4

DepED
DEPARTMENT OF EDUCATION

Lesson Exemplar for Mathematics

Quarter 2
Lesson
1

Lesson Exemplar for Mathematics Grade 4
Quarter 2: Lesson 1 (Week 1)
SY 2024-2025

Development Team

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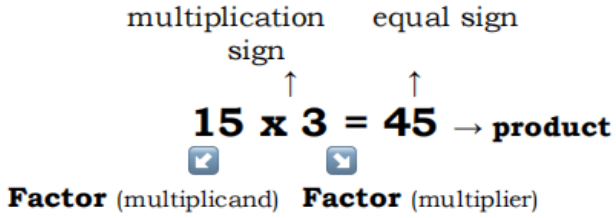
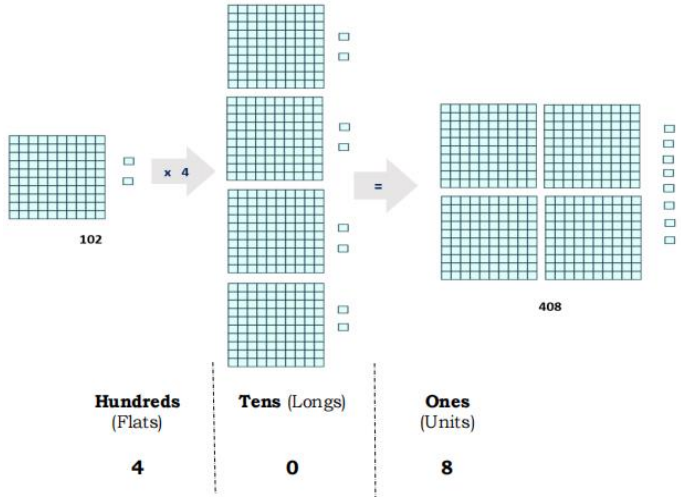
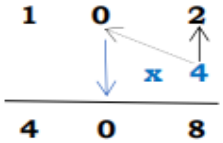
MATHEMATICS / QUARTER 2 / GRADE 4

I. CURRICULUM CONTENT, STANDARDS, AND LESSON COMPETENCIES	
A. Content Standards	The learners should have knowledge and understanding of… • Multiplication of whole numbers with products up to 1 000 000, division of up to 4-digit numbers by up to 2-digit numbers, and the MDAS rules.
B. Performance Standards	By the end of the quarter, the learners are able to… • perform multiplication of whole numbers with products up to 1 000 000. • perform division of up to 4-digit numbers by up to 2-digit numbers. • perform different operations by applying the MDAS rules.
C. Learning Competencies and Objectives	1. Multiplying numbers with and without regrouping: a. 3- to 4-digit numbers by a 1-digit number, and b. 2- to 3-digit numbers by 2-digit numbers, with products up to 1 000 000. 2. Estimate the result of multiplying two numbers where the product is less than 1 000 000.
D. Content	A. Multiplying Whole Numbers B. Estimating Products
E. Integration	Principles of Values Education/Christian Living Education

II. LEARNING RESOURCES
Bennett, L. B. A. (2013). Mathematics for Elementary Teachers: A Conceptual Approach. McGraw-Hill. Book Creator. (2011). Reflect 3-2-1. *Book Creator.* https://bookcreator.com/graphic_organizers/reflect-3-2-1/ Math Songs by NUMBEROCK. (2018, January 25). Long Multiplication Song | Multi-Digit Multiplication [Video]. *YouTube.* https://www.youtube.com/watch?v=9dYXfZZsbzc Other Learning Resources needed for this lesson: Whiteboard or Show-Me-Board, marker and eraser, worksheets and math blocks

III. TEACHING AND LEARNING PROCEDURE		NOTES TO TEACHERS
A. Activating Prior Knowledge	**DAY 1** **1. Short Review** Instruction: Write the letter corresponding to the product on the line to complete the quotation. 1) 5 x 1 = ____ N 2) 3 x 6 = ____ D 3) 8 x 7 = ____ E 4) 4 x 9 = ____ F 5) 7 x 7 = ____ L 6) 3 x 4 = ____ T 7) 8 x 2 = ____ O "Keep putting out good. It will come back to you ___ ___ ___ ___ ___ ___ ___ in unexpected ways." -Farrah Gray *12 56 5 36 16 49 18* • What word were you able to form? • What is meant by this word? **2. Feedback (Optional)**	This lesson is good for two days. For this activity, the students need to complete the quotation. The teacher will elaborate on the students' answers.
B. Establishing Lesson Purpose	**1. Lesson Purpose** Problem Opener: A civic organization would like to help a school needing chairs for their pupils. Each of the 83 member volunteers will donate 35 chairs. 1) How many chairs will be donated in all? 2) How will you get the total number of donated chairs? 3) From the responses, which will give you the answer easily? Why? 4) What is the answer to the problem? Today we will lean about strategies in multiplying numbers.	Possible answers: a) Repeated addition b) Skip counting c) Multiplication

