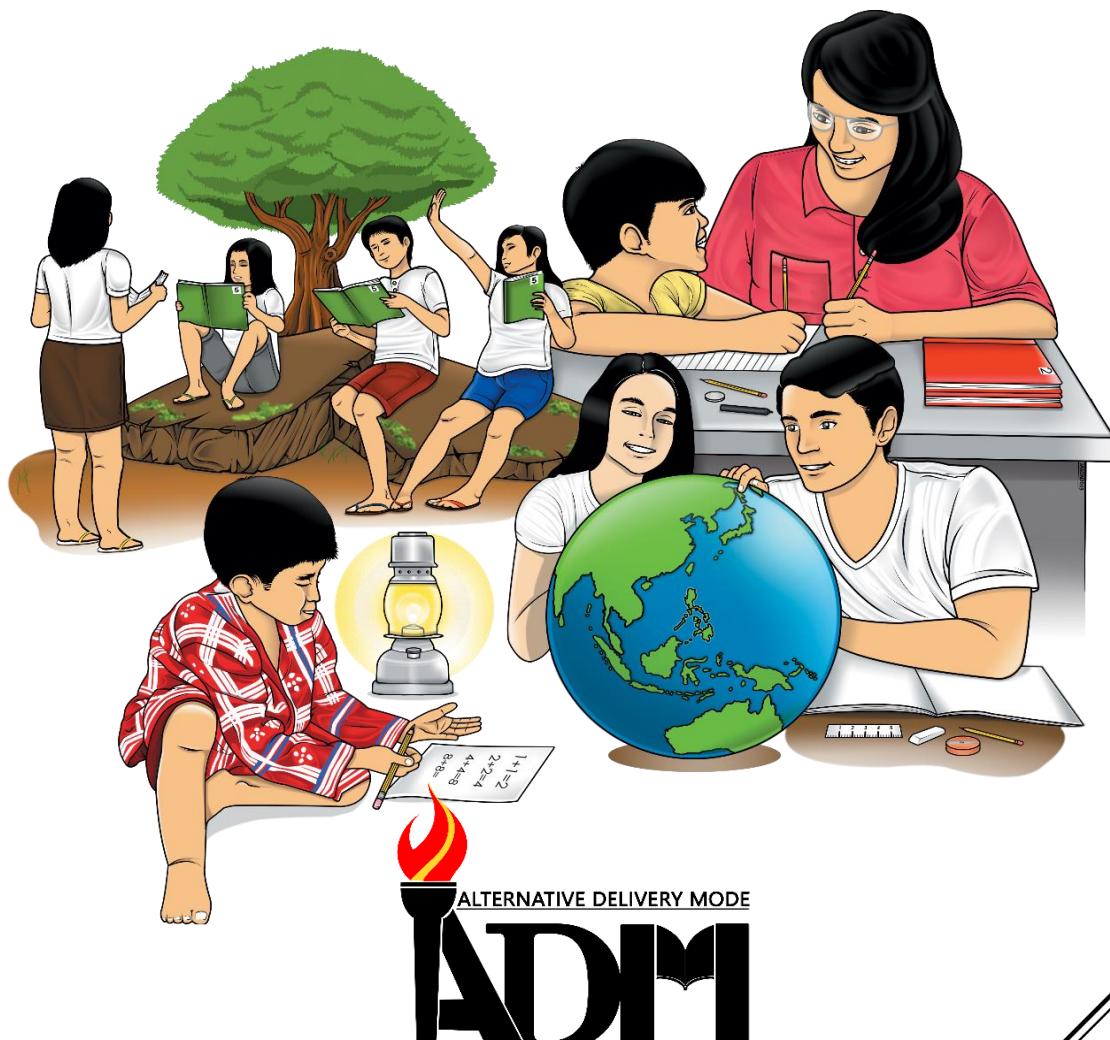


# Mathematics

## Quarter 1 – Module 8:

### Solving Routine and Non-routine Problems Involving Multiplication of Whole Numbers



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**Mathematics - Grade 4**

**Alternative Delivery Mode**

**Quarter 1 - Module 8: Solving Routine and Non-routine Problems  
Involving Multiplication of Whole Numbers**

**First Edition, 2020**

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**4**

**Mathematics**  
**Quarter 1 – Module 8:**  
**Solving Routine and**  
**Non-routine Problems**  
**Involving Multiplication**  
**of Whole Numbers**

## **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 learner! You have learned from the previous module how to multiply numbers up to 3 digits by up to 2-digit numbers without or with regrouping. In this module, you will encounter different problems involving multiplication of whole numbers including money. You will solve these problems using appropriate problem solving strategies and tools. Always put yourself in each problem so that you can easily solve it. Enjoy and have fun solving.

