7/8

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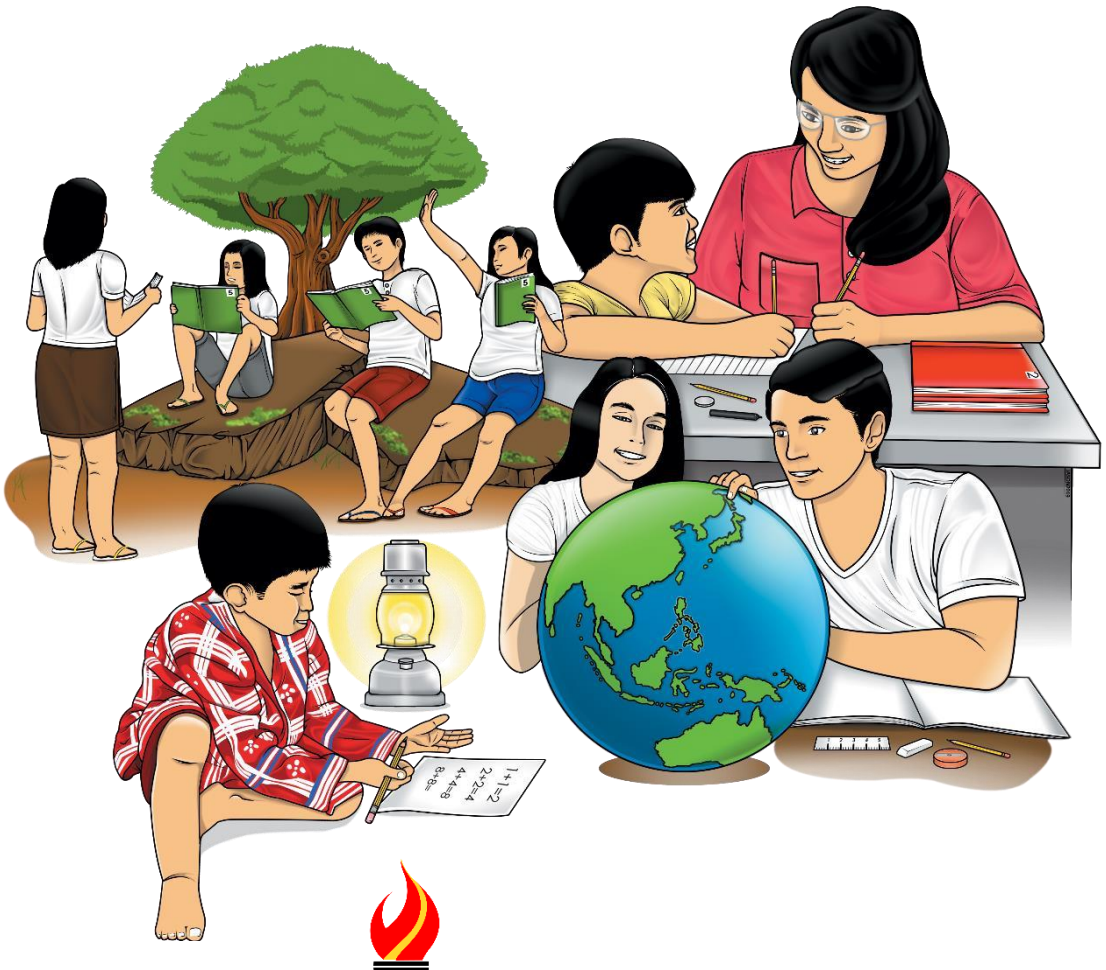
TLE Masonry

Module 3:
Performing Measurements and Calculations



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ADM

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Alternative Delivery Mode
Module 3: Performing Measurements and Calculations

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Introductory Message

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

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

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

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

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

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

Thank you.

What I Need to Know

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

The module is divided into two learning outcomes, namely:

- LO 1 – Select masonry measuring tools and instruments

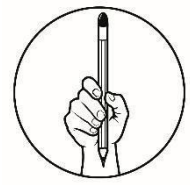
  (**TLE_IAMS7/8MC-0e-1)**

- LO 2 – Carry out measurements and calculations

  (TLE_IAMS7/8MC0F-2)

After going through this module, you are expected to:

1. choose measuring tools to be used for specific task;
2. use appropriate measuring devices for specific task; and
3. convert data to its equivalent measure.