	2. Unlocking Content Vocabulary  	Provide other examples if there is difficulty identifying the different parts.
C. Developing and Deepening Understanding	**DAY 1** **SUB-TOPIC 1: Multiplying 3 to 4-Digit by 1-Digit Numbers Without Regrouping** **3. Explicitation** Find the product of 102 × 4 using pictorial representation  Find the product of 102 × 4 using expanded form a) Ask the learner express 102 in expanded form. 102 × 4 = (100 + 0 + 2) × 4 b) By distributive property we can have, 102 × 4 = (100 × 4) + (0 × 4) + (2 × 4) = 400 + 0 + 8 = 408 **So, 102 × 4 = 408**	A PowerPoint presentation maybe used for the pictorial presentation. Animation may help in emphasizing important concepts here, like repeated addition and the product. If PPT is not possible, improvised materials will do. Guide learners in understanding the concept of multiplication using base ten blocks. You may ask the following questions or task. 1. Form the numeral 102 using base ten blocks. 2. Make 4 copies of the blocks you formed in 1. 3. Rearrange the blocks so that all flats and ones are altogether. 4. Write the numeral that represents the blocks in 3. Tell the students: 408 is the product of 102 x 4.

	Find the product of 102 × 4 using standard form.  Use an arrow to guide the learners in doing the multiplication in standard form. **4. Worked Example** Example 1: Find the product of 4 132 × 2 using expanded form. a) Ask the learner to express 4 132 in expanded form. 4 132 × 2 = (4 000 + 100 + 30 + 2) × 2 b) By distributive property we can have, 4 132 × 2 = (4 000 × 2) + (100 × 2) + (30 × 2) + (2 × 2) = 8 000 + 200 + 60 + 4 = 8 264 4 132 × 2 = **8 264** Example 2: Find the product of 3 210 × 3 using standard form.  Use of an arrow may help learners in understanding the multiplication in the standard form of multiplying whole numbers. **5. Lesson Activity** Find the product of the following numbers using the given method. 1. 332 × 2 (sketch base ten blocks) 2. 543 × 6 (use expanded form) 3. 2 011 × 4 (use the standard form) 4. 1 443 × 2 (use the standard form) 5. 5 042 × 8 (use the standard form)	In expanded form, check first whether the learners know how to write or express a number in expanded form. It is important to emphasize here the role of distributive property and the place value. For the standard form, use their knowledge of pictorial and expanded form to understand the process. Let them realize that the standard form, which will be the method that they need to become familiar with is best explained by the pictorial and the expanded form. (Rephrase the idea according to the level of reasoning and thinking of your learners). The pictorial representation and the expanded form contribute to the conceptual understanding of the process of multiplication of whole numbers.

DAY 2

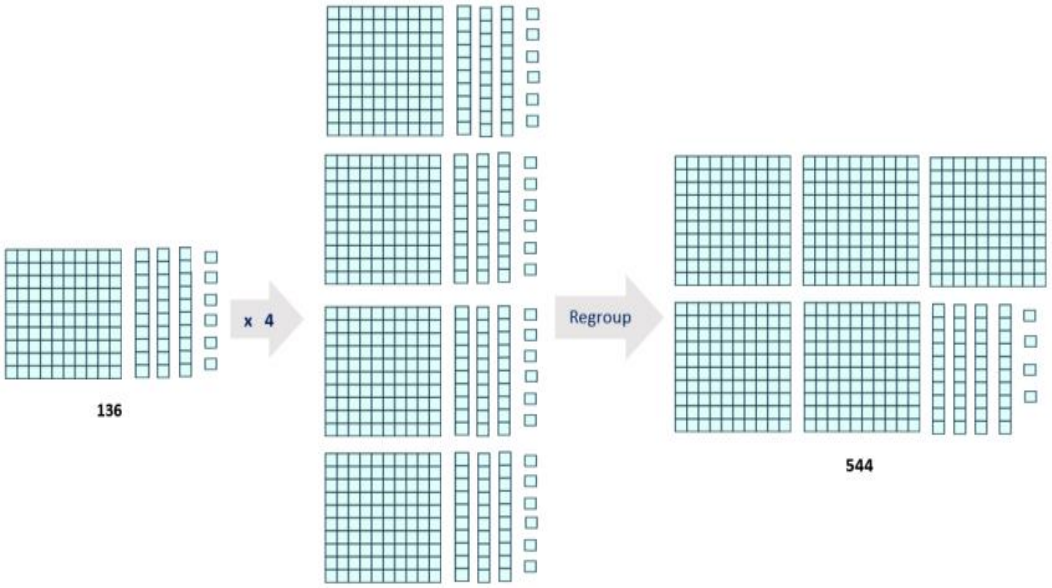
SUB-TOPIC 2: Multiplying 3- to 4-Digit by 1-Digit Number with Regrouping

