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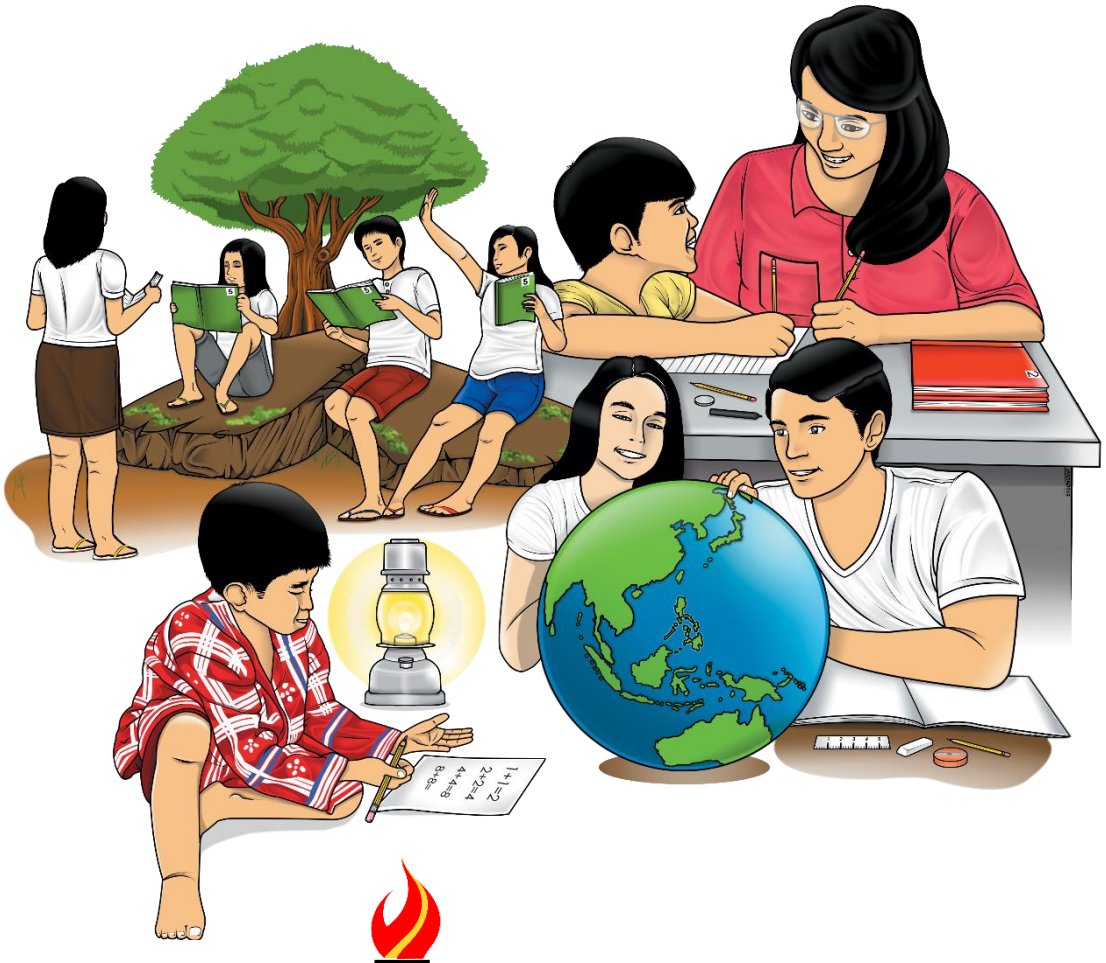
# Mathematics

## Quarter 4 – Module 4:
## Naming the Appropriate Unit of Measure for Volume



ALTERNATIVE DELIVERY MODE
ADM

**Mathematics – Grade 5**
**Alternative Delivery Mode**
**Quarter 4 – Module 4: Naming the Appropriate Unit of Measure Used For Measuring the Volume of a Cube and a Rectangle Prism**
**First Edition, 2020**



