>How is it used?
• Spades are useful for cutting and digging heavy
soil, digging straight-sided, flat-bottomed
Trenches or removing a layer of sod.</td></tr>
<tr><td colspan="2">Rakes</td></tr>
</table>

	**How is it used?** ➢ There are two main types of rake - a steel rake and a plastics or rubber lawn rake. ➢ Steel garden rakes are used to level and prepare seedbeds for sowing. They are not meant for use in lawned areas. Garden rakes damage the turf as their tines become plugged with debris. ➢ Lawn rakes handle lawn debris such as grass clippings and leaves. They are best used with a drawn sweeping motion like you would draw
Hoes	
Hand Tool 	**How is it used?** - Hoes are used for cultivation and weeding. - There are many types of hoe available. - Triangular shaped hoes are good for breaking into hardened soil, weeding, and cultivation in tight spots. - The blade of the hoe rests on the ground and is moved - back and forth to remove weeds just below the soil surface
Panga or machete	
Hand Tool	**How is it used?**

	• Pangs or machetes are used to cut down stubborn weeds, reeds, tree saplings and can also be used to harvest grain.

Self-Check- 2	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. Write the basic farm facilities, machinery and equipments? (5 points)
2. Write the types of hand tools commonly used in agricultural work ?(5 points)

Note: **Satisfactory rating – 5 points and above** **Unsatisfactory - below 5 points**

You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

Short Answer Questions

Information Sheet-3	Familiarizing facility, machineries and equipments

3.1 Familiarizing with machineries and equipments

3.1.1 OPERATING A TRACTOR

Tractors are the main cause of accidental deaths on farms. Over the years, many farmers, farm workers and others living on or visiting farms, have been killed or seriously injured falling from moving tractors, being run over by tractors, or being crushed when a tractor rolls sideways or backwards.

SPOT THE HAZARD

Regularly check for hazards relating to tractors, attached implements and field conditions. Hazard areas could include mechanical parts, operator training, other people, work procedures, unsafe jacking, climatic conditions, chemicals used, uneven terrain, and any other potential causes of an injury or a hazardous incident. Keep a record to ensure identified hazards are assessed and controlled.

ASSESS THE RISK

Once a potential hazard has been identified, assess the likelihood of an injury or hazardous incident occurring. For example, risk to children playing near a tractor will vary, depending on what the tractor operator is doing, how close they are to the tractor and whether the operator knows they are there. Consider ways of minimizing risk.

MAKE THE CHANGES

- Read and follow safety procedures in the manufacturer's manual.
- Ensure an approved cab or rollover protective structure (ROPS) is fitted.
- Fit and use a seatbelt on tractors with ROPS.
- If there is a risk from falling objects, fit a fall-on protective structure (FOPS).
- To reduce risk of back strain, fit a seat with side restraints and a backrest.
- Wear hearing protection, and remember, not all tractor cabs are sound proof.
- Keep children away from tractors and machinery.
- Remove starter keys when tractors are not in use.
- Have an up-to-date maintenance schedule.
- Follow safe maintenance and jacking procedures. (See Tractor Maintenance.)
- Ensure the operator is properly trained for each type of tractor work.

- Always mount and dismount on a tractor's left side - to avoid controls.
- Adjust the seat so all controls are safely and comfortably reached.
- Keep all guards in place, including the power take-off (PTO).
- Operate the self-starter from the operator position only.
- Never carry passengers.

WHEN OPERATING A TRACTOR

- Drive at speeds slow enough to retain control over unexpected events.
- Reduce speed before turning or applying brakes.
- Watch out for ditches, logs, rocks, depressions and embankments.
- On steep slopes, without a trailed implement, reverse up for greater safety.
- Engage the clutch gently at all times, especially when going uphill or towing.
- Use as wide a wheel track as possible on hillsides and sloping ground.
- Descend slopes cautiously in low gear, using the motor as a brake.
- Never mount or dismount from a moving tractor.
- Ensure the park brake is on and operating effectively before dismounting.
- Take short breaks regularly when working long hours.

TO AVOID STRAIN INJURY

- Adjust the tractor seat for back support and comfort.
- When buying a tractor, ensure seating is safe and comfortable.
- Check seat height, seat depth, backrest height and angle, fore and aft movement, seat tilt, firm padding, partial pivoting (if you have to spend long periods looking behind you), and vibration-absorbing suspension.
- Dismount every hour or so, and spend 5 or 10 minutes doing something active.
- Plan for your next tractor to include suitably low steps, handgrips, adequate doorway and cab space, and a safe mounting platform.
- Dismount by climbing down - not jumping down - and use each provided foot and handhold.

3.1.2 TILLAGE EQUIPMENT

While the skilled operator of tillage equipment avoids errors with very little conscious thought, accident studies show that hurrying and human error are responsible for or are involved in the vast majority of equipment accidents. An operator must have an understanding of the function, operation and limitations of the equipment he/she is operating and the operator must resist the temptation to be hurried into an accident.

KEY POINTS AND SUPPORTING INFORMATION

A. **Moldboard Plows**

1. Provide adequate front-end weight for tractor stability in transport and operation, particularly with integral and semi-integral plows. Never pull from any point higher on the tractor than the recommended hitch point.
2. Use extreme caution and reduce speed when transporting the plow and the tractor over rough ground.
3. Avoid sharp turns at high speeds, especially on slopes.
4. On tight turns, avoid swinging rear of plow into fences or other obstacles.
5. Turning stops on semi-integral plows limit turning radius. Shorter turns may severely damage plow frame and tractor hitch.
6. Never carry passengers on the tractor or permit others to ride on the plow -- particularly plows with automatic reset.
7. Always lower the plow when not in use or left unattended.
8. Lower the plow and securely pin the parking stand before detaching the plow from the tractor.
9. Always use proper lighting, reflectors, slow moving vehicle (SMV) emblem, and other safety devices for road travel as required by state and local laws. (See appendix for more information on SMV emblems).
10. When hitching drawn plows, always use a hitch pin with adequate strength for the tractor-plow combination.