1. Explicitation

Let the students answer the Worksheet No. 1

2. Worked Example

Use base ten blocks to represent the product of 136 × 4.



Find the product of 136 × 4 using expanded form

a) Ask the learner express 136 in expanded form.
136 × 4 = (100 + 30 + 6) × 4

b) By distributive property we can have,
136 × 4 = (100 × 4) + (30 × 4) + (6 × 4)
= 400 + 120 + 24
= 400 + 100 + 20 + 24
= 500 + 44
So, 136 × 4 = 544

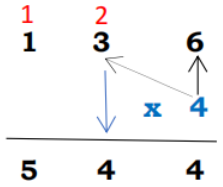
A PowerPoint presentation maybe used for the pictorial presentation. Animation may help in emphasizing important concepts here, like repeated addition and the product. If PPT is not possible, improvised materials will do. Guide learners in understanding the concept of multiplication using base ten blocks.

Suggested task:

1. Form the numeral 136 using base ten blocks.
2. Make 4 copies of the blocks you formed in #1.
2. 3. The pieces will be regrouped:
   - 20 units/ones will be replaced by 2 longs, leaving 4 units/ones
   - 10 longs/tens may be replaced by 1 flat, leaving 2 longs
   - Finally, we have 5 flats (5
   - hundreds), 4 longs (4 tens), and 4 units (4 ones)

Note: During the regrouping process, you may encircle the blocks that were regrouped to guide the students on the final form of the blocks.

Find the product of 136 × 4 using standard form



Use an arrow to guide the learners in doing the multiplication in standard form.

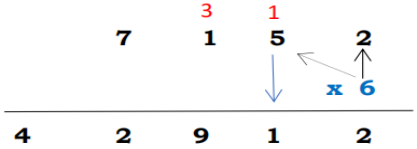
7 152 × 6 →

7 000 + 100 + 50 + 2
× 6

Solution:

7 152 × 6 = (7 000 × 6) + (100 × 6) + (50 × 6) + (2 × 6)
= 42 000 + 600 + 300 + 12
= **42 912**

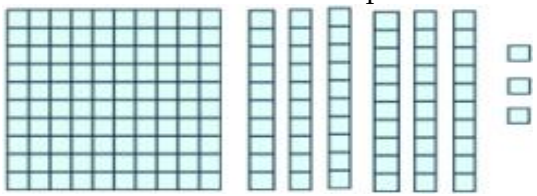
Find the product of 7 152 × 6 using standard form



Use an arrow to guide the learners in doing the multiplication in standard form.

3. Lesson Activity

A. Sketch a new set of base pieces to multiply 163 by 3 then show regrouping.



B. Find the product of the following numbers using your preferred strategy.

1. 372 × 8
2. 2 019 × 9
3. 7 865 × 6
4. 796 × 5
5. 1 354 × 7

Then, write the numeral that represents the blocks that you have in number 3.

Tell the students: 544 is the answer to the problem, 136 x 4.

Again, for the standard form, use their knowledge of pictorial and expanded form to understand the process. Let them realize that the standard form is best explained by the pictorial and the expanded form. (Rephrase the idea according to the level of reasoning and thinking of your learners).

See Worksheet No. 2.

SUB-TOPIC 3: Multiplying 2- to 3-Digit by 2-Digit Number Without Regrouping

1. Explicitation

Let the students answer.

How will you multiply 2- to 3-Digit by 2-Digit Number?

2. Worked Example

a. Multiply 32 by 21 using expanded form.