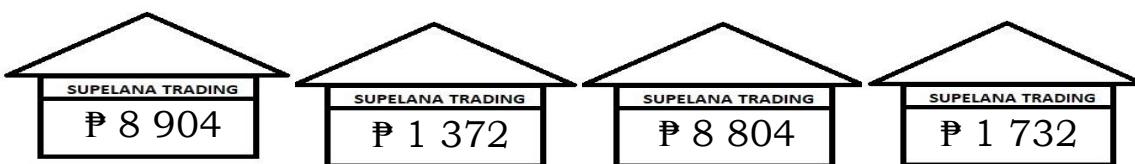
At the end of this module, you will be able to solve routine and non-routine problems involving multiplication of whole numbers including money using appropriate problem solving strategies and tools.



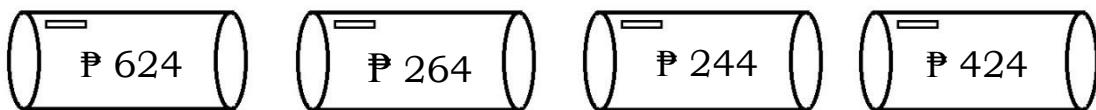
## **What I Know**

A. Solve each problem and choose the correct answer.

1. Supelana Trading can sell 212 kilograms of rice a day. If a kilogram of rice costs ₱42, how much is the sales of Supelana Trading in a day?



2. Analyn saves ₱12 from her daily allowance. How much did she save in 22 days?



3. Mrs. Rosario cooks siopao and sells it online for an extra income. If she sells 25 boxes to customers at ₱225 per box, how much is her income?

₱ 5 562

₱ 5 226

₱ 5 625

₱ 5 626

4. The canteen of San Roque Elementary School has an average daily sale of ₱ 842. What is the monthly sale if there are 21 school days in a month?

SCHOOL CANTEEN  
₱ 17 862

SCHOOL CANTEEN  
₱ 16 782

SCHOOL CANTEEN  
₱ 17 682

SCHOOL CANTEEN  
₱ 16 872

5. The electric posts along a straight road are 23 m apart. If there are 12 electric posts, what is the distance from the first post to the last post?

253 m

276 m

300 m

288 m

B. Solve the following problems.

6. The Department of Health will distribute 1 255 medicine kits to every town in a certain province. How many medicine kits will be distributed if there are 16 towns in that province?

7. A sari-sari store can sell 1 525 bottles of mineral water in a month. If a bottle costs ₱15, how much is the sale of the sari-sari store in a month?

8. T-shirts are sold on a “Buy 1-Take 1” basis for ₱320. How much will you pay for 10 T-shirts?

9. In a Fun Run Activity, the registration fee is ₱20. If there are 340 participants who registered, how much is the total collection for registration?

10. Two workers can make 210 hollow blocks in an hour. How many hollow blocks can they make in 4 hours?

Are you done answering? If yes, time to check.

Please go to page 12 for the **Answer Key**.



## What's In

### YOU MUST HAVE IT!

**Direction.** Find the product. Then, write the corresponding letter of each product to solve the puzzle.

$$\begin{array}{r} 1. \quad 121 \\ \times \quad 8 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 342 \\ \times \quad 6 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 453 \\ \times \quad 11 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 312 \\ \times \quad 3 \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 112 \\ \times \quad 8 \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad 244 \\ \times \quad 5 \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad 242 \\ \times \quad 4 \\ \hline \end{array}$$

A - 2 052  
G - 1 220

N - 896  
I - 936

V - 4 983  
S - 968

*"What is the amount of money that is not spent or used?"*

ANSWER:

1.	2.	3.	4.	5.	6.	7.
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Are you done answering? If yes, time to check.

