

Lesson 1 Visualizing Numbers up to 5 000

Week 1

Objective

Visualize numbers 1 001 up to 5 000

Value Focus

Accuracy, Perseverance

Prerequisite Concepts and Skills

1. Visualizing, reading, and writing numbers through 1 000
2. Intuitive concept of numbers
3. Place value of whole numbers

Materials

Flats, longs and squares, flash cards, grid papers/hundreds chart

Instructional Procedures

A. Preliminary Activities

1. Drill

Have pupils in the first row write a number between 101 and 1 000 on their "show-me board."

Call each one to show the number to the class to read. Do this as snappily as possible. Repeat the same procedure with the other rows.

2. Review

Give pupils exercises on writing numbers in words and in symbols.

Write the following in symbols, e.g.

- 1) eight hundred forty-eight
- 2) nine hundred ninety-nine
- 3) one hundred four

Write the following in words, e.g.

345 503 674 980 864

3. Motivation

Play a puzzle game. Provide each group of pupils with sets of numerals 0, 1, 2, 3, 4, 5, 6, 7, 8 and 9. The puzzle is a number (ranging from 101 to 1 000) written in bold figures. Ask pupils to answer the questions that you will read.

Examples: What is the smallest 3-digit number that can be formed?
How will you write two hundred eighty-five in symbols?

The first group to form the puzzle wins the game.

B. Developmental Activities

1. Presenting the Lesson

Post the puzzles formed on the board.

Ask: How are these numbers similar?


How many digits are there?

What is the biggest place value in the numerals?

2. Performing the Activity

Have the pupils use flats, longs, and squares to illustrate/visualize each number.

 1 square = one (1)

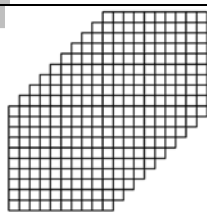
 10 squares = 1 long (1 ten)

 10 longs (10 tens) = 1 flat (1 hundred)

 10 flats (10 hundreds) = 1 block (1 thousand)

Say: Suppose you count on from 1 000, what would be the next number?

Introduce the number 1 000.

Thousands	Hundreds	Tens	Ones
			
1	0	0	0

Using blocks, flats, longs and squares, 1 000 has how many loose squares? How many longs? flats? blocks?

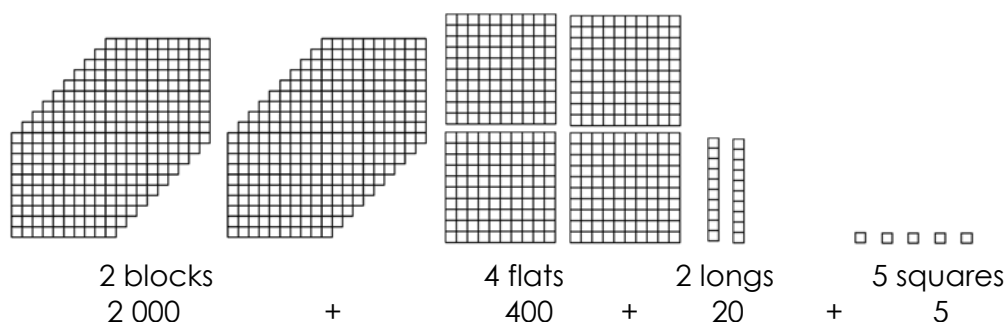
How many is 1 000 in hundreds? tens? ones?

1 000 = 10 hundreds
= 100 tens
= 1 000 ones

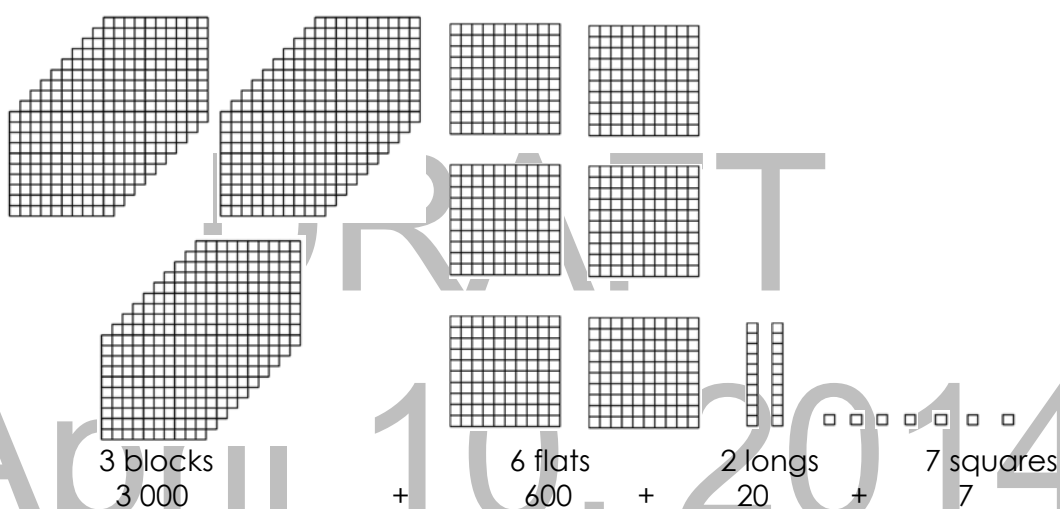
If we count from one to one thousand and add 1, we have one thousand one.

Guide the pupils to visualize other numbers using flats, longs and squares, e.g.

a. 2 425



b. 3 627



3. Processing the Activity

Ask:

What do the blocks represent? the flats? the longs? the squares?

When we add one square to 1 000 blocks, how much do we get?

In the representation, how much is 2 blocks, 4 flats, 2 longs, and 5 squares?

How many blocks, flats, longs, and squares is 3 627?

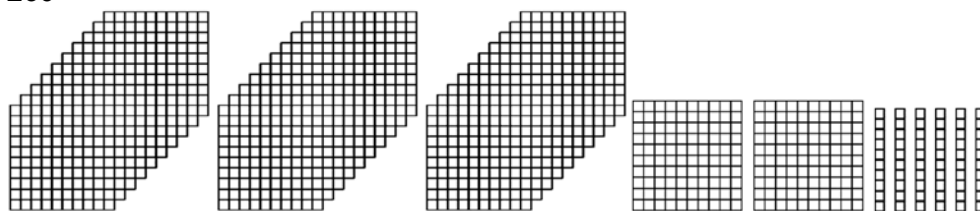
Can you now visualize big numbers using this representation?

4. Reinforcing the Concept

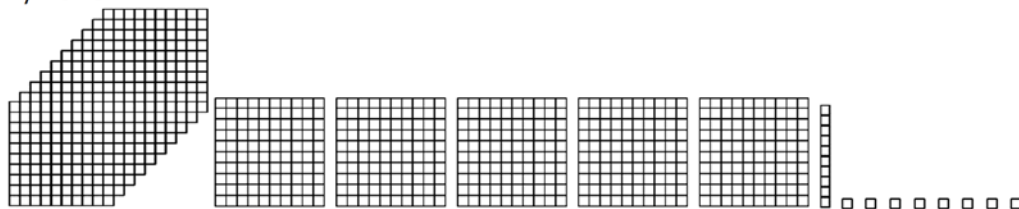
Divide the pupils into 10 groups. Give each group a chart with the title "My 2 001 – 2 100 Chart". Have them complete the chart:

2 001 – 2 100, 2 101 – 2 200, and so on.

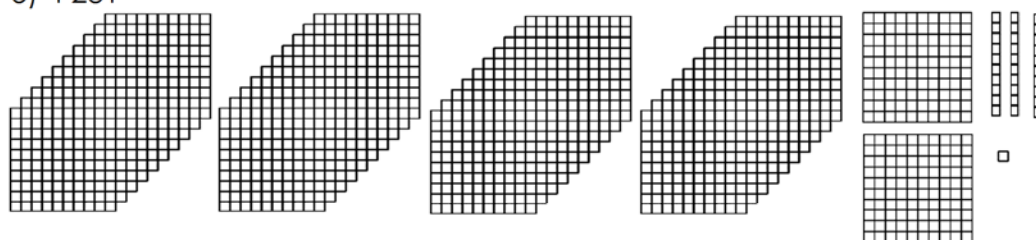
3) 3 260



4) 1 518



5) 4 231

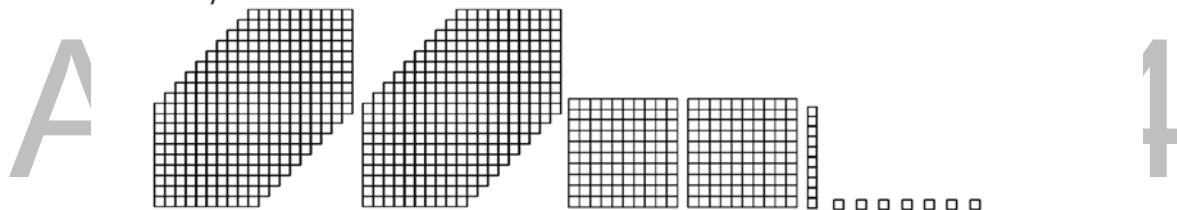


C. Evaluation

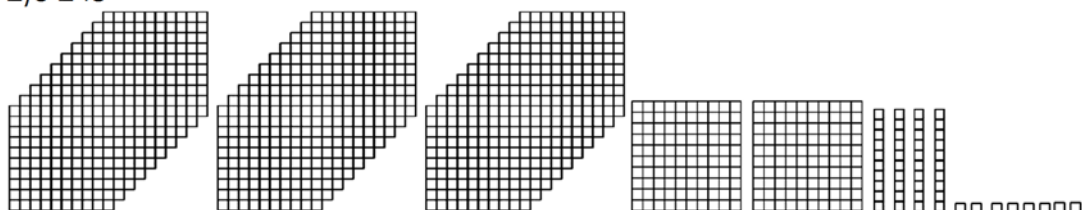
Have pupils do the exercises under Activity 4 in the LM.

