7/8

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Technology and Livelihood Education

Exploratory Course

Carpentry

Module 3: Classifying Types and Checking Condition of Tools and Equipment

ALTERNATIVE DELIVERY MODE
ADM

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Module 3: Classifying Types and Checking Condition of Tools and Equipment
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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-tests 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 Teacher are also provided to our 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. And 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.

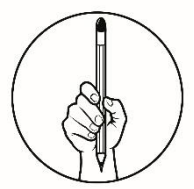
What I Need to Know

Good day! How are you? Are you now ready for a new learning adventure? This module was designed and written with you in mind. It is here to help you master Checking Condition of Tools and Equipment. The scope of this module permits it to be used in many different learning situations. The language used recognizes the diverse vocabulary level. The lessons are arranged to follow the standard sequence of the course.

MELC- Check condition of tools and equipment **(TLE_IACP7/8MT-0c-1)**

After going through this module, you are expected to:

1. classify the types of tools and equipment;
2. segregate defective tools from functional ones;
3. label defective tools; and
4. report the list of defective tools.



What I Know

Good day, learner! Do you know that you made the splash of achievement? That is true, learner! Achieving your past modular lessons means you are very eager to study more. I am so happy to know that! I know you are excited to learn more about this subject.

In carpentry, you cannot just directly check the condition of the tools and equipment without any prior knowledge about the different tools and equipment used to build any carpentry project. Checking the condition of tools and equipment is an important part of your endeavor. This allows you to develop concepts, convey your ideas, and apply the concepts to the real world of carpentry.

But before we explore more on this topic, let's determine how much you already know about checking the condition of tools and equipment.

Pretest

A. Match the tools and equipment in Column A to the hand tools categories in Column B. Connect them with a straight line. Do this in your activity sheet.

Column A	**Column B**
1. C-Clamp	a. measuring tools
2. chalk line	b. holding tools
3. claw hammer	c. driving tools
4. drill bit	d. testing tools
5. ripsaw	e. tooth-cutting tools
6. steel square	f. miscellaneous tools
7. paint brush	g. Personal Protective Equipment
8. apron	h. portable power tools
9. ruler	i. boring tools
10. screwdriver	j. marking lining tools

B. Identify the following tools if Defective or Non-defective. Write **Defective** if the statement tells a tool and equipment have malfunctions and **Non-defective** if the statement tells that tools and equipment are in good condition. Do this in your activity sheet.

1. Tools that have sharp blades.
2. Tool likes drill bits are chipped or broken.
3. Tool likes chisels and wedges have mushroom head.
4. Power tools have no ground wires, on plugs, or cords of standard tools.
5. Tools have functional guards

Lesson 1	Classifying Types and Checking Condition of Tools and Equipment

Are you ready for the lesson, learner? Don't worry, I know you can do it! By the way, this lesson is focused on the segregation of the defective tool from functional ones, labelling defective tool, and reporting the list of defective tools. This lesson provides a lot of activities where you can apply your skills and knowledge. These activities are designed to help you perform independently the task of checking the condition of tools and equipment.

What's In

In the previous lesson, you identified, described, and prepared tools and equipment for a certain task. I know you are ready for the first activity of your new lesson but before we proceed to learning new one, let us have some review on your previous topic. In this activity, you can apply your knowledge on the requisition of appropriate materials and tools for your project.

Activity 1

Directions: Fill out the requisition form for the materials to be used in the making of the suggested project. Get it on, learner!

Suggested Project: 4x8 Bulletin Board				
Balance on Hand (Quantity)	Requisition	Material and Description	Unit Price	Total

Notes to the Teacher

Teachers, the activities prepared for this lesson must be new things to experience by our learner. Hence, your constant reminder on the precautionary measure is expected from you.

