*St. Joseph's Institute, Inc.*

Candon City, Ilocos Sur

**GRADE SCHOOL DEPARTMENT**
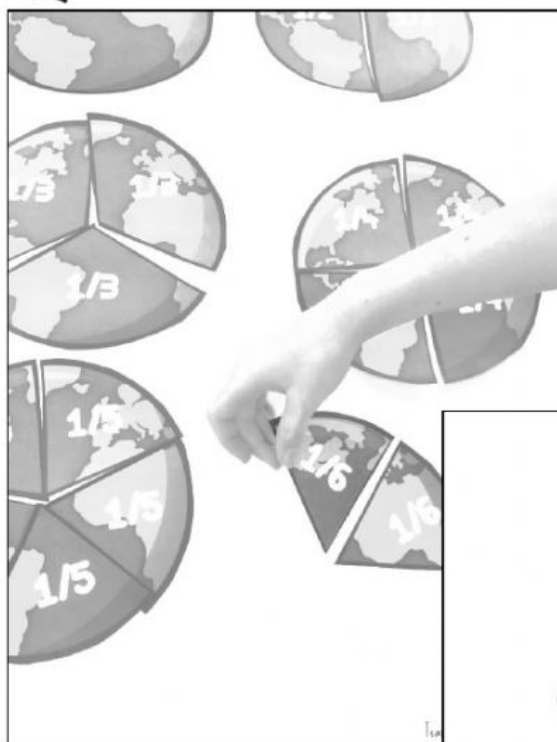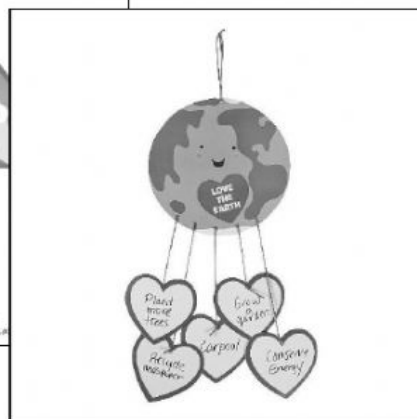School Year 2021-2022

## Quarter 2
# SELF-LEARNING MODULE 1
2 weeks

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



*Multiply the Ways!*

*Divide the Roles!*

_____
*Learner's Name*

_____
*Grade Level and Section*

MR. ROLAND TOQUERO
*Writer/Teacher*

## CURRICULUM CONNECTIONS

| Life Performance Outcome (LPO): | **LPO 3: Credible, Responsive COMMUNICATORS and TEAM PLAYERS**<br><br>As a Christ-centered Paulinian, I am a credible, responsive communicator and team player harmoniously building communities through active collaboration |
|---|---|
| **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):** | EPO6: Seek feedback from informed individuals on the accuracy, clarity, and truthfulness of their mathematical reasoning; and then revise and restate until they are well understood. (LPO3) |
| **Content:** | The new critical thinking and problem solving abilities of:<br><br>>*multiplying and dividing fractions*<br><br>>*solving routine and non-routine problems involving multiplication and/or division of fractions* as a result of self-initiated projects and learning experiences.<br>• |
| **Performance Standards:** | Each Paulinian seeks feedback from informed individuals on the accuracy, clarity, and truthfulness of their mathematical reasoning in multiplying and dividing fractions; and then revise and restate until they are well understood. |
| **Learning Outcomes/MELC:** | **Acquisition:**<br>Review the process of addition and subtraction of fractions through examples (Added Competency)<br><br>**Make Meaning:**<br><br>Analyze and look for the errors of a certain solution that make it incorrect. (Added Competency)<br><br>**Transfer:**<br><br>*Multiplies simple fractions and a whole number and another fraction (M5NS-Ig-90.1)*<br><br>*Divides simple fractions and mixed numbers (M5NS-Ii-95)*<br><br>*Solves routine and non-routine problems involving division without and with any of the other operations of fractions and whole numbers using appropriate problem solving strategies and tools. (M5NS-Ij-97.1)*<br><br>*Seeks feedback from informed individuals on the accuracy, clarity, and truthfulness of their mathematical reasoning in multiplying and dividing fractions; and then revise and restate until they are well understood. (Added Competency)* |

## INTRODUCTION:

This self-learning module is designed for Grade 5 learners to independently learn about multiplication and division of fractions and its sub-topics.

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.

**SKILLS ASSESSMENT:**
Rate your skill before the discussion:

| 5- Advanced | 4-Proficient | 3-Approaching Proficiency | 2-Developing | 1-Beginning |

| | | Self-Rating |
|---|---|---|
| 1 | I can multiply proper fractions | |
| 2 | I can multiply whole number by a proper fraction | |
| 3 | I can divide proper fractions | |
| 4 | I can divide proper fractions by a whole number or vice versa | |
| | **AVERAGE RATING (Add all the ratings divided by 4)** | |

## (EXPLORE) PRE-ASSESSMENT:
Solve the following problems. Simplify your answer.

1. $\dfrac{4}{5} \times \dfrac{3}{5} =$

2. $\dfrac{2}{3} \times 2 =$

3. $\dfrac{3}{9} \div \dfrac{2}{3} =$

4. $\dfrac{5}{7} \div \dfrac{1}{3} =$

## (FIRM UP) DISCUSSION:
**Independent Learning Experience**



*In St. Joseph's Institute, Inc., ¾ of the students belong to Earth Savers Club. Among the members of Earth Savers Club, ½ of them went for a coastal cleaning. What fraction of the students went for coastal cleaning?*

**?** What process shall be used to find the **fraction of students who went for coastal cleaning?**

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MULTIPLICATION
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How to multiply fractions?
To multiply fractions, simplify first the fractions vertically and diagonally.
Then, multiply both numerators and both denominators.

$$\frac{3}{4} \times \frac{1}{2} =$$

Let us check if the fractions are reduced to lowest terms.
Let us start simplifying vertically.

$$\left(\frac{3}{4}\right) \times \left(\frac{1}{2}\right) =$$

Are ¾ and ½ reduced to the lowest term? _____
Yes. These are reduced to the lowest term.

$$\frac{3}{4} \times \frac{1}{2} =$$

Is 3/2 reduced to the lowest term? ____
How about 1/4? ____

If the fractions of the equations have been reduced vertically and diagonally to the lowest term, then let us proceed to the next step which is to <u>multiply both numerators and both denominators.</u>

$$\frac{3}{4} \times \frac{1}{2} = \frac{3 \times 1}{4 \times 2} = \frac{3}{8}$$   >>> This is now the answer.

In our given problem, the fraction of students who went for coastal cleaning is 3/8.

By using same method, answer the given equation

$$\frac{3}{9} \times \frac{8}{10} =$$

? What if the given fraction will be multiplied by a **whole number?**

$$\frac{6}{10} \times 8 =$$    >>>Note: All whole numbers can be changed to a fraction
without changing the value of the fraction.
Place over 1 or denominator of 1.

$$\frac{6}{10} \times \frac{8}{1} =$$    >>> Apply now the process like what is stated above.

$$\frac{3}{5} \times \frac{8}{1} = \boxed{\frac{24}{5}}$$

**(DEEPEN)**
Find the product:

$$8 \times \frac{6}{10} =$$

$$\frac{6}{9} \times 12 =$$

4

## DIVISION

The process of dividing fractions is the same as multiplication. There is a process first to do before we do multiplication. That is to **flip the divisor** (second fraction written).

Example:

$$\frac{3}{9} \div \frac{8}{10} = \quad\longrightarrow\quad \frac{3}{9} \times \frac{10}{8} = \qquad \text{>>>Flip the divisor then proceed to multiplication}$$

$$\frac{1}{3} \times \frac{5}{4} = \frac{1 \times 5}{3 \times 4} = \boxed{\frac{5}{12}}$$

Try This!

$$\frac{3}{9} \times \frac{8}{10} =$$

*Additional activities via Liveworksheets.com*

### DIVISION BY A WHOLE NUMBER

$$6 \div \frac{3}{5} = \quad \frac{\overset{2}{6}}{1} \times \frac{5}{\underset{1}{3}} = \frac{10}{1} = 10 \qquad \text{>>> All whole number is over 1}$$

### DEEPEN
Try These!

a. $\qquad \frac{4}{5} \div \frac{5}{6} =$

b. $\qquad \frac{3}{4} \div 12 =$

### ENRICHMENT ACTIVITIES (Deepen)

**Activity 1: Assess the given solutions. Encircle the error of the given solutions then write the correct answer inside the box.**

1. $\quad \frac{2}{5} \times \frac{4}{7} =$

$$\frac{2 \times 4}{5 \times 7} = \frac{6}{35}$$

2. $\quad 12 \div \frac{8}{10} =$

$$\frac{12}{1} \div \frac{10}{8} =$$

$$\frac{\overset{3}{12}}{1} \times \frac{5}{\underset{1}{4}} = 15$$

**LIVEWORKSHEETS**

.3. $\dfrac{2}{5} \times 5 =$

4. $10 \div \dfrac{2}{3} =$

$\dfrac{2}{5} \times \dfrac{5}{1} =$

$^5 \dfrac{10}{1} \times \dfrac{3}{2}_1 : \dfrac{5 \times 3}{1 \times 2}$

$\dfrac{2}{1} = 3$ ☐

$\dfrac{15}{1} = 15$ ☐

## VALUES INTEGRATION:

*Life Lesson*: Our simple ways when multiplied can help reconstruct the earth. We do cleaning the surroundings, conserving energy, planting trees and waste segregation. These ways, when divided among the people can rebuild the earth. We can make again our "common home" the best way to live in.

As SJI-an-Paulinian, what must be the first thing to do to help "rebuild the earth"? Why?

_____
_____
_____
_____
_____

## POST-ASSESSMENT:

**Solve the following problem. Write your answer inside the box.**

1. A garbage collector gathered 1/5 bag of waste each of the 15 establishments in the city. What is the total bags of waste collected?

☐

2. What is $\dfrac{3}{5}$ of $\dfrac{2}{7}$ ?

☐

3. What is $\dfrac{4}{5}$ multiplied by $\dfrac{1}{2}$ ?

☐

4. $\dfrac{6}{8} \times 8 = N$. What is N?

☐

**LIVEWORKSHEETS**

5.  $\dfrac{2}{3} \times 1 =$ ☐

6.  $\dfrac{2}{5} \div \dfrac{1}{3} =$ ☐

7.  $\dfrac{4}{7} \div \dfrac{2}{3} =$ ☐

8.  $\dfrac{5}{7} \div 10 =$ ☐

9.  $\dfrac{5}{10} \div 6 =$ ☐

10. $10 \div \dfrac{1}{8} =$ ☐

## SUMMARY:

**Key Points to Remember:**

Processes in Mathematics are interconnected. The process of multiplying fractions can also be used in division.

## SKILLS ASSESSMENT:
Rate your skill before the discussion:

5- Advanced    4-Proficient    3-Approaching Proficiency    2-Developing    1-Beginning

|   |                                                              | Self-Rating |
|---|--------------------------------------------------------------|-------------|
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| 3 | I can divide proper fractions                                |             |
| 4 | I can divide proper fractions by a whole number or vice versa |             |
|   | **AVERAGE RATING (Add all the ratings divided by 4)**        |             |