Answer Key:

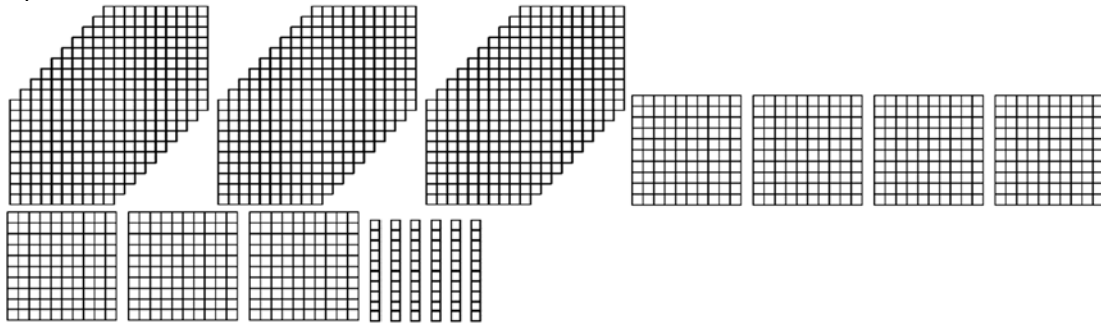
A. 1) 2 217



2) 3 248



3) 3 760



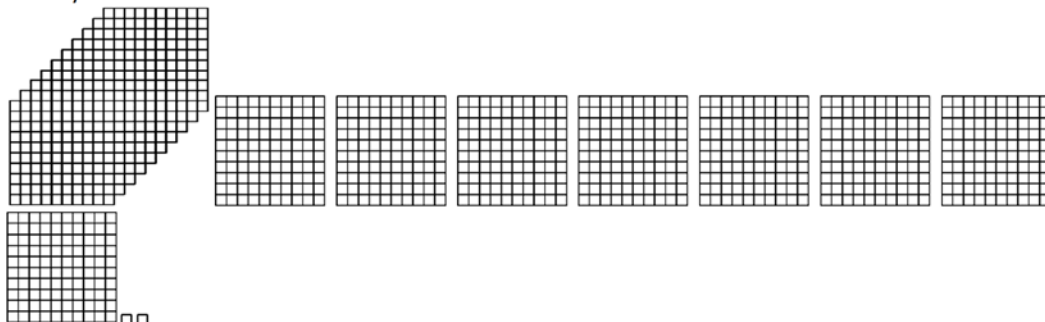
B. 1) 2 300 2) 3 001 3) 3 202 4) 2 013 5) 1 102

D. Home Activity

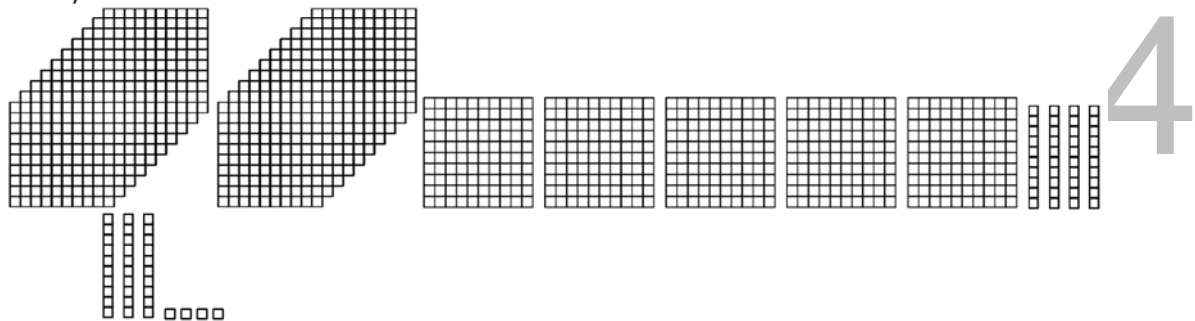
Give Activity 5 in the LM as assignment. Check pupils' work.

Answer Key:

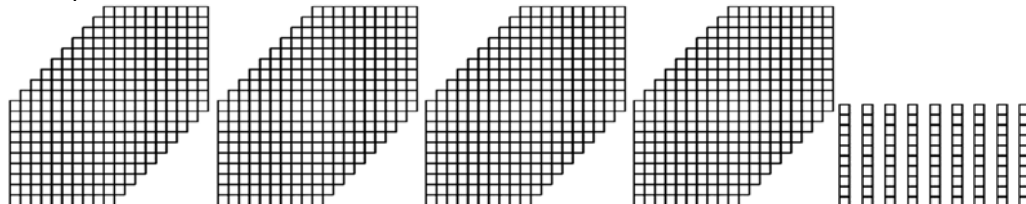
1) 1 802



2) 2 574



3) 4 090



Lesson 2 Visualizing Numbers up to 10 000

Week 1

Objective

Visualize numbers 5 001 up to 10 000

Value Focus

Accuracy, Patience

Prerequisite Concepts and Skills

1. Visualizing, reading, and writing numbers through 5 000
2. Intuitive concept of numbers
3. Place value of whole numbers

Materials

Flats, longs and squares, flash cards, grid papers/hundreds chart

Instructional Procedures

A. Preliminary Activities

1. Drill


Have pupils in the first row write a number between 5 001 and 6 000 on their "show me" board.

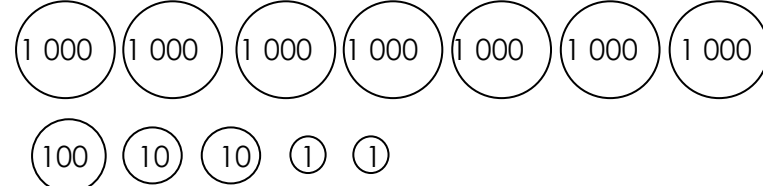
Call each one to show the number to the class and read. Do this as snappily as possible. Repeat the same procedure with the other rows.

2. Review

Let the pupils answer the exercise below:

Write the number represented by each set of number discs.

1) 

2) 

3. Motivation

Divide the class into four groups.

A number will be assigned and pinned to each group member - 0, 1, 2, 3, 4, 5, 6, 7, 8 and 9. They will be asked some questions and they will arrange themselves according to their answer.

The members without numbers assigned to them will serve as group facilitators and one will write the group answer on the board.

The group with the highest score wins the "Give Me" game.

Say: Give me:

1. The smallest 4-digit number that you can form. (*1 234*)
2. The biggest 4-digit number that you can form. (*9 876*)
3. A 4-digit number with 5 in the hundreds place

After checking the scores, announce the winner.

This time, merge the groups and come up with two groups each with 2 sets of (0, 1, 2, 3, 4, 5, 6, 7, 8, 9).

Say: Give me:

1. The smallest 4-digit number. (*1 001*)
2. The biggest 4-digit number. (*9 988*)

B. Developmental Activities

1. Presenting the Lesson

Post all the numbers formed:

1 234, 9 876, 2 468, 1 001, 9 988

Ask: Which of these numbers has the smallest digit in the thousands place? (*1 001*)

Which has the biggest digit in the thousands place?
(*9 876 and 9988*)

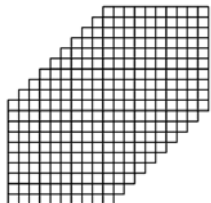
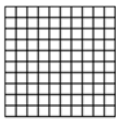


Which number has the biggest value? (*9 988*)

What is the highest place value of this numeral? (*thousands*)

What is the highest place value if 9 988 is rounded off to 10 000?
(*ten thousands*)

2. Performing the Activity

Have the pupils use flats, longs, and squares to illustrate/visualize 9 000 and 10 000

			
Thousands	Hundreds	Tens	Ones

1 block = 10 flats or 100 longs or 1 000 squares = 1 000

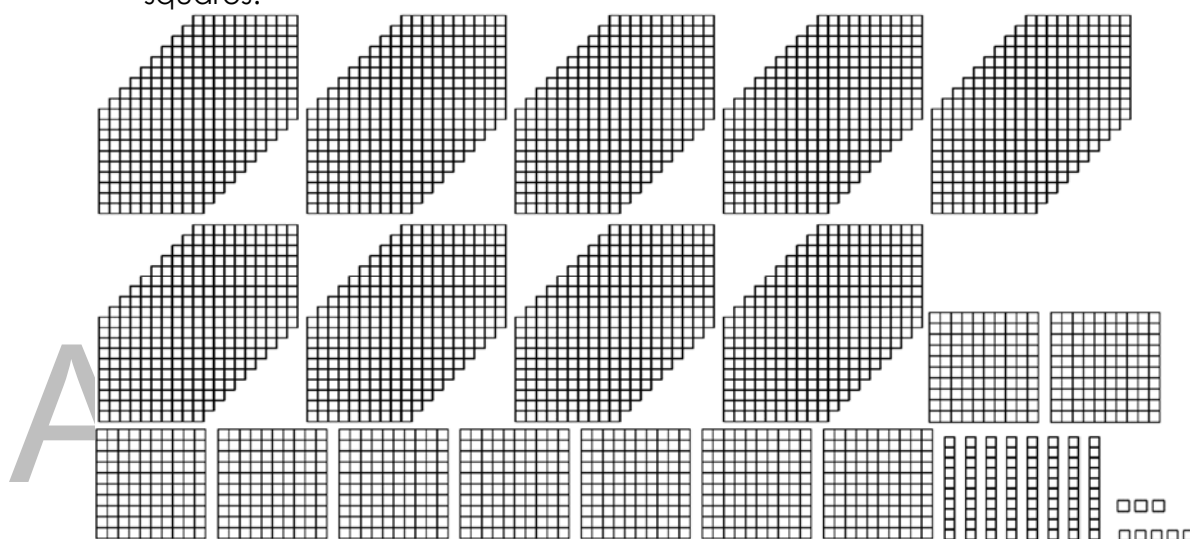
1 flat = 10 longs or 100 squares = 100

1 long = 10 squares = 10

1 square = 1

Let them use blocks, flats, longs, and squares to visualize 9 988.