B.Disk Plows

1. Integral plows are transported completely raised, and all weight is carried by the tractor 3-point hitch. Adequate tractor front-end weights are required to offset the plow weight.
2. When the transporting on a road or highway, always display SMV emblem and use lights and reflectors as required by state and local regulations.
3. Semi-integral plows are quite long and caution must be used when turning to prevent swinging the plow into fences or irrigation ditches.
4. Reduce speed when transporting over rough ground, and avoid quick, sharp turns at high speeds.
5. When transporting semi-integral or drawn plows, always install cylinder locks to prevent accidental lowering of the plow. Relieve the load on hydraulic cylinders before starting to transport.
6. Lower the plow to the ground or install hydraulic cylinder locks when the plow is not in use.
7. Watch for other people when raising, lowering, or indexing the plow.
8. Never permit anyone to ride on the plow, and allow only the driver on the tractor. Do not permit children to play on or near the plow either when parked or in operation.

9. Lower the parking stand and securely pin it in place before detaching integral or semi-integral plows from the tractor.

C. Disk Tillers or One ways

1. Keep SMV emblem clean and prominently displayed. Do the same with reflectors and warning lights as required by state and local regulations.
2. Never allow anyone but the operator to ride on the tractor.
3. Never ride or permit others to ride on the tiller.
4. Lower the tiller to the ground when not in use.
5. Secure the machine in the raised position by installing safety locks or hold-up pins when servicing or cleaning it.
6. Disk blades are extremely sharp; be very careful when working or making adjustments in the disk area.
7. Never walk close beside the rear wheel when the tiller is in operation. A sudden imbalance of forces could cause this wheel suddenly to jump to the left.
8. Never grease, oil, or adjust the tiller while it is in operation.
9. Escaping hydraulic oil under pressure can cause serious personal injury and infection. Therefore, be sure all connections are tight and that oil lines are undamaged. Always relieve hydraulic pressure in lines before disconnecting hoses. See a doctor immediately if escaping hydraulic oil has penetrated the skin.

D. Disk Harrows and Offset Disks

2. Always lock safety lock during transport, if the disk is to be left raised for an extended period, or while working on the machine.
3. Never depend on tractor hydraulic pressure to carry harrow weight in transport--use safety lock, and relieve pressure in cylinders.
4. Lower integral harrows to ground each time tractor engine is shut off, and any time harrow is being serviced or repaired. If it must be raised for repairs, securely block the frame to prevent accidental lowering.
5. Always use lights, reflectors, and SMV emblem when transporting, day or night.
6. Lock the tractor drawbar in fixed position when transporting wheeled disks.
7. Never transport a disk harrow on its own wheels at more than normal tractor speed, and considerably less than that on rough or uneven ground.
8. Never clean, adjust, or lubricate the harrow while it is in motion.
9. Wear protective gloves when working with or near disk blades.
10. Hydraulic fluid escaping under pressure can penetrate the skin and cause serious infection or reactions. Never use hands to locate the source of a small leak which may be nearly invisible. Obtain immediate medical attention if injured by escaping hydraulic fluid.
11. Park or block the harrow so it cannot roll when unhitched.
12. Make sure wings are securely locked in transport position before moving the harrow.

13. Large disk harrows exceed normal vehicle width, so be particularly careful to avoid collisions when meeting other vehicles on the road. Avoid dropping wheels of tractor or harrow into holes, drains, or ditches along the road.
14. Provide adequate tractor ballast for front-end stability and to prevent excessive slippage.
15. Never allow anyone to ride on tractor drawbar or harrow in operation or transport.
16. Never allow anyone but the operator to ride on the tractor.
17. Lower the machine or install safety lock when storing a disk harrow.
18. Never permit children to play on or near a disk harrow while it is in operation, transport, or storage.
19. Stand clear of harrow wings during folding or unfolding.
20. Remove spring-loaded scrapers in proper order to avoid personal injury. Use care in relieving any spring under tension or compression.
21. Do not make sharp turns with blades down.

E. Field Cultivators

22. Never exceed recommended transport speed for the cultivator used. If speed is not stated, do not exceed maximum tractor speed.
23. Reduce speed for turning and travel over rough or uneven ground.
24. Use transport locks and relieve pressure in cylinders when transporting field cultivators. Do not depend on hydraulic pressure to carry the weight. Always lock wings in transport position and relieve pressure in cylinders.
25. Never walk or work under wings when they are in the folded position.
26. Follow state and local regulations regarding lights, reflectors, SMV emblem, and maximum width when transporting on roads or highways.
27. Transport width of most field cultivators exceeds normal vehicle width. Therefore, use extreme caution when meeting other vehicles and avoid the possibility of dropping tractor or- implement wheels into holes, drains, or ditches along the road edge.
28. Never permit anyone to ride on the tractor drawbar or cultivator in transport or operation, or to stand near the machine while it is operating--particularly when raising or lowering wings.

Self-Check- 3	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. Write the methods used to reduce the hazard due to tractor? (5 points)
2. What are the common tillage equipments? (5 points)

Note: **Satisfactory rating – 5 points and above** **Unsatisfactory - below 5 points**

You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

Short Answer Questions

Information Sheet-4	Recording facilities ,machinery and equipment

The machinery & equipment must be "*used directly* in a manufacturing operation, testing operation, or research and development operation."

Machinery and equipment is "used directly" in a manufacturing operation, testing operation, or research and development operation, if the machinery and equipment meets any one of the following criteria:

1. **Acts upon or interacts with an item of tangible personal property**.
   Examples of this are drill presses, cement mixers (agitators), ready-mix concrete trucks, hot steel rolling machines, rock crushers, and band saws. Also included is machinery and equipment used to repair, maintain, or install tangible personal property. **Computers** qualify under this criteria if:
   1. They direct or control machinery or equipment that acts upon or interacts with tangible personal property; or
   2. If they act upon or interact with an item of tangible personal property.

2. **Conveys, transports, handles, or temporarily stores an item of tangible personal property at the manufacturing site or the testing site.** Examples of this are wheelbarrows, handcarts, storage racks, forklifts, tanks, vats, robotic arms, piping, and concrete storage pads. Floor space in buildings does not qualify.

