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DepED
DEPARTMENT OF EDUCATION

Lesson Exemplar for Mathematics

Quarter 2
Lesson
7

Lesson Exemplar for Mathematics Grade 4
Quarter 2: Lesson 7 (Week 7)
SY 2024-2025

Development Team

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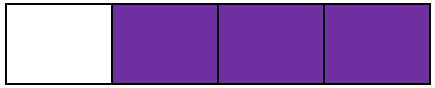
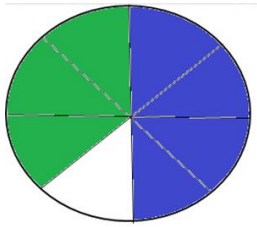
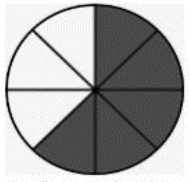
Research Institute for Teacher Quality
SiMERR National Research Centre

MATHEMATICS / QUARTER 2 / GRADE 4

I. CURRICULUM CONTENT, STANDARDS, AND LESSON COMPETENCIES	
A. Content Standards	Addition and subtraction of similar fractions, including mixed numbers.
B. Performance Standards	Perform addition and subtraction of similar fractions, including mixed numbers.
C. Learning Competencies and Objectives	**Learning Competency** 1. Determine the basic concepts of fractions. 2. Differentiate a proper fraction from an improper fraction and mixed numbers. 3. Identify a given fraction as proper fraction, an improper fraction, and a mixed number. 4. Change improper fractions into mixed numbers, and vice versa. 5. Plot fraction with denominators 2, 4, 5, and 10 on the number line.
C. Content	Fractions a. Basic Concepts of Fractions b. Kinds of Fractions c. Fractions on a Number Line d. Changing Improper Fractions to Mixed Numbers and vice versa
D. Integration	Values of sharing and fairness

II. LEARNING RESOURCES
CUEMATH. (2013). Retrieved from https://www.cuemath.com/numbers/fractions-on-number-line/ Jalon, H. F. et. al. (2019). *Phoenix Math for the 21st Century Learners*. Phoenix Publishing House, Inc., Quezon City Misa, E. L. (2019). *The World of Mathematics and Beyond*. Brilliant Creations Publishing, Inc., Quezon City Yn, G. U. (2017). *Our World of Math*. Vibal Group, Inc., Quezon City

III. TEACHING AND LEARNING PROCEDURE		NOTES TO TEACHERS
A. Activating Prior Knowledge	**DAY 1** **1. Short Review** Study the pictures below. Which figure or diagram represent the fraction $\frac{3}{4}$?  (a)  (b)  (c) Do brainstorming and lead the learners to the recollection of fraction concept. Ask the learners why (c) is not a correct representation of $\frac{3}{4}$. Ask the learners to give example of a fraction and ask them to represent the fraction with a diagram. **2. Feedback (Optional)**	Teachers may present other figures. Learners will recall their knowledge about fractions. (Fraction as part - to- whole concept. Fraction as quotient concept. Fractions on a number line) They can also draw on the board their own examples of fractions. Learners may observe in their surroundings (classroom) and may look for some representations of fractions.
B. Establishing Lesson Purpose	**1. Lesson Purpose** Father bought a pizza for his 5 children. He divided the pizza into 8 equal parts. What part of the pizza was left if he served $\frac{5}{8}$ to his family? **2. Unlocking Content Area Vocabulary** The teacher may ask the learners if they can still recall the definition of Fraction. Use the example given: $\frac{5}{8}$  A fraction is used to represent a part of a whole. It is written as two numbers separated by a fraction line. The number above the line is called the numerator, and the number below the line is called the denominator.	The given problem (in Lesson proper) should be used to lead the learners to the meaning of fraction as part of a whole and the key terms related to fraction like numerator and denominator. The teacher may do the following to guide the learners: a) Ask the learner to draw the figure to represent the pizza on the board. b) Then ask a student to shade $\frac{5}{8}$ of the pizza.

	$\frac{5}{8}$ → Numerator represents the number of equal parts you have (shaded portion) → Denominator represents the total number of equal parts you have. After the value integration, the teacher will lead the learners to the kinds of fractions.	c) Ask the learner what fraction represents the unshaded part of the pizza. (Answer: $\frac{3}{8}$) d) Then guide the learners on the meaning of fraction as a part of a whole, the meaning of numerator and denominator. e) From the given problem, the teacher may ask the learners what good values may be associated with the concept of fraction. f) The teacher may cite other examples of real-life situations wherein fraction and the value of sharing are applied.
C. Developing and Deepening Understanding	**SUB-TOPIC 1: Kinds of Fractions** **1. Explicitation** Ask the learners to make comparisons between the numerators and the denominators. $\frac{2}{5}$ $\frac{7}{9}$ $\frac{1}{8}$ $\frac{4}{7}$ $\frac{6}{13}$ Lead the learners to the following ideas: The numerator is smaller than the denominator. The value of each fraction is less than one but greater than zero. These are called ***proper fractions.*** Ask the learners to make comparisons between the numerators and the denominators. $\frac{10}{3}$ $\frac{9}{6}$ $\frac{13}{5}$ $\frac{11}{11}$ $\frac{21}{8}$ $\frac{7}{7}$ The numerator is greater than or equal to the denominator. The value of each fraction is greater than one or equal to one. These are called *i**mproper fractions.***	

Observe the following fractions: $1\frac{3}{4}$ $12\frac{1}{9}$ $5\frac{6}{11}$ $8\frac{2}{5}$ $7\frac{5}{7}$

The fractions are combinations of a whole number and a proper fraction. These are called ***mixed numbers.***

The teacher will give other examples of fractions.

2. Worked Example

The teacher will ask the learners to give their own examples of:

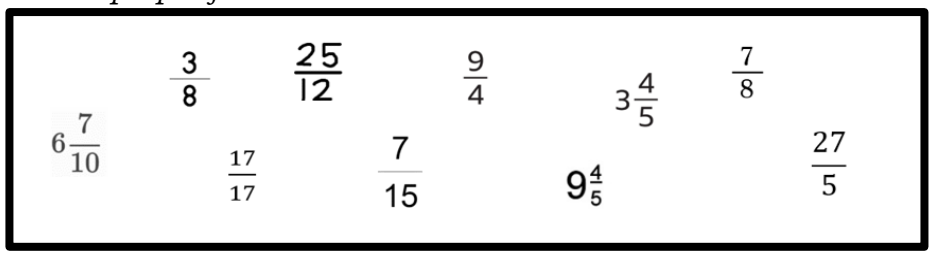
PROPER FRACTION	IMPROPER FRACTION	MIXED NUMBER
_____ _____ _____ _____ _____	_____ _____ _____ _____ _____	_____ _____ _____ _____ _____

3. Lesson Activity

A. Identify the following fraction as *proper, improper or mixed*

_____1. $\frac{3}{8}$
_____2. $\frac{14}{6}$
_____3. $7\frac{1}{11}$
_____4. $\frac{15}{8}$
_____5. $\frac{1}{60}$
_____6. $10\frac{7}{10}$
_____7. $\frac{5}{13}$
_____8. $\frac{22}{8}$
_____9. $\frac{14}{14}$
_____10. $18\frac{2}{7}$

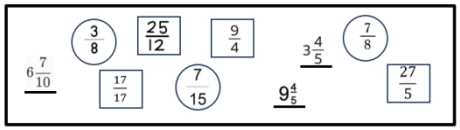
B. Given the following fractions in the rectangle, *encircle all proper fractions*, *box all improper fractions* and *underline all mixed numbers*.



Answers:

A.
1. Proper Fraction
2. Improper Fraction
3. Mixed Number
4. Improper Fraction
5. Proper Fraction
6. Mixed Number
7. Proper Fraction
8. Improper Fraction
9. Improper Fraction
10. Mixed Number

B.

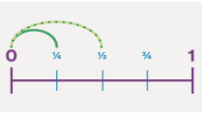


DAY 2

SUB-TOPIC 2: Fractions on Number Line

1. Explicitation

Opener: Fractions may be represented in different ways. The fraction $\frac{3}{4}$ can be represented in different ways as shown on the table below.

Words	Three-fourths
Diagram	
Symbol	$\frac{3}{4}$
Number Line	

Another visual way to understand and compare the values of different fractions is through the use of a number line. A number line is a straight line with numbers marked at equally spaced intervals.

2. Worked Example

How to represent fractions on a number line?

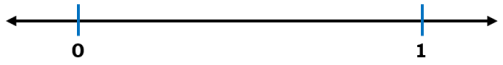
Step 1: Draw a horizontal line.

Step 2: Locate 0 and 1 on the number line (horizontal line).

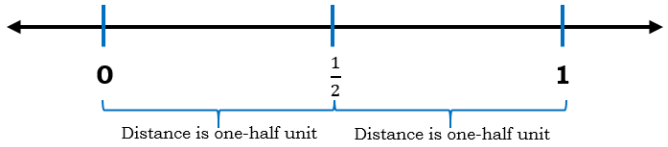
Step 3: Divide the distance between 0 and 1 into two equal lengths. The number of equal parts should match the denominator of the fraction you want to represent.

Example 1: Represent $\frac{1}{2}$ on the number line.

Step 1. Draw a horizontal line and locate 0 and 1 as shown below.



Step 2. To locate $\frac{1}{2}$, divide the distance between 0 and 1 into two equal lengths.



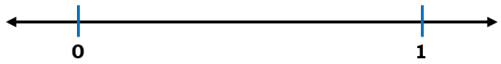
The teacher will give other examples. (Board work)

In facilitating **worked example,** teachers are advised to guide the learners in understanding the concepts and processes involve in each example.

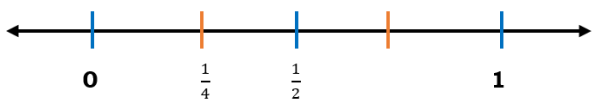
Active participation of the learners must be observed. Peer groupings maybe implemented to allow class interaction with the guidance of the teacher.

Example 2: Represent $\frac{1}{4}$ on the number line.

Step 1. Draw a horizonal line and locate 0 and 1 as shown below.

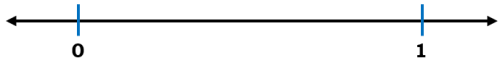


Step 2. To locate $\frac{1}{4}$, divide the distance between 0 and 1 into four equal parts.



Example 3: Represent $\frac{1}{5}$ on the number line.

Step 1. Draw a horizontal line and locate 0 and 1 as shown below.



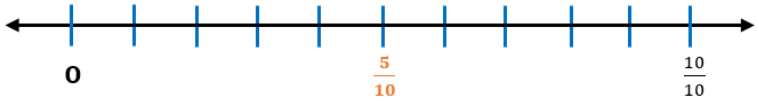
Step 2. To locate $\frac{1}{5}$, divide the distance between 0 and 1 into five equal parts.

Example 4. Write the missing fraction on the number line.

Answer: $\frac{2}{4}$, $\frac{5}{4}$ or $1\frac{1}{4}$, $\frac{6}{4}$ or $1\frac{2}{4}$

Example 5. Show the following fractions on a number line.

a. $\frac{5}{10}$



b. $1\frac{3}{4}$

For worked example 1: It must be cleared to the learners that the fraction $\frac{1}{2}$ on the number line is the distance between 0 and the marking labeled as $\frac{1}{2}$, thus two of these $\frac{1}{2}$ will give the next marking, which is 1, or the distance between 0 and 1.

For worked Example 2: It must be cleared to the learners that the fraction $\frac{1}{4}$ on the number line is the distance between 0 and the marking labeled as $\frac{1}{4}$, thus two of these $\frac{1}{4}$ will give the next marking, which is $\frac{1}{2}$.

For worked example 3.
Note: It must be cleared to the learners that the fraction $\frac{1}{5}$ on the number line is the distance between 0 and the marking labeled as $\frac{1}{5}$, thus two of these $\frac{1}{5}$ is equal to two-fifths, $\frac{2}{5}$.

For worked example 4:
To help the learners, discuss the relationship of each distance and the markings. The learners must recognize the location or the distance that is equal to 1 and 2.

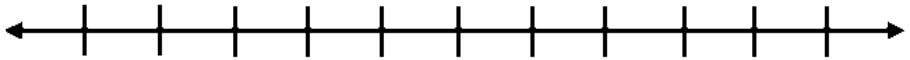
3. Lesson Activity

A. Represent the following fractions on a number line.

1. $\frac{2}{10}$ 3. $1\frac{2}{5}$ 5. $\frac{6}{7}$
2. $3\frac{1}{3}$ 4. $\frac{3}{8}$

B. Locate the following fractions by writing the letter on the number line below that corresponds to each fraction.

A. $\frac{7}{10}$ B. $\frac{1}{10}$ C. $\frac{3}{10}$



DAY 3-4

SUB-TOPIC 3: Changing Improper Fractions to Mixed Numbers and vice versa

1. Explicitation

Opener: Mirabel wants to bake a cake for Teachers' Day. She needs $\frac{7}{2}$ cups of all-purpose flour. However, she finds it difficult to measure $\frac{7}{2}$ cups using her available baking tools. How can you help Mirabel in preparing the all—purpose flour?

The teacher may ask the learners of the possible solutions. Then, the teacher will lead the discussion to the lesson for the day.

2. Worked Example

We can help Mirabel by changing $\frac{7}{2}$ which is an improper fraction to a mixed number.

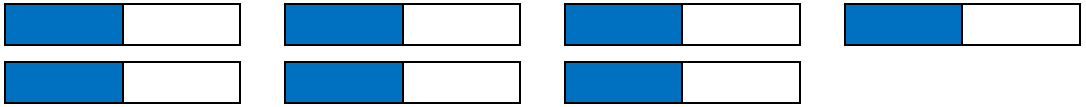
Example 1: Express $\frac{7}{2}$ in mixed number form.

If each $\frac{1}{2}$ cup of purpose flour is represented by the fraction strip below,

 **= $\frac{1}{2}$ cup of purpose flour**

How many copies of this will be needed to complete $\frac{7}{2}$ cups?

Answer: seven cups

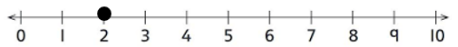


For worked example 5:
Brainstorming/discussion on how to represent the given fractions with the learners is highly encourage.

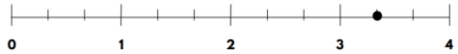
The teacher will give more examples when needed. (Board work)

Answers:

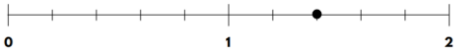
1. 2/10



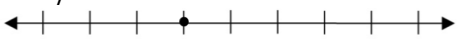
2. 3 1/3



3. 1 2/5



4. 3/8

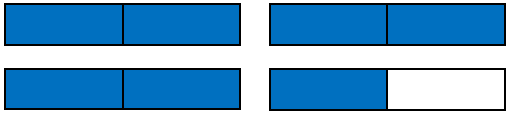


5. 6/7

B.

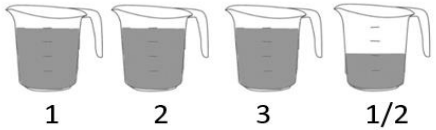
For worked example 1:
If the meaning of fraction as an operation (division), was not discussed with the learners, allow few minutes for the discussion of it. It is important, so the learners can connect with the method that will be presented after the modeling.

Rearranging these fractions bars will lead to this fraction strips.



What mixed number corresponds to this set of fraction strips? Answer: $3\frac{1}{2}$

So, $\frac{7}{2}$ cups of all-purpose flour are equivalent to $3\frac{1}{2}$ cups of flour.



Let the learners understand the relationship presented above.

That $\frac{7}{2}$ is equivalent to $3\frac{1}{2}$

Then, bring the learners to the division concept of fraction, that is $\frac{7}{2}$ (seven-halves) may be treated as **7 ÷ 2.**

Ask the learners to divide 7 by 2. Then let them see the mixed number $3\frac{1}{2}$ in the answer.

$$\begin{array}{r} 3 \longrightarrow \text{whole number} \\ \text{denominator} \longleftarrow 2\,\overline{)\,7} \\ \underline{-\,6} \\ 1 \longrightarrow \text{numerator} \end{array}$$

Lead the learners to making conclusion on how to change improper fraction to mixed number.

> To write an improper fraction as a mixed number, divide the numerator by the denominator. The quotient is the whole number, the remainder becomes the new numerator, and the denominator remains the same.

Meanwhile, we can also change mixed number to an improper fraction.

Example 2: Write $4\frac{1}{2}$ as an improper fraction.

Ask the learners to represent $4\frac{1}{2}$ using fraction strips.

Then, ask: How many halves are there? (Answer: 9 halves, in symbol: $\frac{9}{2}$)

So, $\mathbf{4\frac{1}{2} = \frac{9}{2}}$, guide the learners to see the connection of the mixed number and the improper fraction. They must realize that when 4 and 2 are multiplied and the product is added to 1, they will get 9. The denominator is just the same.

Example 3: Write $6\frac{5}{7}$ as an improper fraction. (Tell the learners to use the method observed in example 2).

Solution:

$$6\frac{5}{7} = \frac{7 \times 6 + 5}{7}$$

→ Multiply the denominator and the whole number, then add the numerator.

→ Copy the same denominator.

$= \frac{47}{7}$ is the improper fraction form of $6\frac{5}{7}$

Then lead the learners to the rule on changing mixed number to improper fraction.

> To write a mixed number as an improper fraction, multiply the denominator and the whole number, then add the product to the numerator. The denominator remains the same.

3. Lesson Activity

A. Convert the following mixed numbers to improper fractions.

1. $2\frac{5}{7}$ _____
2. $3\frac{1}{5}$ _____
3. $10\frac{8}{7}$ _____
4. $13\frac{2}{5}$ _____

B. Convert the following improper fractions to mixed numbers.

1. $\frac{31}{3}$ _____
2. $\frac{22}{5}$ _____
3. $\frac{40}{4}$ _____
4. $\frac{62}{6}$ _____
5. $\frac{51}{3}$ _____

The teacher may give more examples when needed.

For Lesson Activity:

Board work:

The teacher may ask a learner to solve on the board, while other learners will solve on their seats and compare their answers.

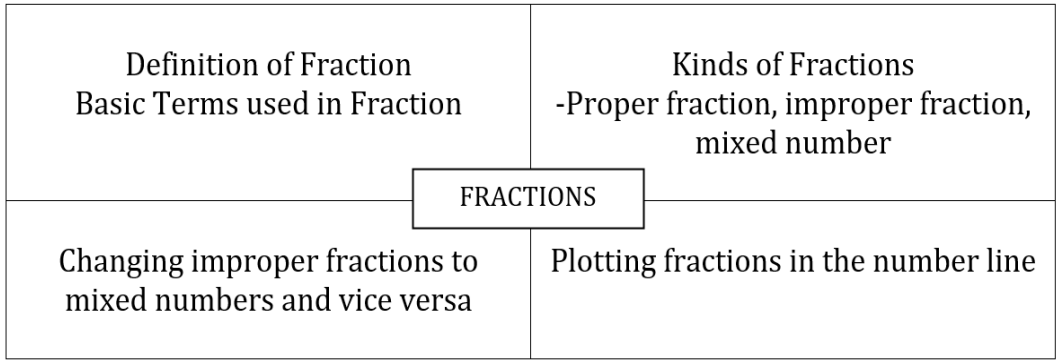
Answers:

A.

1. 19/7
2. 16/5
3. 78/7
4. 67/5

B.

1. $10\frac{1}{3}$
2. $4\frac{2}{5}$
3. 10
4. $10\frac{2}{6}$
5. 17

D. Making Generalizations	**1. Learners' Takeaways**  **2. Reflection on Learning** The teacher may ask the following questions to the learners: 1. Is it important to learn fraction? 2. As a student, friend and a child, how can you apply fractions in your everyday lives? 3. What values can we learn in studying fraction?	The teacher will ask the learners of the important lessons they've learned. Teacher will explain and emphasize values gained in the lesson by citing examples.

IV. EVALUATING LEARNING: FORMATIVE ASSESSMENT AND TEACHER'S REFLECTION		**NOTES TO TEACHERS**
A. Evaluating Learning	**DAY 5** **1. Formative Assessment** A. Identify the following as proper, improper and mixed. _____1. $\frac{6}{6}$ _____2. $5\frac{4}{11}$ _____3. $\frac{12}{15}$ _____4. $\frac{5}{17}$ _____5. $\frac{26}{3}$ _____6. $2\frac{1}{6}$ _____7. $\frac{13}{13}$ _____8. $\frac{81}{5}$ _____9. $21\frac{8}{9}$ _____10. $\frac{80}{100}$ B. Plot the following fractions on a number line. 1. $\frac{2}{5}$ 2. $\frac{2}{4}$ 3. $\frac{6}{10}$ 4. $\frac{1}{5}$ 5. $1\frac{5}{10}$	**Answers:** A. 1. improper 2. mixed number 3. proper 4. proper fraction 5. improper 6. mixed number 7. improper 8. improper 9. mixed number 10. proper

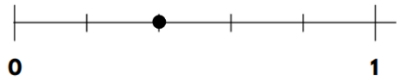
C. Change the following improper fraction to mixed number.

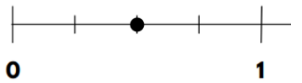
1. $\frac{7}{6}$ _____
2. $\frac{26}{6}$ _____
3. $\frac{32}{5}$ _____
4. $\frac{17}{3}$ _____
5. $\frac{40}{3}$ _____

D. Change the following mixed number to improper fraction.

1. $5\frac{5}{8}$ _____
2. $11\frac{1}{6}$ _____
3. $12\frac{2}{3}$ _____
4. $20\frac{6}{7}$ _____
5. $32\frac{1}{4}$ _____

B.

1. $\frac{2}{5}$ 

2. $\frac{2}{4}$ 

3. $\frac{6}{10}$
4. $\frac{1}{5}$ 

5. $1\frac{5}{10}$ 

C.

1. $1\frac{1}{6}$
2. $4\frac{2}{6}$
3. $6\frac{2}{5}$
4. $5\frac{2}{3}$
5. $13\frac{1}{3}$

D.

1. 45/8
2. 67/6
3. 38/3
4. 146/7
5. 129/4

<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="2">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 colspan="2">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>
</table>