7/8

DepED
DEPARTMENT OF EDUCATION

Technology and Livelihood Education

Exploratory Course

Carpentry

Module 4: Performing Basic Preventive Maintenance

ALTERNATIVE DELIVERY MODE
ADM

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Module 4: Performing Basic Preventive Maintenance
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Carpentry

Module 4: Performing Basic Preventive Maintenance

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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! Welcome to another exciting lesson that you are about to learn. This time, it is expected that you have enough learnings and understanding in carpentry as you move forward to gain more.

This module contains lesson about lubricating tools and equipment. Why is it important? What will happen when you do not lubricate the tools and equipment in carpentry? The lesson in lubricating tools and equipment that you are going to learn here, may help you answer these question.

This module was written and designed intended for you. It is here to help you repair defective tools and conduct preventive maintenance repair.

After going through this module, you are expected to:

1. repair defective tools, and
2. conduct preventive maintenance of carpentry tools

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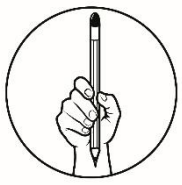


What I Know

First, test yourself on your prior knowledge about the lesson you are about to learn.

Pre-Test

Directions: Choose the letter of the best answer. Write the chosen letter in your activity sheet.

1. Which type of maintenance is not directly included in the total maintenance costs, but might be a component of total overall cost?

a. preventive
b. breakdown
c. predictive
d. prescriptive

2. Preventive maintenance is used to ensure that breakdowns _____.

a. are eliminated
b. are reduced
c. are less costly
d. will not happen

3. With regard to maintenance, breakdown maintenance is _____while predictive maintenance is _____.

a. proactive, cheaper
b. cheaper, reactive
c. reactive, proactive
d. cheaper, more productive

4. Generally, cleaning, lubricating, and storing properly are basic _____ in tools and equipment.

a. breakdown maintenance
b. preventive maintenance
c. predictive maintenance
d. run-based maintenance

5. Which of these is best used to remove hex screw?

a. witch's curse
b. wrench
c. power drill
d. Hex key wrench

6. Teflon tape is used in_____.

a. plumbing repairs
b. tough holds
c. electrical repairs
d. vehicle repairs

7. Repair and maintenance of tools is important because_____.

a. it makes work faster
b. it ensures safety
c. it improves work
d. it reduces time

8. Which is applied in the sealed bearing in tools?

a. oil
b. water
c. grease gun
d. gasoline

9. Which of the following is done in the carpentry maintenance?

a. assist in measuring and marking
b. cuts and shapes materials
c. assist in repairing tools
d. a, b, and c

10. According to Occupational Safety and Health Administration, which one is recommended when you discover a tool has been damaged?

a. use it carefully
b. dispose it
c. do not use it
d. purchase another form

11. Mishandled tools may give wrong impression; declared defective shall be _____.

a. taken out of service
b. marked as being out of order
c. discarded immediately
d. replace immediately

12. To ensure safe use of tools, a carpenter should _____ the tools before using it.

a. inspect
b. check
c. verify
d. a, b, and c

13. Why is there a need to read the user's manual of a tool?

a. to ensure safety
b. to upgrade
c. to replace
d. to check

14. Why do we need to wear gloves when using tools?

a. to protect hands
b. to disinfect hand
c. to protect eyes
d. a, b, and c

15. What will be the effect if we use tools not designed for a job?

a. It can cause virus
b. It affects our health
c. It can cause injuries
d. All of these

Lesson 1 Performing Basic Preventive Maintenance

What's In

Hello again! Welcome back for another exciting lesson you are about to learn. In your previous lesson, you study about segregating defective tools, label defective tools, and reporting the list of defective tools.

In this lesson, you are about to learn lubricating tools and equipment. This module will guide you on the importance of lubricating tools and equipment as part of your learning adventure in conducting preventive maintenance of carpentry tools.

Notes to the Teacher

When teaching this lesson, the teacher must emphasize to the learners the value of maximizing the use of tools and equipment and save money to be used to other basic needs in the family. Taking care of tools will extend their usability. Therefore, care is also an important aspect to be considered by a carpenter. Teacher must press on this.

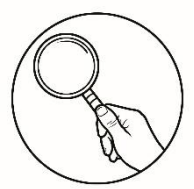
What's New

Let us start your discovery by arranging the scrambled letters. This will guide you of the words and terms you may encounter in learning this lesson. Write your answers in your activity sheet.

Activity 1- Rumble me

1. O A T C
2. G E A R E S
3. S O O L T
4. E T E Q U M I N P
5. P I L S O R M F
6. A C H I N E M
7. L O I
8. P C E V R O D R E
9. E I V E D C
10. A L U N M A

Did you get the right answers? Good job! Now, proceed to more learning journey ahead!



What is It

At this point of your module, you are now focusing on the substance of the lesson. Let's get it on.

Importance of Repair

Repair plays an important role in reinforcing your home and workplace. Maintaining your tools and equipment can be a big help in the preparation of the repair and maintenance process. That is why, regular inspection of tools and equipment can help you become prepared when unexpected damage happen in your home and workplace.

Things to Keep a Watch

Defective tools can cause serious and harmful injuries. If a tool is defective in some way, do not use it. If tools and equipment are defective, attach an Out of Service tag with signature and date. Upon proof of repairs (a receipt), the tag will be removed and attached to the invoice for continuous monitoring.

Watch out for problems such as chisels and wedges with mushroomed heads, split or cracked handles, chipped or broken drill bits, wrenches with worn out jaws, and tools that is not complete, such as files without handles.

There are important things to remember for air, gas or electric power tools. Watch for problems such as broken or inoperative guards, insufficient or improper grounding due to damage on double insulated tools, no ground wire (on plug) or cords of standard tools, the on / off switch not in good working order, tool blade is cracked, the wrong grinder wheel is being used, and the guard has been wedged back on a power saw.

Conduct Preventive Maintenance of Carpentry Tools

Preventive maintenance is a routine maintenance process on a piece of equipment to lessen unnecessary or sudden breakdown. A Preventive Maintenance Plan is critical in any maintenance management program to avoid unplanned downtime and to increase productivity.

It requires planning and scheduling of maintenance on an asset. Correspondingly, it can be a big help to review data from previous inspection and maintenance reports.

There are three types of Maintenance:

1. **Breakdown Maintenance:** It is holding up until the equipment fails before repairing or servicing it.
2. **Preventive Maintenance (PM):**
    - **Time-based or run-based.** This includes occasional inspection, servicing, cleaning, or replacing parts to prevent unexpected failure.
    - **Predictive.** This includes regular monitoring of equipment in order to use important/expensive parts to the limit of their serviceable life
3. **Corrective or Predictive Maintenance:** Improving equipment and its components so that preventive maintenance can be completely reliable.

Here are some steps in conducting Basic Preventive Maintenance

Generally, cleaning, lubricating, and storing properly are basic preventive maintenance in tools and equipment. Below are some suggestions:

A. Hand tools

1. Clean dirt and debris from tools after each use.
2. Oil metal parts to prevent rust.
3. Lightly sand rough wooden handles and apply linseed oil.
4. Repair loose handles.
5. Sharpen blades of cutting tools.
6. Store tools in a clean dry storage area.
7. Protect surfaces of cutting tools in storage.

B. Electric Powered Tools and Equipment

1. Clean out the dust. To make sure that your electric tools are ready to go. Keep them clean and free of dust. Spend some time to clean out the dust every once in a while on your tools while they are inactive in storage.

2. Check the cords. Look for tear/cut insulators on the power cords on your electric tools. This will ensure that your electric tool can get the power that it needs to function without an accident and avoid electrocution.

3. Use the right tool correctly. Use tools correctly and for their intended purposes. Follow the safety directions and operating procedures recommended by the manufacturer. When working on a circuit, use approved tools with insulated handles.

4. Protect your Power tools. Keep tools and cords away from heat, oil, and sharp objects. These hazards can damage insulation. If a tool or cord heats up, stop using it. Report the condition to your teacher or an expert immediately.

5. Use double-insulated tools. Portable electrical tools are classified by the number of insulation barriers between the electrical conductors in the tool and the worker.

6. Storing Your Tools. Keep your electric tools stored in their original cases and containers. This will keep them free of dust and dirt while not in use.

7. Lubricate moving parts. Using lubricant helps maximize the life of tools and equipment and make the work more efficient.

8. Follow the maintenance schedule. Following the maintenance schedule of tools and equipment gives the care it needs and lengthens its lifespan.

