

JANUARY

*Makugihon*

FEBRUARY

*Mahigugmaon*

MARCH

*Matinabunon*

APRIL

*Matinahuron*

MAY

*Mahapsay og Malimpyo*

JUNE

*Maabik og Masunod sa  
Dhaklong Oras*

JULY

*Maantigo og Maabilidad*

AUGUST

*Maginhuhunon  
para sa Urban*

SEPTEMBER

*Madaginaton*

OCTOBER

*Matinud-anon*

NOVEMBER

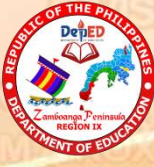
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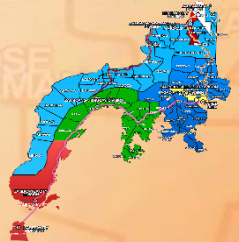
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Republic of the Philippines  
**Department of Education**  
Regional Office IX, Zamboanga Peninsula



5



Zest for Progress  
Zeal of Partnership

# MATHEMATICS

## 4<sup>th</sup> QUARTER – Module 3:

### FINDING AND ESTIMATING VOLUME



Name of Learner: \_\_\_\_\_

Grade & Section: \_\_\_\_\_

Name of School: \_\_\_\_\_

**Mathematics – Grade 5**  
**Alternative Delivery Mode**  
**Quarter 4 - Module 3: Finding and Estimating Volume**  
**First Edition, 2020**

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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 a 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 instruction carefully before performing each task.

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

Thank you.



## What I Need to Know

This module caters to the pupil's ability to find the volume of a given cube and rectangular prism using  $\text{cu.cm}$  and  $\text{cu. m}$ . and estimates and uses appropriate units of measure for volume. Exercises are designed to monitor the pupil's progress. It starts from warm-up to more challenging activities that can apply in real life.

After going through this module, you are expected to:

- find the volume of a given cube and rectangular prism using  $\text{cu.cm}$  and  $\text{cu. m}$ . (M5ME-IVd-81)
- estimate and use appropriate units of measure for volume. (M5ME-IVd-82)

Believe that, learning can continue amidst the global pandemic. Good luck, stay safe and God bless.



## What I Know

**Directions:** Read and understand the following statements. Write **TRUE** if it is correct or **FALSE**, if not. Write your answers on a separate sheet of paper.

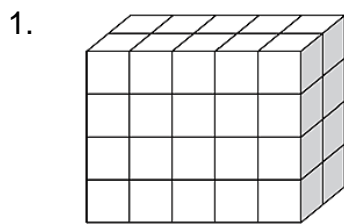
1. The amount of space that is occupied by a space figure is called volume.
2. Volume is measured in square units to fill the shape.
3. The 2D figures have volumes.
4. To find the volume of a rectangular prism is to multiply the length, by the width, and by the height.
5. Objects of different shapes can have the same volume.

## LESSON 1 FINDING THE VOLUME OF A GIVEN CUBE AND RECTANGULAR PRISM USING CU.CM AND CU. M.

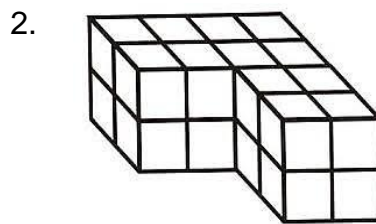


## What's In

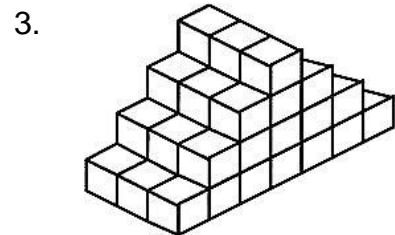
**Directions:** Visualize the volume of each solid figure by counting the number of cubic units. Use 1 cube = 1 cubic centimeter.