   Items that are used to ship the product or in which the product is packaged are not eligible under this criterion. This includes materials used to brace or support an item during transport.

   Storage of raw material or other tangible personal property, packaging of tangible personal property, and other activities that potentially qualify under the "used directly" criteria, and that do not constitute manufacturing in and of themselves,

must take place at the manufacturing site to qualify for the exemption.

3. **Controls, guides, measures, verifies, aligns, regulates, or tests tangible personal property at the site or away from the site.** Examples of "away from the site" are road testing of trucks, air testing of planes, or water testing of boats, with the machinery and equipment used off site in the testing eligible under this criteria. Machinery and equipment used to take readings or measurements is eligible under this criterion.

4. **Provides physical support for or access to tangible personal property.** Examples of this are catwalks adjacent to production equipment, scaffolding around tanks, braces under vats, and ladders near controls. Machinery and equipment used for access to the building or to provide a work space for people or a space for tangible personal property or machinery and equipment, such as stairways or doors, is not eligible.

5. **Produces power for or lubricates machinery and equipment.** A generator providing power to a sander is an example of machinery and equipment that produces power for machinery and equipment. An electrical generating plant that provides power for a building is not eligible. Lubricating devices, such as hoses, oil guns, pumps, and meters, whether or not attached to machinery and equipment, are eligible.

6. **Produces another item of tangible personal property for use in the manufacturing operation, testing operation, or research and development operation.** Machinery and equipment that makes dies, jigs, or molds, and printers that produce camera-ready images.

7. **Places tangible personal property in the container, package, or wrapping in which the tangible personal property is normally sold or transported.**

8. **Is integral to research and development**

   Example, an electrical apparatus used directly in a research and development operation need only be “integral” to the research and development operation to be entitled to the M&E exemption. There is no requirement that it act upon or interact with an item of tangible personal property or produce power for machinery and equipment

Self-Check -4	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. What are the criteria that machinery and equipment should meet to use directly? (8 points)

Note: **Satisfactory rating – 4 points and above** **Unsatisfactory - below 4 points**

You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

Short Answer Questions

Information Sheet-5	Identifying work place OHS hazards

5.1 Work place OHS hazards

A hazard is defined as the potential source of human injury, anything which might cause injury or ill health to any one at or near the work place. Some hazards are fairly obvious and easy to identify in greenery development works. This may include exposure to loud noise and fumes, solar radiation, dust, ergonomic hazards associated with posture and vibration, hazardous substances (fuel, oils, and fertilizer), oil and grease spills. It may also include the presence of bystanders, livestock and wildlife, difficult terrain and varying gradients, potholes, ditches, gullies, embankments, obstacles (rocks, logs, fences, debris, buildings), extreme weather conditions, electricity, overhead power lines, mechanical malfunctions and exposed moving parts, and other machinery including hydraulics. Basically greenery work place hazards are classified in to different classes/types/.

• Physical hazards are health and safety hazards that are derived from the work environment, such as noise, heat / cold, radiation, microwaves etc

• Chemical hazards are derived from chemicals used in the workplace including toxic gases, noxious fumes and flammable / corrosive liquids

• Ergonomic hazards are related to physical dimensions of equipment, the placement of equipment and the way in which equipment use impacts on the worker such as the height of a

workbench, the accessibility of a storage area, the weight of equipment or the support of furniture

• Movement hazards are caused by manual handling such as lifting or moving loads and

Repetitive movement.

The manager or supervisor is responsible fo identifying and taking whatever steps are necessary to remove the hazard and reporting the details to the joint occupational health and safety committee for review and possible further actions.

5.2 Understanding of OHS hazards in the workplace

• It is the responsibility of the company to identify hazards in the workplace and assess their potential to cause harm. Some hazards pose a significant threat to health and safety; others are relatively low risk

• Where hazards are identified, we will take steps to control the risk, either by eliminating it or reducing it to an acceptable level

• As an employee, you are legally obliged to follow instructions given by the company and to report any workplace hazards or risks that you identify

• You must not put your health and safety at risk, or deliberately injure yourself, or deliberately misuse anything that has been provided for health and safety

• You must use personal protective equipment if it is provided and if you have been trained how to use it

Employee Safety

Employees are legally responsible for the safety of themselves and others and must comply with:

• Company policy and procedures and co-operate with management when carrying out their work

• Participate in health and safety training activities and meetings

• Report hazards to their manager

• report any accident, incident or near miss, which occurs in the workplace

You should not

• operate machinery or equipment if you haven't been trained

• operate machinery or equipment that is faulty

• operate machinery or equipment without guards

You should

• access the material safety data sheets (MSDS) for any chemical product, prior to use

• use the provided personal protective equipment (PPE)

• share health and safety information with others

• stop work and immediately report unsafe work practices

• examine all cables / electrical plugs / equipment for signs of damage prior to use

• understand the fire safety and emergency evacuation procedure for your venue

• report all hazards, accidents and incidents to your manager immediately

5.3 Machinery and Tools related hazards

Knives and machines with moving parts cause many injuries in the hospitality industry.

Things you can do to minimize the risk:

- use the right knife for the task, and the food that you are cutting
- keep knives sharp
- Always cut on a stable surface, like a cutting board
- Always cut away from your body
- Store knives safely in a rack or knife block
- Don't leave knives in washing-up water
- Always carry knives with the blade pointing downwards

Self-Check- 5	**Written Test**

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

Give appropriate answers for the following questions (2 points each)

1. Employees are legally responsible for the safety of themselves and others and must comply with----------

a. participate in health and safety training activities and meetings

b. report hazards to their supervisor

c. report any accident, incident or near miss, which occurs in the workplace

d. A&B

e. All

2. ---------- are related to physical dimensions of equipment, the placement of equipment and the way in which equipment use impacts on the worker

a. chemical hazards

b. physical hazards

c. ergonomic hazards

d. movement hazards

Note: **Satisfactory rating – 2 points and above** **Unsatisfactory - below 2 points**

You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

Instruction Sheet	Learning Guide # 24

This learning guide is developed to provide you the necessary information regarding the following content coverage and topics:

- Carrying out routine pre-operational checks of facility, machinery and equipments
- Identifying and segregating unsafe or defective facilities, machineries and equipments.
- Completing of work according to OHS requirements
- Identifying, maintaining and reporting environmental implications

This guide will also assist you to attain the learning outcome stated in the cover page. Specifically, upon completion of this Learning Guide, you will be able to:

- Carry out routine pre-operational checks of facility, machinery and equipments
- Identify and segregate unsafe or defective facilities, machineries and equipments.
- Complete of work according to OHS requirements
- Identify, maintain and report environmental implications

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described
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6. Do the “LAP test”

Information Sheet-1	Carrying out routine pre-operational checks of facility, machinery and equipments

1.1 pre-operational checks of facility, machinery and equipments

Agricultural machinery and equipment is tangible personal property that is used directly in cultivating or harvesting a crop, collecting or processing of an agricultural product on the farm area.

What may be involved in routine pre-operational checks of tools or equipments?

This may include routine *safety* and **pre-start checks and preparatory procedures** including ***cleaning, lubricating, and hand sharpening, priming pumps, clearing filters, tightening, basic repairs*** and adjustments.

Pre-operational checks: On machinery and equipment may include checking

- ***Fuels, fuel lines and oils:*** check the oil and the fuel line if it is not in good condition change or fill the oil and fuel respectively.

- ***Battery electrolyte levels, wheels and tires pressure***: when servicing the battery or checking the electrolyte level, wear rubber gloves, a rubber apron, and eye protection. Batteries contain sulfuric acid which is destructive. If it comes in contact with your skin, wash it off at once with water. Acid may splash on the skin or into the eyes inadvertently when removing electrolyte caps.

- ***Air filters:*** check the air filter if there is impurities on it, clean it with appropriate materials like air compressors.
- ***Safety guards:*** check the safety guards are located in the appropriate position.

Preparation on equipment may include:

- Cleaning, lubricating
- Identifying and segregating unsafe or faulty equipment for repair or replacement

Checks are conducted on all materials, tools and equipment with insufficient or faulty items reported to the supervisor. As the business grows and you get more clients and more assignment, you can get more tools and equipment and offer more services. Employers are also required to ensure that those using equipment have sufficient knowledge and training to use it safely.

A ***maintenance schedule should be in place*** before going to the work to ensure that your equipment is maintained at least at intervals indicated in the manufacturer's operating instructions or more frequently if indicated by the risk assessment. Any daily checks should be undertaken as recommended by the manufacturer. This will help prevent problems such as blockages, leaks or breakdowns, which can increase risks.

The need of pre operational check is: it minimizes the occurrence of hazards on the machine or on the operator.

When you're buying new equipment it's worth considering:

- Whether there are any dangerous parts and if so whether any guards are supplied with the equipment
- How any emergency-stop buttons work
- Whether the environment in which you plan to operate the machinery is suitable for the levels of dust, fumes, noise or vibration it may cause
- Whether there are clear instructions and manuals for installation and maintenance

Self-Check -1	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. Pre-operational checks focused on---------- (2 points)

   A. Pre-start checks
   B. Safety checks
   C. Operational function checks
   D. All

2. What are the things to be checked in pre-operational checks on machinery and equipment? (5 points)

Note: **Satisfactory rating – 4 points and above** **Unsatisfactory - below 4 points**

You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

Information Sheet-2	Identifying and segregating unsafe or defective facilities, machineries and equipments

2.1Unsafe or defective facilities, machineries and equipments

After pre operational check an operator must identify and report unsafe or faulty machinery and equipment and prepare for repair and maintenance. This may include dismantling and assembling procedures, testing, tightening, minor adjustments and repairs, and routine servicing procedures including lubricating, and checks of cooling system, fuel, grease and oil, and battery levels. It may also include inspections of tire pressure, fan belts, leads, lines, connections, air filters, air conditioning, brakes, clutch, electrical, gearbox, hydraulics, steering, lighting, transmission, and confirmation of safety guards, PTO stubs and shafts.

Defective equipment can include the following:

- Hand tools used for welding, hammering, and other activities;
- Industrial equipment including rotators, conveyors, feeder belts; and
- Transportation equipment such as forklifts, cranes, hoists, and derricks.

2.2 Injury by defective or malfunctioning equipment

The use of defective equipment can lead to a range of head and body injuries, including injuries to the eyes and face. There can be falls from defective stairways and ladders, as well as injuries caused when malfunctioning loading and unloading equipment is used for lifting and lowering heavy loads. Any defective component that is used in the assembly and disassembly of a crane can cause serious crane accidents, including tip-overs or collapses. Electrical equipment that does not come with proper insulation can cause electrocution, burns, and electric shock.

Defective equipment can often lead to construction accidents. Defective crane components can affect the reliability of the assembly and, consequently, the operations of the crane, leading to severe accidents. Even concrete girders, beams, and defective scaffolding can cause serious construction accidents that can be traced to negligence on the equipment manufacturer. Defective tools that are used by workers can lead to severed limbs, crushing injuries, and fractures. Malfunctioning nail guns can cause ricocheting of nails, resulting in severe eye and head injuries.

2.3 Understanding liability for defective equipment

OSHA provides guidelines for equipment specifications. These are not restricted to powered tools and machinery, but also regular equipment found around the workplace. For instance, temporary stairways on a construction site are required to have landings that are at least 22 inches wide and 30 inches deep, at every 12 feet of rising, and stairways must be clear of projections. Fixed ladders also have minimum weight support capabilities they must meet before they are used. Employers are required to provide equipment that meets these specifications.

When a worker is injured by defective equipment, the manufacturer of the equipment may be named in a lawsuit to claim damages for the injury. If the equipment was rented, then the company that rented out the equipment may also be liable. Companies that are in charge of oversight of work are required to make sure that any equipment being used by the workers meets all recommended standards and specifications.