Published by the Department of Education
Secretary: Leonor Magtolis Briones
Undersecretary: Diosdado M. San Antonio

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**Printed in the Philippines by**
**Department of Education – Region VIII**
Office Address: DepEd Regional Office No. 8
Candahug, Palo, Leyte
Telefax: (053)-832-2997
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# Mathematics

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## Naming the Appropriate Unit of Measure for Volume

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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 Mathletes! This module was designed to help you understand the appropriate unit of measure for the volume of cube and rectangular prism. Always remember that larger units are used to measure large amount of space occupied and smaller units are used to measure small amount of space occupied. Writing the appropriate volume unit measure gives the reader an accurate idea of how large or small the space occupied by the object. *So, what are you waiting for? Be ready and let's begin.*

At the end of this module, you are expected to:

- name the appropriate unit of measure for the volume of a cube and a rectangular prism; and
- appreciate the daily use of knowing and naming the appropriate unit of measure for the volume of a cube and a rectangular prism.

*Before going any further, let us check your understanding about naming the appropriate unit of measure for the volume of a cube and a rectangular prism.*

# *What I Know*

Directions: Choose the appropriate unit of measure for the volume of the following objects. Write the letter of the correct answer on a separate sheet of paper.

1. The Department of Education delivered a Mathematics cabinet in each school. What unit is appropriate to use to measure the volume of the cabinet?

   (A)$cm^3$ (B) $m^3$ (C) $mm^3$ (D) $dm^3$

2. Teacher Efren bought Mathematics books for his additional references. What unit of measure is appropriate to use?

   (A)$m^3$ (B) $mm^3$ (C) $dm^3$ (D) $cm^3$

3. Cubic decimeters ($dm^3$) is the right unit of measure to use for a small die. True or False?

   (A) False (B) True (C) Maybe (D) Undecided

4. Mang Nestor won a new refrigerator in the raffle. What unit of measure is appropriate for the volume of the refrigerator?

   (A)$m^3$ (B) $cm^3$ (C) $mm^3$ (D) $dm^3$

5. Mrs. Ortiz bought a new teacher's table for her classroom. What unit of measure is suited to the table?

   (A)$mm^3$ (B) $dm^3$ (C) $m^3$ (D) $cm^3$

6. Mr. Rama is going to repaint his chalkboard. He uses $cm^3$ to measure the chalkboard. Is Mr. Rama using the right unit of measure?

   (A)Yes (B) No (C) Maybe (D) Somehow

7. Mang Arturo is building an 8 x 4 x 7 swimming pool in his backyard for his grandchildren. What unit measure is appropriate to find the volume of the swimming pool?

   (A)$m^3$ (B) $dm^3$ (C) $cm^3$ (D) $mm^3$

8. Leo's father is a driver. He drives a mini cargo van. What unit measure is appropriate to use to find the volume of a mini cargo van?

   (A)$cm^3$ (B) $dm^3$ (C) $mm^3$ (D) $m^3$

9. If your sister needs to measure a 4x4x4 Rubik's Cube and said she will use $cm^3$ to do that. Is she using the right unit of measure or not?

   (A)Yes (B) No (C) Maybe (D) Somehow

10. You want to know the volume of a matchbox. What unit of measure best describes it?

    (A)$m^3$ (B) $cm^3$ (C) $mm^3$ (D) $dm^3$

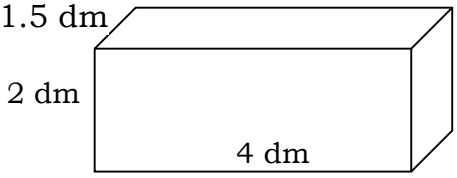
# Lesson 1 Naming the appropriate unit of measure for the volume