Solution:

32 x 21 →

$$\begin{array}{r} 30 + 2 \\ \times\ 20 + 1 \\ \hline 30 + 2 \\ 600 + 40 \\ \hline 60070 + 2 = 672 \end{array}$$

b. Multiply 301 by 23 using standard form

Solution:

301 x 23 →

$$\begin{array}{r} 301 \\ \times\ 23 \\ \hline 903 \text{ partial product} \\ +\ 602 \text{ partial product} \\ \hline 6923 \end{array}$$

c. Find the product using standard form

Solution:

112 x 42 →

$$\begin{array}{r} 112 \\ \times\ 42 \\ \hline 224 \\ +\ 448 \\ \hline 4704 \end{array}$$

3. Lesson Activity

A. Find the error in this multiplication problem. Explain your answer.

$\begin{array}{r} {\scriptstyle 1} \\ 34 \\ \times\ 24 \\ \hline 76 \end{array}$	Explanation:

This lesson is good for two days.

The teacher will ask the pupils to solve the problem using Show Me Board or White board.

Note: The video may be played before or after the discussion.

Guide Questions for pupils on watching the video:

1. What are the steps in the multiplication process?
2. How many partial products are there when multiplying 2 to 3-digit by 2-digit numbers?

Watch this video: https://www.youtube.com/watch?v=9dYXfZZsbzc

See Worksheet No. 3.

B. Find the product using the standard form.

1. 32 × 32
2. 53 × 38
3. 134 × 22
4. 203 × 31
5. 220 × 42

SUB-TOPIC 4: Multiplying 2- to 3-Digits by 2-Digit Number With Regrouping

1. Explicitation

Let the students answer.

How will you multiply 2- to 3-Digit by 2-Digit Number?

2. Worked Example

a. Multiply 57 by 36 using standard form.

Solution:

```
              2
              4
57 x 36 →    57
        x    36
          1 342
        +   171
           2052
```

b. Multiply 309 by 54 using standard form.

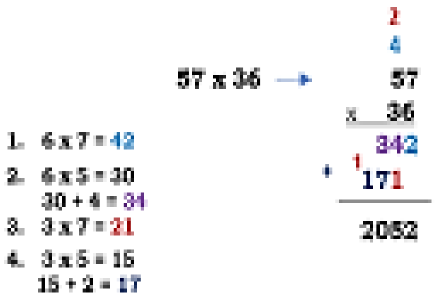
Solution:

```
                  4
                  3
309 x 54 →      309
            x    54
               1236
          +    1545
              16686
```

3. Lesson Activity

Find the product of the following numbers. Show your solutions.

1. 87 × 35 =
2. 97 × 67 =
3. 756 × 47 =
4. 897 × 53 =
5. 208 × 65 =



In implementing this example, students must be guided properly. Assess the earner's readiness to handle this kind of problem. This should be done step by step; their previous experience may greatly contribute to their success in understanding the process. As shown above you may use color coding and details of getting partial products.

The teacher will provide questions that will lead to the answer. This will guide the students in identifying the pattern.

SUB-TOPIC 5: Multiplying by 10,100, 1 000 with products up to 1 000 000

1. Explicitation

A. Study the multiplication by 10 and 100 and describe the pattern.

365 × 10 = 3 650

What is the pattern in multiplying by 10 or 100?

- To multiply by10, just annex or attach a zero to the other factor.
- To multiply by 100, just annex or attach 2 zeros to the other factor.

B. Study the product of a number multiplied by 1 000.

1) 568 × 1 000 = (568 × 10) ×s 100
= 5 680 × 100
= 568 000

2) 340 × 1 000 = 340 000

Can we use the pattern on multiplying by 10 and 100 in multiplying by 1 000?

- To multiply by 1 000, just annex or attach 3 zeroes to the other factor.

Show-me-Board Activity: (students write answer on their own writing board)

2. Worked Example

Find the product using the pattern.

1) 403 × 10
Solution: 403 × 10 = 4 030 (annex 1 zero to 403)
2) 68 × 100
Solution: 68 ×100 = 6 800 (annex 2 zeros to 68)
3) 250 × 1 000
Solution: 250 × 1 000 = 250 000 (annex 3 zeros to 250)

This is good for a one-day lesson. Review Rounding Off and include the term approximately equal to.

3. Lesson Activity

Fill in the missing number.

