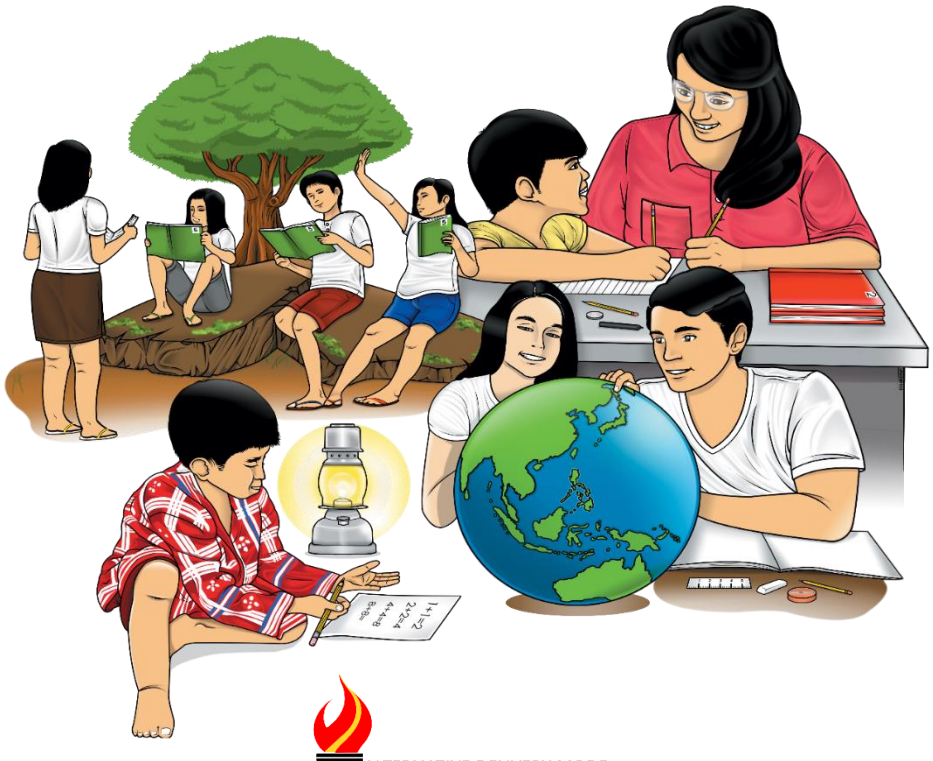
3

Mathematics

Quarter 4 – Module 69: Visualizing, Representing, and Solving Routine and Non-routine Problems Involving Capacity Measure



ALTERNATIVE DELIVERY MODE
ADM

Department of Education • Republic of the Philippines

Mathematics – Grade 3
Alternative Delivery Mode
Quarter 1 – Module 1: Visualizing Whole Number
First Edition, 2019

Published by the Department of Education
Secretary:
Undersecretary:
Assistant Secretary:

Development Team of the Module

Authors: Name

Editor: Name

Reviewers: Name

Illustrator: Name

Layout Artist: Name

Management Team: Name

Printed in the Philippines by _____

Department of Education – Bureau of Learning Resources (DepEd-BLR) **(Sample)**

Office Address: _____
_____
Telefax: _____
E-mail Address: _____

3

Mathematics

Quarter 4 – Module 69: Visualizing, Representing, and Solving Routine and Non-routine Problems Involving Capacity Measure

Department of Education • Republic of the Philippines

Introductory Message

For the facilitator:

(This gives an instruction to the facilitator to orient the learners and support the parents, elder sibling etc. of the learners on how to use the module. Furthermore, this also instructs the facilitator to remind the learners to use separate sheets in answering the pre-test, self-check exercises, and post-test.)

For the learner:

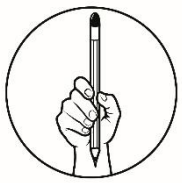
(This communicates directly to the learners and hence, must be interactive. This contains instructions on how to use the module. The structure and the procedure of working through the module are explained here. This also gives an overview of the content of the module. If standard symbols are used to represent some parts of the module such as the objectives, input, practice task and the like they are defined and explained in this portion.)