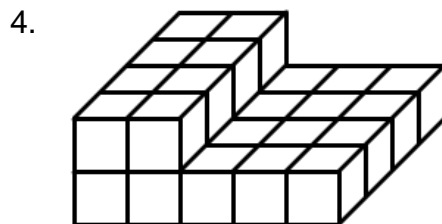
\_\_\_ cubic centimeter



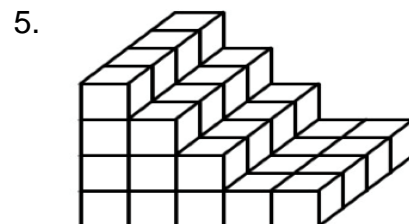
\_\_\_ cubic centimeter



\_\_\_ cubic centimeter



\_\_\_ cubic centimeter



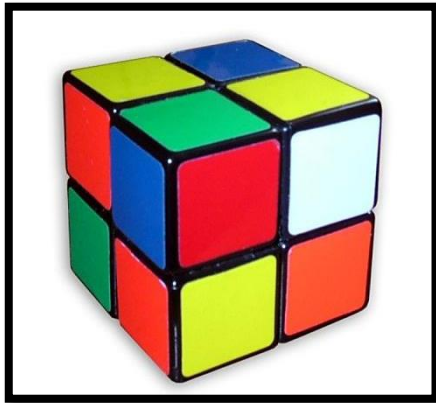
\_\_\_ cubic centimeter



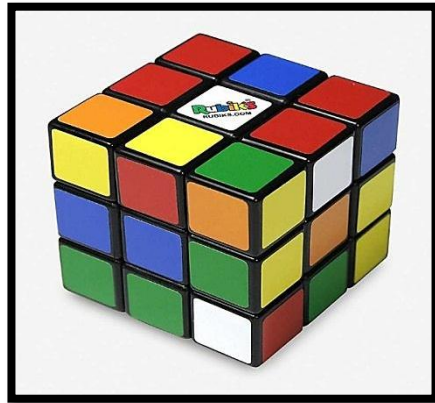


## What's New

**Directions:** Analyze the two pictures below and answer the questions that follow.



PICTURE A



PICTURE B

### QUESTIONS:

1. In picture A, how many smaller squares are there? So, there are \_\_\_\_\_ smaller squares in all and that is the volume of Picture A.
2. In picture B, how many smaller squares are there? So, there are \_\_\_\_\_ smaller squares all in all and that is the volume of Picture B.



## What is It

**A**

### Volume of a Rectangular Prism and a Cube

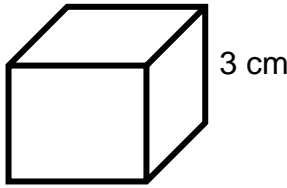
The pictures above show Rubik's Cubes. Children often play with them by matching the same colors on one face of the cube. To differentiate the two Rubik's Cubes, we counted the numbers of cubes that make up each, thus we mean the volume of the Rubik's Cubes.

Volume ( $V$ ) is the number of cubic units needed to fill the shape. It is the amount of space that is occupied by a space figure. Volume is three-dimensional (3D), composed of the area of the base (*length*  $\times$  *width*) times the *height* or  $l \times w \times h$ .

For cubes, we use side ( $s$ ), hence  $s \times s \times s$  or  $s^3$  if the formula to use. Moreover, volumes of cubes and rectangular prisms are always expressed in cubic units.

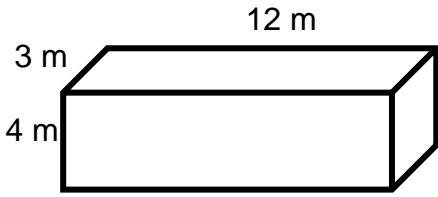
Let us try to use the formulas for cube and rectangular prism in these examples.

**Formula for cube**  
 $V = s^3$



$V = 3 \text{ cm} \times 3 \text{ cm} \times 3 \text{ cm} = 27 \text{ cm}^3$   
 or 27 cubic centimeters.

**Formula for rectangular prism**  
 $V = l \times w \times h$

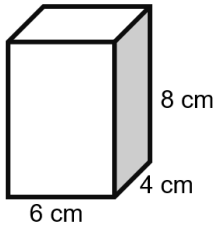


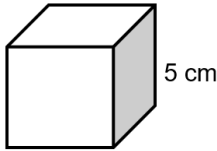
$V = l \times w \times h = 12 \text{ m} \times 3 \text{ m} \times 4 \text{ m} = 144 \text{ m}^3$   
 or 144 cubic meters

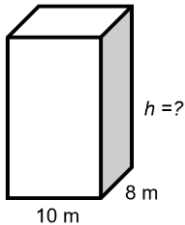


## What's More

**Directions:** Find the volume or the missing dimension of the solid figures given.

1.   
 Volume = \_\_\_\_\_

2.   
 Volume = \_\_\_\_\_

3.   
 Volume = 2, 400 m<sup>3</sup>



## What I Have Learned

**Directions:** Fill in the correct word to connect the ideas and form the concept that you have learned today.

1. \_\_\_\_\_ is the amount of space occupied by a 2. \_\_\_\_\_ figure.
- It is always expressed in 3. \_\_\_\_\_ to find the volume of rectangular prism.
4. \_\_\_\_\_ the length, width, and height. Whereas, for cubes, we use
5. \_\_\_\_\_ .