What's New

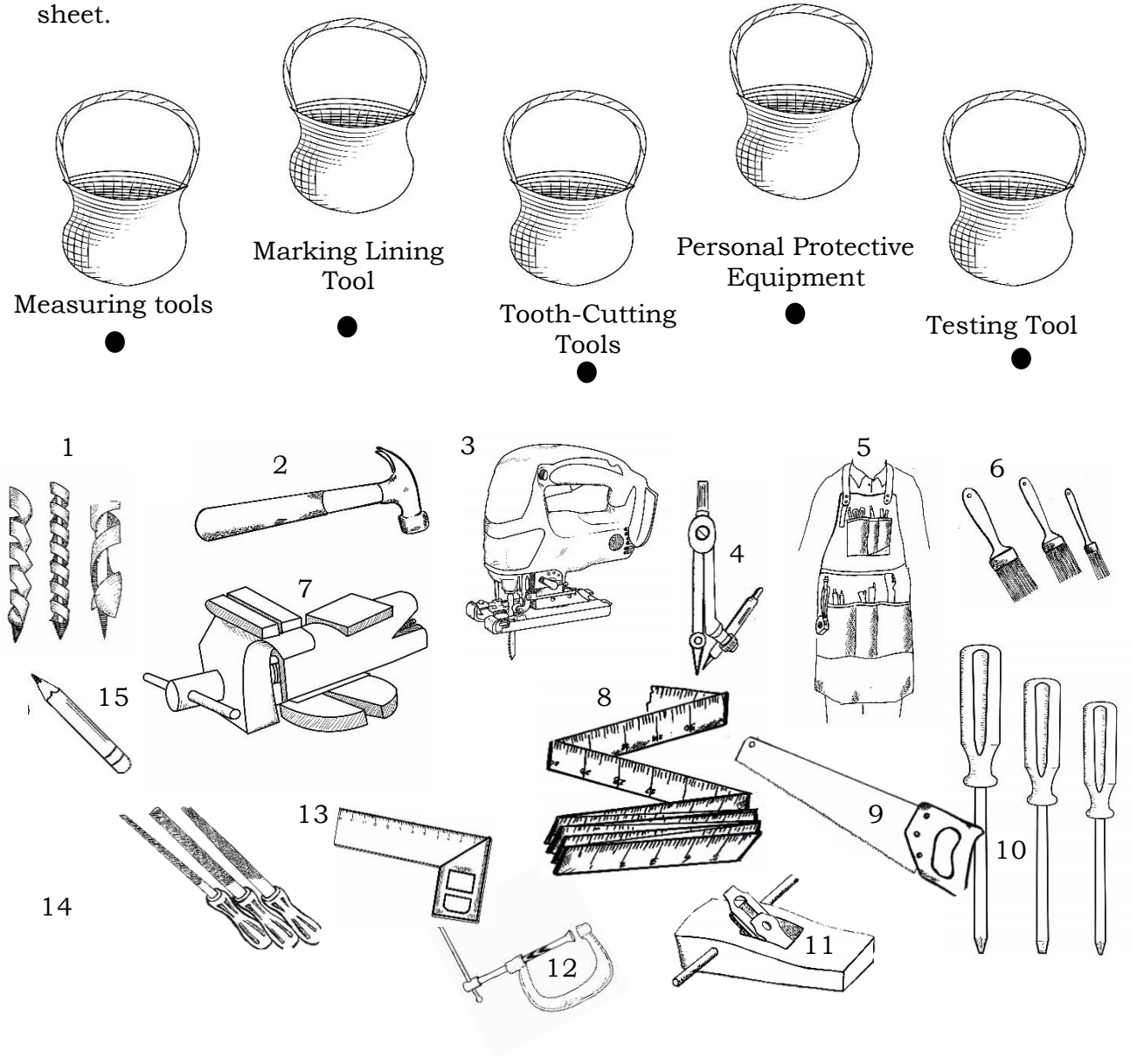
Congratulations, learner! You have proven that you really learned a lot in your previous lesson. This time, you will be harnessed with new skills in determining the conditions of the materials you might always use in the task given to you. Before knowing the condition of the materials and equipment, first, you need to determine the classifications of materials, and their uses.