What I Need to Know

This module was designed and written with you in mind. It is here to help you comprehend multiplication using 2-digit numbers by 2-digit numbers without regrouping. 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.

After going through this module, you are expected to:

1. solve routine and non-routine problems involving capacity measure.



What I Know

1. What are the common units of capacity?
   a. Meters & centimeters'
   b. Miles & kilometers
   c. Liters & milliliters
   d. Watts & kilowatts

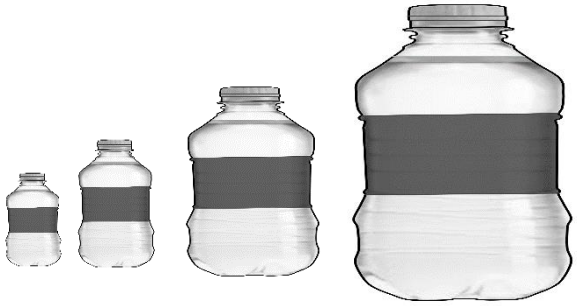
2. Given that 1L = 1000mL, convert 3L to mL (milliliters).
   a. 3000L
   b. 3000mL
   c. 1L
   d. 1000mL

3. Mang Toto is selling mineral water that are in a 500mL bottle. Angie was asked by her mother to buy 3 mineral water. What is the total amount of water in the 3 bottles?
   a. 1L
   b. 1500mL
   c. 2L
   d. 1000mL

4. Mary bought a pack of orange juice, it is said in the description that she is required to put 2L of water to make the juice. How many 1L bottle of water should she buy to make the juice?
   a. 2
   b. 1
   c. 3
   d. 4

5. Convert 5000mL to L.
   a. 5L
   b. 5mL
   c. 5000L
   d. 5000mL

Lesson Routine and Non-routine Problems involving Capacity Measure



Have you ever wondered how much water is in your glass? Or the amount of water can a fire truck hold when they are called on an emergency fire outbreak? These are just the simple examples on the idea of capacity measurements. On this lesson, you are going to learn and solve the amount of liquid in an object and differentiate which are greater and which is less. So that the next time your parents ask you to buy a liter of water, you will be able to buy the right amount of water.

What's In

Use less than **<** , greater than **>** , or equal symbol **=** to compare the two liquid containers. Write your answer on a separate sheet of paper.

1. 9000 mL gasoline	☐	10 L diesel
2. 3000 mL mango juice	☐	3 L lemon juice
3. 7000 mL fish sauce	☐	7 L soy sauce
4. 1000 mL iced tea	☐	1.5 L softdrinks
5. 750 mL oil	☐	1 L water

Notes to the Teacher

A day to day scenario can be applied in the world of measuring capacity. You may instruct your learner to differentiate common household objects that contain liquids by using greater than (>), less than (<), or equal (=). A good example would be a glass of water is less than (<) a pail of water. Task your learner to differentiate at least 10 items.

Make it sure that the learner learns the concept of capacity measure, converting liter to millilitre and vice versa.

What's New

Activity 1

Problem:

Every after class, Mika and Miggy are required to train badminton for their school intramural. They did the drills and played for 2 hours. Their coach adviced them to drink at least 3 glasses of water so that their body can recover. So they immediately drank water to replenish their body. Mika and Miggy always follow what their coach says so that they will be well prepared for their game.

- Who plays badminton every after class?

  _____

  _____.
- How many hours do they play?

  _____

  _____.
- How many glass of water did their coach adviced them to drink?

  _____

  _____.
- Why is it important to drink water every after playing a game?

  _____

  _____.
- Do you drink water after you play games?

  _____

  _____.

What is It

You can convert units of capacity from liters to milliliters, and from millilitres to liters. Below is the conversion table which shows the relationship between liter and milliliter.