Self-Check- 2	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. Write the types of defective equipment? (5 points)
2. Write the problems related to using defective equipment. (5 points)
3. An operator must identify and report unsafe or faulty machinery and equipment. Why?(5 points)

Note: **Satisfactory rating – 8 points and above** **Unsatisfactory - below 8 points**

You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

Information Sheet-3	Completing of work according to OHS requirements

3.1 Occupational Health and Safety requirements

Occupational health and safety is a discipline with a broad scope involving many specialized fields. In its broadest sense, it should aim at:

- the promotion and maintenance of the highest degree of physical, mental and social well-being of workers in all occupations;
- the prevention among workers of adverse effects on health caused by their working conditions;
- the protection of workers in their employment from risks resulting from factors adverse to health;
- the placing and maintenance of workers in an occupational environment adapted to physical and mental needs;
- The adaptation of work to humans.

Occupational Health and Safety hazards in the workplace are identified and reported to the supervisor. With regard to basic machinery and equipment operation, safety procedures and their application may be discussed with work colleagues or the supervisor.

Hazard: is a source or potential source of human injury, ill health or disease. Anything which might cause injury or ill health to anyone at or near a workplace is a hazard

3.2 Classes of hazard

Hazards are classified into five different types. They are

- **Physical** - includes ***floors, stairs, work platforms, steps, ladders, fire, falling objects, slippery surfaces, manual handling (lifting, pushing, pulling), excessively loud and prolonged noise, vibration, heat and cold, radiation, poor lighting, ventilation, air quality***

- **Mechanical and/or electrical** - includes ***electricity, machinery, equipment, pressure vessels, dangerous goods, forklifts, cranes, hoists***

- **Chemical** - includes chemical substances such as ***acids or poisons*** and those that could lead to fire or explosion, cleaning agents, dusts and fumes from various processes such as welding

- **Biological** - includes ***bacteria, viruses, mould, mildew, insects, vermin, animals***

- **Psychosocial environment** - includes workplace ***stressors*** arising from a variety of sources.

Occupational Health and Safety hazards associated with equipment operation may include

- Exposure to loud noise and fumes, solar radiation, dust
- Ergonomic hazards associated with posture and vibration
- Hazardous substances (fuels, oils, fertilizer), oil and grease spills
- The presence of bystanders, livestock and wildlife
- Uneven and varying terrain gradients, potholes, ditches, gullies, embankments, obstacles

- rocks
- logs
- fences
- debris
- buildings

- Extreme weather conditions, electricity, overhead hazards such as
  - Power lines mechanical malfunctions
  - Exposed moving parts
  - Other machinery including hydraulics

3.3 Occupational Health and Safety requirements

- The safe operation and maintenance of machinery and equipment
- Manual handling, including safe lifting and carrying techniques
- Handling and storage of hazardous substances, and the appropriate use, maintenance and storage of personal protective clothing and equipment
- Outdoor work including protection from solar radiation, hazardous noise and organic and other dusts
- Identifying and reporting hazards
- Projection of people in the workplace

Workplace injury is a major cause of concern for all involved in occupational health and safety. The factors which cause workplace accidents and occupational illnesses are called hazards. The need for systematic management of OHS hazards and their attendant risks applies to all organizations and all activities and functions within an organization.

Risk management is a four step process:

1. ***Identify the hazard***

2. Assess the risk associated with the hazard

3. Control the risk

4. Review the process

The first and most important step in reducing the likelihood of an accident is hazard identification. This means identifying all workplace situations or events that could cause injury or illness.

The second step is an assessment of the level of risk of the hazards you have identified. This step involves collecting information and making decisions. It is important you consider the extent of the harm or consequence from a hazard and the likelihood of harm occurring. If your assessment is that an unacceptable risk to health and safety exists, you must introduce controls to reduce the risk to an acceptable level.

There are three categories of control measures you might take. You can

- ✪ Eliminate the hazard
- ✪ Minimize the risk
- ✪ Introduce 'back-up' controls

The third step in effective risk management is to establish and maintain systems which give opportunity for regular evaluation and review procedures (i.e. PPE)

Self-Check- 3	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. What is hazard? (2pt)
2. What are Occupational Health and Safety requirements?(5pt)
3. List steps of risk management. (5pt)

Note: **Satisfactory rating – 6 points and above** **Unsatisfactory - below 6 points**

You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

Information Sheet-4	Identifying, maintaining and reporting environmental implications

4.1 Environmental implications

Environmental implications associated with operation and maintenance are identified and reported verbally to the supervisor.

What environmental implications may be associated with maintaining the workplace?

Beneficial impacts may result from maintaining tidy work areas and workshops, thus reducing the likelihood of litter blowing or washing into the external environment. By maintaining clean and tidy work surfaces, buildings and structures, ***using environmentally responsible cleaning agents and work practices, offensive odors, noise and unsightly areas may be reduced***. Prompt identification of faulty tools, equipment and machinery for repair will also reduce their continued use, which may create unnecessary noise and particulate emissions.

Detrimental impacts on the external environment may result from the generation of excessive noise and run-off of water and cleaning agents from maintenance activities, as well as the failure to promptly segregate waste into disposal containers, process waste materials and keep work areas tidy and free of clutter.

Environmental procedures are followed and waste from maintenance activities is collected, treated and disposed or recycled according to enterprise requirements.

Environmental implications associated with the operation of tools and equipment

- Negative environmental impacts may result from ***excessive noise and exhaust emissions***, the incorrect use and disposal of maintenance debris (oil containers, chemical residues), hazardous substances (fuel, fertilizer), and damage to fauna and flora in natural areas
- Impacts may also include ***run-off flows of water and cleaning agents*** from servicing, maintenance and cleaning activities, soil disturbance and dust problems from high activity traffic (including irrigation equipment)
- ***Environmental pollution***

Generally ***non-mechanical hazards*** associated with machinery and equipment can ***include harmful emissions, contained fluids or gas under pressure, chemicals fluids or gas under pressure, chemicals and chemical by-product, electricity and noise,*** all of which can cause serious injury if not adequately controlled. In some cases, people exposed to these hazards may not show signs of injury or illness for years.

