

### Republic of the Philippines DEPARTMENT OF EDCUATION



### K to 12 BASIC EDUCATION CURRICULUM

TECHNOLOGY AND LIVELIHOOD EDUCATION

# TEACHER'S GUIDE

**Exploratory Course on MASONRY** 

Introduction	3
Background Information	
The Overall Goal of the K to 12 Curriculum	3
The Conceptual Framework of the Teaching of TLE	3
The TLE Exploratory Courses	5
The Learning Modules and Lessons	6
New Feature of the Teaching of TLE	6
About the Learning Module	
Design of the Module	7
Parts of the Lesson	
Reflection	11
Curriculum Guide	12

## INDUSTRIAL ARTS – MASONRY (Exploratory) Teacher's Guide for TLE Exploratory Course on Masonry

#### Introduction

This Teacher's Guide is intended for you, the TLE teacher, who teaches any of the more than 24 TLE exploratory courses in the Grades 7 and 8 of the K to 12 curriculum. To ensure that you teach the TLE exploratory courses the way they were intended to be taught, you must see the big picture of the K to 12 curriculum and the teaching of TLE. Some background information is necessary.

#### **Background Information**

1. The Overall Goal of the K to 12 Curriculum

The K to 12 Curriculum has as its overarching goal the holistic development of every Filipino learner with 21<sup>st</sup> century skills who is adequately prepared for work, entrepreneurship, middle level skills development and higher education. The overarching goal of the K to 12 curriculum, tells you that the teaching of TLE plays a very important role in the realization of the overall goal of the curriculum. Whether or not the K to 12 graduate is skilled and ready for work, entrepreneurship and middle skills development depends to a great extent on how effectively you taught TLE.

2. The Conceptual Framework of the Teaching of TLE

Below is a schematic diagram of Technology and Livelihood Education (TLE) framework in general secondary schools. This should guide you in the teaching of the TLE exploratory courses.

### INDUSTRIAL ARTS – MASONRY (Exploratory)

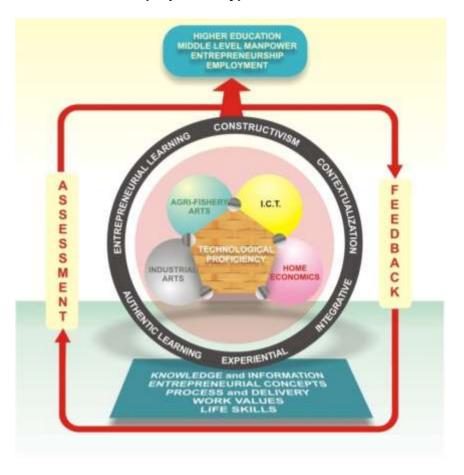


Figure 1.TLE Framework

The diagram shows that Technology and Livelihood Education encompasses the field of Home Economics, Industrial Arts, Agri-Fishery Arts and ICT. The 24 TLE courses can be categorized under any of these fields.

### INDUSTRIAL ARTS – MASONRY (Exploratory)

TLE is geared towards the development of technological proficiency and is anchored on knowledge and information, entrepreneurial concepts, process and delivery, work values and like skills. This means that the TLE that works is one that is built on adequate mastery of knowledge and information, skills and processes, acquisition of right work values and life skills. The TLE that is functional is one that equips students with skills for lifelong learning. TLE that is concerned only with mere definition of terms is meaningless and shallow. TLE that is focused on mastery of skills and processes without right work values is anemic and dangerous. An effective TLE is one that is founded on the cognitive, behavioral or psychomotor and affective dimensions of human development. So when you teach TLE, teach facts, concepts, skills and values as a whole.

The diagram likewise shows that entrepreneurial concepts also form part of the foundation of quality TLE. It is expected that your TLE students, after using the Learning Module on Entrepreneurship, imbibe the entrepreneurial spirit and consequently set up their own businesses in the areas of Agri-Fishery Arts, Industrial Arts, Home Economics, and Information and Communication Technology.

TLE by its nature is dominantly a skill subject and so you must engage your students in an experiential, contextualized, and authentic teaching-learning process. It is a subject where your students learn best by doing. It is integrative in approach. For instance, it integrates entrepreneurship with all the areas of TLE. It integrates concepts, skills and values.