1. 6 711 × 10 = _____
2. 582 × _____ = 58 200
3. _____ x 1 000 = 350 000
4. 300 × 1 000 = _____
5. 4 019 × 100 = _____

The teacher will ask volunteers to solve the problem on the board. The teacher will provide additional activity if necessary.

SUB-TOPIC 6: Estimating Products

1. Explicitation

What is an estimated value? *To estimate the product of two numbers, we may round off each number to its highest place value.*

2. Worked Example

a. Estimate the product of 206 x 191

Solution:

Multiplicand	Round to the nearest hundreds	Multiplier	Round to the nearest hundreds
206	200	191	200
200 x 200 = 40,000			

Therefore, 206 x 191 is approximately equal to 40,000.

b. Estimate the product 57 x 3,822.

Solution:

Multiplicand	Round to the nearest hundreds	Multiplier	Round to the nearest hundreds
57	60	3,822	4,000
60 x 4,000 = 240,000			

Therefore, 57 x 3,822 is approximately equal to 240,000.

c. Estimate the product of 6,793 x 45.

Solution:

Round off 6,793 to the nearest thousands and 45 to the nearest tens.
Then, multiply.

Multiplicand	Round to the nearest hundreds	Multiplier	Round to the nearest hundreds
6,793	7,000	45	50
7,000 x 50 = 350,000			

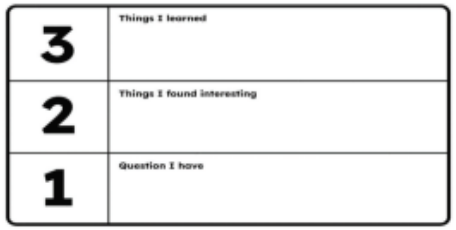
Therefore, 6,793 x 45 is approximately equal to 350,000.

3. Lesson Activity

A. Fill in the missing number.

1. 6 711 × 10 = _____
2. 582 × _____ = 58 200
3. _____ × 1 000 = 350 000
4. 300 × 1 000 = _____
5. 4 019 × 100 = _____

See Worksheet No. 5.

	B. Estimate the product. 1. 47 × 88 3. 236× 492 2. 9 516 × 7 4. 506 × 39 C. Approximate the second factor so that the product will fall within the given values in the parentheses. 1) 32 × _____ (800, 850) 2) 103 × _____ (2 800, 2 900) D. Solve the problem. The Grade 4 pupils and teachers will go on a field trip. They hired 5 E-jeepneys for the field trip. Each of the 5 E-jeepneys can carry 28 people. About how many people are going on the field trip?	
D. Making Generalizations	**DAY 4** **1. Learners' Takeaways** • Which multiplication strategy do you find easy to perform? • In what situations can you use multiplication? estimation? • What values did you learn from the lesson? **2. Reflection on Learning** Perform the task as presented in the illustration. **Reflect: 3-2-1**  	Put emphasis on the question given in activating prior knowledge activity.

IV. EVALUATING LEARNING: FORMATIVE ASSESSMENT AND TEACHER'S REFLECTION		**NOTES TO TEACHERS**
A. Evaluating Learning	**DAY 5** **1. Formative Assessment** Find the product: Estimate the product. 1. 816 × 7 6. 5 824 × 8 2. 4 092 × 6 7. 466 × 75 3. 29 × 65 8. 999 × 263 4. 789 × 54 9. 2 008 × 914 5. 36 × 701 10. 3 217 × 38 **2. Homework (Optional)**	Teachers may encourage learners to have a quiz notebook to monitor learners' academic progress. The quiz notebook may also serve as homework notebook.

<table>
<tr><td rowspan="5">B. Teacher's Remarks</td><td>Note observations on any of the following areas:</td><td>Effective Practices</td><td>Problems Encountered</td><td rowspan="5">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.</td></tr>
<tr><td>strategies explored</td><td></td><td></td></tr>
<tr><td>materials used</td><td></td><td></td></tr>
<tr><td>learner engagement/ interaction</td><td></td><td></td></tr>
<tr><td>others</td><td></td><td></td></tr>
<tr><td>C. Teacher's Reflection</td><td colspan="3">Reflection guide or prompt can be on:
• <u>principles behind the teaching</u>
What principles and beliefs informed my lesson?
Why did I teach the lesson the way I did?

• <u>students</u>
What roles did my students play in my lesson?
What did my students learn? How did they learn?
• <u>ways forward</u>
What could I have done differently?
What can I explore in the next lesson?</td><td>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.</td></tr>
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