Self-Check - 4	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. Write the environmental implications associated with maintaining the workplace? (5pt)
2. Write the *environmental implications associated with the operation of tools and equipment*? (5pt)

Note: **Satisfactory rating – 5 points and above** **Unsatisfactory - below 5 points**

You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

Instruction Sheet	Learning Guide # 25

This learning guide is developed to provide you the necessary information regarding the following content coverage and topics:

- Cleaning, securing and storing facilities, machinery and equipments
- Cleaning and maintaining workplace areas

This guide will also assist you to attain the learning outcome stated in the cover page. Specifically, upon completion of this Learning Guide, you will be able to:

- Clean ,secure and store facilities, machinery and equipments
- Clean and maintain workplace areas

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described
3. Read the information written in the information "Sheet
4. Accomplish each "Self-check respectively.
5. If you earned a satisfactory evaluation from the "Self-check" proceed to the next or "Operation Sheet
6. Do the "LAP test"

Information Sheet-1	Cleaning, securing and storing facilities, machinery and equipments

1.1 Cleaning, securing and storing facilities, machinery and equipments

Machinery and equipment are ***cleaned, secured and stored*** to manufacturers' specifications and supervisors' instructions. Almost every home owner has their own lawn and garden equipment to maintain the work property. To help lawn and garden equipment to last longer it's important to store those items properly to insure that they will be in proper working condition for the next time that the owner wants to use them.

1. **Choose a moisture free environment**: the area that you store your lawn and garden equipment should be free of moisture from rain and any type of precipitation because many pieces of lawn and garden equipment have electric motors that will not function correctly if they get wet and it also helps in order to avoid rusting of equipments.

2. **Clean the equipment after every use**: before storing any piece of lawn or garden equipment it's important to clean that equipment thoroughly because it will be **easier to use for the next garden maintenance project.**

3. **Keep from children's reach**: depending on the piece of equipment it's important to store it out of a child's reach to insure that they won't want to play with and potentially get injured from that equipment.

4. **Cover if necessary**: many people don't have garages or storage sheds to store garden equipment. If this is the case with you make sure that you cover your equipment properly **to protect it from the elements like rain, snow, dirt and dust.**

5. **Keep your equipment within reach**: it doesn't matter if your home has a garage to store law and garden equipment or not. You must store your equipment in a way that makes it easy to reach when you need to use it.

6. **Take extra security measures if necessary**: If lawn and garden equipment has to be stored outside a home owner should take security precautions like investing in a lock and chain **to secure their equipment while they are away from their home.**

7. **Make sure gas tanks are secure**: Before storing a piece gas powered lawn and garden equipment it's important to insure that gas caps are securely screwed down onto gas tanks so gas won't leak out while it's stored for a long period of time.

Self-Check -1	**Written Test**

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. Which of the following statement is true about Guidelines for Cleaning and storing materials and equipment?(2 points)

a. Correct cleaning materials and equipment according to organisational requirements must be used at all times to ensure best results
b. Use cleaning equipment that is specific to the task so as not to damage the equipment or the surface being cleaned.
c. Only use cleaning materials for the purpose they are designed.
d. All of the above
e. None of the above

2. A moisture free environment is preferred for storing of machinery and equipments, why? (5pt)

Note: **Satisfactory rating – 4 points and above** **Unsatisfactory - below 4 points**

You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

Information Sheet-2	**Cleaning and maintaining workplace areas**

Workplace areas are cleaned and maintained in line with Occupational Health and Safety and enterprise requirements.

2.1 Hazards defined

A hazard is a source or potential source of human injury, ill health or disease. Anything which might cause injury or ill health to anyone at or near a workplace is a hazard. While some hazards are fairly obvious and easy to identify, others are not - for example exposure to noise, chemicals or radiation.

Workers in every occupation can be faced with a multitude of hazards in the workplace. Occupational health and safety addresses the broad range of workplace hazards from accident prevention to the more insidious hazards including toxic fumes, dust, noise, heat, stress, etc. Preventing work-related diseases and accidents must be the goal of occupational health and safety programmer, rather than attempting to solve problems after they have already developed.

Hazards in the workplace can be found in a variety of forms, including chemical, physical, biological, psychological, non-application of ergonomic principles, etc. Because of the multitude of hazards in most workplaces and the overall lack of attention given to health and safety by many employers, work-related accidents and diseases continue to be serious problems in all parts of the world. Therefore, trade unions must insist that employers control hazards at the source and not force workers to adapt to unsafe conditions.

Management commitment to health and safety and strong worker participation are two essential elements of any successful workplace health and safety programmers. The most effective accident and disease prevention begins when work processes are still in the design stage.

2.2 Maintaining clean and organized workplaces

Housekeeping is a subject that we continue to write about often. It is also a subject that needs to be discussed for obvious reasons. A clean workplace and clean equipment offers a good impression for visitors and outsiders, showing a respect and pride in your workplace. It also enhances the safety in these areas. We continuously reiterate the point that slips, trips and falls are one of the leading causes of injuries in the agriculture industry. Personnel involved with maintenance are not the only ones that should be concerned with clean shop areas. All employees from farm laborers to office personnel should be trained and oriented in maintaining clean areas for all the same obvious reasons. Following are some tips on maintaining clean and organized workplaces:

Floors and other areas -

- Clean oil spills immediately. All floors should be free of debris and those that can't be cleaned regularly should have a coating of anti-slip covering or flooring. Replace worn carpeting, tiles or other floor materials when they become ragged and broken.
- Tools not in use in the shop should be returned to their respective locations not left on the floor or on work benches. Cut down weeds and tall grass around buildings.
- Do keep floors, staircases clean and clear of waste
- Keep work areas adequately lighted
- Inspect & clean tools and machinery regularly
- Clean up spills immediately

Spill Control: The best spill control method is to stop them before they happen. Organized programs for cleaning and maintaining buildings and equipment is the best way to avoid or at least reduce the potential for spills. Using drip pans and guards where spills could possibly occur is another safeguard. When and if a spill occurs, it is important to follow the Material Safety Data Sheet and abate the spill immediately. Absorbent shale, absorbent socks or even clean soil or sand are good mediums for abating spills. The contaminated materials must be disposed of carefully and quickly.