In this module, you will understand why it is very important to know about measurements and how useful volume measurements are in our daily activities. Your mastery in visualizing the volume of a cube and a rectangular prism and the different types of measurements will be a big help in understanding this lesson. Now, are you ready to learn how to name the appropriate unit of measure for the volume of a cube and rectangular prism and a lot more. *So, let's get started.*

## *What's In*

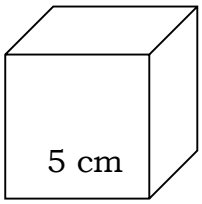
From the previous lesson, you learned how to visualize the volume of a cube and a rectangular prism. You have known what a volume is and you can visualize how the volume of a cube and a rectangular prism looks like. Volume is the amount of space occupied by an object. How about going backward a little bit? Let's review and answer the exercise below by giving the volume of the following figures.

1. 1.5 dm



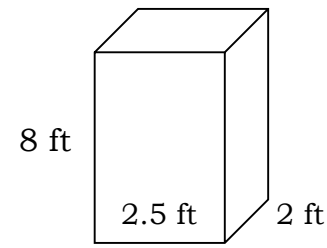

V = _____

2.

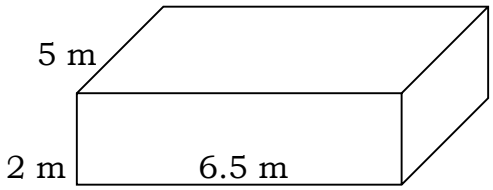



V = _____

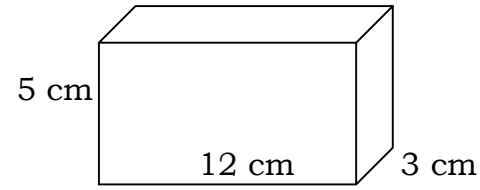
3.




V = _____

4. 


V = _____

5. 


V = _____

## *What's New*

In this lesson, you are going to deal with naming the appropriate unit for measuring the volume of a cube and a rectangular prism. You will fully understand this concept as you go along with this module. Always remember that volume is the amount of space occupied by an object.

Consider the problem below.

Your mother bought a box for your birthday "Pabitin". She told you to fill it up with chocolates, biscuits, candies and other goodies. As curious as you are, you want to know how you may be able to measure the capacity of the box.

What do you think is the unit of measure to use for the volume of the objects in the box? Can you defend your answer?

## *What Is It*

In naming the appropriate unit for measuring the volume of a cube and rectangular prism, you have to consider the amount of space occupied. It is important to remember that larger units are used to measure large amount of space occupied and smaller units are used to measure small amount of space occupied.

Any unit of length gives a corresponding unit of volume. For example, a **cubic centimeter** ($cm^3$) would be the volume of a cube whose sides are measured in **centimeters** (cm).

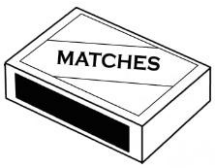
In the **International System of Units** (SI), the standard unit of volume is the cubic meter ($m^3$). Metric System also includes:

- cubic meter ($m^3$) is used to measure large amount of space occupied
- cubic decimeter ($dm^3$)
- cubic centimeter ($cm^3$)
- cubic millimeter ($mm^3$) is used to measure the small amount of space occupied

**Example 1: A box of match and a balik-bayan box**

Look carefully at the pictures below.

A box of match

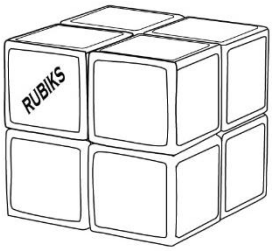



A balikbayan box


From the pictures shown, a match box occupies a small space while the balikbayan box occupies a large space. The length, width, and the height of the match box, each can be measured in millimeters (mm). The length, width, and the height of the Balikbayan box, each can be measured in meters (m). Therefore, we use cubic millimeter ($mm^3$) for the match box and since, a balikbayan box occupies a large space we may use a cubic meter ($m^3$) for its volume.