# LESSON 2

## ESTIMATING AND USING APPROPRIATE UNITS OF MEASURE FOR VOLUME



### What is It

**Directions:** Read and understand the word problem in the box.

An aquarium with dimension as shown on Figure 1 is to be filled with water. About how many cubic centimeters of water will be needed?

The problem calls for estimating the volume of the aquarium. In estimating, we round off each dimension to its highest value. This is also the same as how we round off whole numbers in the previous quarter.

#### RULES:

- If the digit to the right of the digit to be rounded is less than 5, we round down.
- If the digit to the right of the digit to be rounded is 5 or greater than 5 or equal to 5, we round up.

Let us answer the problem using the formula for finding the volume of a rectangular prism.

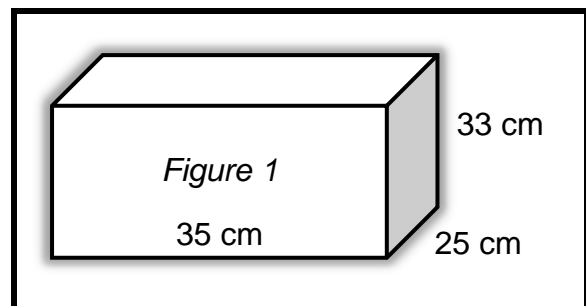
$$V = l \times w \times h$$

$$V = 35 \text{ cm} \times 25 \text{ cm} \times 33 \text{ cm} \text{ (Given dimension)}$$

$$V = 40 \text{ cm} \times 30 \text{ cm} \times 30 \text{ cm} \text{ (Estimated Value)}$$

$$V = 36\,000 \text{ cm}^3$$

Therefore, there are about 36 000 cm<sup>3</sup> of water will be needed.



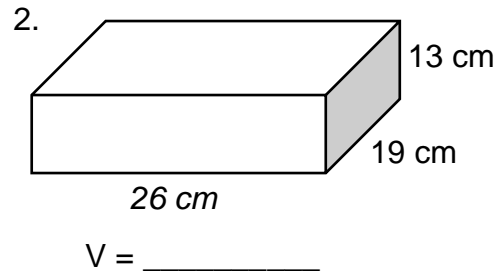
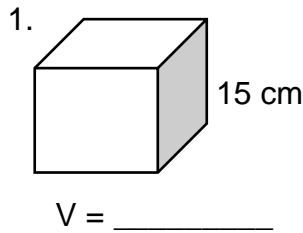
Moreover, there is a list of appropriate unit measurement that we can use for volumes.

UNIT	READ AS	SYMBOLS
a) cu. cm	cubic centimeter	cm <sup>3</sup>
b) cu. m	cubic meter	m <sup>3</sup>



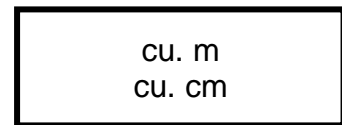
## What's More

A. **Directions:** Estimate the volume of each solid figure.



B. **Directions:** Choose inside the box the best unit of measure to use for the following:

3. A box of milk = \_\_\_\_\_
4. A blackboard eraser = \_\_\_\_\_
5. Balikbayan box = \_\_\_\_\_



## What I Have Learned

- How do we estimate volume?
  - In estimating, we round off each dimension to its highest value.*

- What are the appropriate units of measure to be used in volume?
  - the appropriate units of measurements are cu. cm, cu. in, cu. ft, cu. dm, and cu. m.*



## What I Can Do

**Directions:** Estimate the volume of each solid figure and match it with the choices given. Draw the assigned shape of each choices to its corresponding solid figure.

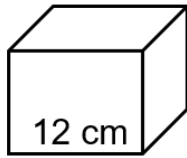
CHOICES					
	V = 8 000 m <sup>3</sup>		V = 1 000 cm <sup>3</sup>		V = 1 200 cm <sup>3</sup>
	V = 3 000 mm <sup>3</sup>		V = 6 000 cm <sup>3</sup>		V = 144 cm <sup>3</sup>



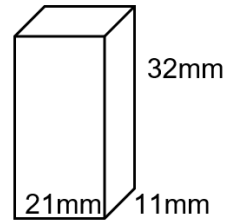
## SOLID FIGURES



1.



2.