Tools and equipment: Keeping and maintaining tools and other items of equipment are not only good for locating them for projects, but also helps to enhance the total image of the shop and enables the project to finish faster. Clean and repair all tools with problems Tools that are

beyond repair should be removed from service and replaced with new ones so appropriately clean and store equipments.

Waste Disposal: Collecting, sorting and grading scrap metal and wood all are traits of good housekeeping practices. Allowing scrap to remain around the floors or corners of the shops only creates more work - a potential for a trip hazard - and extra time to clean up the whole “mess.” Containers for scrap metal and wood located in convenient areas and good follow up will eliminate idle scrap lying around on the floors and corners of the shop.

Self-Check -2	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. Which of the following statement describe the purpose of keeping the workplace clean? (2pt)

a. To prevent striking against projecting, poorly stacked items or misplaced material
b. To protect cutting, puncturing, or tearing the skin of hands or other parts of the body on projecting
c. A&B
d. None of the above

2. A good housekeeping program identifies and assigns responsibilities for the following: (2pt)

a. clean up during the shift
b. day-to-day cleanup
c. waste disposal
d. removal of unused materials
e. All

Note: **Satisfactory rating – 2 points and above** **Unsatisfactory - below 2 points**

You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

Instruction Sheet	Learning Guide # 26

This learning guide is developed to provide you the necessary information regarding the following content coverage and topics:

- Identifying and reporting malfunctions, faults, wear or damage to facilities, machinery and equipments
- Communicating on work completion and hazard information
- Reporting work outcomes

This guide will also assist you to attain the learning outcome stated in the cover page.

Specifically, upon completion of this Learning Guide, you will be able to:

- Identifying and reporting malfunctions, faults, wear or damage to facilities, machinery and equipments
- Communicating on work completion and hazard information
- Reporting work outcomes

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described
3. Read the information written in the information "Sheet
4. Accomplish each "Self-check respectively.
5. If you earned a satisfactory evaluation from the "Self-check" proceed to the next or "Operation Sheet
6. Do the "LAP test"

Information Sheet-1	Identifying and reporting malfunctions, faults, wear or damage to facilities, machinery and equipments

1.1 Faults wear or damage to facilities, machinery and equipments

Malfunctions, faults, wear or damage to machinery and equipment are identified and reported in line with enterprise requirements. Since factors vary among installation sites, equipment users must work closely with each of their suppliers to ensure that proper data is being collected, that the data is being provided to the correct supplier, and that the resulting solutions are feasible. All events (failures) that occur during inspections and tests should be reported through an established procedure that includes ***collecting and recording corrective maintenance information.*** The data included in these reports should be verified and then the data should be submitted on simple, easy-to-use forms that failures are tailored to the respective equipment or software.

1.2 Collecting the Data

Many problems go unnoticed because insufficient information was provided. Example, someone was able to duplicate the problem being reported. There are ***three common causes*** for missing essential data:

- Inspection or testing began before a procedure will be in place to report problems.
- The reporting form will be difficult to use.
- The person who filled out the form will not be trained

Operators and *maintenance personnel* are usually the first to identify problems and, therefore, they should be trained to properly capture all of the information needed for an event report.

1.3 Reporting Equipment Failures

Poor working conditions affect worker health and safety

- Poor working conditions of any type have the potential to affect a worker's health and safety.
- Unhealthy or unsafe working conditions are not limited to factories — they can be found
- Poor working conditions can also affect the environment workers live in, since the working and living environments are the same for many workers. This means that occupational hazards can have harmful effects on workers, their families, and other people in the community, as well as on the physical environment around the workplace.

  A classic example is the use of pesticides in agricultural work. Workers can be exposed to toxic chemicals in a number of ways when spraying pesticides: they can inhale the chemicals during and after spraying, the chemicals can be absorbed through the skin, and the workers can ingest the chemicals if they eat, drink, or smoke without first washing their hands, or if drinking water has become contaminated with the chemicals. The workers' families can also be exposed in a number of ways. Other people in the community can all be exposed in the same ways as well. When the chemicals get absorbed into the soil or leach into groundwater supplies, the adverse effects on the natural environment can be permanent.

Overall, efforts in occupational health and safety must aim to **prevent** industrial accidents and diseases, and at the same time recognize the connection between worker health and safety, the workplace, and the environment outside the workplace.

1.4 Risk management

Risk management programs are cyclical, once current workplace hazards are successfully controlled the process does not stop. Systematic monitoring and reviews must be implemented because of the potential for new hazards to be introduced into a workplace. These hazards can be due to

- The use of new technology, equipment or substances
- The introduction of new work practices or procedures

- A change in work environment (moving to a different office, staff reduction)
- The introduction of new staff with different skill/ knowledge levels.
- Lack of knowledge about how to use machinery and equipment

Self-Check - 1	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. What are the *three common causes* for missing essential data? (3 points)

2. Malfunctions, faults, wear or damage to machinery and equipment should be identified and reported. Why? (5 points)

Note: **Satisfactory rating – 4 points and above** **Unsatisfactory - below 4 points**

You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

Information Sheet-2	Communicating on work completion and hazard information

2. .1 Identifying Hazardous Chemicals in the Workplace

The standard requires a list of hazardous chemicals in the workplace as part of the written hazard communication program. The list will eventually serve as an inventory of everything for which you must maintain an MSDS. At this point, however, preparing the list will help you complete the rest of the program since it will give you some idea of the scope of the program required for compliance in your facility.

The best way to prepare a comprehensive list is to survey the workplace. Purchasing records also may help, and certainly employers should establish procedures to ensure that in the future purchasing procedures result in MSDSs being received before using a material in the workplace.

The broadest possible perspective should be taken when doing the survey. Sometimes people think of "chemicals" as being only liquids in containers. The HCS covers chemicals in all physical forms -- liquids, solids, gases, vapors, fumes, and mists -- whether they are "contained" or not. The hazardous nature of the chemical and the potential for exposure are the factors that determine whether a chemical is covered. If it's not hazardous, it's not covered. If there is no potential for exposure, (e.g., the chemical is inextricably bound and cannot be released), the rule does not cover the chemical.