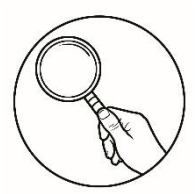
Checking the condition of tools and equipment is one of the carpentry routines which require know-how, initially, on the different hand tools. Through the knowledge and skills you possess, you can easily perform the activities not only in the creation of projects but also in the maintenance of the tools and equipment. Practically, with the frequent checking and maintaining the good condition and functions of the tools and equipment enable you to plan out for more projects and will not get much of your money for buying new ones. Consequently, you cannot identify and segregate defective tools and equipment if you have less knowledge about them.

Thus, to start mastering this lesson, let us have an initial activity which can help you think about the categories of the tools and equipment. To make it more challenging yet engaging, let us have a game called Detect and Connect. Get it on, learner!

Activity 2. ***Keep in the Basket:***

Directions: Identify the classification of the scattered hand tools by connecting them to the correct basket using straight lines. Do this activity in your activity sheet.





What is It

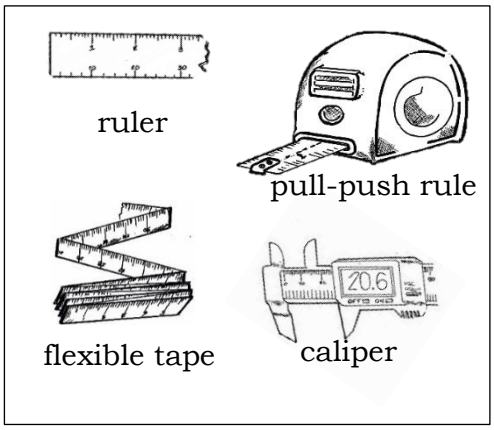
Wow! You successfully classified the hand tools as if you have learned it already. This time, you will learn more about the classification of hand tools and their uses. You can easily segregate defective tools from functional ones when you are familiar with their looks and uses.

Classification of Hand Tools

One of the classifications of the hand tools is the **measuring tools**. This includes the **pull-push rule**, **ruler**, **meter stick**, **try square**, and **caliper**. Their uses are mainly to get the measurements of the material or maintain their dimensions. They are useful most of the time whenever you need to make sure of the accuracy of measurement in your carpentry works.

A. Measuring tools

1. **Pull-push Rule** –a flexible tape that slides into a material case and it is used to measure irregular and regular shapes.
2. **Ruler** –a 12-inch or one-foot rule and it is used to take or make simple measurements.
3. **Meter Stick** –used to measure a work piece.
4. **Try Square** –used for squaring, measuring, testing and to check adjacent surfaces for squareness.
5. **Caliper** –used to transfer measurements from the rule to the work.

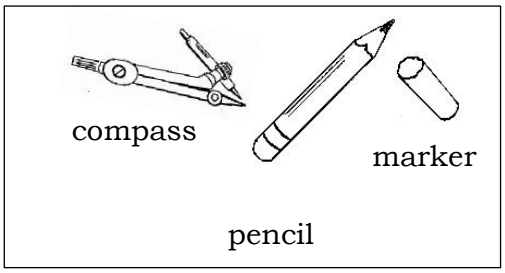


Some of these hand tools are commonly found in our house, and even in the offices. Meanwhile, in measuring the dimension of any material, we ~~used to~~ put a mark using **marking and lining tool**. Marking and lining tools are used to draw layout, put patterns, or ~~use~~ as guide when working on our project.

B. Marking and Lining Tools

1. **Pencil** - used to layout or mark cutting lines.
2. **Marking Gauge** –made of wood or metal tool consisting of a beam, head and a point used to mark a line parallel to the grain of the wood.