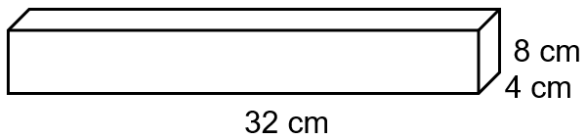
3.  $l = 8 \text{ cm}$ ,  $w = 16 \text{ cm}$ ,  
 $h = 34 \text{ cm}$



4.  $S = 23 \text{ m}$



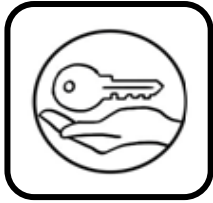
5.



## Assessment

**Directions:** Read and answer the problem carefully. Write the letter on a separate sheet.

- Matthew made a rectangular prism, whose length is 4 cm, height is 10 cm, and width is 6 cm. Find the volume of a rectangular prism.  
A.  $239 \text{ cm}^3$       B.  $240 \text{ cm}^3$       C.  $257 \text{ cm}^3$       D.  $258 \text{ cm}^3$
- A cargo container has a length of 14 meters, a width of 7 meters and a height of 9 meters. Find the volume of the cargo container.  
A. 880 cu. m.      B. 881 cu. m.      C. 882 cu. m.      D. 883 cu. m.
- Samuel has a rectangular base. He wants to find the volume of the rectangular base of 6 cm, the height of 8 cm, and the width of 12 cm. What is its volume?  
A. 576 cubic cm.      C. 654 cubic cm.  
B. 581 cubic cm.      D. 670 cubic cm.
- Merla's sewing box is 4 cm long, 2.5 cm wide, and 3.6 cm high. What is its estimated volume?  
A. 24 cu. cm.      B. 32 cu. cm.      C. 36 cu. cm.      D. 48 cu. cm.
- Mr. Lopez has a pool. What unit of measure will he use to find the volume?  
A.  $\text{mm}^3$       B.  $\text{dm}^3$       C.  $\text{cm}^3$       D.  $\text{m}^3$



# Answer Key

<b>What I Know:</b> 1. TRUE 3.FALSE 5.FALSE 2. FALSE 4.TRUE	<b>What's In:</b> 1) 40 3) 48 5) 44 2) 24 4) 28
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**What's More: LESSON 1**  
1) 192cm<sup>3</sup> 2) 125 cm<sup>3</sup> 3) 30 m

**What I have learned**  
1. Volume 3. Cubic  
2. Solid / 3D 4. multiply  
5. sides

**What's More: LESSON 2**  
A. 1) 3 000 cu. cm. 2) 6 000 cu. cm.  
B. 3) cu. cm. 4) cu. cm.  
5) cu. m

**What I Can Do:**  
1. 2. 3. 4. 5.

**Assessment:**  
1. B 2. C 3. A 4. C 5. D

## References:

### BOOKS:

Soaring High with MATHEMATICS 4, Ofelia G. Chingcuangco, M.A. Ed., Federico C. Castillo, Ed.D., pages 263-264.

K to 12 Grade 4 Curriculum Guide, LM Math Grade 4 pages 229 – 232.

Angelina P. Lumbre et.al., 21<sup>st</sup> Century MATHletes 5, ed, Mercurio T. Elenzano, Pasig: Vibal Group, INC. pages: 310-318.

Manuel T. Kotah, et.al., Soaring 2<sup>nd</sup> Edition 21<sup>st</sup> Century Mathematics 5, pages: 410-420.

### WEBSITES:

<https://lrmds.deped.gov.ph/learning-resources/>

[https://lrmds.deped.gov.ph/search?filter=&search\\_param=all&query=finds+the+volume+of+a+given+cube+and+rectangular+prism+using+cu.+cm+and+cu.+m.+file:///C:/Users/Acer/Downloads/Volume%20of%20a%20Cube%20and%20Rectangular%20Prism.pdf](https://lrmds.deped.gov.ph/search?filter=&search_param=all&query=finds+the+volume+of+a+given+cube+and+rectangular+prism+using+cu.+cm+and+cu.+m.+file:///C:/Users/Acer/Downloads/Volume%20of%20a%20Cube%20and%20Rectangular%20Prism.pdf)

[https://www.google.com/search?q=what+is+estimation+of+a+volume%3F&rlz=1C1CHBD\\_enPH842PH842&oq=what+is+estimation+of+a+volume%3F&aqs=chrome..69i57j33i22i29i30.17523j1j7&sourceid=chrome&ie=UTF-8](https://www.google.com/search?q=what+is+estimation+of+a+volume%3F&rlz=1C1CHBD_enPH842PH842&oq=what+is+estimation+of+a+volume%3F&aqs=chrome..69i57j33i22i29i30.17523j1j7&sourceid=chrome&ie=UTF-8)

# I AM A FILIPINO

## by Carlos P. Romulo

I am a Filipino – inheritor of a glorious past, hostage to the uncertain future. As such, I must prove equal to a two-fold task – the task of meeting my responsibility to the past, and the task of performing my obligation to the future.

I am sprung from a hardy race – child many generations removed of ancient Malayan pioneers. Across the centuries, the memory comes rushing back to me: of brown-skinned men putting out to sea in ships that were as frail as their hearts were stout. Over the sea I see them come, borne upon the billowing wave and the whistling wind, carried upon the mighty swell of hope – hope in the free abundance of the new land that was to be their home and their children’s forever.

This is the land they sought and found. Every inch of shore that their eyes first set upon, every hill and mountain that beckoned to them with a green and purple invitation, every mile of rolling plain that their view encompassed, every river and lake that promised a plentiful living and the fruitfulness of commerce, is a hollowed spot to me.

By the strength of their hearts and hands, by every right of law, human and divine, this land and all the appurtenances thereof – the black and fertile soil, the seas and lakes and rivers teeming with fish, the forests with their inexhaustible wealth in wild and timber, the mountains with their bowels swollen with minerals – the whole of this rich and happy land has been for centuries without number, the land of my fathers. This land I received in trust from them, and in trust will pass it to my children, and so on until the world is no more.

I am a Filipino. In my blood runs the immortal seed of heroes – seed that flowered down the centuries in deeds of courage and defiance. In my veins yet pulses the same hot blood that sent Lapulapu to battle against the alien foe, that drove Diego Silang and Dagohoy into rebellion against the foreign oppressor.

That seed is immortal. It is the self-same seed that flowered in the heart of Jose Rizal that morning in Bagumbayan when a volley of shots put an end to all that was mortal of him and made his spirit deathless forever; the same that flowered in the hearts of Bonifacio in Balintawak, of Gregorio del Pilar at Tirad Pass, of Antonio Luna at Calumpit, that bloomed in flowers of frustration in the sad heart of Emilio Aguinaldo at Palanan, and yet burst forth royally again in the proud heart of Manuel L. Quezon when he stood at last on the threshold of ancient Malacanang Palace, in the symbolic act of possession and racial vindication. The seed I bear within me is an immortal seed.

It is the mark of my manhood, the symbol of my dignity as a human being. Like the seeds that were once buried in the tomb of Tutankhamen many thousands of years ago, it shall grow and flower and bear fruit again. It is the insigne of my race, and my generation is but a stage in the unending search of my people for freedom and happiness.

I am a Filipino, child of the marriage of the East and the West. The East, with its languor and mysticism, its passivity and endurance, was my mother, and my sire was the West that came thundering across the seas with the Cross and Sword and the Machine. I am of the East, an eager participant in its struggles for liberation from the imperialist yoke. But I know also that the East must awake from its centuried sleep, shake off the lethargy that has bound its limbs, and start moving where destiny awaits.

For I, too, am of the West, and the vigorous peoples of the West have destroyed forever the peace and quiet that once were ours. I can no longer live, a being apart from those whose world now trembles to the roar of bomb and cannon shot. For no man and no nation is an island, but a part of the main, and there is no longer any East and West – only individuals and nations making those momentous choices that are the hinges upon which history revolves. At the vanguard of progress in this part of the world I stand – a forlorn figure in the eyes of some, but not one defeated and lost. For through the thick, interlacing branches of habit and custom above me I have seen the light of the sun, and I know that it is good. I have seen the light of justice and equality and freedom, my heart has been lifted by the vision of democracy, and I shall not rest until my land and my people shall have been blessed by these, beyond the power of any man or nation to subvert or destroy.

I am a Filipino, and this is my inheritance. What pledge shall I give that I may prove worthy of my inheritance? I shall give the pledge that has come ringing down the corridors of the centuries, and it shall be compounded of the joyous cries of my Malayan forebears when first they saw the contours of this land loom before their eyes, of the battle cries that have resounded in every field of combat from Mactan to Tirad Pass, of the voices of my people when they sing:

“I am a Filipino born to freedom, and I shall not rest until freedom shall have been added unto my inheritance—for myself and my children and my children’s children—forever.”