Please go to page 12 for the **Answer Key**.





## What's New

*How much money does your mother give you every day for your allowance? Do you spend all or you save some amount? Why do you need to save?*

### Read the problem.

Ruby receives from her mother the amount of ₱30 as her daily allowance in school. She saves ₱5 for future expenses. How much does she save in a month if there are 21 school days?



This is an example of a routine problem. Routine problems are problems that have solutions which can be immediately identified.

Try answering the given problem.



## What is It

Let us see if we have the same answer.

To analyze and solve the problem, you can use these steps:

### A. UNDERSTAND

1. Read and understand the problem.
2. Know **what is asked** in the problem.

Ruby's savings in a month if there are 21 school days.

3. Find the necessary information.

The **given facts**: ₱5 – daily savings  
21 – school days in a month

₱30 is not a necessary given fact because the focus is savings not monthly allowance.

## B. PLAN

1. Determine the **operation** to be used. **MULTIPLICATION**
2. Write the **number sentence**.  $21 \times ₱5 = \square$

## C. SOLVE

Solve using the operation.

$$\begin{array}{r} 21 \\ \times 5 \\ \hline ₱105 \end{array}$$

## D. CHECK AND LOOK BACK

See if your answer makes sense.  
State the complete answer.

You can also use a calculator to check.

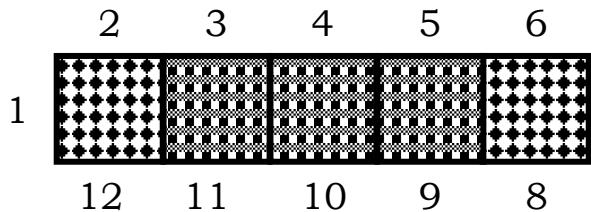
**Ruby saves ₱105 in a month.**

This is how to solve routine problems. How about solving non-routine problems? Go on with the next example.  
Study the example and ask questions as necessary.

Study this problem.

In a school canteen, 4 students can sit in a square table.  
How many students can sit in five square tables placed end to end?

You can solve by drawing a picture.



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Solving non-routine problems develops your reasoning power. You can use the following strategies in solving non-routine problems:  
Listing, Making a Table, Guess and Check, Drawing/Diagram, Using patterns, etc.

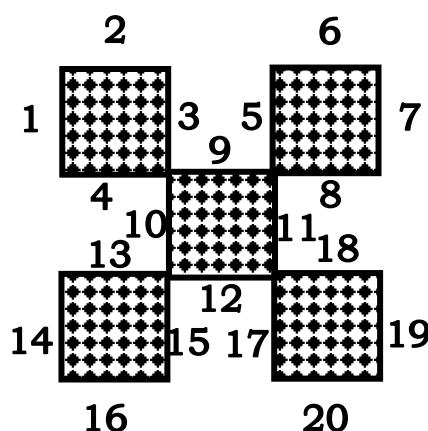
Two end tables:  $3 \times 2 = 6$  (3 students can sit)

Three inside tables:  $2 \times 3 = 6$  (2 students can sit)

**So, 12 students can sit in five square tables placed end to end.**

What do you think is the best arrangement of the square tables such that more students may be seated and the square tables are still connected to each other?

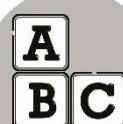
You can solve this problem by making an illustration.



You can arrange the tables by connecting a corner of a table (the vertex) to another corner in such a way that 4 students can be seated at each table as shown

**Therefore, the best arrangement of the square tables is corner to corner wherein 4 students can be seated.**

Now, you learn solving non-routine problems.  
This time you are now ready for the activities.  
LET'S GO!



### What's More

#### Activity 1

Solve the following problems. Show your solutions.

1. During weekends, Cedrick and his friends collect plastic bottles and sell them to a junkshop. They collected 36

kilograms of plastic bottles. How much will they receive if each kilogram costs ₱12?

2. The electric posts are 25 meters apart. If there are 10 electric posts, what is the distance from the first electric post to the last electric post?