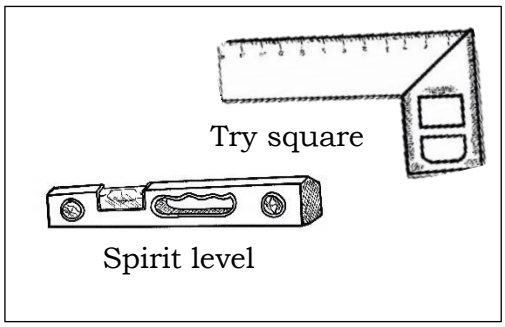
3. **Chalk Line** - used to establish a straight line on a surface.
4. **Divider** – a tool with two metal legs used to lay-out an arc circle or step off division on a line.
5. **Compass** - used to scribe arcs and circles in a metal wood.



When you want to maintain the accuracy and consistency of the measurements of the project you are making, you need to use the **testing tools.** Without these testing tools, you might fail to produce a well-balanced output.

C. Testing Tools

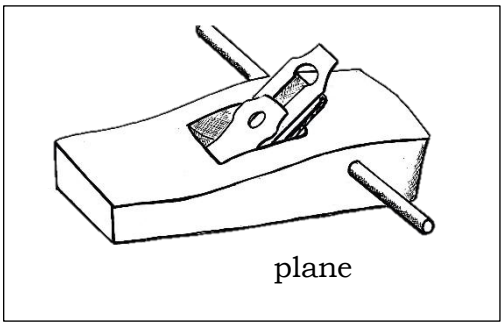
1. **Try Square** – a tool used in measuring and checking the squareness of a wood.
2. **Steel Square** – a framing square used to mark out the work for squaring and checking of angles and is used in the construction of roof framing and large furniture.
3. **Spirit Level** – a tool used for testing vertical and horizontal surfaces.
4. **Plumb bob** – a tool used to test the vertical and horizontal surfaces.



In some of our projects, especially when we need to flatten and to smoothen the surfaces of the material like woods without any chemical application, we use these **edge-cutting tools**. These edge cutting tools help to produce well-polished surfaces and to shape our projects like wooden doors, tables, or chairs.

D. Edge-Cutting Tools

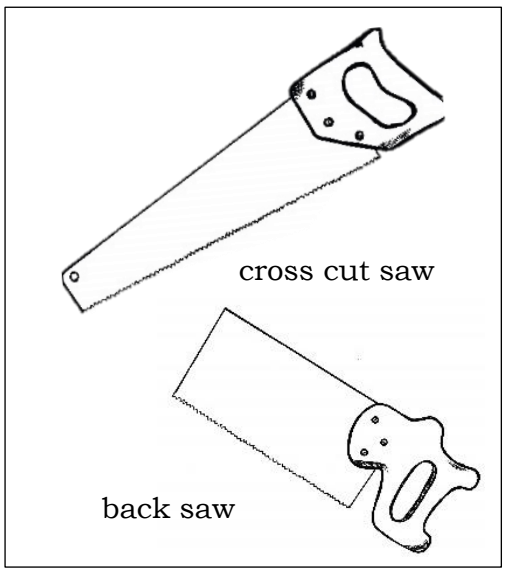
1. **Chisel** – a tool used to trim and shape wood.
2. **Plane** - used to obtain a smooth and flat surface.
3. **Spokeshave** – a small plane-like tool used in irregularly shaped objects.
4. **Cabinet scraper** – a rectangular piece of steel with two cutting edges used for working flat and curved shapes



If you want to cut materials like iron and wood in a certain measurement, the **tooth-cutting tools** are used. These tools are hand-based that you can use easily.