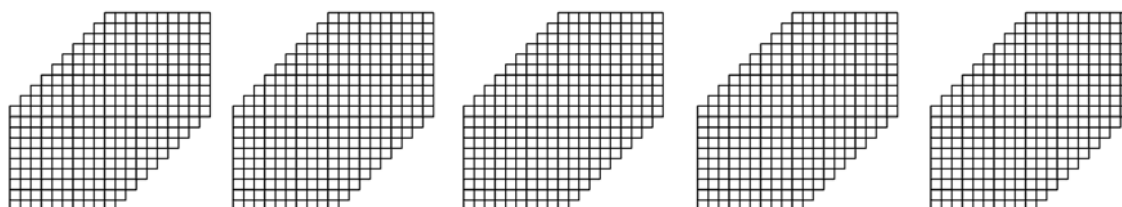
Represent 9 000 using blocks, 900 using flats, 80 using longs and 8 using squares.

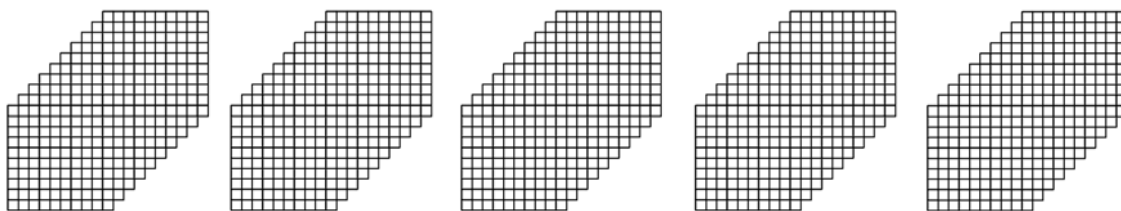


Ask: How many blocks are there? ____ (9)

How many flats? ____ (9) longs? ____ (8) squares? ____ (8)

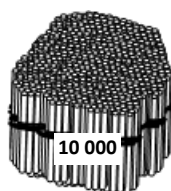
Say: If we have 9 blocks or 9 000 and we add 1 more block or 1 000, how many blocks do we have now? (10)





10 blocks is equal to what number? (10 000)

Since the number (10 000) is so large, aside from using blocks, flats, longs and squares, we can also represent it with a picture of a bundle of straws with 10 000 label, e.g.

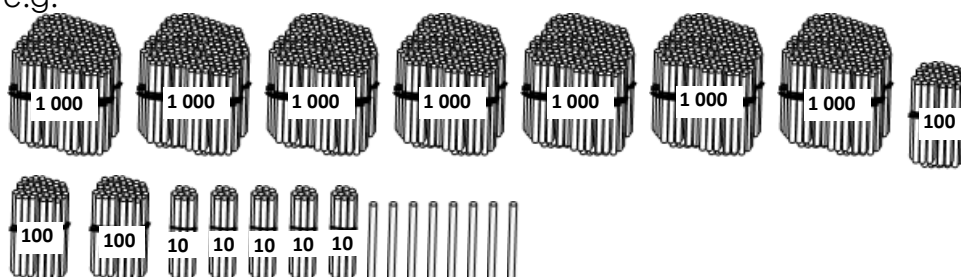


Guide the pupils to see the relationship between the bundled straws and the flats, longs, and ones, such that:

Ten Thousands	Thousands	Hundreds	Tens	Ones
bundle of 10 000 straws = 10 blocks = 10 000	bundle of 1 000 straws = 1 block = 1 000	bundle of 100 straws = 1 flat = 100	bundle of 10 straws = 1 long = 10	one straw = one square = 1

Note: Real bundled straws can also be used to visualize large numbers.

Post bundled straws on the board. Ask the pupils to give the number, e.g.



Provide bundled straws to pupils in 1 000s, 100s, 10s and 1s. Let the pupils show the following numbers using the bundled straws.

e.g. 8 207 6 482 9 025

Provide or let the pupils bring out their pre-assigned blocks, flats, longs and squares. Have the pupils answer Activity 1 in the LM.

3. Processing the Activity

Ask the following questions:

How did you find the activity?

Did you find it helpful to use flats, longs and squares and the bundled straws in visualizing numbers?

4. Reinforcing the Concept

Provide pupils with bundled straws. Have pupils work on Activity 2 in the LM.

5. Summarizing the lesson

Ask pupils the following questions:

How do we visualize numbers 5 001 to 10 000?

What could help us visualize numbers?

To help visualize numbers from 5 001–10 000, blocks (thousands), flats (hundreds), longs (tens) and squares (ones) are used. Bundled straws (real or pictures) are also helpful in visualizing large numbers.

6. Applying to New and Other Situations

Have pupils work on the exercises under Activity 3 in the LM.

Answer Key: 1) 6 431 2) 7 512 3) 5 754 4) 7 202

C. Evaluation

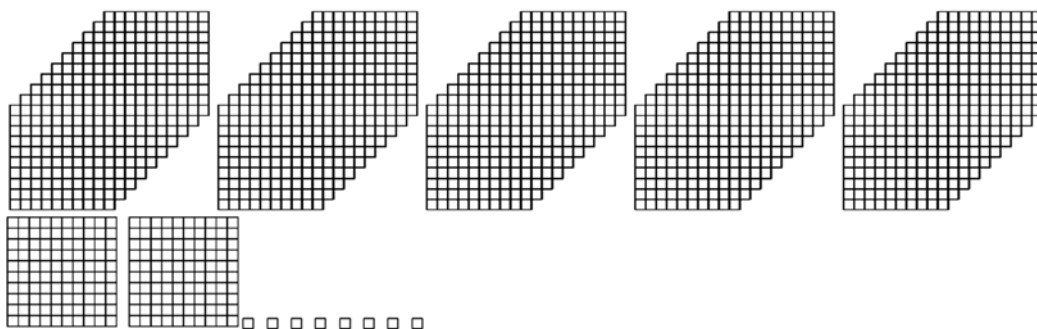
Give Activity 4 in the LM for pupils to answer. Check their work.

D. Home Activity

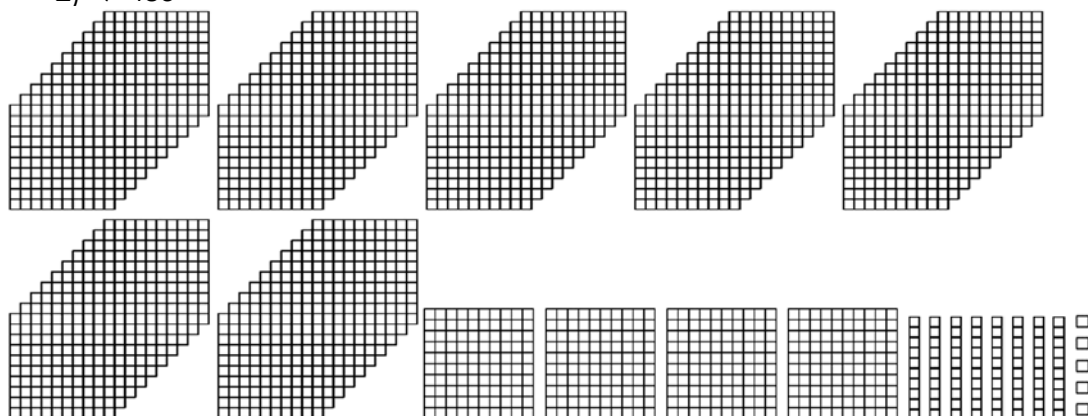
Have pupils work on Activity 5 at home.