Repair of Defective Carpentry Tools

Any carpentry tool is potential for being unsafe if it is defective or poorly manufactured. This doesn't only apply to power tools used in carpentry such as table saws and drills, it can also be applied to simple hand-held tools, such as hammers, pile, or screwdrivers, as well. Depending on their industry, workers may also use very sophisticated, computerized machinery manufactured to its specifications but which also has to be well maintained throughout the life cycle of the tool or machine.

When workers use tools in the workplace, it shouldn't be too much to expect that they have been manufactured to be safe when used as instructed and that they will operate as the manufacturer intends. And yet, when it comes to workplace accidents, defective tools and defective machinery are among the leading causes of serious injuries and fatalities.

Among some of the most common defects in carpentry tools include damaged or poorly manufactured, without the fluid necessary to run them, missing safety guards, attachments that do not connect to the tools securely, and many more.

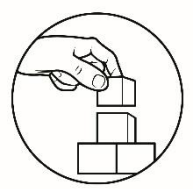
These are steps in repairing defective carpentry tools:

A. Hand Tools

1. Inspect hand tools for damage checking.
2. Identify parts that are damaged. Based on the severity of the damage, decide if it is for repair or replacement.
3. Check for loose parts. Loose parts should be tightened.
4. Dull or blunt edges should be sharpened or replaced.
5. Remember that if the damage is beyond repair, it should be replaced.

B. Electric Powered Tools and Equipment

1. Inspect parts such as electric cords and connections of electric-powered tools for damage checking.
2. Identify parts that are damaged. Based on the severity of the damage, decide if it is for repair, replacement, or disposal.



What's More

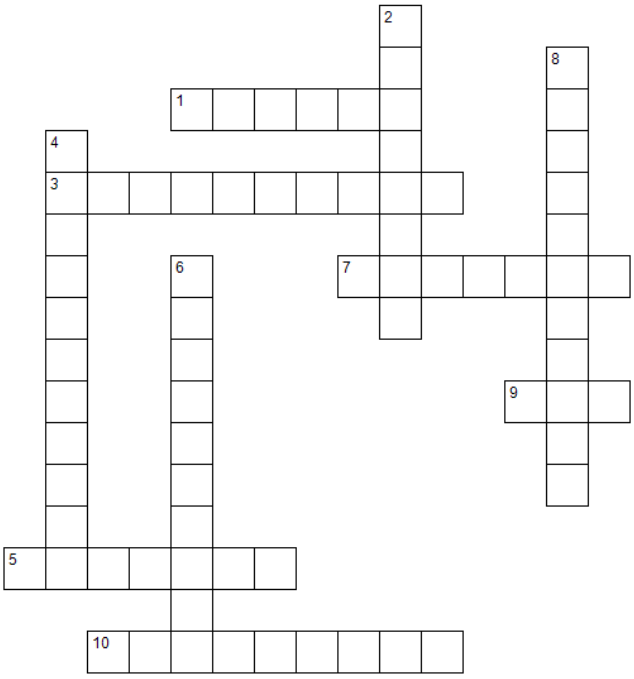
Preventive maintenance involves the systematic inspection of equipment where potential problems are detected and corrected to prevent equipment failure before it happens.

In this activity, you are going to read the text paragraph about preventive maintenance. The words you encounter in the selection will give you hint to solve the puzzle. Some words are included in the puzzle. Figure out the meaning of the word through a given hint found at the right side. Write your answer in the crossword puzzle.

Activity 2- Puzzle me, Carpenter!

Across:

1. to make different
3. a correction or modification to reflect actual condition
5. to restore by replacing a part or putting together
7. to view closely in critical appraisal
9. a combustible substance that are liquid in form
10. to examine thoroughly



Down:

2. free from dirt
4. the act of maintaining
6. precautionary
8. to make smooth or slippery.

What I Have Learned

Since you are done in reading the lesson on repair defective tools and conduct preventive maintenance of carpentry tools, I believe that you are ready for more fun. Proceed below and you will discover something new.

Activity 3: Enlighten me, carpenter!

A. Directions: Answer the following questions. Write your answer in your activity sheet.

1. Why is it important to conduct preventive maintenance of carpentry tools?

_____
_____
_____
_____

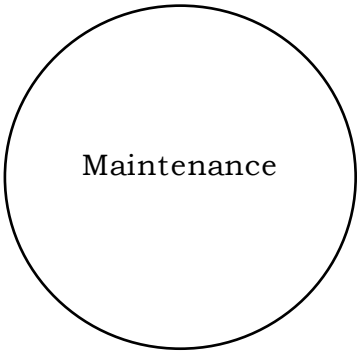
2. What are the indicators in repairing defective tools?