E. Tooth-Cutting Tools

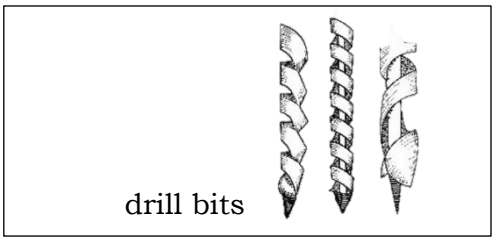
1. **Cross-Cut Saw** – a hand saw used to cut the wood across the grain.
2. **Rip Saw** – a hand saw used to cut the wood along the grain.
3. **Back Saw** – a hand saw with a metal back and used to cut plywood and in joinery.
4. **Compass Saw** - used to cut irregular shape either in large or small board.
5. **Turning Saw** - used to rip across and cut curves in lumber.
6. **Coping Saw** – a U-shaped saw used for cutting irregular shape in small board.
7. **Dovetail Saw** – a small back saw with a straight chisel type handle used to cut very fine joints.



In securing that the surface will not break when installing screws or when nailing them, **boring tools** can be used to make a hole just enough to produce friction to the nails or screws without breaking it.

F. Boring Tools

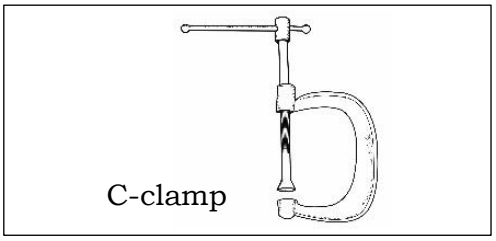
1. **Auger bit** - tool used to make hole in woods.
2. **Expansive bit** - tool used to drill holes of various sizes in woods.
3. **Drill Bit** - tool used for boring holes either in metals, woods, or plastics.



Holding tools are hand tools used to hold materials while you work on them. Through these tools, you will be able to ensure that the material will be positioned well.

G. Holding Tools

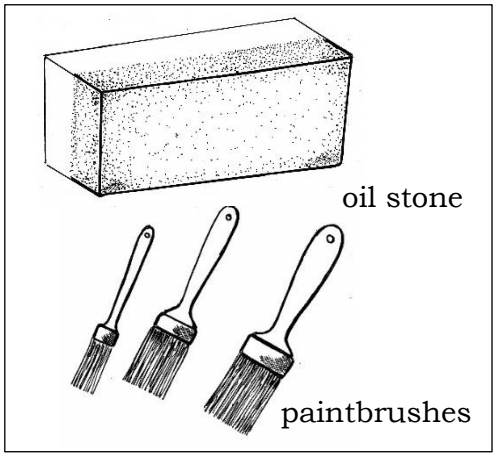
1. **C-Clamp** - used for holding together pieces of lumber while working.
2. **Bench Vise** - used to hold any materials or tools in place.
3. **Bar Clamp** - used to hold large boards or frames together while assembling or gluing.



The **Miscellaneous tools** are the light hand tools which are particularly used in some polishing or enhancing the quality of the output you can produce.

H. Miscellaneous Tools

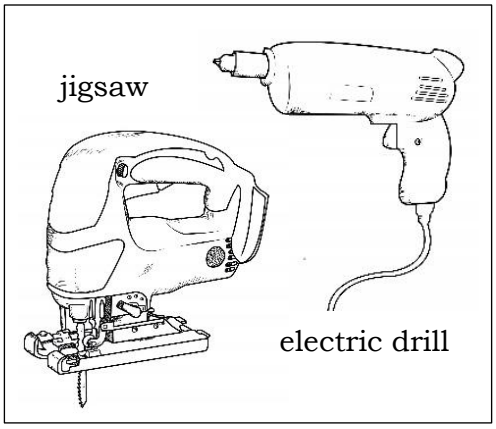
1. **Oil Stone** - used for sharpening edges of cutting tools such as chisel.
2. **Files** - used to smoothen metal and wood surfaces.
3. **Paint brush** - used to apply paint or varnish on surfaces.
4. **Nail Set** - used to drive the head of nails lower than the surface of wood.
5. **Saw Set** - used to bend the upper half of each saw tooth to one side or the other to form a set.



Most of the **portable power tools** are electric-based tools used in carpentry works. These tools can help in finishing works easily. Using these tools can make a quality and well-polished output.

I. Portable Power Tools

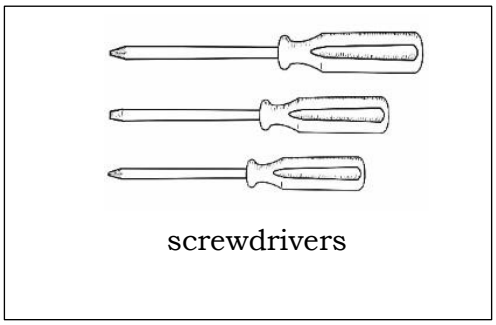
1. **Sander** – a portable power tool used for sanding furniture pieces.
2. **Router** - used for shaping surfaces and edges of furniture parts.
3. **Jigsaw** – a power tool used primarily for cutting curved or irregular shapes on wood surfaces.
4. **Circular saw** – a power saw used for many types of cutting particularly on large panel stock.
5. **Electric Drill** – a power drill is used to drill holes in various materials to perform a multitude of tasks.



The last classification of hand tools is the **driving tools**. These tools are necessary in the installation of screws and nails on wooden or any surface in carpentry works.

J. Driving Tools

1. **Claw Hammer** - used to drive and pull out nails on wooden surfaces.
2. **Mallet** - made of wood or rubber used to drive other tools like chisel.
3. **Nail Set** - used in setting the head of a finishing nail below the surface of the wood.

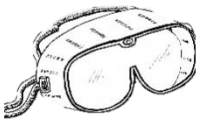


4. **Screwdriver** - used to drive and loosen screws.

During your working time, protection must always be observed. **Personal Protective Equipment (PPE)** is particularly designed for the protection of the sensitive parts of your body such as your eyes and skin. Try to look at some of their examples.

K. Personal Protective Equipment (PPE)

1. **Goggles** - used to protect the eyes against flying debris and harmful liquids.
2. **Ear Protector** - used to protect the ears against high frequency noise.
3. **Face Mask** - used to prevent the inhalation of sprayed paint fumes.
4. **Gloves** - used to protect the hands while working.
5. **Apron** - used to protect the worker against dirt.



googles

apron

How was your learning with the classifications of hand tools and equipment? How will you possibly do your own carpentry work? Very good! Through the learning you gain from this lesson, you will be able to apply your skills on the use of these hand tools. These will also enable you to easily segregate any defective tools. By familiarizing on the uses of each tool and equipment, you can check their conditions easily. To help you sharpen your mind on how you can operationally check the condition of your tools and equipment, let us have further discussion on it later. This time let us have some in our lesson about the classification of the hand tools through this enjoyable and engaging assessment activity.

Identifying Defective Tools

Learner, this time we will discuss how to identify defective tools and their common defects. Defective tools can be harmful to use. These can cause serious injuries if still being used in making projects. So, it is advisable to refrain from using defective tools once identified. When defective tools are identified, attach an Out of Service tag with signature and date to protect the users from any injury. However, the tag will be removed once the defective tools are repaired with its receipt. Additionally, the receipt must contain the continuous monitoring of repairs, and dates completed of the identified tools.

For hand tools, you can easily identify their defects when:

1. The chisels and wedges have mushroomed heads.
2. The tools have split or cracked in their handles.
3. The tools like drill bits are chipped or broken.
4. The wrenches have worn out jaws.
5. The tools are not yet complete, such as tools without any protective handle.

For air, gas, or electric power tools, you can easily identify their defects when:

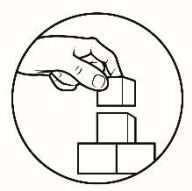
1. The tools have broken or dysfunctional guards.
2. The tools have insufficient or improper grounding due to damage on double insulated tools.
3. The tools have no ground wires, on plugs, or cords of standard tools.
4. The on and off switches of the tools are not in good conditions or not functional.
5. The tool blades are cracked.
6. The guard is wedged back on the power saw after the wrong grinder wheel is being used.