Look around. Identify the chemicals in containers, including pipes, but also think about chemicals generated in the work operations. For example, welding fumes, dusts, and exhaust fumes are all sources of chemical exposures. Read labels provided by the suppliers on hazard information. Make a list of all chemicals in the workplace that are potentially hazardous. For your own information and planning, you also may want to note on the list the location(s) of the products within the workplace, and an indication of the hazards as found on the label. This will help you as you prepare the rest of your program.

Paragraph (b), scope and application, includes exemptions for various chemicals or workplace situations. After compiling the complete list of chemicals, you should review paragraph (b) to determine if any of the items can be eliminated from the list because they are exempted materials. For example, food, drugs, and cosmetics brought into the workplace for employee consumption are exempt; rubbing alcohol in the first aid kit would not be covered.

Once you have compiled as complete a list as possible of the potentially hazardous chemicals in the workplace, the next step is to determine if you have received material safety data sheets for all of them. Check your files against the inventory you have just compiled. If any are missing, contact your supplier and request one. It is a good idea to document these requests, either by copy of a letter or a note regarding telephone conversations. If you have MSDSs for chemicals that are not on your list, figure out why. Maybe you don't use the chemical anymore. Or maybe you missed it in your survey. Some suppliers do provide MSDSs for products that are not hazardous. These do not have to be maintained by you. If you have questions regarding the hazard status of a chemical, contact the manufacturer, distributor, or importer.

You should not allow employees to use any chemicals for which you have not received an MSDS. The MSDS provides information you need to ensure you have implemented proper protective measures for exposure.

3.2 Preparing and Implementing a Hazard Communication Program

The HCS requires all workplaces where employees are exposed to hazardous chemicals to have a written plan that describes how that facility will implement the standard. Preparation of the plan is not just a paper exercise -- all of the elements must be implemented in the workplace to comply with the rule. See paragraph (e) of the standard for the specific requirements regarding written hazard communication programs. The only work operations that do not have to comply with the written plan requirements are laboratories and work operations where employees only handle chemicals in sealed containers. See paragraph (b), scope and application, for the specific requirements for these two types of workplaces.

The plan does not have to be lengthy or complicated. It is intended to be a blueprint for implementing your program -- an assurance that all aspects of the requirements have been addressed.

Many trade associations and other professional groups have provided sample programs and other assistance materials to affect employers. These have been very helpful to many employers since they tend to be tailored to the particular industry involved. You may wish to investigate whether your industry trade groups have developed such materials.

Although such general guidance may be helpful, you must remember that the written program has to reflect what you are doing in your workplace. Therefore, if you use a generic program, you must adapt it to address the facility it covers.

For example, the written plan must list the chemicals present at the site and indicate where written materials will be made available to employees. It also may indicate who is responsible for the various aspects of the program in your facility.

If OSHA inspects your workplace for compliance with the HCS, the OSHA compliance officer will ask to see your written plan at the outset of the inspection. In general, the following items will be considered in evaluating your program.

The written program must describe how the requirements for labels and other forms of warning, materials safety data sheets, and employee information and training, are going to be met in your facility. The following discussion provides the type of information compliance officers will be looking for to decide whether you have properly addressed these elements of the hazard communication program.

Self-Check- 2	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. Why we Identify hazardous chemicals in the workplace? (5 points)

2 .How we can prepare and implement a hazard communication program? (5 points)

Note: **Satisfactory rating – 5 points and above** **Unsatisfactory - below 5 points**

You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

Short Answer Questions

Information Sheet- 3	Reporting work outcomes

3.1 Reporting

Reporting… is like telling a story

When analyzing your information, it's a bit like playing detective. You need to find evidence, piece it together and draw conclusions.

You might also want to add to the key information of your report by adding in extra information. This could be done by including case studies or appendices such as financial information about the project.

Warning!

It is a mistake to start to write any report until you have –

1. Analysed your information

2. Decided what you want to say

If you don't do this, your report is likely to be muddled, and the reader will not know what you're trying to tell them. A waste of time and effort.

Reporting should not be something you do just because you have to, for example for a funder. There are many ways to use reporting to tell your story:

- Your own annual report
- Presentations
- Work report to managers, trustees or colleagues
- Newsletters
- Web pages
- Press releases
- Feedback to staff (e.g. appraisal)
- Report for funder

Of course, the most important person in this is the reader.

Different audiences will want to know different things about your project. If it helps, why not picture your potential reader in your mind as you write?

3.2 Report template

Writing a report can be daunting, especially if you've not done it before. However, it doesn't have to be. This template can help you plan what to include. You might not need every section for every report.

It can be useful to have a summary at the beginning of your report. This helps the reader see the key points quickly and also helps reinforce what you want to highlight.

This should include:

Project aim(s) and outcomes:

What goes here?

Your overall aim(s) and your outcomes

Where do I get this from?

Business plan, funding application, Weaver's Triangle* etc

Our activities:

What goes here?

The main activities or services you provide to deliver your outcomes (an outline may do, rather than a full list.)

Headline achievements:

What goes here?

A few sentences that describe your top achievements.

Focus on the outcomes you have achieved.

The main content of your report should include:

Our outputs: main facts and figures about our activities:

What goes here?

The main facts and figures about your activities, for example the number of young people you worked with.

Our outcomes: what did we achieve?

What goes here?

The outcomes you have achieved. Try to be specific. For example: “Many local young people attend our services on a regular basis and have participated in issue based workshops to increase their knowledge. The greatest areas of improvement were in knowledge about healthy lifestyles and skills for employment.”

Self-Check -3	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. What are the two pre-requisites to write any report? (5points)

2. What are the main contents that should included in the report? (5points)

Note: **Satisfactory rating – 3 points and above** **Unsatisfactory - below 3 points**

You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

Short Answer Questions

List of Reference Materials

1. http://www.mwtrain.com.au/Operate-Basic-Machinery-and-Equipment-book
2. http://www.vu.edu.au/units/rtc1301a
3. http://tpu.bluemountains.net/unit-display.php?recordID=49060&s=ZZZ00