_____
_____
_____
_____

B. Concept Mapping!

In this activity, you are going to apply what you have learned in your lesson about preventive maintenance. It will help you recall the lesson you have learned in the previous pages.

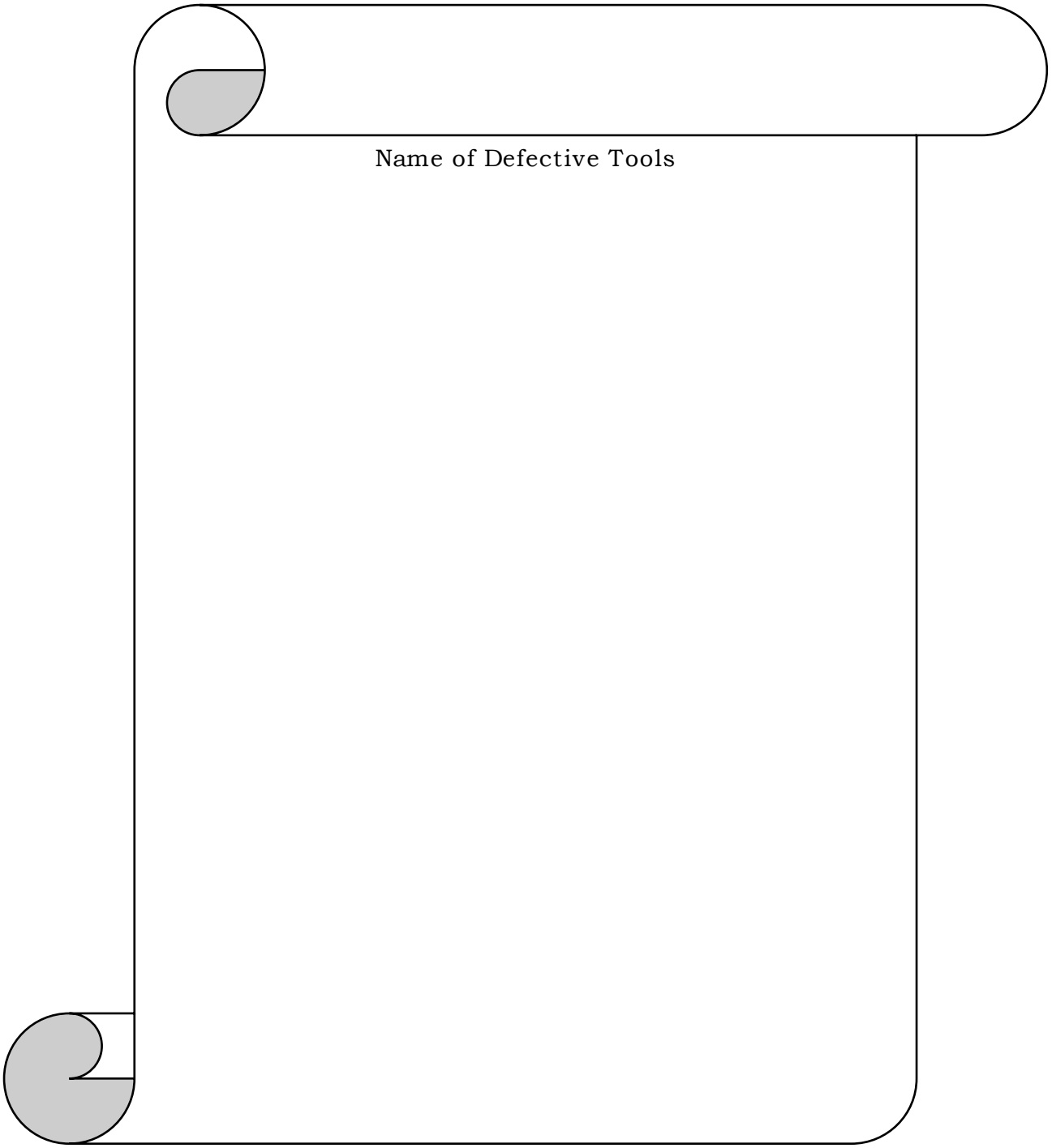
Directions: Make a concept mapping about preventive maintenance. Add more ideas or concepts you have learned which are connected to the given word. Write your answer on the activity sheet.



Great job! You were able to connect the concept and ideas you had learned! You are doing well, young carpenter!

C. Find the Defective!

Directions: In this activity, you are going to play a role of a detective. Find any defective tools in your home. After that, write the names of those tools in your activity sheet. Don't forget to place a tag on them.



Amazing! You were able to find the defective tools in your home. Great job!

D. Inspection time!

Directions: Inspect defective tools and conduct preventive maintenance of carpentry tools at home. Write your answer in your activity sheet.

Tools	Defect	Preventive Maintenance

What I Can Do

Constant recall helps you master your lesson .Always take a challenge and , keep enjoying.

Activity 4. Gear up!

Directions: Arrange the following steps in conducting preventive maintenance of carpentry tools by writing the number in the blank provided. Write your answer in your activity sheet.

_____ Secure a borrower's slip from your teacher.

_____ Perform lubricating procedure.

_____ Fill out the slip form correctly intended for the needed tools.

_____ Read and analyze the use of preventive Maintenance Schedule form.

_____ Apply thin coat of oil on the parts for a long period of time.

_____ Open the bearing cover and apply grease.

_____ Determine the types of tools and machines needed to be lubricated.

_____ Determine the parts of the machine needed to be lubricated.

_____ Fill out a requisition slip form in releasing the lubricants needed.

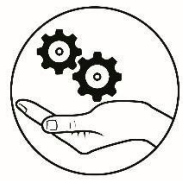
_____ Perform the task according to the prescribed schedule and the assigned machine.

Assessment

Directions: Supply the missing word in the sentence. Select your answer from the box. Write your answers in your activity sheet.

A. preventive	B. routine	C. requisition
D. unplanned	E. prescribed	F. serviceable
G. borrower's	H. harmful	I. inspection
J. machine	K. out of service	L. defective
M .invoice	N. preparation	O. regular

1. A preventive maintenance is a _____ maintenance process on a piece of equipment to lessen the likelihood of a sudden breakdown.
2. A preventive maintenance plan is critical in any maintenance management program to avoid _____ downtime and to increase productivity.
3. Read and analyze the use of _____ maintenance schedule form.
4. Secure a _____ slip from your teacher.
5. Time-based or run-based includes occasional _____, servicing, cleaning, or replacing parts to prevent unexpected failure.
6. Predictive includes on-line monitoring of equipment in order to use important/expensive parts to the limit of their _____life.
7. Fill out the _____ slip form correctly intended for the needed tools.
8. Determine the types of tools and_____ needed to be lubricated.
9. Perform the task according to the _____ schedule and the assigned machine.
10. Defective tools can cause serious and _____ injuries.
11. To ensure safe use of tools, do not use a _____tool.
12. Attach an _____tag to defective tools.
13. Upon repairs, receipt will be removed and attached to the _____for continuous monitoring.
14. Maintaining your tools and equipment can be a big help in the _____ of repair and maintenance process.
15. Predictive maintenance includes _____ monitoring of equipment.



Additional Activities

To end this lesson, let's have a practical activity to apply what you have learned and at the same time how to repair defective tools and conduct preventive maintenance of carpentry tools from a real carpenter. Answer the activity below.

Activity 5: Ask a Carpenter!

Directions: Look for a real carpenter in your neighborhood. Ask them on how to conduct preventive maintenance of defective tools of carpentry tools at home. Write your answer in your activity notebook.

Guide Questions:	**Carpenter's answer**
Good morning Mr./Ms.:_____. I am (your name). 1. How long have you been as a carpenter? 2. What are the things to remember in conducting preventive maintenance of carpentry tools?	

Answer Key

What's More

1. ADJUST
2. CLEANING
3. PREVENTION
4. MAINTENANCE
5. REPLACE
6. PRECAUTION
7. INSPECT
8. LUBRICATION
9. OIL
10. OVERHAUL

What Can I Do

1. 4
2. 7
3. 5
4. 1
5. 9
6. 8
7. 2
8. 10
9. 3
10. 6

Assessment

1. B
2. D
3. A
4. F
5. H
6. E
7. C
8. I
9. E
10. G
11.
12.
13.
14.
15.

What I Know

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

What's New

2. COAT
3. GREASE
4. TOOLS
5. EQUIPMENT
6. SLIP FORM
7. MACHINE
8. OIL
9. PROCEDURE
10. DEVICE
11. MANUAL

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