**Example 2: A 2x2x2 Rubik's cube and a small dice**

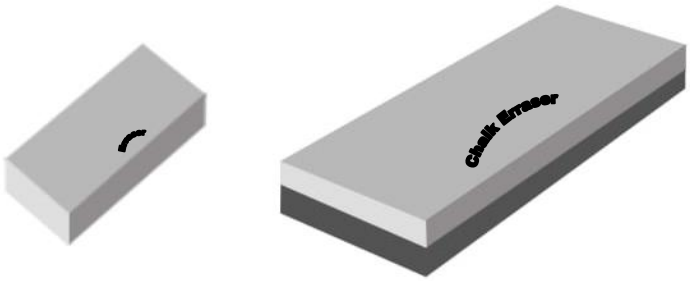
A 2x2x2 Rubik's cube




A small dice

From the pictures above, a 2x2x2 Rubik's cube occupies 8 cubic units while a die occupies 1 cubic unit. Thus, a Rubik's cube occupies a large space than a die which occupies a small space. Therefore, we use cubic centimeter ($cm^3$) for Rubik's cube and cubic millimeter ($m^3$) for the die.

**Example 3: A pencil and a chalkboard eraser**




The two pictures are both erasers, but occupy different amount of space. The pencil eraser occupies a smaller space than the chalk eraser. Therefore, we can use cubic millimeter ($mm^3$) for the pencil eraser and a cubic centimeter ($cm^3$) for the chalk eraser as units of measurement of their volume.

Thus, always keep in mind that larger units are used to measure large volumes while smaller units are used to measure small amount of space occupied by an object.

## *What's More*

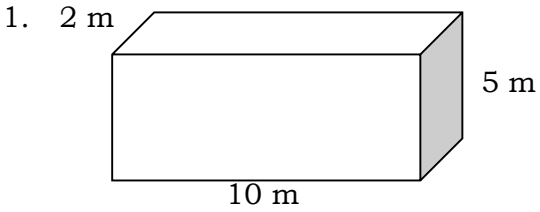
**Activity 1: Put A Name On Me!**

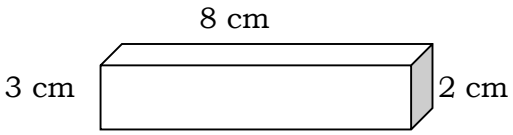
Directions: Name which cubic unit of measure is appropriate to be used for the following objects' volume. Use $m^3$, $cm^3$, $dm^3$, $mm^3$.

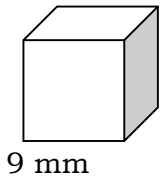
1. classroom _____
2. mathematics book _____
3. cellular phone _____
4. cooler _____
5. a piece of domino _____

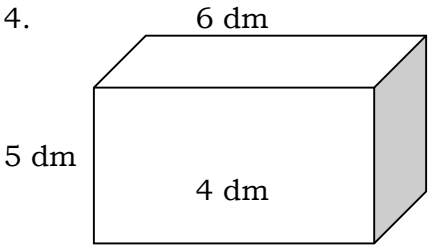
**Activity 2: Measure Me Up!**

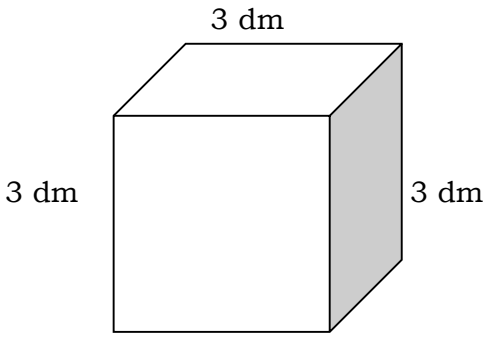
Directions: Look at the following figures carefully. Write the cubic unit of measure.

1. 


2. 


3. 


4. 


5. 

**Activity 3: Correct Me If I'm Wrong!**

Directions: Put a check mark ☑ if the unit measure used is appropriate for the object and X mark ☒ if it is not.

_____ 1. A 9x7x5 classroom measures 315 $m^3$.

_____ 2. Meter can be used to measure the volume of a small clock.

_____ 3. A cellular phone sim card measures 3 cubic meters or 3 $m^3$.

_____ 4. A Science cabinet can be measured by cubic decimeter or $dm^3$.

_____ 5. Millimeter is used to measure a rectangular pencil eraser.

*Congratulations for reaching this far. Are you having fun learning? Just go on.*

## *What I Have Learned*

A. Answer the following questions in one or two sentences.
   1. What unit of measurement is properly used to determine the length of shorter or smaller objects? What about for longer or larger objects?
   2. What unit of measurement is properly used to determine the volume of smaller objects? What about for larger objects?

## *What I Can Do*

Directions:

List down all the words that you can find in the puzzle that are used for measuring the volume of a cube and a rectangle prism.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| M | I | L | L | I | M | E | T | E | R | M |
| E | C | I | P | S | E | R | M | T | E | C |
| A | B | T | R | Y | M | E | C | I | T | E |
| S | V | E | I | S | E | S | B | L | E | N |
| U | O | R | S | T | T | P | S | A | R | T |
| R | L | I | M | E | E | A | M | R | I | I |
| E | U | M | S | M | R | C | A | G | T | M |
| M | E | E | R | U | T | E | L | E | N | E |
| E | M | T | C | C | M | S | L | R | E | T |
| N | R | E | T | E | M | I | C | E | D | E |
| T | A | T | S | T | A | N | D | A | R | R |
| S | C | E | E | W | M | E | R | A | C | D |

*Congratulations! Just two more activities and you are done with this module.*

# *Assessment*

Directions: Choose the appropriate unit of measure to be used for the following objects' volume. Write the letter of the correct answer on a separate sheet.

1. What appropriate unit of measure can be used in measuring a cellular phone?
   (A)$cm^3$ (B) $m^3$ (C) $mm^3$ (D) $dm^3$

2. Archie bought a pocket WIFI for his online classes. What unit of measure is fit to use to measure the volume of the said item?
   (A)$m^3$ (B) $dm^3$ (C) $cm^3$ (D) $m^3$

3. If you are going to measure a documentary stamp, what are you going to use?
   (A)$mm^3$ (B) $dm^3$ (C) $m^3$ (D) $cm^3$

4. Susan's room measures 8 by 3 by 2. What unit of measure would she use?
   (A)$cm^3$ (B) $mm^3$ (C) $dm^3$ (D) $m^3$

5. Argie bought a box of pineapple juice with 12 tetra packs inside. What unit of measure can be used to measure the box?
   (A)$mm^3$ (B) $dm^3$ (C) $cm^3$ (D) $m^3$

6. Aling Nene eats a bar of milk chocolate. Is it appropriate to use $cm^3$ as a unit of measure to find the volume of the chocolate?
   (A)No (B)Yes (C) Maybe (D) Undecided

7. Nicko used a globe to present her report in Araling Panlipunan to find the location of the Philippines. What unit measure is suited to find the volume globe?
   (A)$mm^3$ (B) $dm^3$ (C) $m^3$ (D) $cm^3$

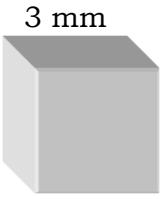
8. What appropriate unit measure can be used for the volume of the door of a house?
   (A)$m^3$ (B) $cm^3$ (C) $dm^3$ (D) $mm^3$

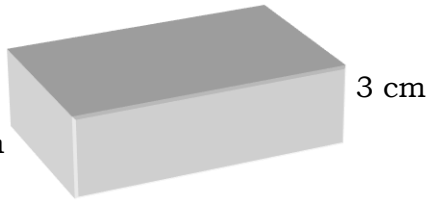
9. Mang Nilo makes a fish pond in their backyard and he wants to fill it with water. To find how much amount of water the pond can hold, what unit of measure should he use?
   (A)$dm^3$ ( B) $m^3$ (C) $cm^3$ (D) $mm^3$