Procedure in Segregating and Labeling Non-functional Tools and Equipment

1. Conduct an inventory of tools and equipment.
2. Record the number of non-functional tools and equipment.
3. Segregate tools which are serviceable or unserviceable.
4. Report the number of tools and equipment that are non-functional but subject for repair.
5. Label tools and equipment which are condemnable.
6. Return tools and equipment in the tool cabinet as per operating procedures.

Procedure in Checking Condition of Personal Protective Equipment

1. Inspect any damaged or defective Personal Protective Equipment (PPE).
2. Test the functionality of each PPE.
3. Separate the non-functional and functional PPE.
4. Repair/replace the non-functional PPE.
5. Report the condition or status of PPE.



What's More

Activity 3. List them Up!

Let us take a break for a while, learner! This time, I am challenging you to list all your tools available at home. After listing, make a checklist to identify each one of them whether Functional or Non-Functional. Copy the chart below in your activity sheet.

Tools	Functional	Non-Functional
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

What I Have Learned

Let us see if you already have knowledge about the classification of hand tools. Answer the test below. Write the answers in your activity notebook.

Activity 4

Direction: Classify the following tools and materials.

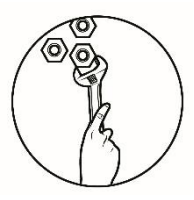
1. electric grinder - _____
2. gloves - _____
3. triangular file - _____
4. compass - _____
5. pull push rule - _____
6. back saw - _____
7. steel square - _____
8. spoke shave - _____
9. bar clamp - _____
10. claw hammer - _____

Activity 5 -Complete me

Direction: Fill in the blank to complete the statement in Checking and Segregating Defective tools and Equipment. Select answer in the box below. Do it in your activity sheet.

Damaged	Separate	Report	functionality	non-functional
Record	number	condemnable	serviceable	operating

1. Inspect any _____ or defective Personal Protective Equipment (PPE).
2. Test the _____ of each PPE.
3. _____ the non-functional and functional PPE.
4. Repair/replace the _____ PPE.
5. _____the condition or status of PPE.
6. _____ the number of non-functional tools and equipment.
7. Segregate tools which are_____ or unserviceable.
8. Report the _____ of tools and equipment that are non-functional but subject for repair.
9. Label tools and equipment which are _____.
10. Return tools and equipment in the tool cabinet as per _____ procedures.



What I Can Do

Activity 5: Let's Nail It!

Directions: Do the following tasks. Rate your performance using the scoring scale below. Remember, your learning is at stake! Write your scores on your activity sheet.

Checklist

Procedure in segregating and Labeling Non-functional Tools and Equipment

Activities	Score	Description
1. Conduct inventory of tools and equipment		
2. Record non-functional tools and equipment		
3. Segregate non-functional tools and equipment		
4. Report non-functional tools and equipment		
5. Label condemnable tools and equipment		
6. Return tools and equipment in the cabinet.		

Score	-	**Description**
6	-	Very Satisfactory
5	-	Satisfactory
4	-	Needs Improvement
3	-	Failed

Procedure in Checking Condition of Personal Protective Equipment

Directions: Check the corresponding box if you have performed or have not performed the following activities.

Activities	Performed	Not Performed
1. Inspected any damaged or defects of the Personal Protective Equipment (PPE).		
2. Tested the functionality of each Personal Protective Equipment (PPE).		
3. Separated the non-functional and functional Personal Protective Equipment (PPE).		
4. Repaired/replaced the non-functional Personal Protective Equipment (PPE).		
5. Reported the condition or status of Personal Protective Equipment (PPE).		

Score -		**Description**
6	-	Very Satisfactory
5	-	Satisfactory
4	-	Needs Improvement
3	-	Failed

Assessment

Direction: Multiple Choice. Select the correct answer. Write only the letter on your activity sheet.

1. Which is used for sharpening edge-cutting tools such as chisel?
   a. saw set b. oil stone c. nail set d. files
2. Which is one of the procedures in segregating and labeling non-functional tools and equipment?
   a. Conduct an inventory of tools and equipment b. Asking co-worker
   c. Wait until the others are doing. d. Junk defective tools
3. Which is used for transferring measurement?
   a. plumb bob b. divider c. pencil d. caliper
4. Which is used to layout or mark cutting lines?
   a. chalk line b. pencil c. marking gauge d. steel square
5. Which is used to scribe arcs and circle in the metal or wood?
   a. compass b. divider c. marking gauge d. steel square
6. Which is used in measuring and testing the squareness of a wood?
   a. cabinet scraper b. spirit level c. try square d. steel square

7. Which is an example of functional portable power tool used for sanding furniture?

a. Sander with ground wires b. Sander with cut ground wires
c. Sander with damage plug d. Sander with cracked switch

8. Which is used to drive and pull out nails on a wooden surface?

a. claw hammer b. screwdriver c. cabinet scraper d. mallet

9. Which is used to protect the eyes against flying debris and harmful liquids?

a. apron b. face mask c. goggles d. ear protector

10. Which is called a complete tool?

a. tools with insulated handle b. hammer with cracked handle
c. screwdriver with broken handle d. electric without ground wires

11. Which is used to protect the hands while working?

a. claw hammer b. gloves c. screwdriver d. face mask

12. Which of these is a defective tool?

a. tool that has crack in its handle b. Tool with sharp blade
c. saw with handle d. chisel with sharp edge

13. Which is used to apply paint or varnish on wood surfaces?

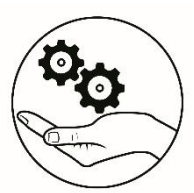
a. claw Hammer b. screwdriver c. paint brush d. nail set

14. Which is used for holding together pieces of lumber while working?

a. Apron b. Face Mask c. Goggles d. c-clamp

15. Which does not belong to the group?

a. Tools that have broken or dysfunctional guards.
b. Tools that have no ground wires, on plugs, or cords of standard tools.
c. On and off switches of the tools that are not in good conditions or not functional.
d. Tool blades that are sharp and fixed.



Additional Activities

Direction: List down all your hand tools available at home. Think about the project which you can make using these available materials that you have.

Answer Key

Pre-Test

A.
1. b
2. j
3. c
4. i
5. e
6. d
7. f
8. g
9. a
10. h

B.
1. Non defective
2. Defective
3. Defective
4. Defective
5. Non Defective

Keep in the Basket

Basket	Tool Number
Measuring Tool	8
Marking Lining Tool	4 and 15
Tooth-cutting Tools	9
Personal Protective Equipment	5
Testing Tool	13
Edge-cutting Tool	11 and 14
Holding Tool	7 and 12
Miscellaneous Tool	6
Portable Tool	3
Driving Tool	2 and 10
Boring Tool	1

Assessment

1,b
2.a
3.b
4.b
5.a
6.c
7.a
8.a
9.c
10.a
11.b
12.a
13.c
14.d
15.d

What's New

1. Boring Tools
2. Driving Tools
3. Portable Tools
4. Marking Lining Tools
5. Personal Protective Equipment (PPE)
6. Miscellaneous
7. Holding Tools
8. Measuring Tools
9. Tooth-cutting Tools
10. Driving Tools
11. Driving Tools
12. Measuring Tools
13. Holding Tools
14. Edge-cutting Tools
15. Mark Lining Tools

What I Have Learned

A
1. Portable power tools
2. Personal Protective Equipment (PPE)
3. Miscellaneous Tools
4. Mark Lining Tools
5. Measuring Tools
6. Tooth cutting tools
7. Testing Tools
8. Edge- Cutting Tools
9. Holding Tools
10. Driving tools

B
1. damage 2. functionality
3. separate 4. Non-functional
5. report 6. record
7. serviceable 8. Number
9. condemnable 10. operating

References

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University of Lethbridge. Defective Tool. https://www.uleth.ca./facilities/content/defective-tools

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