Answer Key:

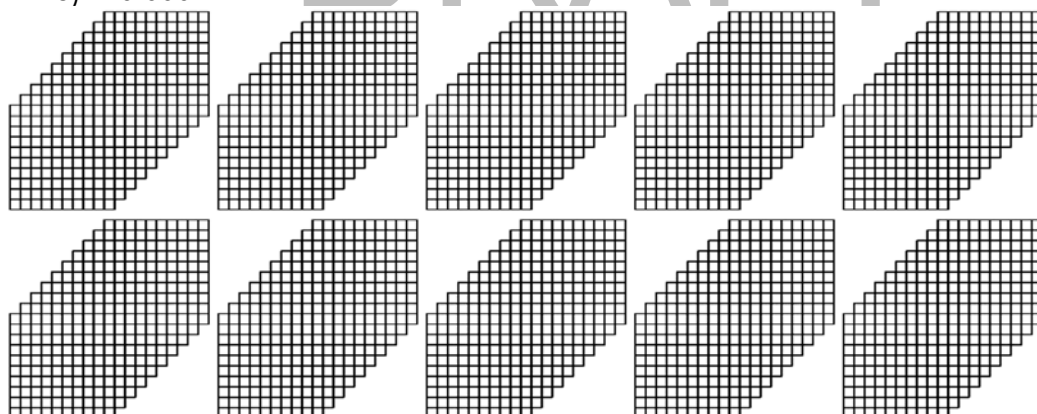
1) 5 208



2) 7 485



3) 10 000



Lesson 3 Giving the Place Value and Value of Numbers up to 10 000

Week 1

Objective

Give the place value and value of a digit in a number up to 10 000

Value Focus

Accuracy, Truthfulness

Prerequisite Concepts and Skills

1. Reading and writing numbers from 1 up to 10 000 in symbols and in words
2. Identifying the place value and the value of a digit in 3- to 4-digit numbers
3. Renaming numbers in expanded form

Materials

Flash cards, counters, place value chart, grid papers

Instructional Procedures

A. Preliminary Activities

1. Drill

Have pupils work on Activity 1-A in the LM.

2. Review

Give Activity 1-B in the LM as a review.

3. Motivation

Form four groups of three pupils each. Give each group two sets of number cards (numbers 0 through 9). Give these directions:

- a. Each member of the group takes a number. As a number is called, group members line to form that number.

Example: 654

982

- b. The first group to form the number correctly wins.

B. Developmental Activities

1. Presenting the Lesson

Provide and present the counters – flats, longs, and squares or let the pupils bring out their pre-assigned counters. Have the pupils count them. Let them group them into thousands, hundreds, tens and ones.

Ask: How many thousands did you form?

How many hundreds are there? tens? ones?

Have the pupils write the numbers on the board.

Have them write the number in expanded form.

Present this place value chart and refer pupils to the LM. Discuss the different place values.

Ten thousands	Thousands	Hundreds	Tens	Ones

Let pupils do Activity 2. Let them give the number represented by the number discs on the chart. Let them answer the questions that follow.

Ten thousand	Thousand	Hundreds	Tens	Ones
	1 000	100	10 10	1
	1 000	100	10 10	1
	1 000	100	10 10	
	1 000		10	
	1 000			

Ask: How many digits are there?

What is the place value of 5? 3? 7? 2?

Let pupils see the value of each digit by having them write the number in expanded form.

Let them note that the value of a number could be arrived at by multiplying the digit by its place value as shown in the procedure below.

Digit		Place Value		Value
2	x	1	=	2
7	x	10	=	70
3	x	100	=	300
5	x	1 000	=	5 000

To give meaning to the value of the number, point out that putting together the values of each digit will give the total value of the number.

Illustrate this idea by adding all the values of each digit and equating them to the number as shown.

$$5\,000 + 300 + 70 + 2 = 5\,372$$

Lead pupils to see the pattern that the place value of a digit is always 10 times as great as the place value of the digit to its right.

Introduce the next higher place value – the ten thousands place.

Present this place value chart.

Ten thousands	Thousands	Hundreds	Tens	Ones
	6	2	9	5
	8	8	8	8

Use the above procedure in presenting the next higher place value in the first number. Then discuss extensively on the place value and value of each digit in the number.

Present the next number which is 8 888. Have them read it. Ask volunteers to give the place value and the value of each digit. Write the answers on the board.

2. Performing the Activity

- Divide the class into groups.
Distribute number cards bearing numbers not greater than 10 000.

6 437	6 549	7 362	1 075	5 248
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Have them write the digits in their correct place value using the place value chart provided to them.

3. Processing the Activity

Ask the following questions.

Which digit in card 1 is in the thousands place? in the ones place?

What is the place value of each digit in card 1?

What is the value of each digit in the number?

Which digit has the greatest value? the least value?

Ask the same questions for the rest of the given numbers.

4. Reinforcing the Concept

Have pupils work by pairs on Activity 3 in the LM. Discuss their answers afterwards.

Answer Key: A. 1) thousands, 1000 2) hundreds, 600 3) tens, 30

4) hundreds, 400 5) ones, 8

B. 1) 7 thousands + 5 hundreds + 2 tens + 4 ones

2) 9 thousands + 8 hundreds + 4 tens + 1 ones

3) 4 thousands + 3 hundreds + 8 tens + 5 ones

4) 7 345 means 7 000 + 300 + 40 + 5

5) 5 446 means 5 000 + 400 + 40 + 6

C. 1) Thousands, hundreds, tens, and ones

2) Thousands – Thousands period; hundreds, tens, and ones – Units Period

3) To find the value of a digit, multiply it by its place value.

5. Summarizing the Lesson

Ask the following questions:

What are the place values in a 4-digit number?

In which group of number or period name is each place value found?

How do you find the value of a digit in a given number?

In giving the place value and value of a digit in a number up to 10 000:

- Identify the place value in which the digit belongs such as ones, tens, hundreds, and thousands.
- The value of a number could be arrived at by multiplying the digit by its place value.
- The place value of a digit is always 10 times as great as the place value of the digit to its right.

6. Applying to New and Other Situations

Have pupils work on Activity 4 in the LM. Guide pupils in doing the exercises.

Answer Key: A. 1) 5 2) 4 3) 8 4) 6

B. 1) 8 342 2) 8 931 3) 2 830 4) 2 899 5) 9 845

C. Evaluation

Give Activity 5 in the LM. Check pupils' answers.

Answer Key: A. 1) Thousands; 5 000 2) Ones; 5 3) Tens; 50

4) Thousands, 5 000 5) Hundreds, 500

B. 1) 2 2) 8 3) yes, place holder for tens (2 508)

D. Home Activity

Have pupils study the illustration in Activity 6 in the LM and let the pupils give five 4-digit numbers using the digits found in the illustration.

Possible answers: 3 047, 3 074, 3 704, 3 740, 4 037, 4 703, etc.

Lesson 4 Reading and Writing Numbers up to 10 000

Week 1

Objective

Read and write numbers up to 10 000 in symbols and in words

Value Focus

Accuracy

Prerequisite Concepts and Skills

1. Reading and writing numbers through 5 000
2. Intuitive concept of numbers
3. Place value of whole numbers

Materials

Flats, longs and squares, flash cards, grid papers/place value chart

Instructional Procedures

A. Preliminary Activities

1. Drill

Pupils read numbers from 101–1 000. Use flash cards for this purpose.

2. Review

Write the missing number in the shapes below.

a.

375		377		379
703			706	

b.

3. Motivation

Mix and match

Distribute a set of cards with numbers written in symbols and another set of cards with their equivalent numbers in words. Tell the pupils to find their match. The first pair to find a match wins. Post the pairs found on the board.

B. Developmental Activities

1. Presenting the Lesson

Post the problem on the board.

Glenda heard from the newscaster that there are one thousand twenty-five voters in barangay Sta. Ana and one thousand three hundred twenty-four voters in barangay Nabalod. She wrote the numbers on her paper this way,

Barangay Sta. Ana – 1 250 voters

Barangay Nabalod – 1 324 voters

Is she correct in writing the numbers? Why?

Which number is written correctly? Why?

Which is not? What is the correct way of writing this number?

2. Performing the Activity

Divide the class into groups.

Assign each group a task. Ask them to prepare the hundreds chart.

Group 1 – Make a number chart from 1 001–1 100.

Group 2 – Make a number chart from 2 401–2 500.

Group 3 – Make a number chart from 3 501–3 600.

Group 4 – Make a number chart from 4 201–4 300.

Group 5 – Make a number chart from 6 801–6 900.

Group 6 – Make a number chart from 8 301–8 400.

Group 7 – Make a number chart from 9 901–10 000.

Ask: How were you able to do your task?

Call some pupils to read some numbers they have written, e.g. 1 083, 2 426, 4 238

Call some pupils to write some numbers in words on the board or on their show me boards, e.g. 3 575, 8 400

3. Processing the Activity

Ask the following questions.

- How many digits do numbers from 1 001 to 9 999 have? Which digit belongs to the thousands group?
- How many digits are there in 10 000? Which digit belongs to the thousands group?
- How did you write the numbers in symbols? How did you separate the digits in the thousands place to that in the digits in the hundreds, tens and ones place?
- How do you write the numbers in words? Do you still need to write zero when writing in words? Why?

4. Reinforcing the Concept

Guide pupils in working on Activity 1 in the LM.

Answer Key: A. 1) one thousand, four hundred seventy-five 2) three thousand, four hundred eighty 3) four thousand, five hundred thirty-seven 4) five thousand, four hundred sixty-two 5) nine thousand, four hundred eighty-four

B. 1) 2 703 2) 6 547 3) 9 132 4) 7 034 5) 5 301

5. Summarizing the Lesson

Ask: How do we write numbers from 1 001 to ten thousand in symbols and in words?

To write numbers from 1 001 to 10 000, start reading or writing from the biggest place value down to the lowest, or from left place value to right place value.

6. Applying to New and Other Situations

Guide pupils in doing Activity 2 in the LM.