Are you done answering? If yes, time to check.

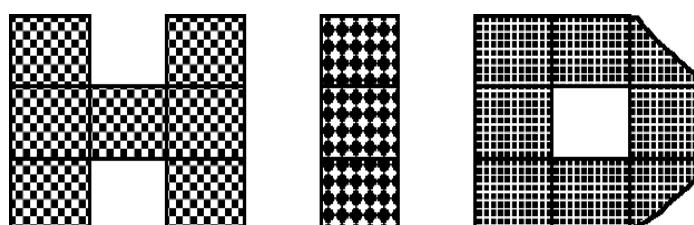
Please go to page 12 for the **Answer Key**.



### Assessment 1

Solve the following problems.

1. A group of workers can make 830 pieces of siomai an hour. How many pieces of siomai can they make in 36 hours?
2. T-shirts are sold on a “Buy 1 - Take 1” basis. If one shirt costs ₱ 120, how much will you pay for 10 T-shirts?
3. The 13 divisions of DepEd Bicol will conduct a simultaneous earthquake drill. If each division is required to have 920 participants, how many will join the drill?
4. A square tile costs ₱45 each. Find the cost to tile the word.



5. A raffle ticket costs ₱25. How much is the cost of 680 raffle tickets?

Are you done answering? If yes, time to check.

Please go to page 12 for the **Answer Key**.





## ***What I Have Learned***

How do you solve routine and non-routine word problems involving multiplication of whole numbers including money using appropriate strategies and tools?

To solve routine problems involving multiplication of whole numbers including money using appropriate strategies and tools, follow these steps:

### **UNDERSTAND**

- Know what is asked.
- Know the given facts.

### **PLAN**

- Determine the operation to be used.
- Write the number sentence.

### **SOLVE**

- Use the operation to solve.

### **CHECK AND LOOK BACK**

- Write the correct answer.

Non-routine problems can be solved by drawing a picture, using a number line, making a table, and others.



## What I Can Do

A. Use the Neo's Canteen menu to answer the following questions.

1. How much will two orders of spaghetti cost?
2. How much will eight orders of egg sandwich cost?
3. How much will Ruby pay for four orders of banana cue?
4. How much will the Mercado Family pay for 4 pieces of puto, 4 orders of pancit, and 4 orders of calamansi juice?

### NEO'S CANTEEN MENU

Spaghetti	:	₱25
Pancit	:	₱20
Banana Cue	:	₱15
Puto	:	₱6
Egg Sandwich	:	₱24
Calamansi Juice	:	₱10
Buko Juice	:	₱12

B. Read, analyze, then solve.

5. The distance between each bulb of a Christmas light is 6 cm. What is the distance from the first bulb to the last bulb if there are 100 bulbs?
6. A sari-sari store sells pineapple juice at ₱15 per bottle. What is the monthly sales of the sari-sari store if it sells 215 bottles of pineapple juice?

Are you done answering? If yes, time to check.

Please go to page 12 for the **Answer Key**.





## Assessment

Read, analyze, then solve each problem.

1. Mang Gusting earns ₱1 355 from his tricycle every week. How much will he earn in 10 weeks if the tricycle will be in good condition for the period given?
2. The Diaz family conserves electricity everyday by turning off unused lights and appliances. Compared to their previous bill, they have saved ₱125. How much will they save if they continue conserving for 12 months?
3. A box of corned beef containing 36 cans is sold with 3 cans free. Aling Belen bought 3 boxes for her sari-sari store. How many cans of corned beef will she have?
4. A box of pencils costs ₱108. How much will you pay if you buy 12 boxes?
5. Connecting four dots makes a square. If you add two more dots and connect them, you can make two squares. Given the condition, how many dots compose 10 such squares?
6. A barber shop haircut service costs ₱50. If the shop has an average of 113 haircut services daily, how much is the income of the barber shop everyday?
7. Kiko sells *sampaguita* garlands during weekends. Each *sampaguita* garland costs ₱8. How much will he earn if he sold 150 pieces?
8. Roses are planted 3 meters apart. If there are 25 roses, what is the distance from the first rose to the last rose?
9. Strawberries from Baguio are sold for ₱350 a kilo. How much will a tourist pay for 15 kilos?
10. A printer can print 20 copies in a minute. How many copies can it print in 3 hours?

