

MATH FOR LIFE

Teacher's Resource Material

Adela C. Villamayor
Author/Coordinator

Amelia D. Celeridad-Wright
Eden C. de Joya
Authors



Published & Distributed by

REX Book Store

856 Nicanor Reyes, Sr. St.
Tel. Nos. 736-05-67 • 735-13-64
1977 C.M. Recto Avenue
Tel. Nos. 735-55-27 • 735-55-34
Manila, Philippines
www.rexpublishing.com.ph

4

Revised Edition



Philippine Copyright 2015
by Rex Book Store, Inc.

RBS Mathematics Series

Math for Life 4 TRM

Revised Edition 2015

ISBN 978-971-23-6931-5

Classification: Teacher's Resource Material (52-MB-00256-0)

Published, copyrighted 2015, and distributed by **Rex Book Store, Inc. (RBSI)** with main office at 856 Nicanor Reyes Sr. St., Sampaloc, Manila/Tel. Nos.: 735-1364, 736-0567

RBSI Branches:

LUZON

•**MORAYTA:** 856 N. Reyes Sr. St., Sampaloc, Manila / Tel. Nos.: 736-0169, 733-6746; Telefax: 736-4191 •**RECTO:** 2161-65 Freedom Building, C.M. Recto Avenue, Sampaloc, Manila / Tel. Nos.: 522-4521, 522-4305, 522-4107, 733-8637 •**RECTO (La Consolacion):** Mendiola, Manila • **MAKATI:** Unit UG-2, Star Centrum Bldg., Sen. Gil Puyat Ave., Makati City / Tel. No.: 818-5363; Telefax: 893-3744 •**ROCKWELL:** 1st Floor, Ateneo Professional School, Rockwell Center, Bel-Air, Makati City / Tel. No.: 729-2015 •**CUBAO:** Unit 10 UGF, Doña Consolacion Bldg., Gen. Santos Ave., Araneta Center, Cubao, Quezon City / Telefax: 911-1070 •**ORTIGAS:** G/F East Tower, Philippine Stock Exchange Center, Exchange Road, Ortigas Center, Pasig City / Tel. No.: (02) 650-4347 •**CAVITE:** Block 4, Lot 20 Don Gregorio Heights 2, Zone 1-A Aguinaldo Highway, Dasmariñas, Cavite / Telefax: (046) 416-1824 •**CAVITE (Tanza):** (Display Area) Block 5, Lot 6, City View 4 and 5, Brgy. Tanauan, Tanza, Cavite •**NAGA:** 1-1A Geronimo Bldg., Barlin St., Sta. Cruz, Naga City, Camarines Sur/Telefax: (054) 811-6878 •**LEGAZPI:** Unit 6, 3rd Floor, A. Bichara Silverscreen, Legazpi City, Albay / Telefax: (052) 480-2244 •**CALAPAN:** Brgy. Salong, National Highway, Calapan City, Oriental Mindoro / Telefax: (043) 288-1650 •**BATANES:** L. Lopez St., Kayvalugan, Basco, Batanes •**TUGUEGARAO:** 10 Arellano Ext., Brgy. Ugac Sur, Tuguegarao, Cagayan / Telefax: (078) 844-8072 •**CABANATUAN:** Fontelera Building, 1271 Del Pilar Ext., Sangitan East, Cabanatuan City, Nueva Ecija / Tel. No.: (044) 464-2151; Telefax: (044) 600-5684 •**URDANETA:** Zone 6, Pinmaludpod, Urdaneta City, Pangasinan / Telefax: (075) 568-3975 •**ANGELES:** Unit H, JMS Bldg., MacArthur Highway, Brgy. Salapungan, Angeles City, Pampanga/Telefax: (045) 887-5371 • **BAGUIO:** Rex Hall Student Residences, Upper Gen. Luna cor. A. Bonifacio St., Baguio City, Benguet / Tel. No.: (074) 422-0574

VISAYAS

•**TACLOBAN:** Brgy. 74 Marasbaras, Tacloban City, Leyte / Tel. No.: (053) 323-8976; Telefax: (053) 523-1784 •**ILOILO:** 75 Lopez Jaena St., Brgy. San Isidro, Jaro, Iloilo City, Iloilo / Tel. No.: (033) 329-0332; Telefax: (033) 329-0336 •**BACOLOD:** 28 Brgy. 36, Purok Immaculada, Quezon Ave., Bacolod City, Negros Occidental •**CEBU:** 11 Sanciango St., Cebu City / Tel. Nos.: (032) 416-9684, 254-6773, 505-4313; Telefax: (032) 254-6466

MINDANAO

•**CAGAYAN DE ORO:** J. Serifa St. cor. Vamenta Blvd., Carmen, Cagayan de Oro City, Misamis Oriental / Telefax: (088) 858-6775, 309-5881 •**DAVAO:** 156 C.M. Recto St., Davao City, Davao / Tel. Nos.: (082) 300-5422, 305-5772; Telefax: (082) 221-0272 •**GENERAL SANTOS:** Aparente St., Dadiangas Heights, General Santos City, South Cotabato / Telefax: (083) 554-7102 • **ZAMBOANGA:** San Francisco Loop, Mayor Agan Ave., Camino Nuevo B, Zamboanga City / Tel. No.: (062) 955-0887

www.rexpublishing.com.ph

No portion of this book may be copied or reproduced in books, pamphlets, outlines, or notes—whether printed, mimeographed, typewritten, photocopied, or in any form—for distribution or sale, without the written permission of the Publisher and Author/s. The infringer shall be prosecuted in compliance with copyright, trademark, patent, and other pertinent laws.

INTERNET LINK DISCLAIMER

REX PUBLISHING is not responsible for the accuracy, legality or content of the external sites and for that of subsequent links. These links are being provided as a convenience and for informational purposes only. Although verified at the date of publication, the publisher cannot guarantee that these links will work all of the time nor does it have control over the availability of linked pages.

Moreover, the publisher does not warrant sites or the servers that make them available are free of viruses or other harmful components. **REX PUBLISHING** does not warrant or make any representations regarding the use or the results of the use of the materials in these sites or in third-party sites in terms of their correctness, accuracy, timeliness, reliability or otherwise.

RBSI's Book Association Memberships: Philippine Booksellers Association, Inc. (PBAI); Book Development Association of the Philippines (BDAP); Philippine Educational Publishers Association (PEPA); Book Exporters Association of the Philippines (BEAP); Academic Booksellers Association of the Philippines (ABAP); Children's Literature Association of the Philippines, Inc. (CLAPI); Asian Publishers Resources Center (APRC)

PEPA's International Book Association Memberships: International Publishers Association (IPA); Asia Pacific Publishers Association (APPA); ASEAN Book Publishers Association (ABPA); Philippine Book Publishing Development Federation (Philbook)

Printed by  REX PRINTING COMPANY, INC.

84-86 P. Florentino St., Sta. Mesa Heights, Quezon City / Tel. No.: 857-7777

- b. How many of you learn by looking at pictures and writings on the board?
- c. How many of you learn by doing?
- d. How many of you learn by talking and listening to friends?
- e. How many of you learn by working alone?

To answer the questions, the pupils will in turn make a *thumbs up* sign for “yes,” *thumbs down* sign for “no,” and *thumbs sideward* sign for “I am not sure.”

5. The results will be used to group pupils according to their interests, readiness, and learning profiles.

Second Quarter:

Goal 1 – Understanding Factors and Multiples (3 days)

Pre-assessments:

1. Have the pupils answer a quick quiz to determine what they know and don’t know about factors and multiples.
2. Ask the pupils to answer the questions in **Get Ready**. They will be asked to skip count to find missing terms in number patterns.
3. Ask the pupils the following questions and then let them explain and defend their answers:
 - a. Are you sure? Why?
 - b. How did you get the answer?
 - c. What did you do to find the answer?

Introduction/Preparatory Activities: Make Meaning:

1. Start the lesson with an activator. Once pupils are seated, ask the pupils to solve the opening problem in Goal 1: *Sixty pupils were chosen to attend a school seminar. They were also instructed to arrange 60 chairs in rows. Each row must have the same number of seats. Is it possible to accomplish this with 10 rows of seats?*
2. Call on some pupils. Have them answer the problem. Encourage them to use any strategy to solve the problem.
3. Determine the pupils’ prior knowledge and skills.

Differentiation to check pupils’ **Readiness**



More resources on Learning Objectives are available in the Technology Enhancement CD

Knowledge:

The learner...

- Identifies odd and even numbers.
- Identifies the factors of a given number up to 100.
- Identifies the multiples of a given number up to 100.

Skills:

The learner will be skilled in...

- Identifying odd and even numbers.
- Identifying the factors of a given number up to 100.
- Identifying the multiples of a given number up to 100.

21st Century Skills:

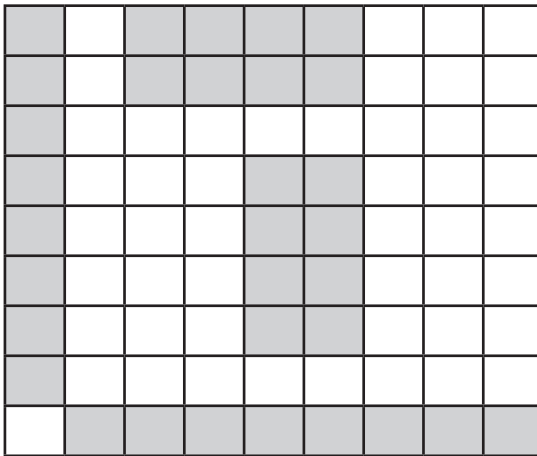
- Communicating, reflecting, and monitoring his/her understanding of factors and multiples

- Using the appropriate tools, techniques, and strategies that will help him/her understand the concepts

Body/Developmental:

Day 1

- Ask the pupils to work in pairs. Give each pair 8 square tiles or cutouts and tell them to arrange the square tiles or cutouts in arrays to show multiplication sentences.
- Say: "You can use square tiles or cutouts to form rectangular regions. How many different rectangular regions can you form using 8 square tiles or cutouts?" Tell the pupils to draw all the arrangements they made and write the related multiplication sentence for each arrangement.
- Call on a visual learner. Tell the pupil to draw rectangular arrays on the board to illustrate the solution. Expected output on the board:



- Call on a volunteer to write the related multiplication sentences on the board:
 $1 \times 8 = 8$; $8 \times 1 = 8$; $2 \times 4 = 8$; $4 \times 2 = 8$
 Say: "The factors of 8 are 1, 2, 4, and 8."
 Stress that 1 and the number itself are always factors of a number.
- Increase the square tiles or cutouts to 18 pieces. Have the kinesthetic learners arrange the square tiles or cutouts in rows and columns to illustrate the related multiplication sentence. The pupils should come up with arrangements for 18:
 $1 \times 18 = 18$; $18 \times 1 = 18$; $9 \times 2 = 18$; $2 \times 9 = 18$; $3 \times 6 = 18$; $6 \times 3 = 18$.
 Say: "The factors of 18 are 1, 18, 2, 3, 6, and 9."

Differentiation for
Process

Differentiation for
Process

Differentiation for
Process

Differentiation for
Process

Differentiation for
Process

- Point out that a particular number is a factor of a given number, if that particular number can distribute the given number evenly.

Say: "For example, 5 is a factor of 10, because it can evenly group 10 into fives.

5 is not a factor of 12 because it cannot evenly group 12 into fives."

- Remind the pupils that another way to get the factors of a number is to think of numbers that can evenly divide it into smaller equal sets. Emphasize that 1 and the number itself are already factors of a number.

Example:

21 and 1 are already factors of 21.

Since $21 \div 3 = 7$ and $21 \div 7 = 3$, then 3 and 7 are also factors of 21.

Say: The factors of 21: 1, 21, 3, and 7

Day 2

- Have pupils review factors. Ask them to make a 'factor rainbow' to find the factors of 20.



Call on volunteers. Have them write the related multiplication sentences and factors of 20 on the board. Allow them to draw rectangular arrays to explain their answers.

- Draw a 100-grid chart on the board and write numbers 1 to 100. Ask the auditory learners to count by twos to 100. Ask the kinesthetic learners to circle all 'counting by 2s' on the 100-grid chart. Introduce multiples of a number. Point out that any counting number is a multiple of itself. Ask a visual learner to write the first ten multiples of 2 on the board: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20.

Ask: "If we continue counting by 2s, can we name all multiples of 2?" Help the pupils understand that a number has an endless list of multiples."

Say: "The multiples of 2 are 2, 4, 6, 8, 10, and so on.

- Call on volunteers. Have them use skip counting to find multiples of 3, 5, and 10."
- Discuss **Think and Understand**.
- Ask the pupils to answer orally **Check Your Understanding**. Call on volunteers. Have them draw pictures to explain their solutions. Be ready to correct any error or misconception that may arise in the discussion.
- Assign **Practice** as homework.

Day 3

- Tell the pupils to exchange papers to check each other's work. Call on the auditory learners. Have them explain their answers.

Differentiation for
Process

Differentiation for
Process

Differentiation for
Process

Differentiation for
Product

Differentiation for
Process

Differentiation for
Process

2. Ask the pupils to do the interactive activity on the TEC-CD about factors and multiples.
3. Ask the pupils to work in teams of sixes. When you assign pupils to teams, balance the team so that each team is composed of pupils whose performance levels range from low to average to high. Tell the struggling learners to answer A of **Keep Practicing**. Ask the average learners to answer B of **Keep Practicing** and ask the advanced learners to answer **Try This Challenge**. Remind the pupils to exchange ideas during the activity. Move around the room and see to it that everyone is working. Ask the struggling learners: "Do you have any problem with the exercises?"
4. Tell the pupils to exchange papers to check each other's work. Call on the auditory learners. Have them explain their answers.
5. To end the lesson, ask an auditory learner to summarize the important ideas in Goal 1.
6. Have the pupils answer **Test Yourself**.

Conclusion/Evaluation: Make Meaning:

To assess the pupils' understanding related to Goal 1, have them answer **Reflect and Resolve**. Ask the pupils to color the star green if they understand the lesson, orange if they have some questions, and red if they feel that they need help.

Interview the pupils by asking the questions in **Reflect and Resolve**.

Goal 2 – Understanding Prime and Composite Numbers (3 days)

Pre-assessments:

1. Have the pupils answer questions on flash cards to determine what they know and don't know about prime and composite numbers.
2. Ask the pupils to find classify the following numbers as prime or composite:

a. 25	c. 30
b. 17	d. 13
3. Ask the pupils the following questions and then let them explain and defend their answers:
 - a. Are you sure? Why?
 - b. How did you get the answer?
 - c. Can you show the class?

Introduction/Preparatory Activities: Make Meaning:

1. Once the pupils are seated, ask the pupils to find all factors of the numbers in **Get Ready**.
2. Call on some pupils. Have them find the factors. Encourage them to use any strategy to solve the problem.



More resources on Acquisition Strategies are available in the Technology Enhancement CD

Differentiation for Product

Self-assessment/ Reflection

Differentiation to check pupils' Readiness



More resources on Learning Objectives are available in the Technology Enhancement CD

Knowledge:

The learner differentiates prime from composite numbers.

Skills:

The learner will be skilled in differentiating prime from composite numbers.

21st Century Skills:

- Communicating, reflecting, and monitoring his/her understanding of prime and composite numbers

3. Call on an auditory learner to answer the question: "How do you find the factors of 28?" Call on a visual learner to make a factor tree to find the factors of 36.
4. Determine the pupils' prior knowledge and skills.

Body/Developmental:

Day 1

1. Review factors. Display the following number flash cards on the chalk ledge: 2, 3, 4, 5, 6, 10, 15, 17, 20, 23, and 25. Have pupils work in pairs. Have them find all factors of the given numbers.
2. Call on the kinesthetic learners. Ask the pupils to separate the flash cards with only two factors (1 and itself) from those with more than two factors.
3. Introduce the term *prime* and *composite* numbers. Point out that a prime number has exactly two factors: 1 and itself. Tell them that a composite number has more than 2 factors.
4. Call on the auditory learners. Ask them to give examples of prime and composite numbers. Allow them to write their solutions on the board.
5. Discuss **Think and Understand**.
6. Ask the pupils to answer orally **Check Your Understanding**. Call on volunteers. Have them explain the answers to the exercises.
7. Assign **Practice** and items 1 to 5 of **Keep Practicing** as homework.

Day 2

1. Tell the pupils to exchange papers to check each other's work. Call on the auditory learners. Have them explain their answers. Be ready to give feedback, answer queries, or clarify any misconception.
2. Ask the pupils to watch a video on the TEC-CD about finding prime numbers using the sieve of Eratosthenes. Tell the class that about 2000 years ago, Eratosthenes, a Greek mathematician, astronomer, and geographer invented a way to find all primes. It was called a "sieve" and it was used to "sift out" the prime numbers.
3. Ask the pupils to work in threes. Have them use the sieve of Eratosthenes to find all prime numbers between 100 and 150. Prepare a worksheet for them to find the prime numbers.

100	101	102	103	104	105	106	107	108	109
110	111	112	113	114	115	116	117	118	119
120	121	122	123	124	125	126	127	128	129
130	131	132	132	134	135	136	137	138	139
140	141	141	143	144	145	146	147	148	149
150									

- Using the appropriate tools, techniques, and strategies that will help him/her understand the concepts

Differentiation for **Process**

Differentiation for **Process**

Differentiation for **Process**

Differentiation for **Product**

Differentiation for **Product**



More resources on Acquisition Strategies are available in the Technology Enhancement CD

Differentiation for **Process**

- Call on two volunteers. Have them write all prime numbers between 100 and 150 on the board. Tell them to explain their answer.

Day 3

- Prepare four charts with 25 pockets each before the start of the class. Each pocket must have a number and arranged face down in the packets of the chart. Use numbers less than 50.
- Divide the class into four groups. Assign a chart to each group. Each group takes turn in getting a number from their respective chart. If they tell correctly that the number is prime or composite they will return the card in the pocket face up. The group with the most number of cards face up wins.
- Ask the pupils to work by threes. Have them answer to items 6 to 15 of **Keep Practicing**. Ask the struggling learners if they have encountered any difficulty in answering the exercises.
- Ask the pupils to exchange papers to check each other's work. Call on advanced learners. Have them explain the solution to the exercises. Be ready to correct any misconception related to the exercises.
- Have the pupils answer B of **Test Yourself** 5 to 10 minutes before the class ends.

Conclusion/Evaluation: Make Meaning:

To assess the pupils' understanding related to Goal 2, have them answer **Reflect and Resolve**. Ask the pupils to color the star green if they understand the lesson, orange if they have some questions, and red if they feel that they need help.

Interview the pupils by asking the questions in **Reflect and Resolve**.

Goal 3 – Prime Factorization (3 days)

Pre-assessments:

- Have the pupils answer the questions in **Get Ready** to determine what they know and don't know about divisibility rules.
- Have the pupils answer the exercises in **Get Ready**.
- Ask the pupils the following questions and then let them explain and defend their answers:
 - Are you sure? Why?
 - How did you get the answer?
 - What did you do to find the answer?
 - Can you show the class how you got the answer to the problem?

Introduction/Preparatory Activities: Make Meaning:

- Have the pupils use factor trees to find all factors of 20.

Differentiation for **Process**

Differentiation for **Process**

Differentiation for **Product**

Self-assessment/Reflection

Differentiation to check pupils' **Readiness**



More resources on Learning Objectives are available in the Technology Enhancement CD

Knowledge:

The learner writes a given number as a product of its prime factors.

Skills:

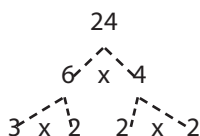
The learner will be skilled in writing a given number as a product of its prime factors.

2. Call on a volunteer to answer the problem. Allow the pupil to use the board to explain the answer.
3. Determine the pupils' prior knowledge and skills.

Body/Developmental:

Day 1

1. Review prime numbers. Call on an advanced learner. Ask the pupil to define prime numbers. Tell the pupil to give three examples of prime numbers. Allow the pupil to explain and write the solutions on the board.
2. Write the sentence $2 \times 3 \times 5 = 30$ on the board. Ask the class whether the factors 2, 3, and 5 are prime or composite. Ask an auditory learner to answer the question.
3. Introduce the term *prime factorization*. Show how to use the factor tree to find the prime factorization of 24.



Point out that the shape looks like a tree. That is why it is called *factor tree*. Make sure that the visual learners can see the solution. Tell the pupils that 24 can be written in product form. That is,

$$24 = 6 \times 4 = (3 \times 2) \times (2 \times 2) = 3 \times 2 \times 2 \times 2.$$

Call on the average learners. Have them describe each factor in the product $2 \times 2 \times 3 \times 2$ as prime or composite. Point out to the pupils that since 2 and 3 are prime numbers, then the said product is the prime factorization of 24.

Say: "The prime factorization of 24 is $2 \times 2 \times 2 \times 3$. There are two prime factors used to build 12: 2 and 3."

4. Discuss **Think and Understand**.
5. Point out that when a number is written as a product of factors that are all prime, the string of factors is called the *prime factorization* of the number.
6. Discuss another example. Call on a visual learner. Ask the pupil to make a factor tree to find the prime factorization of 36. Lead the

21st Century Skills:

- Communicating, reflecting, and monitoring his/her understanding of prime factorization
- Using the appropriate tools, techniques, and strategies that will help him/her understand the concepts

Differentiation for **Process**

Differentiation for **Process**

Differentiation for **Process**

Differentiation for **Product**

pupil to understand that $36 = 4 \times 9 = (2 \times 2) \times (3 \times 3)$. Allow the pupil to write the corresponding factor tree on the board.

7. Ask the auditory learners to answer **Check Your Understanding** orally. Call on the kinesthetic learners. Have them write the answers to **Practice** on the board. Tell them to encircle the composite factors in the product if their answer is No.
8. Assign **Practice** as homework.

Day 2

1. Tell the pupils to exchange papers to check each other's work. Call on the auditory learners. Have them explain their answers. Be ready to give feedback, answer queries, or clarify any misconception.
2. Have a game to review prime factorization. Prepare two sets of cards. Each set must have four cards with number 2, three cards with 3, two cards with 5, and one card with 7.
3. Divide the class into two groups with 10 members in each team.
4. Call on the groups to the front. Give each member a card.
5. Tell them to form the prime factorization of the number you will call out.

Example: $12 = 2 \times 2 \times 3$

The first group to form the answer correctly gets a point. Call out the following numbers: 42, 56, 14, 28, 48, 81, 72, 64, 45, and 90

The group with more points wins the game.

6. Ask the pupils to do the interactive activity on the TEC-CD about prime factorization.
7. Assign as homework **Keep Practicing** Assign as optional work **Try This Challenge**.

Day 3

1. Tell the pupils to exchange papers to check each other's work. Call on the auditory learners. Have them explain their answers. Be ready to give feedback, answer queries, or clarify any misconception.
2. Call on the advanced learners. Have them explain the answers to **Try This Challenge**.
3. To end the lesson, ask the pupils to do a think pair share. Have them exchange ideas about the concepts they learned in the lesson.
4. Have the pupils answer **Test Yourself**.
5. Ask all pupils who did not do well on the test to attend after class tutorial sessions or consultation periods. During these meetings, provide alternate materials to consolidate their learning. Have them answer Ready-to-Print Activity Sheets on the TEC-CD.

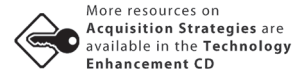
Conclusion/Evaluation: Make Meaning:

To assess the pupils' understanding related to Goal 3, have them answer **Reflect and Resolve**. Ask the pupils to color the star green if

Differentiation for
Product

Differentiation for
Product

Differentiation for
Process



Differentiation for
Product

Self-assessment/
Reflection

they understand the lesson, orange if they have some questions, and red if they feel that they need help.

Interview the pupils by asking the questions in **Reflect and Resolve**.

Goal 4 – Greatest Common Factor (3 days)

Pre-assessments:

1. Ask the pupils to answer questions on flash cards to determine what they know and don't know about finding common factors of a set of numbers.
2. Ask the pupils to answer the exercises in **Get Ready**.
3. Ask the pupils the following questions and then let them explain and defend their answers:
 - a. Are you sure? Why?
 - b. How did you get the answer?
 - c. What did you do to find the answer?
 - d. Can you show the class how you got the answer to the problem?

Introduction/Preparatory Activities: Make Meaning:

1. Start the lesson with an activator. Once pupils are seated, pose this problem: *Mang Boy has two pieces of wood. One piece is 72 cm long and the other piece is 90 cm long. He wants to cut both pieces into strips of equal length that are as long as possible. How long should he cut the pieces of wood?*
2. Call on some pupils. Have them answer the question. Encourage them to use any strategy to solve the problem.
3. Determine the pupils' prior knowledge and skills.

Differentiation to check pupils' **Readiness**



More resources on Learning Objectives are available in the Technology Enhancement CD

Knowledge:

The learner...

- Finds the common factors and the greatest common factor (GCF) of two numbers using the following methods: listing, prime factorization, and continuous division.
- Solves real-life problems involving GCF of two given numbers.
- Creates problems with reasonable answers involving GCF of two given numbers.

Skills:

The learner will be skilled in...

- Finding the common factors and the greatest common factor (GCF) of two numbers using the following methods: listing, prime factorization, and continuous division.
- Solves real-life problems involving GCF of two given numbers.

Body/Developmental:

Day 1

1. Display on the chalk ledge these number cards and ask the class to give all the factors of each.

Ask the kinesthetic learners to write the answers on the board.

30 – 1, 2, 3, 5, 6, 10, 30

24 – 1, 2, 3, 4, 6, 8, 12, 24

18 – 1, 2, 3, 6, 9, 18

12 – 1, 2, 3, 4, 6, 12

2. After listing the factors, call the attention of the visual learners. Ask the visual learner to circle the common factors of 24 and 18.

24 – 1, 2, 3, 4, 6, 8, 12, 24

18 – 1, 2, 3, 6, 9, 18

Ask a visual learner to identify and write the common factors of 24 and 18, in any order: 2, 1, 6, and 3.

3. Ask an auditory learner to read the common factors of 24 and 18. Ask a volunteer to arrange the common factors in ascending order to identify the greatest factor. Ask the kinesthetic learner to encircle the greatest common factor (GCF) of 24 and 18, which is 6.
4. Point out that one way of getting the greatest common factor of numbers is by listing the factors of each number from the least to the greatest.

- Creates problems with reasonable answers involving GCF of two given numbers.

21st Century Skills:

- Communicating, reflecting, and monitoring his/her understanding of greatest common factor
- Using the appropriate tools, techniques, and strategies that will help him/her understand the concepts

Differentiation for
Process

Differentiation for
Process

Differentiation for
Process

- Show the class how to find GCF of 24 and 18 using prime factorization. Ask a volunteer to write the prime factorization of 24 and 18 on the board.

$$24 = \underline{2} \times 2 \times 2 \times \underline{3}$$

$$18 = \underline{2} \times \underline{3} \times 3$$

Ask a kinesthetic learner to circle the common prime factors of 24 and 18. Ask an auditory learner to identify the common prime factors. Point out to the pupils that they can also get the GCF of a set of numbers by multiplying their common prime factors. That is, GCF of 24 and 18 = $2 \times 3 = 6$.

Say: "The GCF of 24 and 18 is 6."

- Emphasize that listing the factors and prime factorization are two ways of finding the GCF of a set of numbers.
- Discuss **Think and Understand**.
- Tell them that they can also get the GCF of two numbers using continuous division. Give examples to illustrate.

Example: Find the GCF of 36 and 24

Have them think of common factors of the given numbers. Use the common factor as divisor of the numbers.

$$\begin{array}{r} 2 \overline{)36 \ 24} \\ \underline{2 \ 18 \ 12} \\ 3 \overline{)9 \ 6} \\ \underline{3 \ 2} \end{array}$$

$$ $$

$$ $$

$$ $$

Stop dividing when the common divisor becomes 1. Multiply the divisors used to find the GCF of 36 and 24. Hence, GCF of 36 and 24 is equal to $2 \times 2 \times 3$ or 12.

- Ask the pupils to answer **Check Your Understanding** orally. Call on volunteers. Have them explain the answers to the questions.
- Assign **Practice** as homework.

Day 2

- Ask the pupils to watch a video on the TEC-CD about finding GCF.
- Ask the pupils to work in teams of sixes. When you assign pupils to teams, balance the team so that each team is composed of pupils whose performance levels range from low to average to high. Tell the pupils to answer **Keep Practicing** and **Try This Challenge**. Give them two options for the presentation of their solution. Tell them that they may list down factors, use prime factorization, use continuous division to find the GCF in each problem.

Day 3

- Have the teams exchange papers to check each other's work. Call on volunteers. Have them explain the answers to the exercises. Be ready to correct any misconception that may arise from the discussion.

Differentiation for
Process

Differentiation for
Process

Differentiation for
Product

Differentiation for
Product



More resources on
Acquisition Strategies are
available in the **Technology
Enhancement CD**

Differentiation for
Product

- To end the lesson, ask an auditory learner to summarize the important ideas in Goal 4.
- Have the pupils answer **Test Yourself**.

Conclusion/Evaluation: Make Meaning:

To assess the pupils' understanding related to Goal 4, have them answer **Reflect and Resolve**. Ask the pupils to color the star green if they understand the lesson, orange if they have some questions, and red if they feel that they need help.

Interview the pupils by asking the questions in **Reflect and Resolve**.

Goal 5 – Least Common Multiple (3 days)

Pre-assessments:

- Have the pupils solve some problems to determine what they know and don't know about finding common multiples.
- Ask the pupils to answer the exercises in **Get Ready**.
- Ask the pupils the following questions and then let them explain and defend their answers:
 - Are you sure? Why?
 - How did you get the answer?
 - What did you do to find the answer?

Introduction/Preparatory Activities: Make Meaning:

- Once pupils are seated, ask the pupils to solve the opening problem in Goal 5: *Kyla visits her grandparents every other week. She joins outreach activities every third week. What is the first week that she will have to visit her grandparents and join outreach activities?*
- Call on some pupils. Have them answer the question. Encourage them to use any strategy to solve the problem.
- Determine the pupils' prior knowledge and skills.

Self-assessment/ Reflection

Differentiation to check pupils' **Readiness**



Knowledge:

The learner...

- Finds the common multiples and least common multiple (LCM) of two numbers using the following methods: listing, prime factorization, and continuous division.
- Solves real-life problems involving LCM of two given numbers.
- Creates problems with reasonable answers involving LCM of two given numbers.

Skills:

The learner will be skilled in...

- Finding the common multiples and least common multiple (LCM) of two numbers using the following methods: listing, prime

Body/Developmental:

Day 1

1. Have the pupils review finding multiples of two numbers on flash cards.
2. Write numbers 12 and 18 on the board. Ask a kinesthetic learner to write the prime factorization of each number.

$$12 = 2 \times 2 \times 3$$

$$18 = 2 \times 3 \times 3$$

3. Ask a visual learner to encircle the common factors of 12 and 18. Multiply all the common factors, which are taken as one factor: 2×3 . Multiply the product of the common factors or 6 by the remaining factors of 12 and 18 to find the least common multiple (LCM) of 12 and 18, which is 36.

Say: "The LCM of 12 and 18 = $(2 \times 3) \times 2 \times 3 = 36$."

4. Tell the pupils they can also get the LCM of 12 and 18 by listing their multiples.

Multiples of 12 and 18:

12: 12, 24, **36**, 48, 60, **72**, ...

factorization, and continuous division.

- Solves real-life problems involving LCM of two given numbers.
- Creates problems with reasonable answers involving LCM of two given numbers.

21st Century Skills:

- Communicating, reflecting, and monitoring his/her understanding of least common multiples
- Using the appropriate tools, techniques, and strategies that will help him/her understand the concepts

Differentiation for
Process

Differentiation for
Product

Differentiation for
Product

Differentiation for
Process

18: 18, **36**, 54, **72**, ...

Common Multiples: 36, 72, 108, ...

Least Common Multiple = 36

5. Discuss **Think and Understand**.
6. Tell them that they can also get the LCM of two numbers using continuous division. Give an example to illustrate.

Example: Find the LCM of 12 and 18

Tell the pupils to find factors that can evenly divide 12 and 18. Stop dividing when you can't find a common divisor between the two numbers.

$$\begin{array}{r} 2 \overline{)12 \ 18} \\ 3 \overline{)6 \ 9} \\ \quad \overline{)2 \ 3} \end{array}$$

Say: "To find the LCM of 12 and 18, multiply the divisors and the numbers in the last row. Hence, the LCM of 12 and 18 is $2 \times 3 \times 2 \times 3$ or 36."

7. Ask the auditory learners to answer **Check Your Understanding** orally. Call on the auditory learners. Have them explain their answers. Be ready to give feedback, answer queries, or clarify any misconception.
8. Discuss **Practice**. Ask the kinesthetic learners to write the answers to **Practice** on the board. Ask the pupils to explain their answers. Be ready to correct and clarify any error or misconception.

Day 2

1. Use flash cards to review giving LCM of a set of numbers.

Examples: 8 and 12

$$8 = 2 \times 2 \times 2$$

$$12 = 2 \times 2 \times 3$$

$$\text{LCM} = (2 \times 2) \times 2 \times 3 = 24$$

The LCM of 12 and 8 is 24.

2. Ask the pupils to watch a video on the TEC-CD about finding LCM of two numbers.
3. Ask the pupils to work in groups of fours. Have them discuss the answers to **Keep Practicing** and **Try this Challenge**. Remind the pupils to exchange ideas during the activity.

Day 3


1. Tell the pupils to exchange papers to check each other's work. Discuss the solutions to the exercises. Ask the struggling learners: "Do you have any problem with the exercises?" Be ready to give feedback, answer queries, or clarify any misconception.
2. To end the lesson, ask an auditory learner to summarize the different ways of finding the LCM of two of numbers.

Differentiation for
Process


Differentiation for
Product

Differentiation for
Product

Differentiation for
Process

 More resources on
Acquisition Strategies are
available in the **Technology**
Enhancement CD

Differentiation for
Product

 More resources on
Acquisition Strategies are
available in the **Technology**
Enhancement CD

- Have the pupils answer **Test Yourself**.
- Ask all pupils who did not do well on the test to attend after class tutorial sessions or consultation periods. During these meetings, provide alternate materials to consolidate their learning. Have them answer Ready-to-Print Activity Sheets on the TEC-CD about finding LCM.

Conclusion/Evaluation: Make Meaning:

To assess the pupils' understanding related to Goal 5, have them answer **Reflect and Resolve**. Ask the pupils to color the star green if they understand the lesson, orange if they have some questions, and red if they feel that they need help.

Interview the pupils by asking the questions in **Reflect and Resolve**.

Goal 6 – Understanding Proper, Improper Fractions, and Mixed Numbers (3 days)

Pre-assessments:

- Ask the pupils to do many hands-on explorations to understand improper fractions and mixed numbers. The pupils will learn about the concept by using fraction strips.
- Ask the pupils to answer the exercises in **Get Ready**.
- Ask the pupils the following questions and then let them explain and defend their answers:
 - Are you sure? Why?
 - How did you get the answer?
 - Can you show the class?

Introduction/Preparatory Activities: Make Meaning:

- Once pupils are seated, ask the pupils to answer the opening problem in Goal 6. Ask the pupils: Can you make fraction strips to show $\frac{3}{2}$? $\frac{2}{2}$? $1\frac{1}{2}$?
- Call on some pupils. Have them answer the questions. Encourage them to use any strategy to solve the problem.
- Determine the pupils' prior knowledge and skills.

**Self-assessment/
Reflection**

Differentiation to check pupils' **Readiness**



Knowledge:

The learner...

- Identifies proper fractions, improper fractions, and mixed numbers.
- Changes an improper fraction to a mixed number and vice versa.

Skills:

The learner will be skilled in...

- Identifying proper fractions, improper fractions, and mixed numbers.
- Changing an improper fraction to a mixed number and vice versa.

21st Century Skills:

- Communicating, reflecting, and

monitoring his/
her understanding
of proper,
improper
fractions, and
mixed numbers

- Using the appropriate tools, techniques, and strategies that will help him/her understand the concepts

Body/Developmental:

Day 1

1. Use strips of paper of the same size to review fractional parts of a whole.
2. Give the pupils two equal-size strips of paper to show proper, improper, and mixed fractions. Ask the pupils to fold the strips of paper to form four halves. Tell them to color three parts or halves red and label it as $\frac{3}{2}$.
3. Ask another pupil to combine one whole strip of paper with $\frac{1}{2}$ -strip of paper. Tell them that the fraction strips represent $1 + \frac{1}{2}$ or $1\frac{1}{2}$.
4. Ask a kinesthetic learner to compare the $1\frac{1}{2}$ -paper to the $\frac{3}{2}$ -paper in item 1. Ask: "Which fraction part is bigger, $1\frac{1}{2}$ or $\frac{3}{2}$? Lead them to understand that since the paper strips fit exactly each other if one is placed on top of the other, then the fractions are equivalent. Say: " $1\frac{1}{2}$ and $\frac{3}{2}$ are equivalent fractions, $\frac{3}{2}$ is an improper fraction since its numerator (3) is greater than its denominator (2). On the other hand, $1\frac{1}{2}$ is a mixed fraction since it is made up of a whole number (1) and a fraction ($\frac{1}{2}$).
5. Tell the pupils to fold the other strip of paper to form fourths. Tell them to color two parts ($\frac{2}{4}$) blue. Ask an auditory learner to give the fraction name for each part. Write it on the board: $\frac{2}{4}$. Say: " $\frac{2}{4}$ is a proper fraction since its numerator (2) is less than its denominator (4)."
6. Ask the pupils to get another sheet of paper and tell them to fold the paper into 3 equal-size parts to form thirds. Tell the pupils to name the whole paper as $\frac{3}{3}$. Tell them that $\frac{3}{3}$ is equivalent to 1. Say: "The fraction $\frac{3}{3}$ is also an improper fraction. Its numerator (3) is equal to its denominator (3)."
7. Discuss **Think and Understand**.

Differentiation for
Process

Differentiation for
Process

Differentiation for
Process

Differentiation for
Process

Differentiation for
Process

Differentiation for
Process

Day 2

1. Use paper folding to review equivalent, proper, improper, and mixed fractions.
2. Ask the pupils to do the interactive activity on the TEC-CD about proper, improper fractions, and mixed numbers.
3. Ask the pupils to answer orally **Check Your Understanding**. Call on volunteers. Have them use paper folding to explain their answers. Be ready to give feedback, answer queries, or clarify any misconception.
4. Ask the pupils to work in teams of sixes. When you assign pupils to teams, balance the team so that each team is composed of pupils whose performance levels range from low to average to high. Tell the struggling learners to answer **Practice**. Ask the average learners to answer **Keep Practicing** and ask the advanced learners to answer **Try This Challenge**. Tell them that to use fractional cutouts, paper folding, or draw fraction models to explain the solution to each problem.

Day 3

1. Discuss the answers to the seatwork. Have the teams exchange papers to check each other's work. Call on the auditory learners. Have them explain the answers to the exercises. Ask the visual learners to draw horizontal bars or diagrams on the board to explain their answers. Be ready to correct and clarify any error or misconception that may arise from the discussion.
2. To end the lesson, ask the pupils to use Think-Pair-Share in exchanging ideas about the concepts they learned in Goal 6.
3. Have the pupils answer **Test Yourself** 10 to 15 minutes before the class ends.
4. Ask all the pupils who did not do well on the test to attend after-class tutorial sessions or consultation periods. During these meetings, provide alternate materials to consolidate their learning.

Conclusion/Evaluation: Make Meaning:

To assess the pupils' understanding related to Goal 6, have them answer **Reflect and Resolve**. Ask the pupils to color the star green if they understand the lesson, orange if they have some questions, and red if they feel that they need help.

Interview the pupils by asking the questions in **Reflect and Resolve**.

Goal 7 – Simplifying Fractions (3 days)

Pre-assessments:

1. Ask the pupils questions to determine what they know and don't know about simplifying fractions.
2. Some of the questions are:
 - a. How do you get $\frac{1}{2}$ of a whole?

Differentiation for Process



More resources on Acquisition Strategies are available in the Technology Enhancement CD

Differentiation for Product

Differentiation for Product

Self-assessment/Reflection

Differentiation to check pupils' Readiness



More resources on Learning Objectives are available in the Technology Enhancement CD

- b. How do you get $\frac{1}{2}$ of a whole?
 - c. Which fraction part is greater, or ?
 - d. How do you compare $\frac{1}{2}$ to $\frac{1}{4}$ of a given whole?
 - e. How do you compare $\frac{1}{2}$ and $\frac{1}{4}$ of a given whole?
3. Ask the pupils the following questions and then let them explain and defend their answers:
 - a. Are you sure? Why?
 - b. How did you get the answer?
 - c. Can you show the class?

Introduction/Preparatory Activities: Make Meaning:

1. Once the pupils are seated, ask them to answer the exercises in **Get Ready**.
2. Call on some pupils. Have them answer the question. Encourage them to use any strategy to solve the problem.
3. Determine the pupils' prior knowledge and skills.

Body/Developmental:

Day 1

1. Ask for a volunteer among the pupils to be blindfolded and act as the "It." He/She will throw a plastic ball to the classmates; whomever the ball touches will give three equivalent fractions. Do this activity for around 5 minutes.
2. Arrange three whole egg pies on the table such that the visual learners can see how you sliced them into equal slices. Slice the first into halves, the second one into fourths, and then the third egg pie into fourths.
3. Ask an auditory learner to give the fraction name for each part. Ask a kinesthetic learner to write the fraction name for each part on the board: $\frac{1}{4}$.
4. Use circular fraction cutouts. Tell the class to identify or name the parts that you will show on the board as: $\frac{1}{4}$, $\frac{2}{4}$, $\frac{1}{2}$, $\frac{1}{3}$, $\frac{2}{6}$, and $\frac{3}{6}$.
5. Separate $\frac{1}{2}$, $\frac{2}{4}$, and $\frac{3}{6}$. Introduce the term simplest form or lowest term fraction. Help the pupils to understand that $\frac{1}{2}$, $\frac{2}{4}$ and $\frac{3}{6}$ are equivalent fractions. Tell them that simplest form of $\frac{2}{4}$ and $\frac{3}{6}$ is $\frac{1}{2}$. Point out that a fraction is in its simplest form if the greatest common factor or GCF of its numerator and denominator is 1. That is, the numerator and denominator are relatively prime numbers.
6. Discuss **Think and Understand**.
7. Ask the pupils to answer orally **Check Your Understanding**. Ask the auditory learners to explain their answers. Be ready to correct

Knowledge:

The learner changes fractions to lowest forms.

Skills:

The learner will be skilled in changing fractions to lowest forms.

21st Century Skills:

- Communicating, reflecting, and monitoring his/her understanding of simplifying fractions
- Using the appropriate tools, techniques, and strategies that will help him/her understand the concepts

Differentiation for **Process**

Differentiation for **Process**

Differentiation for **Process**

Differentiation for **Process**

Differentiation for **Product**

and clarify any error or misconception in the pupils' understanding of the concept.

Day 2

1. Ask the pupils to watch a video on the TEC-CD about simplifying fractions.
2. Ask the pupils to work in groups of fours. Have them discuss the answers to **Practice, Keep Practicing, and Try This Challenge**. Remind the pupils to exchange ideas during the activity. Move around the classroom, clarifying questions, gauging pupils' understanding, and addressing misconceptions. Write down any misconception or lapses in student understanding and address these problems before the end of the activity. See to it that everyone is working and actively participating in the discussion. Ask the pupils: "Do you have any problem with the exercises?"

Day 3

1. Tell the pupils to exchange papers to check each other's work. Call on the auditory learners. Have them explain their answers. Be ready to give feedback, answer queries, or clarify any misconception.
2. To end the lesson, ask the pupils to do a think pair share. Have them exchange ideas about the concepts they learned in Goal 7.
3. Have the pupils answer **Test Yourself** 10 to 15 minutes before the class ends.
4. Ask all pupils who did not do well on the test to attend after class tutorial sessions or consultation periods. During these meetings, provide alternate materials to consolidate their learning. Have them answer Ready-to-Print Activity Sheets on the TEC-CD about simplifying fractions.

Conclusion/Evaluation: Make Meaning:

To assess the pupils' understanding related to Goal 7, have them answer **Reflect and Resolve**. Ask the pupils to color the star green if they understand the lesson, orange if they have some questions, and red if they feel that they need help.

Interview the pupils by asking the questions in **Reflect and Resolve**.



More resources on
Acquisition Strategies are
available in the **Technology
Enhancement CD**

Differentiation for Product



More resources on **Practice
Strategies** are available in
the **Technology
Enhancement CD**

Self-assessment/ Reflection

Unit IV

Numbers and Number Sense–Addition and Subtraction of Fractions and Decimals

Summary:

The unit on Addition and Subtraction of Fractions and Decimals is part of the Second Quarter Lesson. In this unit, the pupils will learn key concepts involving fractions and decimals, specifically adding fractions, subtracting fractions, changing fractions to decimals and vice-versa, and solving word problems involving fractions. They will also learn to round, estimate, compare, and order decimals. To develop the pupils' abilities to work with fractions, informal experiences will be provided through the use of physical models and manipulative devices. Make-meaning activities will include working with fraction cutouts, decimal fraction models, and exploration activities using concrete objects.

As a pre-assessment activity, the pupils will be asked about their interests and preferred learning styles. An informal approach will be used to diagnose their readiness and abilities related to whole number concepts.

Grade 4 Level Standards:

The learner demonstrates understanding and appreciation of key concepts and skills involving numbers and number sense (whole numbers up to 100 000, multiplication and division of whole numbers, order of operations, factors and multiples, addition and subtraction of fractions, and basic concepts of decimals including money); geometry (lines, angles, triangles, and quadrilaterals); patterns and algebra (continuous and repeating patterns and number sentences); measurement (time, perimeter, area, and volume); and statistics and probability (tables, bar graphs, and simple experiments) as applied – using appropriate technology – in critical thinking, problem solving, reasoning, communicating, making connections, representations, and decisions in real life.

Content Standards:

The learner demonstrates understanding of...

- *decimals.*
- *addition and subtraction of fractions.*

Performance Standards:

The learner is able to...

- *recognize and represent decimals in various forms and contexts.*
- *apply knowledge of addition and subtraction of fractions in mathematical problems and real-life situations.*

Learning Area Standards:

The learner demonstrates understanding and appreciation of key concepts and principles of mathematics as applied – using appropriate technology – in problem solving, critical thinking, communicating, reasoning, making connections, representations, and decisions in real life.

Key Understandings:

1. Fractions can be used to represent part of a whole or set. It can also be used to express number relationships
2. Opportunities for solving problems involving decimals occur daily in real life.
3. The use of appropriate mathematical tools, techniques, and strategies will help in solving problems involving fractions and decimals.

Key Questions:

1. How do concepts and operations involving fractions allow us to solve real life problems?

2. Why study decimals?
3. How can we use mathematical tools, techniques and strategies to solve mathematical problems involving fractions and decimals?

Resources:

Math for Life 4 Worktext; multimedia presentations, audio companions, Web links, and downloadable Ready-to-Print Activity sheets from the accompanying



Technology Enhancement CD (TEC), and

www.rexinteractive.com, Teacher Created Materials (TCM) – Exploring Math; Targeted Mathematics Intervention, Mathematics Readers

Differentiation to check pupils'

Readiness

Interests

Learning Profiles

Pre-assessments:

1. Have the pupils answer a pretest or do some activities at the start of each week or prior to instruction to determine what they already know, can do, and understand about fractions. Ask them to compare and order fractions and solve word problems involving fractions.
2. Ask the pupils about their hobbies; places they love to visit on weekends and holidays; and favorite books, food, toys, TV programs, movies, and games. Have them answer a checklist:
 - a. I am good at copying what people say.
 - b. I really love books.
 - c. I really like to listen to the radio.
 - d. I really like to do word searches or crossword puzzles.
 - e. I really like math.

- f. I am good at making and figuring out patterns.
 - g. I am good at drawing.
 - h. I am good at learning new sports or dances.
3. To determine the preferred learning style of each pupil, ask the following questions:
- a. How many of you learn things by listening to lectures and videos?
 - b. How many of you learn by looking at pictures and writings on the board?
 - c. How many of you learn by doing?
 - d. How many of you learn by talking and listening to friends?
 - e. How many of you learn by working alone?
- To answer the questions, the pupils will in turn make a *thumbs up* sign for “yes,” *thumbs down* sign for “no,” and *thumbs sideward* sign for “I am not sure.”
4. The results will be used to group the pupils according to their interests, readiness, and learning profiles.

Second Quarter

Goal 8 – Adding and Subtracting Similar Fractions (3 days)

Pre-assessments:

1. Have the pupils do many hands-on explorations to determine what they know and don’t know about adding and subtracting fractions.
2. Ask the pupils to use fraction strips to answer questions such as:
 - a. What is $\frac{1}{4} + \frac{2}{4}$?
 - b. What is $\frac{3}{2} - \frac{1}{2}$?
 - c. How do you use fractional cutouts to show that $\frac{3}{4} - \frac{1}{4} = \frac{2}{4}$?
3. Ask the pupils the following questions and then let them explain and defend their answers:
 - a. Are you sure? Why?
 - b. How did you get the answer?
 - c. What did you do to find the answer?

Introduction/Preparatory Activities: Make Meaning:

1. Start the lesson with an activator. Once the pupils are seated, ask them to solve the opening problem in Goal 8: *Linette used $\frac{2}{5}$ cup of milk to bake a cake and $\frac{1}{5}$ cup of milk for her coffee. How many cups of milk did Linette use in all?*
2. Call on some pupils. Have them answer the problem. Encourage them to use fraction cutouts and draw mathematical models to solve the problem.

Differentiation to check pupils’ **Readiness**



More resources on Learning Objectives are available in the Technology Enhancement CD

Knowledge:

The learner...

- Visualizes addition and subtraction of similar fractions.
- Visualizes subtraction of a fraction from a whole number.
- Performs addition and subtraction of similar fractions.

Skills:

The learner will be skilled in...

- Visualizing addition and subtraction of similar fractions.
- Visualizing subtraction of a

3. Determine the pupils' prior knowledge and skills.

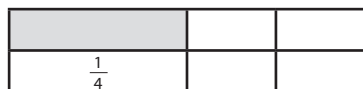
Body/Developmental:

Day 1

1. Divide a sheet of bond paper into 4 equal parts. Write $\frac{1}{4}$ on each equal part using a marker pen. Tape the parts on the board such that the visual learners can read well the fraction name of each part.
2. Call the attention of the class when you tape $\frac{1}{4}$ and $\frac{1}{4}$ on another part of the board. Write: $\frac{1}{4} + \frac{1}{4} = \frac{2}{4}$. Say: "One fourth and one fourth is two fourths. Draw a fraction model to illustrate the solution."



Say: "Here the two fractions $\frac{1}{4}$ and $\frac{1}{4}$ are based on the same whole."



"Hence, $\frac{1}{4} + \frac{1}{4} = \frac{2}{4}$."

3. Ask a kinesthetic learner to remove $\frac{1}{4}$ from $\frac{2}{4}$. Write on the board: $\frac{2}{4} - \frac{1}{4} = \frac{1}{4}$. Point out that when adding or subtracting similar fractions, only the numerators are added or subtracted. The denominator does not change. Draw a fraction model to illustrate the solution.

fraction from a whole number.

- Performing addition and subtraction of similar fractions.

21st Century Skills:

- Communicating, reflecting, and monitoring his/her understanding of addition and subtraction of similar fractions
- Using the appropriate tools, techniques, and strategies that will help him/her understand the concepts

Differentiation for **Process**

Differentiation for **Process**

Differentiation for **Process**

$\frac{2}{4}$			

Say: "If you take away $\frac{1}{4}$ from $\frac{2}{4}$, only $\frac{1}{4}$ remains."

	x		
$\frac{1}{4}$			

"Hence, $\frac{2}{4} - \frac{1}{4} = \frac{1}{4}$."

4. Write the following on the board:

a. $\frac{2}{5} + \frac{1}{5} = n$

b. $\frac{7}{8} + \frac{5}{8} = n$

c. $\frac{5}{6} + \frac{1}{6} = n$

d. $\frac{3}{5} + \frac{1}{5} = n$

Call on volunteers. Have them give and explain the answers.

5. Discuss **Think and Understand**.

6. Point out that when adding or subtracting similar fractions, always relate the fraction to a whole. The two fourths that were added in item 2 were also $\frac{2}{4}$ of the same whole. Give several examples for the pupils to discover that when adding or subtracting similar fractions, they must simply add or subtract the numerators and retain the denominator. Tell them to simplify the answer if needed.

7. Ask the pupils to answer orally **Check Your Understanding**. Call on the auditory learners. Have them explain the answers to the exercises.

8. Assign **Practice** as homework.

Day 2

1. Tell the pupils to exchange papers to check each other's work. Discuss the assignment. Call on two visual learners. Have them draw fraction models on the board to explain the answers.

2. Ask the pupils to do the interactive activity on the TEC-CD about adding and subtracting fractions.

3. Ask the pupils to work in pairs. Have them discuss the answers to **Keep Practicing**. Remind the pairs to exchange ideas during the activity. Move around the room and see to it that everyone is working. Ask the pupils: "Do you have any problem with the exercises?"

4. Assign as optional work **Try This Challenge**.

Day 3

1. Tell the pupils to exchange papers to check each other's work. Call on auditory learners. Have them explain their answers. Be ready to give feedback, answer queries, or clarify any misconception.

Differentiation for
Process

Differentiation for
Product

Differentiation for
Product

More resources on
Acquisition Strategies are
available in the **Technology
Enhancement CD**

Differentiation for
Product

2. Call on a volunteer. Ask the pupil to draw a circle on the board to explain the assignment.
3. Ask an auditory learner to summarize the important ideas in Goal 8.
4. Have the pupils answer **Test Yourself**.

Conclusion/Evaluation: Make Meaning:

To assess the pupils' understanding related to Goal 8, have them answer **Reflect and Resolve**. Ask the pupils to color the star green if they understand the lesson, orange if they have some questions, and red if they feel that they need help.

Interview the pupils by asking the questions in **Reflect and Resolve**.

Goal 9 – Adding and Subtracting Dissimilar Fractions (3 days)

Pre-assessments:

1. Have the pupils do many hands-on explorations to determine what they know and don't know about dissimilar fractions.
2. Ask the pupils to answer the exercises in **Get Ready**.
3. Ask the pupils the following questions and then let them explain and defend their answers:
 - a. Are you sure? Why?
 - b. How did you get the answer?
 - c. Can you show the class?

Introduction/Preparatory Activities: Make Meaning:

1. Start the lesson with an activator. Once pupils are seated, ask the pupils answer the opening problem in Goal 9: Mother bought $\frac{1}{2}$ kg of chicken and $\frac{4}{5}$ kg of beef yesterday. How much meat did she buy in all?
2. Call on some pupils. Have them answer the problem. Encourage them to use any strategy to solve the problem.
3. Determine the pupils' prior knowledge and skills.

Self-assessment/ Reflection

Differentiation to check pupils' **Readiness**



More resources on Learning Objectives are available in the Technology Enhancement CD

Knowledge:

The learner...

- Visualizes addition and subtraction of dissimilar fractions.
- Performs addition and subtraction of dissimilar fractions.

Skills:

The learner will be skilled in...

- Visualizing addition and subtraction of dissimilar fractions.
- Performing addition and subtraction of dissimilar fractions.

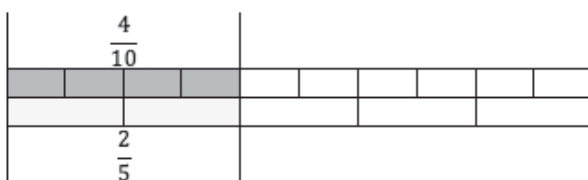
21st Century Skills:

- Communicating, reflecting, and monitoring their understanding of addition and subtraction of dissimilar fractions

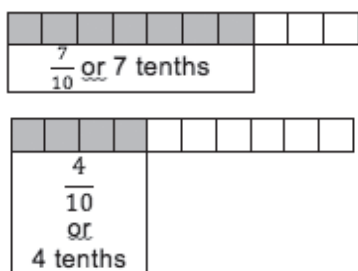
Body/Developmental

Day 1

1. Use flash cards to review simplifying fractions, adding, and subtracting similar and through a game.
2. Divide the class into two teams. Tell them that each member of the team will take turns in adding, subtracting, and simplifying the fractions that you will flash. If the answer of the member is correct, he/she puts a tally mark on the board assigned to their team. If the answer is not correct, the member in the other group can answer, and likewise put a tally mark on the board for their team. Commend the team who has more tally marks.
3. Discuss addition of dissimilar fractions. Use fraction strips to show the pupils how to add $\frac{2}{5}$ and $\frac{4}{10}$. Lead them to discover that $\frac{2}{5}$ and $\frac{4}{10}$ are equivalent fractions. Ask a kinesthetic learner to use draw a fraction model to show why $\frac{2}{5}$ is equivalent to $\frac{4}{10}$.



4. Call on a volunteer to combine the fractions. Ask a visual learner to draw a fraction model on the board.



Since 7 tenths and 4 tenths are 11 tenths, then

$$\frac{2}{5} + \frac{7}{10} = \frac{4}{10} + \frac{7}{10} = 1\frac{1}{10} \text{ or } 1\frac{7}{10}.$$

The answer $1\frac{1}{10}$ is an improper fraction. Divide or regroup to change it to a mixed number. That is,

$$1\frac{1}{10} = 11 \text{ tenths} = 10 \text{ tenths and } 1 \text{ tenth or } 1\frac{1}{10}.$$

5. Tell the pupils that they can also use the LCM of 5 and 10 to add $\frac{2}{5}$ and $\frac{7}{10}$. Ask an advanced learner to explain the solution to the class. The LCM of 5 and 10 is 10.

- Using the appropriate tools, techniques, and strategies that will help them understand the concepts

Differentiation for **Process**

Differentiation for **Process**

Differentiation for **Process**

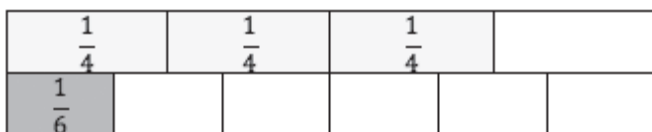
Differentiation for **Process**

Differentiation for **Process**

Change each to similar fractions.

$$\frac{2}{5} + \frac{7}{10} = \frac{4}{10} + \frac{7}{10} = 1\frac{1}{10} \text{ or } 1\frac{7}{10}.$$

6. Discuss subtraction of dissimilar fractions. Ask: "How do you subtract $\frac{1}{6}$ from $\frac{3}{4}$?" Ask the kinesthetic learners to use fraction strips to find the difference. Ask the visual learners to use the LCM of 4 and 6 to get the difference. Draw a fraction model on the board to show $\frac{3}{4} - \frac{1}{6}$.



Lead them to discover that:

$$\frac{3}{4} - \frac{1}{6} = \frac{9}{12} - \frac{2}{12} = \frac{7}{12}.$$

5. Discuss **Think and Understand**.
6. Remind the pupils to always change the fractions to similar fractions before they perform subtraction.
7. Use the board to highlight important details like finding the LCM of the denominators to get the LCD. Give an example to illustrate.

$$\frac{3}{4} - \frac{1}{6} = \frac{9}{12} - \frac{2}{12} = \frac{7}{12}.$$

8. Ask the pupils to answer **Check Your Understanding** orally. Ask the auditory learners to explain their answers. Be ready to correct and clarify any error or misconception.

Day 2

- Use flash cards to review finding the LCM of two numbers and the LCD of two dissimilar fractions.
- Ask the pupils to watch a video on the TEC-CD about adding and subtracting dissimilar fractions.
- Ask the pupils to work in teams of sixes. When you assign pupils to teams, balance the team so that each team is composed of pupils with different learning profile. Tell them to answer **Practice, Keep Practicing** and **Try This Challenge**. Have the pupils exchange ideas to find the answers to the problems. Ask the kinesthetic learners in the group to draw a fraction model or use fraction strips. Ask the auditory learners to explain the solution by comparing the fraction parts. Ask the visual learners to write the answers and solutions on pad paper. Give them time to complete their answers.

Day 3

- Have the teams exchange papers to check each other's work. Call on volunteers. Have them explain the solution to the problem.
- Ask an auditory learner to summarize the important ideas in Goal 9.
- Have the pupils answer **Test Yourself**.

Differentiation for
Process

Differentiation for
Product

Differentiation for
Process



Differentiation for
Product

Differentiation for
Process

Differentiation for
Process

Differentiation for
Process

Conclusion/Evaluation: Make Meaning

To assess the pupils' understanding related to Goal 2 have them answer **Reflect and Resolve**. Ask the pupils to color the star green if they understand the lesson, orange if they have some questions, and red if they feel that they need help.

Interview the pupils by asking the questions in **Reflect and Resolve**.

Goal 10 – Solving More Problems Involving Fractions (3 days)

Pre-assessments:

1. Review the pupils on the steps in problem solving. Ask them to solve word problems to determine what they know and don't know about problem solving.
2. Ask the pupils to identify the operations that will be used to solve the problems in **Get Ready**.
3. Ask the pupils the following questions and then let them explain and defend their answers:
 - a. Are you sure? Why?
 - b. How did you get the answer?
 - c. What did you do to find the answer?
 - d. Can you show the class how you got the answer to the problem?

Introduction/Preparatory Activities: Make Meaning:

1. Once pupils are seated, ask the pupils to solve the opening problem: *One-third of a garden plot is planted with mustard and $\frac{1}{2}$ of the remainder of the plot is planted with cabbage. The rest are*

Self-assessment/ Reflection

Differentiation to check pupils' **Readiness**



Knowledge:

The learner...

- Solves routine and non-routine problems involving addition and/or subtraction of fractions using appropriate problem solving strategies and tools.
- Creates problems (with reasonable answers) involving addition and/or subtraction of fractions.

Skills:

The learner will be skilled in...

- Solving routine and non-routine problems involving addition and/or subtraction of fractions using appropriate problem solving strategies and tools.
- Creating problems (with reasonable answers) involving addition and/

planted with carrots. What fraction of the garden plot is planted with carrots?

2. Call on some pupils. Have them answer the question. Encourage them to use any strategy to solve the problem.
3. Determine the pupils' prior knowledge and skills.

Body/Developmental:

Day 1

1. Have a 10-minute review on addition and subtraction of similar and dissimilar fractions on flashcards.
2. Ask an auditory learner to read the problem written on a chart posted on the blackboard: *Noel and his two sisters will equally share $\frac{1}{2}$ buko pie. What part of the whole pie will each of the three siblings get?*
3. Have pupils review the steps in problem solving. Have them apply these steps to solve the given problem. Write the steps involved in problem solving on the board:

- a. Understand the problem.

Question: *What part of the whole pie will each get?*

Given: $\frac{1}{2}$ buko pie to be shared equally by Noel and his two sisters

- b. Devise a plan.

Draw a picture or fraction model.

Divide the pie into 2 equal parts and then divide $\frac{1}{2}$ into 3 equal parts. Label each part $\frac{1}{6}$.

Get $\frac{1}{2}$ of the buko pie:



Say: "Here a bar is drawn to represent the whole (one whole buko pie). It is divided into 2 equal parts, and one part is shaded to represent the part of the pie that Noel and his two sisters will get ($\frac{1}{2}$)."

or subtraction of fractions.

21st Century Skills:

- Communicating, reflecting, and monitoring his/her understanding of solving word problems involving fractions
- Using the appropriate tools, techniques, and strategies that will help him/her understand the concepts

Differentiation for **Process**

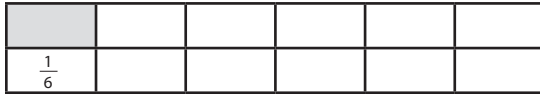
Differentiation for **Process**

Differentiation for **Product**

Divide $\frac{1}{2}$ into 3 equal parts: Each part represents the share that Noel and his two sisters will get.



Say: "Here one of the two equal parts is divided into 3 equal parts. Each part represents the share that Noel and his two sisters will get."



Say: "Here the whole is divided into 6 equal parts to find the part of the pie that each one will get. The shaded part represents Noel's share of the *buko* pie."

- c. Solve: Name each part of the picture.

The shaded part is Noel's *buko* pie. Each of them will get $\frac{1}{6}$ of the whole *buko* pie.

4. Discuss **Think and Understand**.
5. Ask the pupils to answer orally **Check Your Understanding**. Call on volunteers. Have them explain their answers. Be ready to give feedback, answer queries, or clarify any misconception.

Day 2

1. Ask the pupils to do the interactive activity on the TEC-CD about solving problems involving addition and subtraction of fractions.
2. Discuss **Practice**. Call on the visual learners. Have them draw pictures and fraction models on the board to illustrate each problem. Ask a visual learner to identify the given information and question. Ask a kinesthetic learner to color the needed fractional parts. Use the pictures as the problems are discussed with the pupils.
3. Ask the struggling learners to repeat the solution to each problem. Be ready to correct any error or clarify misconception.

Day 3

1. Ask the pupils to work in fours. Have them discuss the answers to **Keep Practicing** and **Try This Challenge**. Remind the pairs to exchange ideas during the activity. Move around the room and see to it that everyone is working. Ask the struggling learners: "Do you have any problem with the exercises?"
2. Tell the pupils to exchange papers to check each other's work. Call on auditory learners. Have them explain their answers. Be ready to give feedback, answer queries, or clarify any misconception.
3. Have the pupils answer **Test Yourself**.
4. Ask all pupils who did not do well on the test to attend after class tutorial sessions or consultation periods. During these meetings,

Differentiation for
Process



More resources on
Acquisition Strategies are
available in the **Technology
Enhancement CD**

Differentiation for
Process

Differentiation for
Product

provide alternate materials to consolidate their learning. Have them answer Ready-to-Print Activity Sheets on the TEC-CD.

Conclusion/Evaluation: Make Meaning

To assess the pupils' understanding related to Goal 3, have them answer **Reflect and Resolve**. Ask the pupils to color the star green if they understand the lesson, orange if they have some questions, red if they feel that they need help.

Interview the pupils by asking the questions in **Reflect and Resolve**.

Goal 11 – Understanding Decimals (3 days)

Pre-assessments:

1. Have the pupils answer questions on to determine what they know and don't know about decimals.
2. Ask the pupils to answer the exercises in **Get Ready**.
3. Ask the pupils the following questions and then let them explain and defend their answers:
 - a. Are you sure? Why?
 - b. How did you get the answer?
 - c. What did you do to find the answer?



More resources on **Practice Strategies** are available in the **Technology Enhancement CD**

Self-assessment/ Reflection

Differentiation to check pupils' **Readiness**



More resources on **Learning Objectives** are available in the **Technology Enhancement CD**

Knowledge:

The learner...

- Visualizes decimal numbers using models like blocks, grids, number lines and money to show the relationship to fractions.
- Gives the place value and the value of a digit of a given decimal number through hundredths.
- Reads and writes decimal numbers through hundredths.

Skills:

The learner will be skilled in...

- Visualizing decimal numbers using models like blocks, grids, number lines and money to show the relationship to fractions.
- Gives the place value and the value of a digit of a given

Introduction/Preparatory Activities: Make Meaning:

1. Start the lesson with an activator. Once the pupils are seated, ask these questions:
 - a. How do you model $\frac{1}{10}$ using fractional strips or cutouts?
 - b. How do you model $\frac{1}{100}$ using fractional regions?
2. Call on some pupils. Have them answer the question. Encourage them to use any strategy to solve the problem.
3. Determine the pupils' prior knowledge and skills.

Body/Developmental:

Day 1

1. Have the pupils review comparing fractions by telling them to use drawing to compare each pair of fractions.
 - a. $\frac{3}{4}$ and $\frac{4}{5}$
 - b. $\frac{1}{3}$ and $\frac{5}{5}$
 - c. $\frac{5}{6}$ and $\frac{7}{8}$
 - d. $\frac{2}{10}$ and $\frac{4}{10}$
 - e. $\frac{25}{100}$ and $\frac{18}{100}$
2. Call on a visual learner to draw a fraction bar on the board to show $\frac{1}{10}$. Tell the pupil to divide a horizontal strip into 10 equal-size parts and label each part $\frac{1}{10}$.



Say: "One of the 10 equal-size parts is called $\frac{1}{10}$, which may be written in decimal form as 0.1. This is also read as 'one tenth' since 1 is in the tenths place.

Make a place value chart on the board."

Hundreds	Tens	Ones	•	Tenths
100	10	1		$\frac{1}{10}$

Say: "This chart shows that you can use fractions to express any decimal number."

decimal number through hundredths.

- Reading and writing decimal numbers through hundredths.

21st Century Skills:

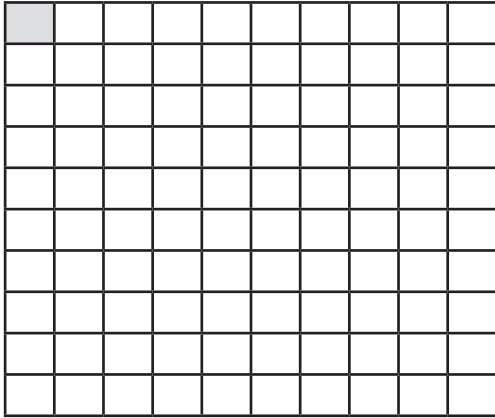
- Communicating, reflecting, and monitoring his/her understanding of decimal numbers
- Using the appropriate tools, techniques, and strategies that will help him/her understand the concepts

Differentiation for Process

Differentiation for Process

Differentiation for Process

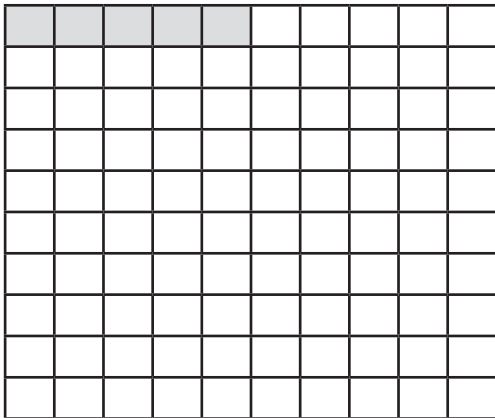
- Display on the board a 10 x 10 square grid. Ask a kinesthetic learner to count all the squares in the grid.
- Ask the auditory learners: "If there are 100 small squares in the grid, what fraction names each small square?"
- Ask a kinesthetic learner to color one small square on the grid. Write $\frac{1}{100}$ or 0.01 on the board. Tell them that 0.01 is read as "one hundredth."



Say: "The shaded part represents $\frac{1}{100}$ of the whole. This is written in decimal as 0.01."

- Ask another pupil to color 5 small squares on the grid and ask a visual learner to give the decimal name for the 5 the colored squares. Write the answer on the board and tell the class to read $\frac{5}{100}$ or 0.05 as 5 hundredths.

| $\frac{5}{100}$ or 0.05 |



- Color 15 small squares. Call on a kinesthetic learner to count the squares and give the decimal name for the colored squares. Ask the class to read 0.15 as fifteen hundredths.
- Continue coloring parts of the square grid to show the following decimals: 0.30; 0.48; 0.93; 0.51 and 0.99. Point out that the values of the hundredth digits are less than 1.
- Get a bond paper and cut it using the size of the 10 x 10 square grid. Tell the class: "I have one whole and I will add 0.48 hundredths."

Differentiation for
Process

Differentiation for
Process

Differentiation for
Process

Differentiation for
Process

Differentiation for
Process

Differentiation for
Process

(Cut the colored 0.48 on the square grid). Now I have 1.48 (one and forty-eight hundredths).” Write the decimal number on the board: 1.48.

10. Show three square sheets of paper that are of the same size as the 10 x 10 square grid. Cut the colored 15 small squares and tell the class: “I have 3 whole sheets and 15 hundredths, a total of three and fifteen hundredths.” Write on the board: 3.15. Point out that 3.15 is a decimal number that is more than 1.
11. Get two sheets of bond paper. Fold one into 10 equal-size parts. Tell the class to count the parts as you point to each of them.
12. Ask the visual learners to give the decimal name for each part and write it on the board: 0.1.
13. Tape the paper on the board and ask a kinesthetic learner to color three equal-size parts. Ask a visual learner to write the decimal number for the colored part: 0.3.
14. Call on volunteers. Tell them to keep on coloring the parts until these decimals are used: 0.3, 0.4, 0.5, 0.6, 0.7, 0.8 and 0.9. Point out that the values of the tenths digits are less than 1.
15. Get the bond paper you did not fold. Cut the colored part that shows 0.2 of the folded paper and tell and class: “Now I have one and two tenths sheets of paper.” Write on the board: $1 + 0.2 = 1.2$, and ask the auditory learners to read decimal 1.2 as one and two tenths.
16. Help the pupils understand that the decimals involving tenths and hundredths are less than 1.
17. Emphasize that a decimal point is used to write decimal numbers. In numbers like 3.5, the decimal point is read “and.” So, 3.5 is read as three “and” five tenths, meaning there are three wholes and five tenths or $3\frac{5}{10}$. Do the same explanation with 3.05 (three and five hundredths) or $3\frac{5}{100}$ (three and five hundredths).
18. Discuss **Think and Understand**.

Day 2

1. Draw a place value chart on the board. Ask the pupils to answer orally **Check Your Understanding**. Call on volunteers. Have them explain their answers. Be ready to give feedback, answer queries, or clarify any misconception.
2. Ask the pupils to watch a video on the TEC-CD about decimal numbers.
3. Ask the pupils to work in teams of sixes. When you assign pupils to teams, balance the team so that each team is composed of pupils whose performance levels range from low to average to high. Tell the struggling learners to answer **Practice**. Ask the average learners to answer **Keep Practicing** and ask the advanced learners to answer **Try This Challenge**. Give them three options for the presentation of their output. Tell them that they may draw place value charts, use fraction bars or square grids to answer the exercises, or explain orally the solution to each problem.

Differentiation for
Product

Differentiation for
Process

Differentiation for
Product

Differentiation for
Process

Differentiation for
Process

Differentiation for
Process

Differentiation for
Process



More resources on
Acquisition Strategies are
available in the Technology
Enhancement CD

Day 3

1. Have the teams exchange papers to check each other's work. Call on volunteers. Have them explain the answers to the exercises. Be ready to correct any misconception that may arise from the discussion.
2. Discuss the practical use of writing or using decimal numbers, e.g. money value.
3. Show a one-peso coin. Say: "There are one hundred centavos in one peso. Instead of writing 100 centavos, we write ₱1.00 or one peso. If you have five pesos and twenty-five centavos, you write ₱5.25. Money value is read like a decimal number. We put the peso sign before money amounts and say 'peso' or 'pesos.'"
4. To end the lesson, ask an auditory learner to summarize the important ideas in Goal 11.
5. Have the pupils answer **Test Yourself**.

Conclusion/Evaluation: Make Meaning:

To assess the pupils' understanding related to Goal 11, have them answer **Reflect and Resolve**. Ask the pupils to color the star green if they understand the lesson, orange if they have some questions, and red if they feel that they need help.

Interview the pupils by asking the questions in **Reflect and Resolve**.

Goal 12 – Changing Fractions to Decimals and Vice Versa (3 days)

Pre-assessments:

1. Have the pupils answer questions to determine what they know and don't know about the relationship between decimals numbers and fractions.
2. Ask the pupils to answer the exercises in **Get Ready**.
3. Ask the pupils the following questions and then let them explain and defend their answers:
 - a. Are you sure? Why?
 - b. How did you get the answer?
 - c. What did you do to find the answer?

Introduction/Preparatory Activities: Make Meaning:

1. Once the pupils are seated, ask them to answer the question: "Can you explain why $\frac{1}{2} = 0.5$?"
2. Call on volunteers. Have them answer the question. Encourage them to use any strategy to explain their answer.
3. Determine the pupils' prior knowledge and skills.

Differentiation for **Process**

Self-assessment/ Reflection

Differentiation to check pupils' **Readiness**



More resources on Learning Objectives are available in the Technology Enhancement CD

Knowledge:

The learner renames decimal numbers to fractions, and fractions whose denominators are factors of 10 and 100 to decimals.

Skills:

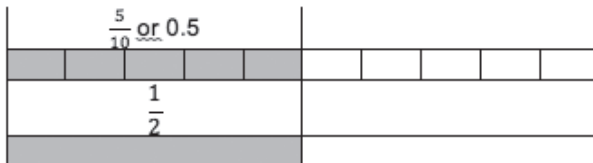
The learner will be skilled in renaming decimal numbers to fractions, and fractions whose denominators are factors of 10 and 100 to decimals.

21st Century Skills:

- Communicating, reflecting, and monitoring his/her understanding of renaming decimal numbers to fractions and vice versa
- Using the appropriate tools, techniques, and strategies that will help him/her understand the concepts

Body/Developmental:**Day 1**

1. Draw a horizontal bar on the board. Divide it into 10 equal-size parts to show $\frac{1}{10}$. Ask a kinesthetic learner to shade 5 out of 10 equal-size parts to show $\frac{5}{10}$. Ask an auditory learner: "What part of the bar is shaded?" Lead the pupils to discover that half of the whole or $\frac{5}{10}$ of the whole is shaded. Lead them to conclude that $\frac{5}{10} = \frac{1}{2} = 0.5$. Say: $\frac{5}{10}$, $\frac{1}{2}$, 0.5 are equivalent expressions. They all represent the same shaded region of the whole.



Say: "You can draw a picture or a fraction model to show that and are equivalent."

2. Discuss the steps involved in changing fraction $\frac{1}{2}$ to decimal 0.5. Write the solution on the board to illustrate the steps. Tell the visual learners to observe carefully each step in the solution.

$$\begin{array}{r} 0.5 \\ 2 \overline{)10} \\ \underline{-10} \\ 0 \end{array}$$

- a. Divide the numerator 1 by the denominator 2. Since 2 cannot divide 1, then write 0 above digit 1 of the dividend.
- b. Continue dividing. Annex 0 to digit 1 of the dividend to make it 10.
- c. Divide 10 by 2 to get the first nonzero digit 5 of the quotient. Write 5 above digit 0 of the dividend.

Differentiation for
Process

Differentiation for
Process

- d. Write the decimal point of the quotient directly above the decimal point of the dividend. Hence, the quotient is 0.5.
3. Give another example to illustrate the procedure. Ask a volunteer to change $\frac{3}{5}$ into a decimal. Tell the pupil to divide 3 by 5. Call on a kinesthetic learner. Ask the pupil to write the solution on the board. Ask an auditory learner to explain each step in the solution.

$$\frac{3}{5} = 3 \div 5 = n$$

$$n = \frac{3}{5} = 0.6$$

Discuss how to change 0.6 back to $\frac{3}{5}$.

Tell the pupils that 0.6, read as 6 tenths is equivalent to $\frac{6}{10}$. Tell them to simplify $\frac{6}{10}$. Hence,

$$0.6 = \frac{6}{10} = \frac{(6 \div 2)}{(10 \div 2)} = \frac{3}{5}$$

4. Give several examples on the board. Call on the advanced learners. Have them change the following decimals into fractions and vice versa. Tell them to explain the steps in detail.

Examples:

a. $0.25 = \frac{25}{100}$

b. $\frac{25}{100} = \frac{(25 \div 5)}{(100 \div 5)} = \frac{5}{20}$

c. $\frac{5}{20} = \frac{(5 \div 5)}{(20 \div 5)} = \frac{1}{4}$

5. Tell the pupils that they can also change the denominator to 10 or 100 by multiplying both the numerator and denominator by the same factor.

Example:

$$\frac{3}{4} = \frac{(3 \times 25)}{(4 \times 25)} = \frac{75}{100} = 75 \text{ hundredths} = 0.75$$

6. Discuss Think and Understand.
7. Ask the pupils to answer orally **Check Your Understanding**. Call on the auditory learners. Have them explain their answers. Be ready to give feedback, answer queries, or clarify any misconception.

Day 2

1. Ask the pupils to watch a video on the TEC-CD about changing fractions to decimals and vice versa.
2. Ask the pupils to work in teams of sixes. When you assign pupils to teams, balance the team so that each team is composed of pupils whose performance levels range from low to average to high. Tell the struggling learners to answer **Practice**. Ask the average learners to answer **Keep Practicing** and ask the advanced learners to answer **Try This Challenge**. Give them three options for the presentation of their solution. Tell them that they may divide the numerator by the denominator or multiply the numerator and

Differentiation for
Process

Differentiation for
Process

Differentiation for
Process

Differentiation for
Product



More resources on
Acquisition Strategies are
available in the **Technology
Enhancement CD**

denominator by a number that will give a multiple of 10 as product in the denominator.

Day 3

1. Have the teams exchange papers to check each other's work. Call on volunteers. Have them explain the answers to the exercises. Be ready to correct any misconception that may arise from the discussion.
2. To end the lesson, ask an auditory learner to summarize the important ideas in Goal 12.
3. Have the pupils answer **Test Yourself** orally.
4. Ask all the pupils who did not do well on the test to attend after class tutorial sessions or consultation periods. During these meetings, provide alternate materials to consolidate their learning. Have them answer Ready-to-Print Activity Sheets on the TEC-CD about changing fractions to decimals and vice versa.

Conclusion/Evaluation: Make Meaning:

To assess the pupils' understanding related to Goal 12, have them answer **Reflect and Resolve**. Ask the pupils to color the star green if they understand the lesson, orange if they have some questions, and red if they feel that they need help.

Interview the pupils by asking the questions in **Reflect and Resolve**.

Goal 13 – Rounding and Estimating Decimals (3 days)

Pre-assessments:

1. Have the pupils to answer questions on flash cards to determine what they know and what they don't know about rounding numbers to the nearest tens, hundreds, or thousands. They will be asked to check the items they know and cross out the items they do not know.
2. Ask the pupils to answer the exercises in **Get Ready**.
3. Ask the pupils the following questions and then let them explain and defend their answers:
 - a. Are you sure? Why?
 - b. How did you get the answer?
 - c. Can you show the class?

Introduction/Preparatory Activities: Make Meaning:

1. Once pupils are seated, ask the pupils to recall the rules involved in rounding numbers to the nearest ten, hundred, or thousand.

Differentiation for **Process**

Differentiation for **Product**

Differentiation for **Process**



More resources on **Acquisition Strategies** are available in the **Technology Enhancement CD**

Self-assessment/ Reflection

Differentiation to check pupils' **Readiness**



More resources on **Learning Objectives** are available in the **Technology Enhancement CD**

Knowledge:

The learner rounds decimal numbers to the nearest whole number and tenths.

Skills:

The learner will be skilled in rounding decimal numbers to the nearest whole number and tenths.

21st Century Skills:

- Communicating, reflecting, and monitoring his/

2. Call on volunteers. Have them give examples to illustrate the rules. Tell them to explain their answers.
3. Determine the pupils' prior knowledge and skills.

Body/Developmental:

Day 1

1. Draw a number line on the board. Ask a kinesthetic learner to mark all decimals between 0.1 and 0.2 within hundredths on the number line.
2. Use the decimals on the number line to explain the rules involved in rounding numbers. Tell the pupils that decimal numbers 0.11 to 0.14 are closer to 0.1 than to 0.2. They all round to 0.1. Likewise, decimal numbers 0.15 to 0.19 all round to 0.2.
3. Repeat the activity in item 1. Ask a kinesthetic learner to mark all decimals on the number line that are within tenths from 5.0 to 6.0. Tell the pupil to round 4.3 and 4.8 to the nearest whole number.
4. Discuss **Think and Understand**.
5. Ask the pupils to answer **Check Your Understanding** and **Practice** orally. Ask the auditory learners to explain the answers. Ask the visual learners to mark points on the number line to illustrate the solution. Be ready to give feedback, answer queries, or clarify any misconception.

Day 2

1. Use flash cards to review rounding of decimals.
2. Ask the pupils to work in pairs. Have them discuss the answers to **Keep Practicing** and **Try This Challenge**. Remind the pairs to exchange ideas during the activity. Move around the room and see to it that everyone is working. Ask the struggling learners if they have encountered any difficulty in answering the exercises. Say: "Do you have any problem with the exercises?"

Day 3

1. Tell the pupils to check their own work. Call on the auditory learners. Have them explain their answers. Be ready to give feedback, answer queries, or clarify any misconception.
2. Ask the pupils to do the interactive activity on the TEC-CD about rounding and estimating decimals.
3. To end the lesson, ask the pupils to do a think pair share. Have them exchange ideas about the concepts they learned in Goal 6.
4. Have the pupils answer **Test Yourself** 10 to 15 minutes before the class ends.

her understanding of rounding and estimating decimals

- Using the appropriate tools, techniques, and strategies that will help him/her understand the concepts

Differentiation for **Process**

Differentiation for **Process**

Differentiation for **Process**

Differentiation for **Product**

Differentiation for **Process**

Differentiation for **Product**



More resources on Acquisition Strategies are available in the Technology Enhancement CD

5. Ask all pupils who did not do well on the test to attend after-class tutorial sessions or consultation periods. During these meetings, provide alternate materials to consolidate their learning.

Conclusion/Evaluation: Make Meaning

To assess the pupils' understanding related to Goal 13, have them answer **Reflect and Resolve**. Ask the pupils to color the star green if they understand the lesson, orange if they have some questions, and red if they feel that they need help.

Interview the pupils by asking the questions in **Reflect and Resolve**.

Goal 14 – Comparing and Ordering Decimals (3 days)

Pre-assessments:

1. Have the pupils answer questions on flash cards questions to determine what they know and don't know about comparing and ordering whole numbers.
2. Ask the pupils to answer the problems in **Get Ready**.
3. They will be asked questions to explain and defend their answers such as:
 - a. Are you sure? Why?
 - b. How did you get the answer?
 - c. What did you do to find the answer?
 - d. Can you explain?

Introduction/Preparatory Activities: Make Meaning:

1. Once the pupils are seated, ask them to compare 0.59 and 0.57. Ask: "Which is greater, 0.59 or 0.57? Why?"
2. Call on volunteers. Have them compare the decimals. Encourage them to use any strategy to explain their answer.
3. Determine the pupils' prior knowledge and skills.

Body/Developmental:

Day 1

1. Use flash cards to review reading decimal numbers. Ask the auditory learners to read the following decimals: 0.008; 9.26; 10.73; 125.002;



More resources on Practice Strategies are available in the Technology Enhancement CD

Self-assessment/Reflection

Differentiation to check pupils' **Readiness**



More resources on Learning Objectives are available in the Technology Enhancement CD

Knowledge:

The learner compares and arranges decimal numbers in ascending or descending order.

Skills:

The learner will be skilled in comparing and arranging decimal numbers in ascending or descending order.

21st Century Skills:

- Communicating, reflecting, and monitoring his/her understanding of comparing and ordering decimals
- Using the appropriate tools, techniques, and strategies that will help him/her understand the concepts

Differentiation for **Process**

68.005. Ask the kinesthetic learners to write the decimals numbers on a place value chart.

2. Prepare a place value chart and tape it on the board. Label place value positions from ones to thousandths. Write the decimal point between the ones and tenths place. Ask the pupils: "How will you compare 1.32 with 1.12?" Ask a kinesthetic learner to write the numbers on the chart. Ask an auditory learner to read the decimal numbers. Use the chart to explain why $1.32 > 1.12$. Tell the pupils that since the digits in the ones place are the same they have to use the tenths digits to compare the decimals. Tell them that since 0.3 or 3 tenths is greater than 0.1 or one tenth, then $1.32 > 1.12$.
3. Discuss **Think and Understand**.
4. Ask the auditory learners to answer orally **Check Your Understanding**. Tell them to explain their answers.
5. Assign as optional work **Practice**.

Day 2

1. Use flash cards to review reading and arranging decimals in ascending and descending order. Give the following decimal numbers to 4 kinesthetic learners: 43.09; 12.987; 6.005; and 31.02. Ask the kinesthetic learners write the decimals on a place value chart.

Tens	Ones	•	Tenths	Hundredths	Thousandths
4	3	•	0	9	
1	2	•	9	8	7
	6	•	0	0	5
3	1	•	0	2	

Have them compare the digits in each place value position. Tell them to arrange the numbers in ascending and descending order. Ask the pupils to explain their answers.

2. Ask the pupils to do the interactive activity on the TEC-CD about comparing and ordering decimals.
3. Call on volunteers. Have them discuss the answers to the optional work.

Day 3

1. Ask the pupils to work in pairs. Have them discuss the answers to **Keep Practicing**. Remind the pairs to exchange ideas during the activity. Move around the room and see to it that everyone is working. Ask the struggling learners if they have encountered any difficulty in answering the exercises. Say: "Do you have any problem with the exercises?"
2. Tell the pupils to exchange papers to check each other's work. Call on the auditory learners. Have them explain their answers. Be ready to give feedback, answer queries, or clarify any misconception.

Differentiation for
Process

Differentiation for
Product

Differentiation for
Product

Differentiation for
Process



Differentiation for
Product

3. Discuss the answers to **Try This Challenge**. Call on the advanced learners. Have them explain the answers.
4. To end the lesson, ask the pupils to use Think-Pair-Share in exchanging ideas about the concepts they learned in Goal 14.
5. Have the pupils answer B of **Test Yourself** 10 to 15 minutes before the class ends.
6. Ask all pupils who did not do well on the test to attend after-class tutorial sessions or consultation periods. During these meetings, provide alternate materials to consolidate their learning. Have them answer Ready-to-Print Activity Sheets on the TEC-CD about simplifying fractions.

Conclusion/Evaluation: Make Meaning:

To assess the pupils' understanding related to Goal 14, have them answer **Reflect and Resolve**. Ask the pupils to color the star green if they understand the lesson, orange if they have some questions, and red if they feel that they need help.

Interview the pupils by asking the questions in **Reflect and Resolve**.

Differentiation for
Product

More resources on
Practice Strategies are
available on the TEC-CD

**Self-assessment/
Reflection**