What I Know

PRE-TEST. Answer the following assessment to test your prior knowledge about the lesson. Read and answer carefully.

Directions: Choose the letter of the best answer. Write the answer on your answer sheet.

1. Why is there a requirement for considering the size of the given work before its accomplishment?
   A. To determine the materials needed.
   B. To avoid or minimize waste of resources.
   C. To be able to know the total expenses.
   D. All of the above.

2. If the space of two posts is 5 meters, how many pieces of concrete hollow block are needed for 2 layers where each CHB is 0.40 m?

   A. 10 pcs.
   C. 25 pcs.
   B. 12.5 pcs.
   D. 25.5 pcs.

3. Which of the following does not only tell the magnitude but also the direction?

   A. Mensuration
   C. Scalar quantity
   B. Conversion
   D. Vector quantity

4. Which of the following measuring tools is used to measure length or distance, width and height?

   A. Pull-push-rule
   C. Spirit level
   B. Tape measure
   D. Rule

5. What is the standard length of a CHB?

   A. 16 ft
   C. 16 m
   B. 16 in
   D. 16 cm

Lesson 1

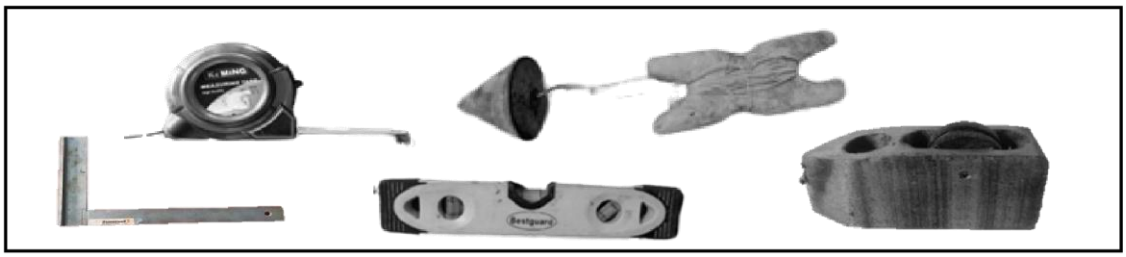
Performing Measurements and Calculation

Measurement of masonry works in construction is required for the calculation of quantities of materials in masonry and to live completed work. Masonry works are those where cement and fine aggregates with none coarse aggregates are used for construction purposes.

Each sort of masonry works is measured separately into categories to calculate the exact cost of construction supported its price.

What's In

Are you now familiarized with the different measuring tools used in masonry? In your activity book, identify measuring tools and their uses that are shown inside the box. Together, let's discuss the different measuring tools and how we can use them properly.



Notes to the Teacher

1. Read the lessons properly.
2. Find out what you already know by answering the learning activities in this module
3. Apply what you have learned in real life scenarios.

What's New

Activity 1.

Arrange first the scrambled words given inside the box and match its function below by writing your answer in the space provided.

GMESURINA BXO	OPYWODL
OMSNA NSITRG	HCLAK LEIN
FRAMING SQAURE	AOMSN EELLV
VLLEE OSHE	REGASMUIN ETAP
LPMUB OBB	AMSNYRO

_____1. String stretches tightly between them to serve as a guide for all of the blocks in the course.

_____ 2. A tool used to establish a line that is perfectly vertical or horizontal especially when laying bricks.

_____ 3. An instrument used to measure vertical height/depth of excavation

_____ 4. This used to check the correct horizontal alignment of a structure

_____ 5. It is used to snap a guideline.

_____ 6. This serves as scaffolds and forms and supports concrete

_____ 7. A traditional box used to measure a proportion of gravel and sand with the dimension of 12" wide; 12" in long; 12" in deep width net volume of 1 cu. Foot or 0.30 m x 0.30 m x 0.30m. Take note that these dimensions are inside the box.