CONVERSION TABLE
1 liter (L) = 1000 milliliter (mL)

Bigger Unit	Smaller Unit
L	mL

- ✓ When converting from a large unit of capacity (L) to a smaller unit of capacity (mL), multiply by 1000.

  For example: Mika and Miggy drink 3 liters of water a day. How many milliliters do they drink in a day?

This problem requires you to change the unit of capacity from a bigger unit of capacity (3 liters) to a smaller unit of capacity (mL).

3 x 1000 = 3000

3 L = 3000 mL

- ✓ When converting from a smaller unit of capacity (mL) to a large unit of capacity (L), divide by 1000.

  For example: Mika and Miggy drink 3000 milliliters of water a day. How many liters do they drink in a day?

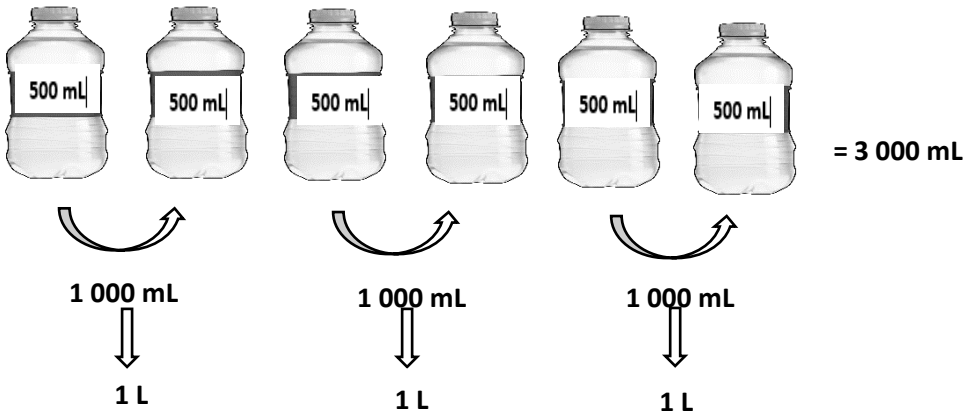
This problem requires you to change the unit of capacity from a smaller unit of capacity (3000 milliliters) to a bigger unit of capacity (L).

3000 ÷ 1000 = 3

3000 mL = 3 L

There is also another way of solving the problem by doing representation.

1. Problem: Mika and Miggy drink 3 liters of water a day. How many milliliters do they drink in a day?
   In solving this problem, you may illustrate it using 6 empty bottles which contains (500 mL each).



   Therefore, Mika and Miggy drink 3000mL of water in a day.

What's More

Activity 2

Solve the following problem.

Problem	Using the conversion table	Using illustration
Routine Problem 1. A water container can hold 4000 mL of liquid. How many liters can the water contain?		
Non-routine Problem 2. Franco fetched 4 liters of water, Miggy fetched 5 000 mL and Jay fetched 6 L. Who fetched the greatest amount of water? the least?		

- Which solution or method is easier to use in finding the answer?

  _____

  _____.

- How did you convert smaller unit of capacity to a bigger unit of capacity or from a bigger unit of capacity to a smaller unit of capacity?

  _____

  _____.

Activity 3

Solve the following word problems using your preferred method in finding the answer. Write your solution on a separate sheet of paper.

1. Karl bought 3 L of cooking oil. How many milliliters of cooking oil did he buy?

2. Eunice bought 5 000 milliliters of distilled water. If a liter of distilled water costs 15 pesos, how much would be the change if he handed in 100 pesos?

3. Luen Kim put 20 liters of water in a pail. How many milliliters of water did she put in the pail?

What I Have Learned

- The liter (L) and the milliliter (mL) are standard units of capacity. There are 1000 mL in 1L:

  1 L = 1000 mL

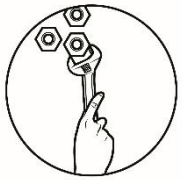
- When converting from a bigger unit of capacity to a smaller unit, multiply by the conversion factor.

- When converting from a smaller unit of capacity to a bigger unit, divide by the conversion factor.

- To solve problems involving capacity measure, you may make use of routine and non-routine problems.