#### 3. The TLE Exploratory Courses

TLE in Grades 7 and 8 are exploratory in nature. Your school will choose at least 4 from the list of 24 courses for which 23 Learning Modules have been prepared. 1 Your school's choice is determined by the availability of its resources (faculty and facilities) as well as the local needs and resources of the community.

The 24 TLE exploratory courses focus on four basic common competencies as follows: 1) use and maintenance of tools and equipment; 2) mensuration and calculation; 3) occupational health and safety procedures, and 4) preparation and interpretation of technical drawing. Why b are these competencies called basic? Because they are competencies that you must acquire in order that you can do higher level competencies. They are also described common because these are true to all TR-based TLE courses.

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<sup>&</sup>lt;sup>1</sup> There are 24 TLE courses but there are only 23 Learning Modules because there is one Learning Module for Tailoring and Dressmaking.

### INDUSTRIAL ARTS – MASONRY (Exploratory)

#### The Learning Modules and Lessons

There is a Learning Module for each exploratory course. If there are 24 exploratory courses then you have 24 Learning Modules in your hands. But you will use 4 Modules only for the entire year in Grade 7 (plus a fifth one on Entrepreneurship) and another 4 Modules in Grade 8 (plus a fifth one on Entrepreneurship). Each Learning Module consists of 4 to 5 Lessons<sup>2</sup>. The Lessons are focused on the 4 to 5 basic competencies. To avoid meaningless repetition of the teaching of the 5 common competencies, you have to teach them in the context of the TLE course. For example, you teach "use and maintenance of tools" in beauty care when you are teaching the course on Beauty Care. You teach the same competencies - use and maintenance of tools - in Horticulture but in the context of horticulture and so your tools will not be the same.

#### New Feature on the Teaching of TLE

What's new in the teaching of TLE in the K to 12 curriculum? In the K to 12 curriculum, the TLE courses are taught based on the learning outcomes and performance criteria stated on the Training Regulations (TR) from Technical Education Skills and Development Authority (TESDA). They are TR-based.

Why is this necessary? To prepare the K to 12 graduate for lucrative work, he/she must earn a National Certificate (NC) I, II or even an NC of higher level that is required by industry. This he/she earns after passing an assessment given by TESDA.

How can you ensure that the K to 12 high school student (Grade 9 to 12) pass TESDA assessment and obtain an NC? By seeing to it that you teach the TLE course in accordance with the performance criteria and learning outcomes laid down in the TESDA Training Regulations.

Do the exploratory courses enable the high school student to earn already an NC? Not yet. Completion of the exploratory courses may not yet qualify a high school student to take an assessment for an NC. Instead, it helps him/her earn a Certificate of Competency (COC) at least in Grade 9 that will lead eventually him/her to an NC. In short, the COC paves the way to the earning of an NC.

Student's choice of TLE specialization begins in Grades 9. After having been exposed to an array of TLE courses during the exploratory phase in the first two years, the student will be most benefited, if in Grades 10, 11, or 12 he/she continues with a TLE course in which he/she already has a COC. In that way, he/she will get an NC faster.

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<sup>&</sup>lt;sup>2</sup> Some Learning Modules combined use and maintenance of tools to make one Lesson, so the number of Lessons amount to 4; others made separate Lessons for use of tools and for maintenance of tools, thus the total is 5 Lessons.

### INDUSTRIAL ARTS – MASONRY (Exploratory)

#### **About the Learning Module**

- 1. Design of the Module
  - a. The Module is designed to be a teacher-assisted learning kit or a self-learning kit on . competencies that a Grade 7 TLE ought to possess. It explores the course on Masonry which helps your student earn a Certificate of Competency in Grade 9 which leads to a National Certificate Level I / II (NCI / II) in Grades 10, 11 or 12.
  - b. The Learning Module is made up of 4 to 5 Lessons based on the competencies. Each Lesson contains the following:
    - 1) Learning Outcomes
    - 2) Performance Standards
    - 3) Materials/Resources
    - 4) Definition of Terms
    - 5) What Do You Already Know?
    - 6) What Do You Need to Know?
    - 7) How Much Have You Learned?
    - 8) How Do You Apply What You Learned?
    - 9) What Is Your Score?
    - 10) References

There are some TLE Modules which have a section on "How Do You Extend Your Learning?". This section is meant for enrichment. It is usually given as an assignment for not everything can be taught and done in the classroom given the limited time.

### INDUSTRIAL ARTS – MASONRY (Exploratory)

2. Parts of the Lesson - The following explain the parts of each Lesson, describe what your students' task as well as your task.

i e	Part of the Lesson	Students' Task	Teacher's Task
1.	Learning outcomes are what your TLE student is supposed to know and be able to do after using the module. Since our TLE courses are TR-based, all learning outcomes written here are lifted from the TESDA TR. In the Curriculum Guide ( the matrix which contains Content Standard, Performance Standard, Learning Competencies, Projects/Activities, Assessment, Duration), the identified Learning Outcomes are written in the column of Learning Competencies.	Students acquaint themselves with the learning outcomes and performance standards and make them their personal goals.	You introduce the learning outcomes to your students and make sure that they understand them and make these learning targets their own.  Make these your goals for instruction.
2.	Performance Standards are referred to as "performance criteria" in the TESDA TR. They are more specific descriptions of the student's behavior that serve as evidence that the expected learning outcomes have been realized with the expected level of proficiency or in accordance with established standards.  The learning outcomes and performance standards set the direction of your lessons. These are what you should teach and, in	Students clearly understand the performance standards and make them their own learning goals.	You introduce the performance standards to your students and make sure that they understand them and make these performance standards their own.  Let these standards give your lesson its specific direction.

5.	The section "What Do You Already	Take the test honestly.	Tell your students to accomplish the pretest. Explain that
4.	The definition of terms and acronyms will help you understand the meaning of key words in your lesson. Defining key words as they are used in your lesson will ensure that the key terms in your lesson mean one and the same for everyone in class and so avoid misunderstanding.	Refer to the definition of terms for greater understanding of the lesson.	Remind your students to refer to the definition of terms and acronyms for clearer understanding of the lesson.
			Do not limit yourself to the list of reference. If you discover good reference material/s, add to the list of references. Introduce the references to your students. Motivate them to read these references as they go through the module for lesson mastery.
3.	Materials and References To teach effectively, you need materials and references. Materials may include equipment, hand tools or consumables. The references are the books, magazines, articles, websites you yourself and your students will read or refer to in order to gain greater understanding of the lesson. They are either in soft copy or hard copy.	Get to know the materials. They are part of the Lesson.  By all means, read the references for lesson mastery.	prepare the materials you need in advance. for gadget, tool or equipment, it is always wise to prepare, check and try them in advance to ensure that they function when you use them. as the saying goes "forewarned is forearmed."  Be resourceful in the preparation of materials. You are strongly encouraged to use appropriate local materials as substitute for listed materials that are not available.  For effective teaching, your lesson preparation should
	turn, what you should assess. They are identified and are written for you in the Curriculum Guide.	, , , , , ,	

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know" is intended to determine entry knowledge and skills of your students to find out if you have to teach the lesson, teach some parts of the lesson or skip it entirely because your students already know it. This is done by way of a pretest.	Check answers against the answer key provided.	the purpose of the pretest is to find out how much they already know about the lesson in order to determine your next steps. It is, therefore, necessary that they take the test honestly, if they want to learn or want to be helped.  Make it clear to them that their scores will not be recorded for grading purposes and will not be taken against them.
		If you find out that your students already know what you are about to teach, logic dictates that you do not need to teach it anymore. You may as well proceed to the next lesson. If, however, you find out that they do not yet know what you are about to teach, then by all means teach. Or if you discover that your students have some erroneous concepts, then teach and correct their misconceptions. To know what your students already know and do not yet know will guide you in adjusting your instruction.
"What Do You Need To Know?"- This section contains one or more Information Sheets and for some modules an Operation Sheet. These are important notes for the TLE student to read after which he/she is asked to do a Self-check to determine how much he/she has	Read and understand the Information Sheet/s and /or Operation Sheet.  Be prepared For a Self-check which serves as a posttest.	Make sure students are engaged in reading the Information Sheet /Observation Sheet and in answering the self-check.  Give assistance to your students where needed.
pretest.  "How Do You Apply What You	answer key.  Do the Activity.	Find a way to test real life application of what your students have learned.
	find out if you have to teach the lesson, teach some parts of the lesson or skip it entirely because your students already know it. This is done by way of a pretest.  "What Do You Need To Know?"- This section contains one or more Information Sheets and for some modules an Operation Sheet. These are important notes for the TLE student to read after which he/she is asked to do a Self-check to determine how much he/she has learned. The self-check functions as a pretest.	knowledge and skills of your students to find out if you have to teach the lesson, teach some parts of the lesson or skip it entirely because your students already know it. This is done by way of a pretest.  "What Do You Need To Know?"- This section contains one or more Information Sheets and for some modules an Operation Sheet. These are important notes for the TLE student to read after which he/she is asked to do a Self-check to determine how much he/she has learned. The self-check functions as a pretest.  "How Do You Apply What You Check answers against the answer key provided.  Read and understand the Information Sheet/s and /or Operation Sheet.  Be prepared For a Self-check which serves as a posttest.  Check answers against the answer key referring to the answer key.

### INDUSTRIAL ARTS – MASONRY (Exploratory)

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	student the opportunity to transfer what	To determine level of	
	he/she has learned in another activity or in	performance, use the scoring	Do not hesitate to use ways of determining how your
	real life situation. Ideally, this should be a	rubrics or check answers against	students can apply learned facts and concepts which are
	performance test, what you usually call	the answer key, whichever is	more authentic and realistic than that/those given in the
	practical test. If "the proof of the pudding is	applicable?	Module.
	in the eating", then your student must be		
	able to apply what she/he learned in real-	Reflect on assessment results.	Reflect on assessment results. Use assessment results
	life setting or must be able to come up with		in planning your instruction.
	a product as an evidence of learning.		
8.	How Do You Extend Your Learning? -	Do the task assigned outside	Motivate the students to do the task by making clear
	As the word implies, this activity is done	class hours.	what the enrichment activity is about - why it is given,
	outside class hours for enrichment		how it is done, how it relates to the class lesson.
	purposes. This can reinforce lesson		
	mastery.		
8.	able to apply what she/he learned in real- life setting or must be able to come up with a product as an evidence of learning.  How Do You Extend Your Learning? — As the word implies, this activity is done outside class hours for enrichment purposes. This can reinforce lesson	Do the task assigned outside	in planning your instruction.  Motivate the students to do the task by making what the enrichment activity is about – why it is

#### Reflection

It is a good habit to reflect on your teaching for the day – what went well, what did not go well, why this activity went well with this group, why it didn't work well with the other group. What are your realizations? What are lessons learned? Jot them down in your diary. Commit them to your memory. If you do this consistently, you will find your delivery improve substantially.

### INDUSTRIAL ARTS – MASONRY (Exploratory)

### **Curriculum Guide for the Exploratory Course on Masonry**

For you to get a complete picture of the complete TLE exploratory course on Masonry, you are hereby provided with the Curriculum Guide on Masonry.

Content Standard	Performance Standard	Learning Competencies	Project/ Activities	Assessment	Duration
LESSON 1: PREPARE CONS	TRUCTION MATERIALS AND TOOLS				
Demonstrate understanding of/on:					
<ul> <li>Masonry and materials</li> <li>Stone types and varieties of bond pattern</li> <li>Brick laying and pattern</li> <li>blocks</li> <li>masonry tools</li> <li>Surface Finishing Tools</li> </ul>	<ol> <li>Materials and tools are received and inspected as per quantity and specification based on requisition.</li> <li>Tools and materials are checked for damages and manufacturing defects.</li> <li>Materials and tools received are handled with appropriate safety devices.</li> <li>Materials and tools are set aside for appropriate location nearest the workplace.</li> </ol>	LO1.Identify materials and tools applicable to a specific construction job.	Listing and describing the tools and materials in masonry.	Written test     Performanc     e test	4 hours
<ul> <li>Job order and requisition slips</li> <li>Sample job order and requisition forms</li> <li>Borrower's Slip</li> <li>Requisition</li> </ul>	<ol> <li>Needed materials and tools are listed per job requirement.</li> <li>Materials and tools are requested according to the list prepared.</li> <li>Requests are done per company's Standard Operating Procedures</li> </ol>	LO2.Request appropriate materials and tools.	make own and filled- up job order, requisition slip and borrower slip      Accomplishing	<ul><li>Written test</li><li>Performanc e test</li></ul>	3 hours

(Exploratory)					
Content Standard	Performance Standard	Learning Competencies	Project/ Activities	Assessment	Duration
procedures	(SOP). 4. Materials and tools are replaced appropriately at the expense of work quality and cost.		different forms from the different factories, companies you visited		
<ul> <li>Material management</li> <li>Procedures in receiving tools and materials</li> <li>Quality inspection and procedure</li> <li>Materials handling</li> </ul>	<ol> <li>Materials and tools are received and inspected as per quantity and specification based on requisition.</li> <li>Tools and materials are checked for damages and manufacturing defects.</li> <li>Materials and tools received are handled with appropriate safety devices.</li> <li>Materials and tools are set aside in appropriate location nearest to the workplace.</li> </ol>	LO3. Receive and inspect materials	Draw diagram of the procedures of receiving and inspecting of materials and tools     Demonstrating the proper handling of masonry materials and tools	Written test     Performanc     e test	3 hours
LESSON 2: PRACTICE HOUS	EKEEPING PROCEDURES				
Demonstrate understanding of/on:  The Working Station What is 5S Signs, signal and barricade Accident prevention signs and tags\ Signaling	<ol> <li>The basic procedures of 5S are demonstrated in the workplace.</li> <li>Removing and disposing of unnecessary items according to company or office procedures are followed.</li> <li>Reusable and recyclable materials are sorted according to company/ office procedures.</li> <li>Items are arranged in accordance</li> </ol>	LO1. Maintain cleanliness in work areas, tools and equipment and practice occupational Safety	<ol> <li>Explain the components of 5's</li> <li>Make own shop norms based on 5's</li> <li>Participate on Role Playing</li> </ol>	<ul><li>Written test</li><li>Performanc e Test</li></ul>	4 hours

Content Standard	Performance Standard	Learning Competencies	Project/ Activities	Assessment	Duration
Work safety     First Aid and Emergency     Cases	with company/office housekeeping procedures.				
<ul> <li>Work simplification</li> <li>Doable for work simplification</li> <li>Occupational health and safety</li> <li>What are the common hazards         <ul> <li>kick-back, push-back or pull-in</li> <li>Obstruction or resistance in the material being cut</li> <li>Crooked of off-line cuts</li> <li>Pinched cuts</li> <li>General OHS principles and legislation</li> <li>Accident/Hazard reporting procedures</li> <li>blunt cutting edges</li> <li>unsafe grip, stance or stop-start procedures for handheld saws</li> <li>worn, misshapen,</li> </ul> </li> </ul>	<ol> <li>Commonly used materials are maintained in designated area according to procedure.</li> <li>Work is performed according to the standard work procedures per instructions and Occupational Health and Safety (OHS) requirements.</li> <li>Incidents are reported to immediate supervisor.</li> </ol>	LO2.Follow standard work processes and procedures	1. Perform the following:  • role play: work simplification with audience judge  • role play: panel discussion on occupational health and safety.	Written test     Performanc     e test	3 hours

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Content Standard	Performance Standard	Learning Competencies	Project/ Activities	Assessment	Duration
cracked or damaged saw blades, or wrong type - risk management - safety procedure					
LESSON 3: OBSERVE PROC	EDURES, SPECIFICATIONS, AND MAN	UALS OF INSTRUCTION	ONS		
Demonstrate understanding of/on:					
<ul> <li>Types of manuals used in construction sector</li> <li>Different types of signs and symbols</li> <li>Accessing information and data</li> </ul>	<ol> <li>Manuals are identified and accessed per job requirements.</li> <li>Version and date of manual are checked to ensure that correct specifications and procedures are identified.</li> <li>Relevant sections, chapters, and specifications in the manuals are located in relation to the work to be conducted.</li> <li>Information and procedure in the manual are interpreted in accordance with industry practices.</li> </ol>	LO1.Identify access, and interpret materials specification.	List down the different types of manual.     assignment: gather different manuals (photocopy)	<ul> <li>Performanc e test</li> <li>Written test</li> </ul>	2 hours
<ul> <li>Manual/specification application</li> <li>what's in the box</li> <li>getting started</li> <li>connections or installing</li> </ul>	<ol> <li>Work steps are correctly identified in accordance with the manufacturer's specifications.</li> <li>Manual data are applied according to the given task.</li> </ol>	LO2. Apply information from the manual.	Performing some specification in the manual     assignment: conduct interview with shop teacher or workers	- Performanc e test - Written test	2 hours

Content Standard	Performance Standard	Learning Competencies	Project/ Activities	Assessment	Duration
<ul><li>set up</li><li>specification</li><li>parts list</li><li>warranty</li></ul>					
Storing the Manuals	3. Manual or specification is stored appropriately to prevent damage, ready access and updating of information when required in accordance with company requirements.	LO3. Store the manuals.	Performing the proper storing of tools and equipment in masonry     formulate shop rules	<ul><li>Performanc e test</li><li>Written test</li></ul>	2 hours
LESSON 4: PERFORM MENS	SURATIONS AND CALCULATIONS				
Demonstrate understanding of/on:					
<ul> <li>Mensuration</li> <li>Kinds of measurement</li> <li>Measuring Instrument/Measuring Tools</li> <li>Conversion</li> </ul>	<ol> <li>Calculation needed to complete tasks is done.</li> <li>Accurate measurements are obtained according to job requirements.</li> <li>Systems of measurement are identified and converted according to job requirements.</li> <li>Work pieces are measured according to job requirements.</li> </ol>	LO1.Carry out measurement and calculations.	<ol> <li>Performing the four fundamental operations. by solving the given problems</li> <li>assignment: perform unit conversion of measurements</li> </ol>	<ul><li>Written test</li><li>Performanc e test</li></ul>	6 hours
<ul> <li>Visualizing Objects and shapes specifically geometric shapes.</li> <li>Selecting Measuring</li> </ul>	<ol> <li>Measuring tools are selected/identified per object to be measured or required in the job</li> <li>Correct specifications are obtained from relevant sources.</li> </ol>	LO2. Select measuring instruments.	<ol> <li>finding geometric shapes in a given pictures.</li> <li>drawing of geometric figures</li> </ol>	Written test     Performanc     e test	4 hours

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Content Standard	Performance Standard	Learning Competencies	Project/ Activities	Assessment	Duration
Instruments/Measuring Tools  Proper handling of measuring instruments	Alternative measuring tools are used without sacrificing cost and quality of work.		3. make a stake-out lines.		
LESSON 5: MAINTAIN TOOL	S AND EQUIPMENT				
Demonstrate understanding of/on:					
<ul> <li>Types of Tools and Equipment.</li> <li>Classification of functional and nonfunctional tools</li> <li>risk reduction</li> <li>Uses of Personal Protective Equipment (PPE).</li> </ul>	<ol> <li>Tools and equipment are identified according to classification/specification, and job requirements.</li> <li>Functional and non-functional tools and equipment are segregated and labeled according to classification.</li> <li>Safety of tools and equipment are observed in accordance with manufacturer's instructions</li> <li>Conditions of PPE are checked in accordance with manufacturer's instructions.</li> </ol>	LO1. Check conditions of tools and equipment .	<ol> <li>identification of tools from pictures</li> <li>explain the difference between of functional from non- tools</li> <li>segregate function from non-functional tools in the tool cabinet</li> <li>perform the wordmaze</li> <li>assignment: identify hazard in the work shop</li> <li>assignment:</li> </ol>	<ul> <li>Written test</li> <li>Performanc e test</li> </ul>	4 hours
<ul><li>basic lubrication</li><li>Types of lubricants</li><li>Kinds, uses and</li></ul>	<ol> <li>Lubricants are identified according to types of equipment.</li> <li>Tools and equipment are lubricated</li> </ol>	LO2.Perform basic preventive maintenance	<ol> <li>describe and explain the use of lubricant</li> <li>perform lubrication</li> </ol>	<ul><li>Written test</li><li>Performanc e test</li></ul>	6 hours

### INDUSTRIAL ARTS – MASONRY (Exploratory)

Content Standard	Performance Standard	Learning Competencies	Project/ Activities	Assessment	Duration
properties of cleaning materials/solvent Preventive maintenance - routine service for handheld - maintain .and service motorized product	according to preventive maintenance schedule or manufacturer's specifications.  3. Defective equipment and tools are inspected and replaced according to manufacturer's specifications.  4. Work place is cleaned and kept in safe state in line with OSHC regulations.		on shop tools and equipment.		
<ul> <li>Store Tools and Equipment</li> <li>Tools and equipment inventory</li> <li>Reason for maintaining Tools and Equipment</li> </ul>	<ol> <li>Inventory of tools, instruments, and equipment are conducted and recorded per company practices.</li> <li>Tools and equipment are stored safely in accordance with manufacturer's specifications or company procedures.</li> </ol>	LO3. Store tools and equipment	Conduct tool inventory     Performing the appropriate steps in storing tools	<ul> <li>Performanc e test</li> <li>Written test</li> </ul>	2 hours
	ı	1	1	1	40 hours

"By three methods we may learn wisdom: First, by reflection, which is noblest; second, by imitation, which is easiest; and third by experience, which is the bitterest."

- Confucius