(Please go to page 12 for the **Answer Key**)



## ***Additional Activities***

Solve the following problems.

1. On the first two days of the Palarong Pambansa, a vendor sold 310 T-shirts at ₱175. How much was the vendor's sale for the first two days?
2. A rectangle is composed of 15 squares. The three middle squares of the rectangle are painted. How many non-painted squares are there if there are 20 rectangles?
3. Lance is a thrifty student. He opens a student savings account in a bank and deposits ₱110 weekly. How much will his total savings be after 48 weeks?
4. Six is a product of the two pairs of factors: (6x1 or 1x6) and (2x3 or 3x2). How many pairs of factors does 36 have?
5. In a mobile game, every level passed is rewarded with 50 coins. The game finishes at Level 50 with a reward of a winner's trophy instead of 50 coins. If you happen to reach the last level and win the game, how many coins can you earn in all?

Are you done answering? If yes, time to check.

Please go to page 12 for the ***Answer Key***.



**CONGRATULATIONS! You are doing very well.  
See you in the next module.**



## Answer Key

<p><b>ADDITIONAL ACTIVITIES</b></p> <p><b>WHAT I CAN DO</b></p> <ol style="list-style-type: none"> <li>1. The vendor's sale for two days is ₱ 54 250.</li> <li>2. There are 240 squares without paint.</li> <li>3. He deposited ₱ 5 280.</li> <li>4. There are 5 pairs of factors with a product of 36.</li> <li>5. You earned 2 450 coins in all.</li> </ol> <p><b>ASSESSMENT</b></p> <p><b>WHAT'S MORE</b></p> <ol style="list-style-type: none"> <li>1. He will earn ₱ 13 550 in 10 weeks.</li> <li>2. He will save ₱ 1 500.</li> <li>3. Ailing Belen took home 117 cans of corned beef for her sari-sari store.</li> <li>4. ₱ 1 296</li> <li>5. 22 dots</li> <li>6. ₱ 5 650</li> <li>7. ₱ 1 200</li> <li>8. 72 meters</li> <li>9. ₱ 5 250</li> <li>10. 3 600 copies</li> </ol> <p><b>ACTIVITY 1</b></p> <p><b>WHAT'S IN</b></p> <ol style="list-style-type: none"> <li>1. ₱ 968</li> <li>2. ₱ 2 052</li> <li>3. 4 983</li> <li>4. 936</li> <li>5. ₱ 5 625</li> <li>6. ₱ 2 264</li> <li>7. ₱ 8 904</li> <li>8. ₱ 2 052</li> <li>9. 4 983</li> <li>10. ₱ 968</li> </ol> <p><b>A</b></p> <p><b>B</b></p> <p><b>ANSWER: SAVINGS</b></p> <ol style="list-style-type: none"> <li>1. They can make 29 880 similar pieces in 36 hours.</li> <li>2. ₱ 600</li> <li>3. There are 11 960 participants.</li> <li>4. The cost to tile the word participants is ₱ 765.</li> <li>5. The cost of 680 raffle tickets is ₱ 17 000.</li> </ol> <p><b>ASSESSMENT 1</b></p> <p><b>WHAT I KNOW</b></p> <ol style="list-style-type: none"> <li>1. ₱ 6 800</li> <li>2. ₱ 1 600</li> <li>3. ₱ 22 875</li> <li>4. medicine kits</li> <li>5. blocks</li> <li>6. 20 080</li> <li>7. 1 220</li> <li>8. ₱ 17 682</li> <li>9. 253 m</li> <li>10. 840 hollow</li> </ol>	<p><b>ANSWER: SAVINGS</b></p> <ol style="list-style-type: none"> <li>1. ₱ 6 800</li> <li>2. ₱ 1 600</li> <li>3. ₱ 22 875</li> <li>4. medicine kits</li> <li>5. blocks</li> <li>6. 20 080</li> <li>7. 1 220</li> <li>8. ₱ 17 682</li> <li>9. 253 m</li> <li>10. 840 hollow</li> </ol> <p><b>WHAT'S IN</b></p> <ol style="list-style-type: none"> <li>1. ₱ 968</li> <li>2. ₱ 2 052</li> <li>3. 4 983</li> <li>4. 936</li> <li>5. ₱ 5 625</li> <li>6. ₱ 2 264</li> <li>7. ₱ 8 904</li> <li>8. ₱ 2 052</li> <li>9. 4 983</li> <li>10. ₱ 968</li> </ol> <p><b>B</b></p> <p><b>ANSWER: SAVINGS</b></p> <ol style="list-style-type: none"> <li>1. ₱ 6 800</li> <li>2. ₱ 1 600</li> <li>3. ₱ 22 875</li> <li>4. medicine kits</li> <li>5. blocks</li> <li>6. 20 080</li> <li>7. 1 220</li> <li>8. ₱ 17 682</li> <li>9. 253 m</li> <li>10. 840 hollow</li> </ol> <p><b>ASSESSMENT 1</b></p> <p><b>WHAT I KNOW</b></p> <ol style="list-style-type: none"> <li>1. ₱ 6 800</li> <li>2. ₱ 1 600</li> <li>3. ₱ 22 875</li> <li>4. medicine kits</li> <li>5. blocks</li> <li>6. 20 080</li> <li>7. 1 220</li> <li>8. ₱ 17 682</li> <li>9. 253 m</li> <li>10. 840 hollow</li> </ol>	<p><b>ANSWER: SAVINGS</b></p> <ol style="list-style-type: none"> <li>1. ₱ 6 800</li> <li>2. ₱ 1 600</li> <li>3. ₱ 22 875</li> <li>4. medicine kits</li> <li>5. blocks</li> <li>6. 20 080</li> <li>7. 1 220</li> <li>8. ₱ 17 682</li> <li>9. 253 m</li> <li>10. 840 hollow</li> </ol> <p><b>ASSESSMENT 1</b></p> <p><b>WHAT I KNOW</b></p> <ol style="list-style-type: none"> <li>1. ₱ 6 800</li> <li>2. ₱ 1 600</li> <li>3. ₱ 22 875</li> <li>4. medicine kits</li> <li>5. blocks</li> <li>6. 20 080</li> <li>7. 1 220</li> <li>8. ₱ 17 682</li> <li>9. 253 m</li> <li>10. 840 hollow</li> </ol>
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**Score update: Additional Activities**

- 3 WOW! GREAT JOB!
- 2 NICE!
- 0-1 Don't worry. Your teacher will be happy to help you.  
Do not be shy to ask questions. Have fun!

**Score update: What I Know and Assessment**

- 10 WOW! GREAT JOB!
- 7-9 VERY NICE!
- 5-6 NICE!
- 3-4 OOOPPPS! Let us review and go over with the test again.
- 0-2 Don't worry. Take time to go over the lesson again. Do not be shy to ask help from your teacher or facilitator.  
Have fun!

**Score update: What's In**

- 7 WOW! GREAT JOB!
- 6 VERY NICE!
- 5 NICE!
- 0-4 OOOPPPS! Don't worry. Take time to study this module.  
Do not be shy to ask help from your teacher or facilitator.  
Have fun!

**Score update: What's More- Activity 1**

- 2 WOW! GREAT JOB!
- 1 NICE!
- 0 Don't worry. Your teacher will be happy to help you.  
Do not be shy to ask questions. Have fun!

**Score update: What I Can Do**

- 6 WOW! GREAT JOB!
- 4-5 NICE!
- 0-3 Don't worry. Your teacher will be happy to help you.  
Do not be shy to ask questions. Have fun!

**Score update: What's More – Assessment 1**

- 5 WOW! GREAT JOB!
- 3-4 NICE!
- 0-2 Don't worry. Your teacher will be happy to help you.  
Do not be shy to ask questions. Have fun!

## **References**

K to 12 Mathematics Curriculum Guide, August 2016.

Tabilang, A. et. al. (2015). *Mathematics: Learner's Material*, Pasig City: Lexicon Press.

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