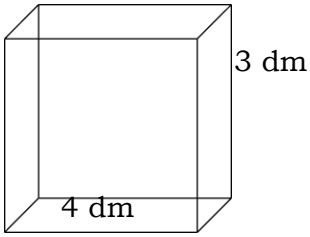
10. Your classmate was asked by your teacher to measure a 3x3x3 Rubik's Cube. He chose to use $mm^3$ to know its volume. Did your classmate use the appropriate unit of measure or not?
    (A)No (B) Yes (C)Maybe (D) Undecided

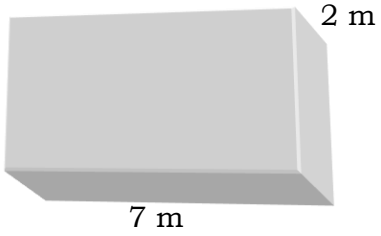
# *Additional Activities*

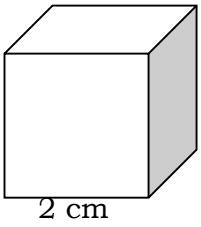
**Directions:** Tell in words and in exponential form the cubic unit of measure to be used in the following illustrations.

1. 


2. 


3. 


4. 


5. 

# Answer Key

**What I Know**

| | | | |
|---|---|---|---|
| 1. | B | 6. | B |
| 2. | D | 7. | A |
| 3. | A | 8. | D |
| 4. | D | 9. | A |
| 5. | C | 10. | C |

**What's In**

1. 12 $dm^3$
2. 125 $cm^3$
3. 40 $ft^3$
4. 65 $m^3$
5. 180 $cm^3$

**What I Have Learned**

1. Smaller or shorter lengths have mm or cm as units of measurement while larger or longer lengths have dm or m as units of measurement.

2. Smaller volumes use $mm^3$ or $cm^3$ while large volumes use $dm^3$ or $m^3$.

**What's More**
**Activity 2: Tell Me!**

1. cubic meter ($m^3$)
2. cubic centimeter ($cm^3$)
3. cubic millimeter ($mm^3$)
4. cubic decimeter ($dm^3$)
5. cubic decimeter ($dm^3$)

**What's More**
**Activity 3: Correct Me if I'm Wrong!**

1. /
2. x
3. x
4. /
5. /

**What's I Can Do**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| M | I | L | L | I | M | E | T | E | R | C | M |
| E | C | I | P | S | E | R | M | T | E | E | |
| A | B | T | R | Y | M | E | C | I | T | E | |
| S | V | E | I | S | E | S | B | L | E | N | |
| U | O | R | S | T | T | P | S | A | R | T | |
| R | L | I | M | E | E | A | M | R | I | I | |
| E | U | M | S | M | R | C | A | G | T | M | |
| M | E | E | R | U | T | E | L | E | N | E | |
| E | M | T | C | C | M | S | L | R | E | T | |
| N | R | E | T | E | M | I | C | E | D | E | |
| T | A | T | S | T | A | N | D | A | R | R | |
| S | C | E | E | W | M | E | R | A | C | D | |

**Assessment**

| | | | |
|---|---|---|---|
| 1. | A | 6. | B |
| 2. | C | 7. | D |
| 3. | A | 8. | A |
| 4. | D | 9. | B |
| 5. | C | 10. | A |

**Additional Activities**

1. cubic millimeter $mm^3$
2. cubic centimeter $cm^3$
3. cubic decimeter $dm^3$
4. cubic meter $m^3$
5. cubic centimeter $cm^3$

# *References*

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Grade 5 Teachers Guide and Learners Materials, LRMDS

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