  In solving Routine problems, identify the given, what is asked, and what operation you will use.

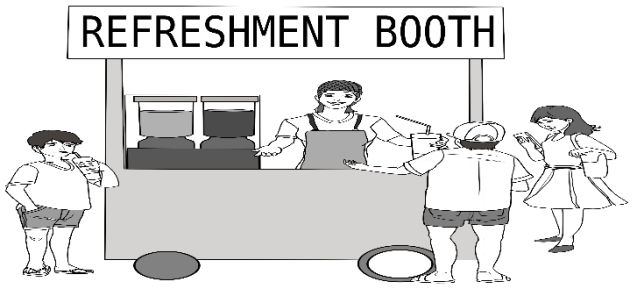
  In solving Non-routine problems, you may draw and make a pattern. You have to add, subtract, multiply or divide depending on the problem.



What I Can Do

Activity 4

Read each problem and solve for the answer. Write your solution on a separate sheet of paper.



Problem: Blessy, Mary, Mika, and Angelene were in charge of the refreshment booth during their schools' foundation day. Each of them brought a different kind of juice in a 50 L container to sell that day. They also used three kinds of cups: regular – 200 mL; medium – 250 mL; and large –300 mL.

1. Blessy sold three large cups and 15 medium cups. How much juice was left in her container?

2. The other girls were able to sell 20 regular cups and 10 large cups from their containers. How much did each sell?

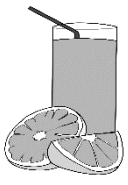
3. How much juice did they sell altogether? How much was left?

Assessment

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

1. Convert 4.5L to mL
    a. 4500L
    b. 4000mL
    c. 4000L
    d. 4500mL

2. How many mL of calamansi juice is there in a 2.5L of calamansi juice?
    a. 2000mL
    b. 2550mL
    c. 2500mL
    d. 2555mL



3. A pail of water can hold up to10L of water. Jay is asked to fill the Jacuzzi pool that has a capacity of 10000L. How many pail of water should Jay have to fill it full?
    a. 500 pails
    b. 900 pails
    c. 1000 pails
    d. 100 pails

4. If 0.5L = 500mL, convert 3500mL to L.
    a. 3.5L
    b. 3.55L
    c. 3L
    d. 3.33L

5. If a glass of water holds 350mL of water, what is the total amount of water will you take if you are required to drink 8 glasses of water?
    a. 1750mL
    b. 2100mL
    c. 2450mL
    d. 2800mL

Additional Activities

Activity 5

As a student athlete, Max was required by his coach to drink 10 glasses of water to replenish his body from all the drills and activities. He must do this for 7 days to fully prepare him for the upcoming unit meet. If a standard glass of water holds 0.4L of water, how many liters of water did Max take in the span of 7 days if he followed his coach's advice? Give the answers in L and mL

Answer Key

What I Know

1. C
2. B
3. B
4. A
5. A

What's In

1. <
2. =
3. =
4. <
5. <

Activity 5

1. 28L and 28000mL

What I Know

6. C
7. B
8. B
9. A
10. A

What's In

6. <
7. =
8. =
9. <
10. <

Assessment

1. D
2. C
3. C
4. A
5. D

References

Chingcuanco,O.G.,COntemplacion,H.P.,Flores,E.I.,Gonzaga, L.N.,Guevara, C.O.,Hilario, R.R.,Ilagan, G.M.,Patacsil, M.S.,Silvestre, Ma.C.C.,Soriano, R.T.,Tafalla, V.C.,Tagulao, T.P.,& Villafria, D.J.(2015). Mathematics-Grade 3 Teacher's Guide (1st ed.). Pasay City, Philippines: Department of Education.

De Lara, R.G.,(2011).Discovering Mathematics Today (1st ed.). Namayan, Mandaluyong City, Philippines: Merryland Publishing Corporation.

For inquiries or feedback, please write or call:

Department of Education – (Bureau/Office)

(Office Address)

Telefax:

Email Address: