

4

Lesson Exemplar for Mathematics

Quarter 4
Lesson

2

Lesson Exemplar for Mathematics Grade 4
Quarter 4: Lesson 2 (Week 2)
SY 2024-2025

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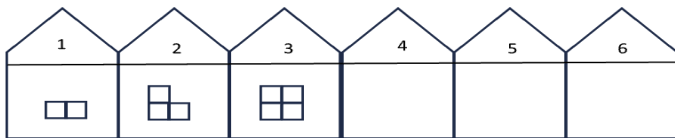
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MATHEMATICS / QUARTER 4 / GRADE 4

I. CURRICULUM CONTENT, STANDARDS, AND LESSON COMPETENCIES	
A. Content Standards	The learner should have knowledge and understanding of: 1. simple patterns 2. number sentences
B. Performance Standards	By the end of the quarter, the learners are able to: 1. generate a simple pattern and describe the rule used. (NA) 2. complete number sentences to represent number properties and number facts. (NA)
C. Learning Competencies and Objectives	By the end of the quarter, the learners: 1. describe the rule used to generate a given simple pattern. 2. complete number sentences to represent number properties and number facts.
D. Content	Simple patterns Number sentence
E. Integration	Patterns in Nature

II. LEARNING RESOURCES
Manitoba Education and Training. (2017). Grade 4 mathematics: patterns and relations. ISBN: 978-0-7711-8041-5. https://www.edu.gov.mb.ca/k12/cur/math/support_gr4/patterns.pdf

III. TEACHING AND LEARNING PROCEDURE	NOTES TO TEACHERS
A. Activating Prior Knowledge DAY 1 1. Short Review Activity 1. Who's next? Instructions. Study the picture below and draw the next figures. <i>Sample Activity:</i>  Image Source: https://www.edu.gov.mb.ca/k12/cur/math/support_gr4/patterns.pdf	This section will serve as the application of learners' prior knowledge of the order and relationship of numbers to make connections in presenting patterns. Encourage students to make connections with numbers by presenting the pattern with

	Guide Questions: 1. What are the possible number of boxes that may follow? 2. How did you determine the number of boxes? Explain. Activity 2. Who's missing? Instructions. Complete the sequence by writing what is missing. <i>Sample Activity:</i> 1. 3, 6, 9, __, __, __ 2. 42, 40, 38, __, __, 32, __ 3. 1, 3, 5, 7, __, __, __ 4. A, B, A, B, __, __, __ 5. 10, 15, 20, __, __, __ DAY 3 Activity 3. Number Facts Check (Drill Activity) Flash Cards. Let learners determine the sum, difference, product, and quotient of two numbers. 2. Feedback (Optional)	numerical term positions. This can be done using the Think-Pair-Share strategy where students can work and share ideas. This section is a review before the discussion of the number sentence and number properties and facts. *Add more items if needed. The intention of Activity 3 is for learners to commit to their memory of the basic operations. Number facts are essential in building learners' conceptual understanding of number sentences. Also, a good memory of number facts builds learners' confidence in doing mathematics. The teacher may use physical flashcards or slide presentations.
B. Establishing Lesson Purpose	1. Lesson Purpose DAY 1 <i>For Sub-topic 1.</i> <i>Analysis of Activity 1.</i> 1. Can you write the number pattern that describes the picture above? 2. Is the pattern increasing or decreasing? Why? 3. Can you state the rule that describes the pattern?	This section is an elaboration on the part of the activity review given. To cognitively guide learners on stating the rule, you can use this phrase:

	<i>Analysis of Activity 2.</i> 1. State the rule that describes each pattern. 2. Which pattern is repeating? 2. Unlocking Content Vocabulary DAY 1 Pattern is defined as a sequence of repeating objects, shapes, or numbers. A pattern has a rule that tells us which objects belong to the pattern and which objects do not belong to the pattern. DAY 3 Number sentences are a combination of numbers and mathematical operations.	“We started at 2. Add 1 to the previous term to get the next number.”
C. Developing and Deepening Understanding	DAY 1-2 SUB-TOPIC 1: Rules in Generating Patterns 1. Explication After doing Activities 1 and 2 and their analyses, the teacher will discuss the following: Identifying and Extending Patterns: • Find what is changing in the patterns. • Check if that same pattern applies throughout the sequence to create the “rule”. • Use the rule to extend the pattern. Number Patterns • Increasing number patterns – patterns whose numbers are getting bigger. • Decreasing number patterns - patterns whose numbers are getting smaller. 2. Worked Example Example 1. Find the next 3 numbers in this pattern. 7, 10, 13, 16, __, __, __ Solution. The rule for the pattern is: “Add 3 to the previous term to get the next number.” So, the next three numbers are 19, 22, 25. Think: The numbers increase by 3 from left to	This section explains the rules in patterns. Examples are given with a step-by-step process of finding the unknown/ missing terms with a specific rule. Use arrows from the previous term going to the next term to make learners pay attention to

Example 2. What are the next three numbers in this pattern?

24, 20, 26, 12, __, __, __

Solution.

The rule for the pattern is: "Subtract 4 to the previous term to get the next number."

So, the next 3 numbers are: 8, 4, 0.

Think: The numbers decrease by 4 from left to right.

Example 3. What are the next 3 numbers in this pattern?

1, 2, 4, 8, __, __, __

Solution.

The rule for the pattern is: "Multiply 2 to the previous term to get the number."

So, the next 3 numbers are 16, 32, 64.

Think: Each number is twice the number to its left.

Example 4. What are the next 3 numbers in this pattern?

4 096, 2 048, 1 024, __, __, __

Solution.

Try dividing by 2: $4,096 \div 2 = 2,048$

The rule of the pattern is: "Divide 2 to the previous term to get the next number."

So, the next 3 numbers are 512, 256, 128.

Think: Each number to the right is half the number to the left.

Patterns in Tables

Example 5. Study the table below. What is the total cost of printing 6 t-shirts?

Number of t-shirts	Total cost of printing
3	₱150
4	₱200
5	₱250
6	?

Solution.

The rule for the pattern is: "Multiply 50 to get to the next number."

Answer: It will cost ₱300 to print on 6 t-shirts.

the order of the terms and how the rule works between the previous term and the next term.

Other examples are given in this section, where data are presented using a table.

3. Lesson Activity

(see Worksheet Activity 1)

A. Find the next three numbers in the pattern. Describe the rule for the pattern.

1.) 7, 11, 15, 19, __, __, __

The rule for the pattern is: _____

The next three numbers are: _____.

2.) 1, 3, 9, 27, __, __, __

The rule for the pattern is: _____

The next three numbers are: _____.

3.) 25, 23, 21, 19, __, __, __

The rule for the pattern is: _____

The next three numbers are: _____.

4.) 50, 46, 42, 38, __, __, __

The rule for the pattern is: _____

The next three numbers are: _____.

5.) 1, 4, 16, 64, __, __, __

The rule for the pattern is: _____

The next three numbers are: _____.

B. Answer the following:

B.1. Look at the numbers provided in the table.

spiders	1	2	3		5	6
legs			24	32		48

1) What number do you think is missing from the top row? Why?

2) What numbers are missing at the bottom row? Why?

3) Complete the table.

4) Describe the pattern.

Answer Key:

1.) Rule: Add 4

The next three terms are: 23, 27, 31.

2.) Rule: Multiply 3

The next three terms are: 81, 243, 729.

3.) Rule: Subtract 2

The next three terms are: 17, 15, 13.

4.) Rule: Subtract 4

The next three terms are: 34, 30, 26.

5.) Rule: Multiply 4

The next three terms are: 256, 1024, 4096.

Answer Key:

B.1

1.) 4

2.) 8, 16, 40

3.)

1	2	3	4	5	6
8	16	24	32	40	48

4.) The pattern follows the rule by adding 8.

B.2

B.2. Mark made a chart for this pattern.



Figure 1



Figure 2

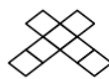


Figure 3

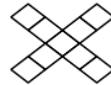


Figure 4

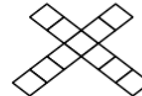


Figure 5

Image Source: https://www.edu.gov.mb.ca/k12/cur/math/support_gr4/patterns.pdf

- 1) What should be in Figure 6? Draw the figure.
- 2) Describe the pattern using a number pattern.

DAY 3

SUB-TOPIC 2: Finding the Missing Numbers

1. Explicitation

After checking the prior knowledge of learners on number facts (see Activity 3), discuss the following:

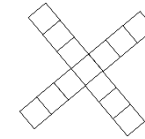
Addition and Subtraction are opposite operations.

Addition Sentence	Subtraction Sentence
$12 + 15 = 27$ $\underbrace{12 \quad 15}$ addends $\searrow$ sum	$27 - 12 = 15$ $\swarrow$ minuend $\downarrow$ subtrahend $\searrow$ difference

Multiplication and Division are opposite operations.

Multiplication Sentence	Division Sentence
$8 \times 9 = 72$ $\underbrace{8 \quad 9}$ factors $\searrow$ product	$72 \div 9 = 8$ $\swarrow$ dividend $\downarrow$ divisor $\searrow$ quotient

1.)



2.) 3, 5, 7, 9, 11, 13, ...

In this section, help the learners cognitively by asking metacognitive questions. As a teacher, you also model metacognition.

Example (in example 1):

- What operation is indicated?
- What is missing?

*Let learners do the checking:

Example: $20 + 8 = 28$ (true)

You can use a box for the missing value.

In example 3, you can introduce the letter N to solve the number sentence. This is also one way to bridge arithmetic thinking and algebraic thinking.

N could be thought of as “**No value yet**”. This will help learners to find the value of N.

2. Worked Example

Example 1. Find the missing value in the number sentence:

$$20 + \underline{\quad} = 28$$

Solution.

To get the missing addend: $28 - 20 = \underline{\quad}$

Answer: $28 - 20 = \mathbf{8^*}$

Example 2. Problem Solving.

The total cost of buying a ballpen and a notebook is ₱43. If a ballpen costs ₱15, how much is a notebook?

Solution.

Number Sentence: cost of ballpen + cost of notebook = 43

$$\begin{array}{r} \text{₱15} \quad + \quad \underline{\hspace{2cm}} \quad = 43 \\ \quad \quad \quad - \end{array}$$

To get the cost of a notebook: ₱43 - ₱15 =

Answer: ₱43 - ₱15 = ₱28

The cost of a notebook is ₱28.

Example 3. Find the value of N in the number sentence:

$$18 - N = 5$$

Solution.

To get the missing subtrahend: $18 - 5 = N$

Answer: $18 - 5 = \mathbf{13}$, therefore **N = 13.**

Example 4. Find the value of N in the number sentence:

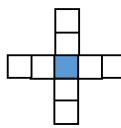
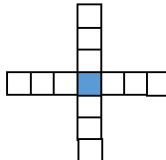
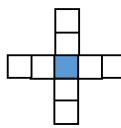
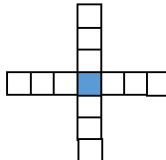
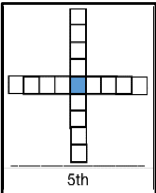
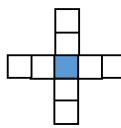
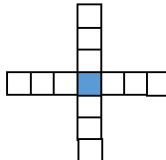
$$N - 37 = 68$$

Solution.

To get the missing minuend: $37 + 68 = N$

Answer: $37 + 68 = \mathbf{105}$, therefore **N = 105.**

D. Making Generalizations	1. Learners' Takeaways DAY 1-4 Per sub-topic, ask students what three things they have learned. Let them write it in their notebook and ask one to two students to share it with the class. <i>Homework.</i> Look at your surroundings, can you see patterns? Make a photo collage of the patterns. 2. Reflection on Learning DAY 1-4 Let the students complete the sentence. The mathematical skill/s that I discover within myself while doing the activities that I want to improve most is/are _____ because _____.	Homework is optional. The teacher can use patterns in nature as a generalizing activity for values integration (appreciation of patterns)
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IV. EVALUATING LEARNING: FORMATIVE ASSESSMENT AND TEACHER’S REFLECTION					NOTES TO TEACHERS																				
A. Evaluating Learning	DAY 4 1. Formative Assessment I. Draw the next term in the pattern. 1. <table><tr><td></td><td></td><td></td><td></td><td> </td></tr><tr><td>1st</td><td>2nd</td><td>3rd</td><td>4th</td><td>5th</td></tr></table> 2. <table><tr><td></td><td></td><td></td><td></td><td> </td></tr><tr><td>1st</td><td>2nd</td><td>3rd</td><td>4th</td><td>5th</td></tr></table>									1st	2nd	3rd	4th	5th						1st	2nd	3rd	4th	5th	Answers: I. 1.  5th 2.  5th
																									
1st	2nd	3rd	4th	5th																					
																									
1st	2nd	3rd	4th	5th																					

	II. Write the missing numbers that will complete the pattern. 6, 10, 14, 18, ____, 26, ____ 10, 20, 30, ____, 50, 60, ____ 8, 13, 18, ____, 28, 33, ____ 8, 16, 24, 32, ____, 48, ____, 64 32, 16, 8, ____, ____, 1 III. Find the value of N to make the number sentence true. $35 + N = 51$ $63 - N = 28$ $12 \times N = 96$ $144 \div N = 6$ $N - 67 = 42$ $49 \div N = 12 - 5$ $56 + 23 = 132 - N$ $N \times 8 = 34 + 22$ $8 \times N = 16 \times 4$ $87 - N = 7 \times 5$ 2. Homework (Optional)			II. 22, 30 40, 70 23, 38 40, 56 4, 2 III. 16 35 8 24 109 7 53 7 8 52
B. Teacher's Remarks	<i>Note observations on any of the following areas:</i>	Effective Practices	Problems Encountered	The teacher may take note of some observations related to the effective practices and problems encountered after utilizing the different strategies, materials used, learner engagement, and other related stuff. Teachers may also suggest ways to improve the different activities explored/lesson exemplar.
	strategies explored			
	materials used			
	learner engagement/interaction			
	others			

C. Teacher's Reflection	<i>Reflection guide or prompt can be on:</i> • <u>principles behind the teaching</u> <i>What principles and beliefs informed my lesson?</i> <i>Why did I teach the lesson the way I did?</i> • <u>students</u> <i>What roles did my students play in my lesson?</i> <i>What did my students learn? How did they learn?</i> • <u>ways forward</u> <i>What could I have done differently?</i> <i>What can I explore in the next lesson?</i>	Teacher's reflection in every lesson conducted/facilitated is essential and necessary to improve practice. You may also consider this as an input for the LAC/Collab sessions.
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