_____ 8. Square up measurements and draw cut lines for form boards used a combination square. A framing square is handy for checking corners.

_____ 9. A tool used to check the correct vertical alignment of a structure.

_____ 10. It is the word used for constructing building structures and fabricating bricks, stones or concrete blocks.

What is It

Activity 2.

Guide Questions:

1. Have you observed a mason using different measuring tools while working? Why do you think they are using such tools?

_____

_____

_____

2. Why do you need to use different masonry measuring tools appropriately?

_____

_____

3. Can you still remember the unit conversion in your previous years in school? In terms of measuring length,100 centimeter is equal to how many meter(s)?

_____

_____

_____

_____

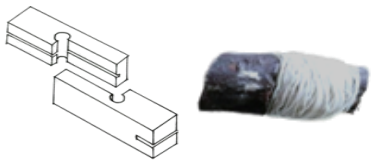
Level up your information by reading below!

SELECTING MEASURING INSTRUMENTS

All exact ways used for magnificent works in masonry emphasize the importance of quality and speed. In this regard, appropriate use of rulers, squares and levels allows you to layout a project accurately.

Table 1.1 Layout Tools

1. **MEASURING TAPE**. An instrument used to measure vertical height/depth of excavation.	
2. **MASON'S LEVEL**. A tool made of wood, metal or both used to establish plumb line (perfectly vertical) or level line (perfectly horizontal) especially in laying bricks	

3. **MASON BLOCKS AND STRING.** It is hook unto the corner and the string stretches tightly between them to serve as a guide for all of the blocks in the course.	
4.**FRAMING SQUARE**. Square up measurements and draw cut lines for form boards used a mixture square. A framing square is handy for checking corners	
5. **CHALK LINE**. You need a chalk line box to snap guidelines.	
6. **MEASURING BOX**. A traditional box used to measure a proportion of gravel and sand with the dimension of 12" wide; 12" in length; 12" in deep width net volume of 1 cu. Foot or 0.30m x 0.30m x 0.30m. Take note that these dimensions are inside the box.	
7.**PLUMB BOB**. A tool used to check the right vertical alignment of a structure.	
8. **LEVEL HOSE WITH WATER.** This tool is used to check the correct horizontal alignment of a structure.	

9. **BOARD OR PLYWOOD**. This serves as scaffolds and forms and supports concrete.	

CONVERSION

Why is there a need for converting units? Radically, to work with things that vary in size, we can convert between small and large size measurements quickly through the help of a measuring system.

The System of measurement refers to the collection of different measurement units basically used in measuring length, mass, time and so on. There are two types of measuring system that will be used in this lesson.

1. Metric System – unit of measurement are measured through meter (length); kilograms (mass); second (time)

2. English system (also known Imperial Units) – unit of measurement are measured through inches, feet, yards (length); pounds, ounce (mass).

Converting Units of Measure

Table 1.1. Guide Table in Unit Conversion

English to English	1 foot	12 inches
Metric to Metric	1 meter	10 decimeter
	1 dm	10 centimeter
	1 cm	10 millimeter
English to Metric	1 inch	2.54 cm
	1 inch	25.4 mm
	1 foot	30.48 cm
Metric to English	1 meter	3.28 feet
	1 meter	39.37 inches

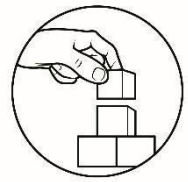
Sample Solutions in Conversion:

A. Foot to inches
5 ft. = _____inches
Solution: Multiply 5ft by 12inches / ft = 60 inches or 60”

B. Inch to feet
36 inches = _____feet
Solution: Divide 36 inches by 12 inches / feet = 3 feet or 3’

C. Centimeter to millimeters
40cm =____ millimeters
Solution: Multiply 40cm by 10mm / cm = 400 millimeters or 400mm

D. Inch to centimeter
10 inches =____ centimeter
Solution: Multiply 10 inches by 2.54cm / inch = 25.4 centimeters or 25.4cm

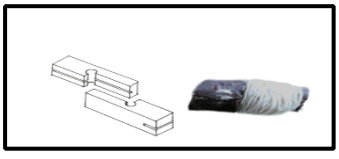


What’s More

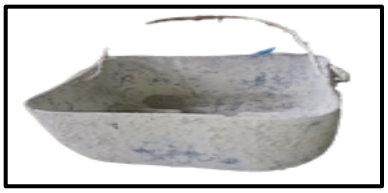
Activity 3

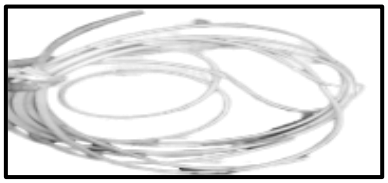
A. *Give the name of the following measuring tools below. Write your answer on your activity notebook.*

1. 

2. 

3. 

4. 

5. 

B. *Identify the masonry measuring tools being described in each of the following sentences.*

_____6. It is used to check the correct horizontal alignment of the structure.

_____7. A sharp pointed weight at the end of string gauge plumb by gravity.

_____8. Accurately indicates both level and plumb tools.

_____9. Tools used for measuring long and short distances.

_____10. A type of sheathing which is widely used for scaffolding and forming.

_____11. This is used for marking angles and larger than tri-square.

_____12. It is a hook and stretches tightly to serve as a guide for all of the blocks in the course.

_____13. It is a tool for marking, long straight lines.

C. *Convert the following:*

14. If an inch is 2.54 centimeters, how many centimeters are there in 8 inches?

15. What is the equivalent of 13 feet in meter?

What I Have Learned

Fill in the blanks. Select the answer provided inside the box. Write your answer in your activity notebook.

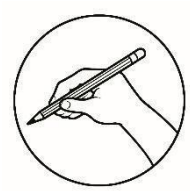
1. A framing square is handy in checking _____.
2. Plumb bob is used to check the _____ of a structure.

3-4. Measuring box is used to measure the proportion of ____and _____ with the dimension of 12” wide; 12” in long; 12” in deep width net volume of 1 cu.

5. is used to square up measurements and draw cut lines.

What I Can Do

Take the measurement of the 4 corners of your room at home using feet as a unit of measurement and convert it into meters. Show your solution.



Assessment

Post-Test

Multiple Choice. Choose the letter of the best answer. Write the chosen letter on a separate sheet of paper.

1. Why is there a requirement for considering the size of the given work before its accomplishment?

   A. To determine the materials needed.
   B. To avoid or minimize the waste of resources.
   C. To be able to know the total expenses.
   D. All of the above.

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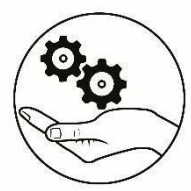


Additional Activities

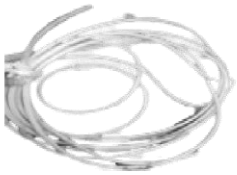
PART I. Matching Type: Match the following measuring tools. Write the letter of the correct answer in your activity notebook.

1. 

2. 

3. 

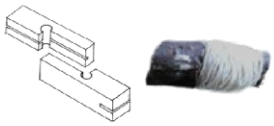
4. 

5. 

6. 

7. 

8. 

9. 

A. Measuring box

B. Plumb bob

C. Level hose

D. Mason's level

E. Measuring tape

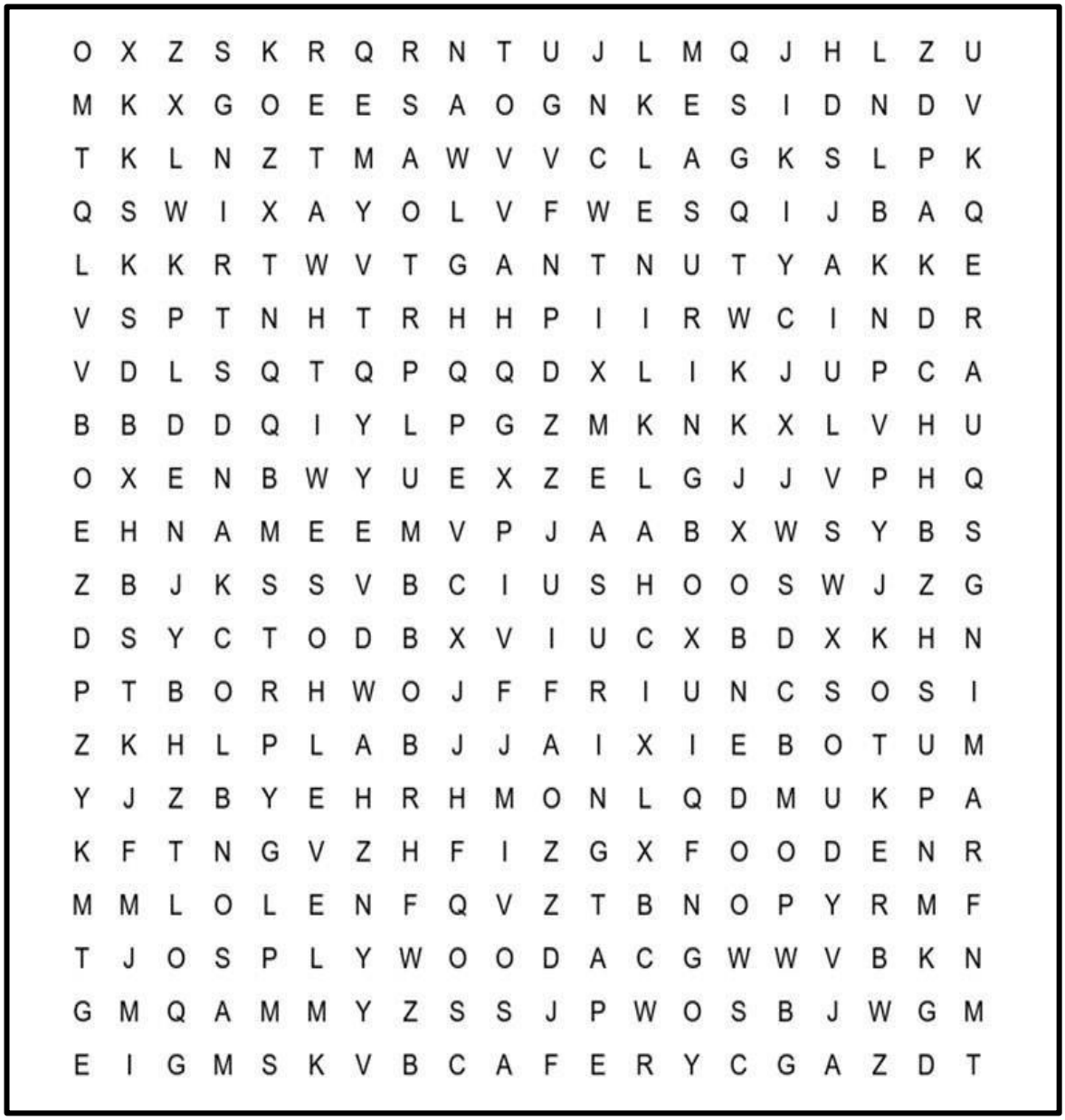
F. Mason block and strings

G. Framing square

H. Chalk line

PART II. How sharp is your eyes?

Find the hidden measuring tools in the given box. List down your answer on your activity notebook.


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

Answer Key

What's More A. .Chalk line . mason block/string . framing square . measuring box . level hose w/ water B. . Level hose with water .Plumb bob .Mason's level .Measuring tvbe	What's New 1. Mason block and string 2. Wooden block 3. Measuring tape 4. Level hose with water 5. Chalk line 6. Plywood 7. Measuring box 8. Framing square 9. Plumb bob	Pre-test . D . C . D . A . B
.Board or plywood .Framing square .String .Chalk line C. . 20.32 cm 5.3.96 m		

Additional Activity	Assessment	What I Have Learned
1. G 1 2. H 2 3. A 3 4. B 4 5. C 5 6. I 7. E 8. D 9. F	. D 1 . C 2 . D 4 . A 5 . B	. corners . vertical alignment 3- . gravel, sand . framing square

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