St. Joseph's Institute, Inc.
Candon City, Ilocos Sur

GRADE SCHOOL DEPARTMENT
School Year 2021-2022

Quarter 1
SELF-LEARNING MODULE 4
1 week

MATHEMATICS 5
Providing Alternative Uninterrupted Learning Instruction in the New Normal Education

PAULINE

Series of Rules

_____
Learner's Name

_____
Grade Level and Section

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Writer/Teacher

CURRICULUM CONNECTIONS

Life Performance Outcome (LPO):	**LPO 2: Courageous, Resourceful EXPLORERS & PROBLEM SOLVERS** I am a courageous, resourceful explorer and problem solver, demonstrating my creativity and charism.
Program Outcome (PO):	**PO1**: Accurately apply fundamental mathematical concepts, skills, processes, and tools to address appropriate real-life situations and derive workable solutions to them.
Essential Performance Outcome (EPO):	Take the risk of experimenting with combinations of ideas, data, materials and possibilities to derive and test potential solutions to existing problems. (LPO 2, PO1)
Content:	Taking the risks of solving problems involving *series of operations*
Performance Standards:	Each Paulinian takes the risk of solving problems involving *series of operations* and test potential solutions to it.
Learning Outcomes/MELC:	**Acquisition:** State the process of solving problems involving series of operations. (Added Competency) **Make Meaning:** Discuss a certain solution and verify if it matches the given answer. (Added Competency) **Transfer**: *Performs a series of more than two operations on whole numbers applying Parenthesis, Multiplication, Division, Addition, Subtraction (PMDAS) or Grouping, Multiplication, Division, Addition, Subtraction (GMDAS) correctly.* Takes the risk of solving problems involving series of operations and test potential solutions to it. (Added Competency)

INTRODUCTION:

This self-learning module is designed for Grade 5 learners to independently learn about Series of Operations using various strategies.

Carefully read and follow instructions. Take time to read and understand all discussions. Answer all tasks and comply with all the requirements.

Assess your skills before the discussion by answering the pre-assessment part. Sharpen your skills by answering the enrichment parts. It also has its online part during the synchronous online discussion.

(EXPLORE) PRE-ASSESSMENT:
Perform the following series of operations using the PEMDAS Rule

1. $(2+2)^2 + 8 =$
2. $9 \div 3 + 12 - 9 =$
3. $25 \times 2 \div 5 - 10 =$
4. $35 \div 7 \times 2 + (2 + 8) =$
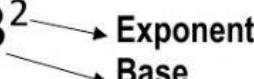5. $2^2 - 2 \times 2 + 100 =$

(FIRM UP) DISCUSSION
Review of Exponents

$5^2 = 5 \times 5 \quad = 25 \qquad 4^2 = 16$

$7^2 = 7 \times 7 \quad = 49 \qquad 10^2 = 100$

3^2 ⟶ Exponent
⟶ Base

Exponents tell how many times we use the base as factors.

Answer the given:

1. $8^2 =$
2. $11^2 =$
3. $9^2 =$
4. $12^2 =$
5. $10^2 =$

The P. E. M. or D. A. or S. (PEMDAS) RULE
It is a guide of solving equations with multiple operations

Example: $25 \div (2 + 3) + 5^2$ In this equation, there are series of operations used.
What operation shall be performed first? Second? Third and so on…
We are going to use the PEMDAS Rule.
Start with **P (Parenthesis)**. Answer all equations inside the parenthesis.

$25 \div 5 + 5^2$ Next is **E (Exponents)**. Solve all equations with exponents.
$25 \div 5 + 25$ Next is **M or D (Multiplication or Division)** depending on what comes first.
$5 + 25$ Next is **A or S (Addition or Subtraction)** depending on what comes first.
30   >>>This is now the answer.

Another example:

$(16 + 4) \div 10 \times 5^2 + 100 - 45$	Parenthesis
$20 \quad \div 10 \times 5^2 + 100 - 45$	Exponent
$20 \div 10 \times 25 + 100 - 45$	Multiplication or Division but in the given, Division comes first. So divide.
$2 \times 25 + 100 - 45$	followed by multiplication
$50 + 100 - 45$	Add or subtract. In the equation, Addition comes first.
$150 - 45$	then subtract.
105	This is now the answer.

Note: Not necessary to use all the process. It depends on what operations are used in the equations.

Try These! Write the correct answer.

1. $25 + (3 + 12) - 20 =$ _____

2. $10^2 - 50 + (2+2) =$ _____

3. $100 - (12+6) \times 3 =$ _____

4. $84 + (20 + 50) \times 1^3 =$ _____

5. $10^2 - 100 =$ _____

(DEEPEN) ENRICHMENT ACTIVITIES
Assess if the solution is correct. Encircle the error of the solutions then write the correct answer inside the box. If there is no error, encircle NO ERROR.

1. $34 + 5 \times 2^2 - 10 + 8$
   $34 + 5 \times 4 - 10 + 8$
   $34 + 9 - 10 + 8$
   52

   [ ] | NO ERROR |

2. $100 - 10^2 + (38 + 12)$
   $100 - 100 + (38 + 12)$
   $100 - 100 + 50$
   $200 + 50$
   50

   [ ] | NO ERROR |

3. $20 - 24 \div 8 \times 4 + 6$
   $20 - 3 \times 4 + 6$
   $20 - 7 + 6$
   14

   [ ] | NO ERROR |

VALUES INTEGRATION:
Life Lesson: What is the sense of following rules and regulations?
_____
_____
_____
_____

POST-ASSESSMENT:
Answer the following equations:

1. $27 \div 3 + (23 + 7) \div 10 =$

2. $100 + (12 + 3)^2 =$

3. $90 \times 2 \div 9 + 5 - 10 =$

4. $160 \div (7 + 3) + 9^2 =$

5. $50 \times 3 \div 10 + 25 =$

Key Point to Remember: PEMDAS is a series of guide to answer equations with more than 1 operation