Answer Key: 1) 6 463 2) 7 587 3) 4 518 4) 5 489 5) 9 537

C. Evaluation

Have pupils work on Activity 3 in the LM.

Answer Key:

- A. 1) 5 459 five thousand, four hundred fifty-nine 2) six thousand, five hundred sixty-eight 3) five thousand, one hundred seventy-three 4) five thousand, three hundred forty-two 5) six thousand, twelve

B. 1) 5 961 2) 7 234 3) 8 044 4) 9 373 5) 6 097

D. Home Activity

Give Activity 4 in the LM as pupils' assignment. Check their work.

Answer Key:

- 1) 9 876 – nine thousand, eight hundred seventy-six
- 2) 5 474 – five thousand, four hundred seventy-four

Lesson 5 Rounding Off Numbers to the Nearest Tens, Hundreds and Thousands

Week 2

Objective

Round off numbers to the nearest tens, hundreds, and thousands

Value Focus

Accuracy

Prerequisite Concepts and Skills

1. Concept of numbers
2. Concept of place value
3. Reading and writing numbers
4. Concept of near and far
5. Comparing sets of objects
6. Concept of left and right
7. Concept of up and down

Materials

Number cards, bottle full of beads, pictures

Instructional Procedures

A. Preliminary Activities

1. Drill

Give the directions to the following exercises and call on pupils to answer snappily.

Give the place value of the underlined number.

1. 368
2. 1 482
3. 745
4. 1 425
5. 936

2. Review

Write your answers on your "Show Me" boards.

A. If we skip count by 10s,

1. 28 is nearer to ____.
2. 42 is nearer to ____.
3. 61 is nearer to ____.
4. 73 is nearer to ____.
5. 89 is nearer to ____.

B. If we skip count by 100s.

1. 121 is nearer to ____ than ____.
2. 389 is nearer to ____ than ____.
3. 512 is nearer to ____ than ____.
4. 678 is nearer to ____ than ____.
5. 803 is nearer to ____ than ____.

3. Motivation

Posing the Problem

- a. Show a bottle full of beads. Ask: Can we tell the exact number of beads at a glance? About how many beads do you think are in the bottle?
- b. Show a picture of a big crowd of people such as in a basketball game. Ask pupils to describe what they see in the picture. Ask: Can you tell the exact number of people watching the game? About how many people are watching the basketball game?
Say: Sometimes there is no need for us to give the exact number. Instead we just approximate/estimate how many people or things there are.

B. Developmental Activities

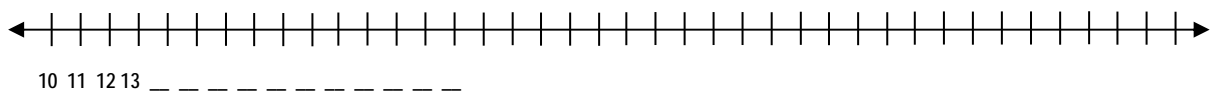
1. Presenting the Lesson

You can make an estimate when you need to know about how many or about how much. Rounding off numbers is one way of making estimates.

Example:

Suppose it takes you 22 minutes to get home from school. Would you say it takes you about 20 minutes or about 30 minutes to get there?

Let us use a number line. Label it with numbers from 10 to 30.



Find the point for 22. Is it closer to 20 or 30? (It is closer to 20.)
Since it is closer to the smaller number, we round it down.

So, 22 rounded to the nearest tens is 20.

Find 27. To what number is it closer? 30 or 20?

Since it is closer to 30 we round it up.

So 27 rounded to the nearest tens is 30.

Find 25. Where is it located? It is halfway between 20 and 30.

Round up numbers that have 5 in the ones unit, such as 25.

So 25 rounded to the nearest tens is 30.

Identify more points in the number line. Ask in which tens each number is nearer. Write all the answers on the board.

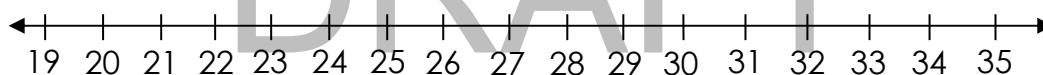
Guide the pupils to see the pattern when to round up and when to round down.

2. Performing the Activity

Guide pupils in doing Activity 1 A- C in the LM as examples.

A. John spent his vacation in Manila for 29 days. Rounded to the nearest tens, about how many days did John spend his vacation in Manila?

Study the number line to find the answer.



In which tens is 29 nearer, 20 or 30?

So, what is 29 rounded to the nearest tens?

John spent his vacation in Manila for about 30 days.

20, 21, 22, 23, 24, are nearer to 20.

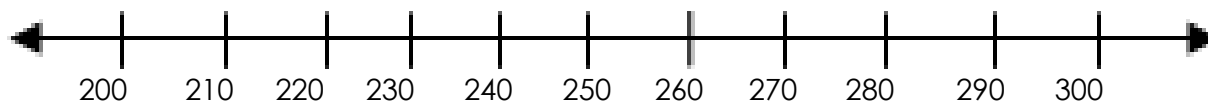
When rounded to the nearest tens, their number is 20.

Ask: Did you round up or down?

25, 26, 27, 28, 29 are nearer to 30. When rounded to the nearest tens, their number is 30.

Ask: Did you round up or round down?

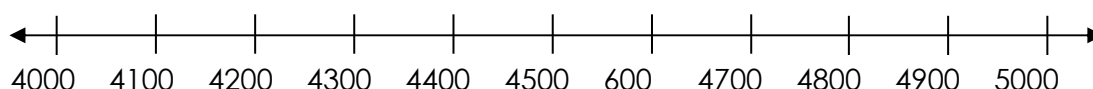
B. Study the number line. Read the number labels.



In which hundreds is 260 nearer, 200 or 300?

So, 260 rounds to 300.

C. Study the number line. Read the number labels.



In which thousands is 4 300 nearer, 4 000 or 5 000?

So 4 300 becomes 4 000 when rounded to the nearest thousands.

Let pupils do Activity 1 D – G with their partners. Discuss their answers afterwards.

Answer Key:

D. 1) 60 2) 80 3) 40 4) 70 5) 90

E. 1) 100 2) 300 3) 600 4) 300 4) 400

F. 1) 2 000 2) 2 000 3) 4 000 4) 5 000

G. 1) to tens – ones 2) to hundreds – tens 3) to thousands – hundreds
2) 0, 1, 2, 3, or 4 3) 5, 6, 7, 8, or 9

3. Processing the Activity

Call on pupils to answer the following:

- What is the rounding place if a number is to be rounded to tens? hundreds? thousands?
- What digit should be to the right of the digit in the rounding place in order for you to round down?
- What digit should be to the right of the digit in the rounding place in order for you to round up?

4. Reinforcing the Concept

Pupils will play a game "Can You Find Me." Write the numbers on the number cards and post them on the board. **(Cover them first prior to the instructions)**. Refer to Activity 2 in the LM for the numbers and the questions.

Divide the class into 5 or 6 groups.

Ask the group to look for the answers to the questions from the number cards arranged on the board.

At the signal **Go**, uncover the cut-outs and let the pupils start.

The first group to give the most number of correct answers wins the game.

5. Summarizing the Lesson

Ask: How do we round off numbers?

To round off numbers ...

1. Look for the place of the digit to be rounded off.
2. Check the digit to its right. If it is 4 or below, round it down.
3. If it is 5 or above, round it up.
4. Change all the digits to the right of the digit to be rounded off to 0.

6. Applying to New and Other Situations

Have pupils work on Activity 3 of the LM.

Answer Key: A. 1) 60 2) 40 3) 500 4) 600 5) 1 000

B. 1) 70 2) 500 3) 400 4) 6 000 5) 200

C.

40	50	60	70	200	300	400	500	3 000	4 000	5 000
38	49	56	68	243	273	361	485	2 548	4 217	4 613
42							456			

C. Evaluation

Give Activity 4 to pupils to check on their learning.

Answer Key: 1) 3 000 2) 54 kg, 47 kg, 58 kg 3) 330 4) 260 dm and 300 dm because it is greater than 257 5) answer depends on the prevailing prices of the items in the community

D. Home Activity

Pupils answer Activity 5 in the LM.

Answer Key:

A. 1) 849 2) 750 3) 549; 450 4) 9 100 5) 6 000

B. Possible Answers: 1) 70 – 65, 66, 67, 68, 69, 71, 72, 73, 74 2) 400 – 350, 351, 352, ..., 449 3) 8 000 – 7 500, 7 501, 7 502, ..., 8 499

C. 2) 220 3) 207 4) 918 5) 840 6) 510 9) 1 206

Lesson 6 Comparing Numbers up to 10 000

Week 2

Objective

Compare numbers up to 10 000 using relation symbols

Value Focus

Accuracy, Honesty

Prerequisite Concepts and Skills

1. Intuitive concepts of numbers up to 10 000

2. Write numbers after, before, between a given number
3. Place value
4. Concept of more than, less than

Materials

Flats, longs, and squares, pictures/illustrations, charts/tables, activity card, number line

Instructional Procedures

A. Preliminary Activities

1. Drill

Show two sets of pictures or real objects to pupils. Have them count the number of objects in each picture and tell which of the sets has more or less number. Do this fast. Below are examples of pictures or real objects for counting.

25 crayons	30 crayons
32 coins	27 coins
18 umbrellas	24 umbrellas

Have pupils tell the missing number in each blank.

616 _____	618 _____	620 _____	622 _____
357 _____	359 _____	361 _____	363 _____

2. Motivation

Lead pupils in playing a game. Have them group themselves according to the following:

- color of their dress
- first letter of their names
- favorite subject

Ask: What color of dresses has the most number? the least?

Compare the numbers.

What first letter of names has the most number? the least? How would you compare their numbers?

What subject is the favorite of most pupils? The least? Compare the numbers.

B. Developmental Activities

1. Presenting the Lesson

Have pupils look at the picture on the LM. Have them read the text about Sally and Carmy.

Show the chart to pupils and explain the data.

Best Friends	Number of rubber bands collected
--------------	----------------------------------

Sally	1 637
Carmy	1 259

Ask: How many rubber bands did Sally collect? What about Carmy?
Who collected more rubber bands?

Help pupils to visualize the problem. Use flats, longs, and squares.

Let the pupils compare the two numbers by their digits.

Ask: What can you say about their digits in the thousands place?
(*They are equal*)
in the hundreds place? (*They are not the same in number.*)

Ask: Which hundred is more?
(*6 hundred is greater than 2 hundred.*)
So, 1 637 is greater than 1 259.

Introduce the symbols > for “greater than”, < for “less than”, and = for “equal”.

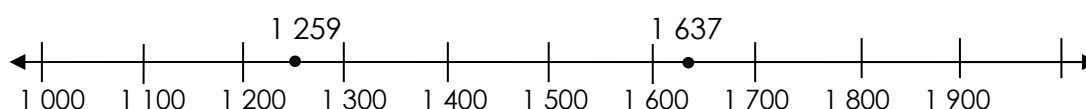
Say: 1 637 is greater than 1 259.
In symbol, it is written as: $1\,637 > 1\,259$

1 259 is less than 1 637.
In symbol, it is written as: $1\,259 < 1\,637$
Therefore, Sally collected more rubber bands than Carmy.

Give an example illustrating the concept of equality (=).

Present another way of comparing the numbers by using a number line.

Plot the points on the number line. Ask which of the two numbers should be written on the left side and on the right side. Have pupils explain why.



Tell pupils to read the numbers on the given segment of the number line.

Ask: What is the leftmost number in the given segment of the number line? the rightmost?
Which number is greater? Which is lesser?
What do you notice with the numbers as they go from left to right?
Which is greater between the two numbers as they are seen on the number line? Which is lesser?

How do we use the number line in comparing numbers?

Have pupils study and compare the numbers below:



5 thousand < 9 thousand
So, 5 482 < 9 649
9 649 > 5 482



9 thousand = 9 thousand
5 hundred > 3 hundred
So, 9 583 > 9 385
9 385 < 9 583

2. Performing the Activity

Let pupils work in pairs. Tell them to make posters that show the meaning of <, >, and =. Tell them to use numbers, words, pictures and the symbols.

Have pupils present their posters to the class. Display the posters so pupils can refer to them as they study the lesson.

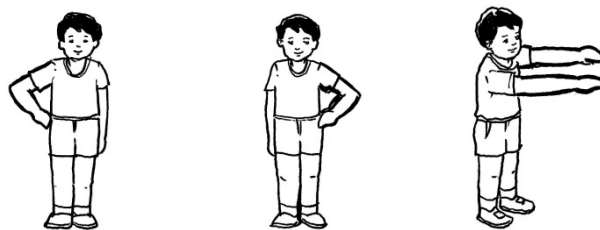
3. Processing the Activity

Ask the pupils the following questions:

- In the activity, what symbols did you use to show the comparison between two numbers?
- What symbol did you use to show that one number is more than the other?
- What symbol did you use to show that one number is less than the other?
- What symbol did you use to show that the number of objects is the same?

4. Reinforcing the Concept

Divide the pupils into 4 groups. Ask the pupils to use the following hand gestures for "less than", for "greater than" and for "equal".



less than greater than equal

As the pairs of numbers are called, the groups give their answer by doing the hand gesture that corresponds to their answer. Refer to Activity 1 in the LM for the pairs of numbers.

Answer Key: 1) < 2) < 3) < 4) < 5) < 6) = 7) = 8) < 9) = 10) <

5. Summarizing the Lesson

Ask: How do we compare numbers? What symbols do we use?

To compare numbers, we use the following symbols:
 > for "greater than"; < for "less than", and = for "equal to".

6. Applying to New and Other Situations

Have pupils work on Activity 2 in the LM. Assist pupils in solving the word problems. Provide more exercises if needed.

Answer Key:

A. 1) 3 280 2) December

B. 1) 9 879 2) 8 400 3) 7 643 4) 6 897 5) 7 342

C. Evaluation

Give Activity 3 in the LM for pupils to work on.

Answer Key:

A. 1) < 2) < 3) < 4) > 5) = 6) < 7) > 8) < 9) < 10) =

B. 1) No because $426 < 624$

2) The digit 4 in 934 has a value of 4 while the 4 in 647 has a value of 40.

C. 1) tens place 2) hundreds place.

D. Home Activity

Pupils write the correct symbol for each pair of numbers in Activity 4 in the LM.

Answer Key: 1) < 2) < 3) = 4) > 5) >

Lesson 7 Ordering Numbers up to 10 000

Week 2

Objective

Order numbers up to 10 000 in increasing or decreasing order

Value Focus

Generosity

Prerequisite Concepts and Skills

1. Intuitive concepts of 1001–10 000
2. Writing numbers after, before, and between a given number
3. Comparing numbers up to 10 000 using relation symbols

Materials

Flats, longs, and squares; pictures/illustrations; charts/tables; activity cards; number line; counters

Instructional Procedures

A. Preliminary Activities

1. Drill

- a. Using the flash cards, have the pupils give the place value of a digit in the number. (Say the digit as the card is flashed.)
Example: 7 634 (six) 4 351 (four)
- b. Using another set of flash cards, have the pupils give the number that comes before or after the number that is flashed.
Example: 4 723 _____ _____ 2 391

2. Review

- a. Play a game between pairs.
 - 1) Provide each pair of pupils a small circle of cardboard with the word "more" on one side and the word "less" on the other side. Also give them a set of number cards with 4- to 5-digit numbers written on them.
 - 2) Have each pair lay one of their number cards on the table face down.
 - 3) Have one pupil throw the circle cardboard in the air. As the cardboard lands on the table or the floor, the pupils check and find out which side lands up. If it is "more," the pair whose number is greater earns a point. If the "less" side lands up, then the pair whose number is less gets the point. (Let the class decide which of the numbers is more or less.)
 - 4) Have the pupils place another set of number cards on the table, and then repeat the same procedure.
 - 5) The pair to earn 3 out of 5 points wins the game.
- b. Study each pair of numbers, and then, answer the following questions.

What digit or digits will you write in the blank to make the number greater than the number on the right?

1) $4 _ 37$ $4\ 794$

2) $_ 143$ $1\ 268$

3) $7\ 8 _ 9$ $7\ 861$

What digit or digits will you write in the blank to make the number less than the number on the left?

1) $4\ 763$ $_ 457$

2) $5\ 994$ $5 _ 58$

3) $6\ 745$ $6\ 74 _$

3. Motivation

Call on pupil volunteers to stand in front and arrange themselves from tallest to shortest.

Ask: How many pupils are there?

What do you notice about their arrangement? How are they arranged?

Who can come up front and arrange all your classmates in order from tallest to shorter/shortest to tallest?

B. Developmental Activities

1. Presenting the Lesson

- a. Show a clothesline with two numbers (6 392 and 4 354) pinned on it. Let the pupils read the numbers.



Say: What if there is another number like 5 253? Where should it be placed so that the numbers are arranged from greatest to least?

(Answer: between 6 392 and 4 354)

Ask: Why should it be placed in that position? (because 5 253 is less than 6 392, but greater than 4 354 and we are following the decreasing order)

What if there is another number like 2 998? Where should it be placed?

(Answer: after 4 354)

Why? (to arrange the numbers in order from greatest to least)

Remember that you are arranging the numbers from greatest to least.

Remind pupils that when the numbers are arranged in **decreasing order**, the arrangement starts with the greatest number and ends with the least number.

Ask: If the numbers were arranged from least to greatest or in increasing order, how will the arrangement be done? Which number should come first? second? third? last?

Tell pupils that when the numbers are arranged in **increasing order**, the arrangement starts with the least number and ends with the greatest number.

2. Performing the Activities

- a. Divide the pupils into two groups and let them continue "hanging" all the numbers in the clothesline. The first group is to hang the numbers in increasing order by comparing first the digits with the highest place value; in this case the thousands place.

6 392 2 998 4 354 5 253

Let another group do the hanging of another set of numbers on a clothesline in decreasing order.

1 463 5 678 3975 7 123

- b. Give 2 sets of number cards to the two groups. Instruct one group to arrange the first set of number cards in increasing order and the second group to arrange their cards in decreasing order. Tell them that this is a timed activity (5 minutes).

Set 1 : 4 163, 3 985, 5 421, 2 134, 3 154

Set 2 : 6 789, 1 567, 4 678, 1 987, 5 234

Tell them to copy the arrangements done on their paper later.

3. Processing the Activities

Call on each group to post their work on the board. Have the pupils focus on what had been posted. Let them check if all the numbers were arranged correctly.

Ask: How can you say that the numbers were arranged in increasing order? in decreasing order?

If I have another number like 6 835, where would I place it in the first set? Why?

If I have another blank card and wanted to place it after the second number in the second set, what number should be written on the card?

Can we write the numbers in a column? If yes, how will they be arranged? (Many possible answers)

Which way of arranging numbers do you prefer, vertical or horizontal? Why?

4. Reinforcing the Concept

Ask the pupils to answer the exercises under Activities 1 and 2 in the LM. Check pupils' answers.

Answer Key:

Activity 1 : 1) 4 382, 4 381, 4 380, 4 379, 4 378 2) 5 732, 5 326, 5 324, 5 322, 5 320 3) 7 865, 7 854, 7 850, 7 845, 7 585

Activity 2: A. 1) 2 786, 2 787, 2 788, 2 789, 2 790 2) 5 000, 5 780, 5 860, 5 880, 5 980 3) 8 461, 9 742, 9 832, 9 904, 10 000

B. 1) 4 989, 4 988, 4 987, 4 986, 4 985 2) 9 400, 9399, 9 299, 8 999, 8 299 3) 9 967, 8 374, 6 090, 6 000, 5 610

5. Summarizing the Lesson

How do we arrange numbers in decreasing order?

How do we arrange numbers in increasing order?

To arrange numbers in increasing or decreasing order, compare two numbers at a time, starting from left to right. Find out which is greater or lesser, then put them in the right order.

6. Applying to New and Other Situations

Ask the pupils to answer the exercises under Activity 3 of the LM.

Answer Key: 1) 1 976, 2 564, 2 839, 3 427

2) 9 357, 7 450, 6 983, 4 745

C. Evaluation

Guide pupils in working on Activity 4 in the LM. Check pupils' answers.
Answer Key: 1) 8 543, 6 327, 4 327, 3 258, 1 765
2) 4 231, 4 452, 5 189, 7 675, 9 778

D. Home Activity

Ask the pupils to study the word problem then answer the exercises under Activity 5 in the LM.

Answer Key: Activity 5A

Organization A's Collection

Ascending : 6 800, 7 500, 8 000, 8 600, 10 000

Descending : 10 000, 8 600, 8 000, 7 500, 6 800

Organization B's Collection

Ascending : 5 800, 6 600, 7 900, 8 500, 9 000

Descending : 9 000, 8 500, 7 900, 6 600, 5 800

Activity 5 B – Answers vary; Example: 6 741, 6 147, 4 671, 1 674, 1 467

Lesson 8 Ordinal Numbers from 1st to 100th

Week 3

Objective

Identify ordinal numbers from 1st to 100th

Value Focus

Waiting for one's turn

Prerequisite Concepts and Skills

1. Reading and writing numbers from 1 to 100
2. Reading and writing ordinal numbers from 1st through the 20th

Materials

Calendar, picture of children lined up, number cut-outs, fruits (real or drawing)

Instructional Procedures

A. Preliminary Activities

1. Drill

Identify the place value of the underlined digit. Add more exercises as needed.

571

5 376

6 725

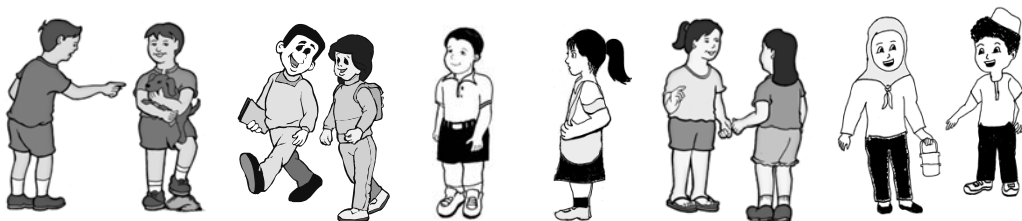
3 096

9 827

8 360

2. Review

Show a picture of children lined one after another. Have them read the name of each child below the picture.



Lito Roman Bitoy Ana Jay Riza Gina Maria Jasna Atoy
Name the child in the line.

Who is the first? _____
Who is the fourth? _____
Who is the sixth? _____
Who is the second? _____
Who is the third? _____
Who is the fifth? _____
Who is the 10th? _____
Who is the 8th? _____
Who is the ninth? _____
Who is the 7th in line? _____

3. Motivation

Ask: Have you experienced falling in line during recess or meal time in the school canteen? What should you observe when falling in line?

Give other similar situations such as during flag ceremony, when receiving relief goods, and when buying tickets for rides during town fiesta. Ask the importance of falling in line in these situations.

B. Developmental Activities

1. Presenting the Lesson

Posing the Problem

Show the Filipino alphabet from the first letter up to the last.

Ask: How many letters does the Filipino alphabet have?

A	B	C	D	E	F	G
H	I	J	K	L	M	N
Ñ	NG	O	P	Q	R	S
T	U	V	W	X	Y	Z

The letters of the alphabet are arranged with letter A being the first letter, B as the second, C as the third, and so on.

Ask: What does the arrangement of the letters of the alphabet indicate?
(The arrangement indicates the position or order of one letter in relation to the other letters.)

Explain to pupils how to write ordinal numbers.

To write ordinal numbers in symbol, connect the number with the letters **st** for numerals with the number 1 (1st, first), **nd** for numerals with the number 2 (2nd, second), **rd** for numerals with the number 3 (3rd, third), and **th** for numerals with the number 4 and above (4th, fourth). Except for eleventh, twelfth, and thirteenth (11th, 12th, 13th), all other numbers take the letters **th**.

Have the pupils read all the letters and let them take note of the ordinal numbers of all the letters in the alphabet.

Ask: What is the 21st letter? (letter S)
21st is an ordinal number.

How were you able to know the ordinal number of the letters?
(by counting, starting with the first letter)

How can ordinal numbers be written?
(Ordinal numbers can be written in words or in symbols.)

Write or show: 21st can also be written as twenty-first
33rd as thirty-third
44th as forty-fourth

2. Performing the Activities

Say: In a writing period, the teacher's objective is for the pupils to master the proper writing strokes so she asked them to write the Filipino alphabet four times in the same order.

ASK: What would be the 50th letter? (T or t) 100th letter? (NG or ng)

A	B	C	D	E	F	G
H	I	J	K	L	M	N
Ñ	NG	O	P	Q	R	S
T	U	V	W	X	Y	Z

A	B	C	D	E	F	G
H	I	J	K	L	M	N
Ñ	NG	O	P	Q	R	S
T	U	V	W	X	Y	Z

A	B	C	D	E	F	G
H	I	J	K	L	M	N
Ñ	NG	O	P	Q	R	S

A	B	C	D	E	F	G
H	I	J	K	L	M	N
Ñ	NG	O	P	Q	R	S

T	U	V	W	X	Y	Z	T	U	V	W	X	Y	Z
---	---	---	---	---	---	---	---	---	---	---	---	---	---

What's another way of writing the ordinal number 100th?
 Say: Here are some numbers. Write th, rd, nd, or st as superscripts for each of the following to change them into ordinal numbers.

- | | |
|-------------|-------------|
| 1. 31 _____ | 4. 81 _____ |
| 2. 45 _____ | 5. 68 _____ |
| 3. 33 _____ | 6. 92 _____ |

This time, write the ordinal numbers in words.

Ordinal Number	Answer
Example: 25 th	Twenty-fifth
1) 31 st	
2) 45 th	
3) 33 rd	
4) 81 st	
5) 68 th	
6) 92 nd	

3. Processing the Activities

What do we call numbers like 1st, 2nd, 3rd? (ordinal numbers)
 What do ordinal numbers show?
 How are ordinal numbers written?
 Which ordinal numbers end with st? nd? rd? th?

Ask the pupils to practice writing ordinal numbers in words and in symbols.

Examples:

In words

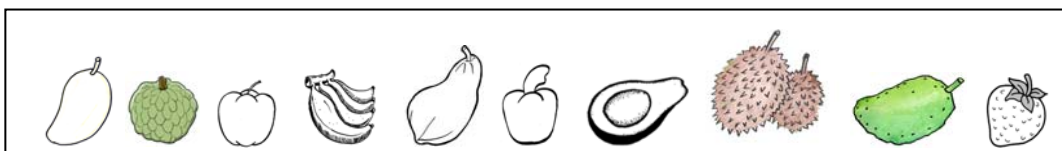
Twenty-second
 Thirty-fifth
 Forty-third
 Sixty-first
 Sixty-fourth
 Seventy-seventh

In symbols

22nd
 35th
 43rd
 61st
 64th
 77th

4. Reinforcing the Concept

- a. Name the fruit and tell its position from 21st to 30th. Use mango as the point of reference and denote it as the 21st.



- b. Ask the pupils to answer the exercises in Activities 1 and 2 in the LM.
Check pupils' answers.

5. Summarizing the Lesson

What are ordinal numbers? What do they tell?

How are they written?

Lead pupils to say that ordinal numbers are numbers that indicate the position or order of an object or number in relation to other objects or numbers.

When objects are placed in order, we use ordinal numbers to tell their position.

To write ordinal numbers in symbol, use superscript letters **st** for numerals with the number 1 (1st, first), **nd** for numerals with the number 2 (2nd, second), **rd** for numerals with the number 3 (3rd, third), and **th** for numerals with the number 4 and above (4th, fourth; 29th, twenty-ninth).

Examples of ordinal numbers are first, second, third, fourth, twenty-ninth, eighty-eighth.

6. Applying to New and Other Situations

Ask the pupils to answer the exercises under Activity 3 in the LM.

Provide help as needed.

C. Evaluation

Ask the pupils to answer the exercises under Activity 4 in the LM. Check pupils' answers.

Answer Key: 9th, 13th, 21st, 26th, 44th, 50th, 67th, 71st, 91st, 93rd, 96th, 100th

D. Home Activity

Ask the pupils to read and answer the problem under Activity 5 in the LM.

Tell pupils they need the 2012 calendar to solve the problem.

Answer Key:

A. 1) Monday 2) Tuesday 3) Sunday 4) Wednesday

B. 1) **Nelia – Faye – Aliza – Mary Joy**, then Aliza is the 3rd 2) 72

3) a. Tuesday b. Thursday

Lesson 9 Recognizing Coins and Bills up to Php1 000

Week 3

Objective

Recognize coins and bills up to PhP1 000

Value Focus

Sharing and saving money

Prerequisite Concepts and Skills

1. Reading and writing money through PhP100
2. Counting and telling the value of coins and bills up to PhP100

Materials

Philippine money or play money (bills and coins), flash cards

Instructional Procedures

A. Preliminary Activities

1. Drill

Count numbers orally through 100.
Skip count by 2s, 5s and 10s through 1 000.

2. Review

Lay the play money or real money of different denominations on the table. Using flash cards, let pupils read the following and pick the correct bill or coin that corresponds to each.

twenty-five centavos

five pesos

twenty pesos

one peso

five centavos

ten centavos

3. Motivation

Say: Nilo is counting the Philippine coins and bills he saved for one year.

Show three 100-peso bills, one fifty-peso bill and four 20-peso bills.
Can you identify the bills and coins he has saved?

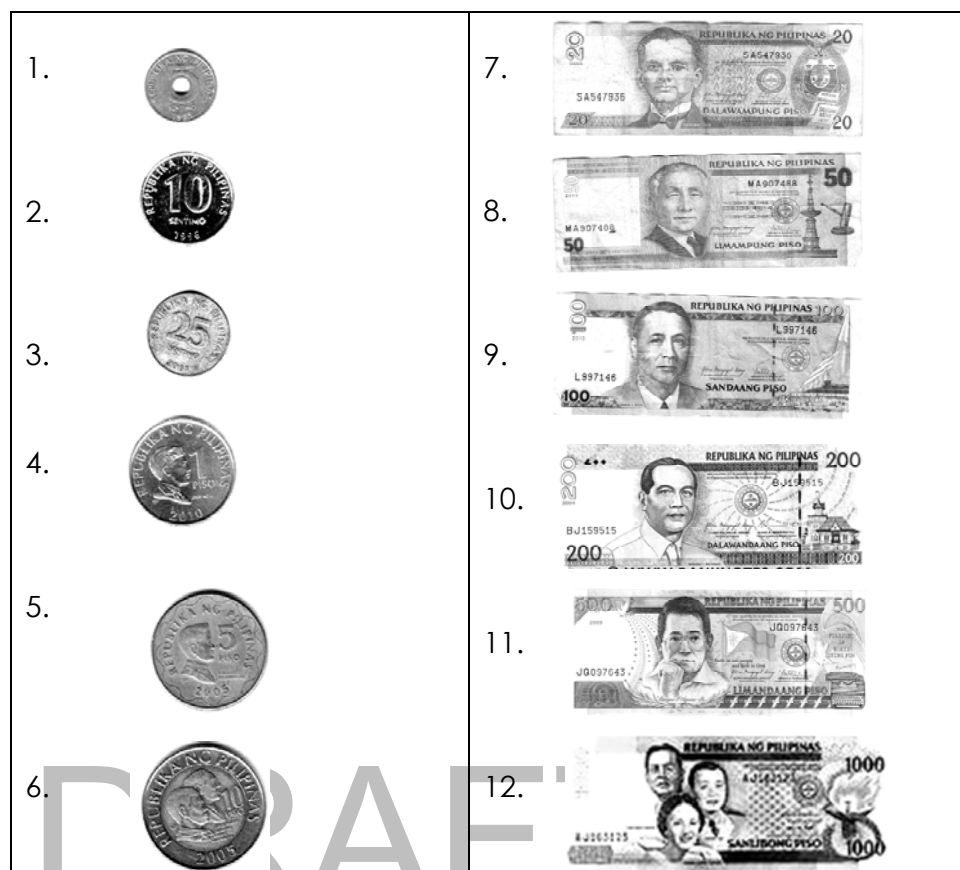
Let the pupils name the coins and bills that Nilo has.

Ask: What do you see in each of the Philippine coins and bills?

B. Developmental Activities

1. Presenting the Lesson

Show the following Philippine coins and bills one at a time. Call on pupils to give the value of these coins and bills.



2. Performing the Activities

Tell pupils to describe each paper bill. (Let the pupils recognize the paper bills by its markings, face and color.)

- Twenty-pesos
- Fifty pesos
- One hundred pesos
- Two hundred pesos
- Five hundred pesos
- One thousand pesos

3. Processing the Activities

Distribute play money (paper bills and models of different Philippine coins) to the pupils. Tell them to examine the play money.

Ask: What picture can be seen on each side of the coins? the bills?
How fast can you recognize paper bills? Can you give their exact amount?

Say: I have paper bills here. Identify them. (Flash the paper bills one at a time and the pupils identify them).

How were you able to recognize each paper bill that fast?
(Possible answers: Each paper bill has a different color,
number/amount and image printed on it.)

For color:

orange for PhP20

blue for PhP100

yellow for PhP500

red for PhP50

green for PhP200

violet for PhP1 000

How about the coins, how are they different from one another?
(Let the pupils describe each coin.)

4. Reinforcing the Concept

Form pupils into two groups and have them do Activity 1 in the LM.
Check their answers. Group 1 will answer Activity 1 A and Group 2
Activity 1 B.

Check if pupils can recall the images in the paper bills. Have them use
their "Show Me" boards to answer Activity 2 in the LM.

5. Summarizing the Lesson

Ask: What features of the paper bill will help you identify or recognize
it?

How are the coins different from one another?

Aside from the marked amount, paper bills can be recognized by their
colors and the faces of some Filipino heroes printed on them.

The coins can be recognized by their marked amount, sizes, color and
images or faces printed on one side of the coin.

6. Applying to New and Other Situations

A. Ask the pupils to read and answer the questions in Activity 3 in the
LM. Discuss how the pupils get the answers.

Answer Key: 1) one 100-peso bill, two 20-peso bills, five 5-peso
coins; PhP145 2) 14 3) PhP100; one 50-peso bill, two 20-peso bills,
two 5-peso coins

B. Show a picture of a child saving money.

Ask: Why is the child saving money? Is it
good to save money? Why?
Do you also save money? Why?



C. Evaluation

Have pupils match the paper bill with the names of the heroes printed on the bill under Activity 4 in the LM.

Answer Key: 1) D 2) C 3) E 4) B 5) F

D. Home Activity

Ask pupils to identify the paper bills and coins in Activity 5 in the LM.

Answer Key: 1) one 100-peso bill, one 50-peso bill, two one-peso coins

2) one 100-peso bill, one 10-peso coin, one 5-peso coin, two 1-peso coins

3) one 500-peso bill, one 200-peso bill, two 100-peso bills, five 5-peso coins

4) one 20-peso bill, one 100-peso bill, one 500-peso bill

5) one 1000-peso bill, one 50-peso bill

Lesson 10 Reading and Writing Money in Symbols and in Words

Week 3

Objective

Read and write money in symbols and in words through PhP1 000 in pesos and centavos

Value Focus

Honesty, Thriftiness

Prerequisite Concepts and Skills

1. Reading and writing numbers up to PhP1 000
2. Reading and writing money in symbols up to PhP100
3. Recognizing coins and bills up to PhP1 000

Materials

Philippine money or play money (bills and coins), flash cards, pictures of tagged items or goods, "Show Me" boards

Instructional Procedures

A. Preliminary Activities

1. Drill

Reading numbers using flash cards

Call 2 pupils to stand at the back. Flash each card. The first to read the number correctly will step forward. The first to reach the designated

line wins. Then, call another pair of contestants. Do this as snappily as possible.

Sample number cards:

164	376	511	409	918	1 000
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2. Review

Use real money to review pupils in recognizing the different values of the different denominations of Philippine coins and bills through PhP1 000.

3. Motivation

Play the relay game, "Super Sale."

Form two groups of five members each. Give each group a shirt and a notebook with a tag price up to PhP100. Put a tray of coins and bills in front. Each member of the group will get a coin or a bill from the tray then goes back to his/her group for the next player to do the same. Follow the same procedure for the other item. The first group to get the amount equivalent to the tag price of each item wins.

Group A PhP35 notebook PhP100 T-shirt

Group B PhP27 notebook PhP98 T-shirt

B. Developmental Activities

1. Presenting the Lesson

Give this situation:

Amanda accompanied her mother in going to the market. After buying an item, mother got her change of several paper bills and coins. She asked Amanda to count if the change was correct. Amanda noted that the change given were paper bills of different colors and coins of different sizes:

Paper bills

5 orange bills



Coins

5 silver color coins



2 red bills



3 gold color coins



1 yellow bill



Say: Let's help Amanda count the change. Call on one pupil to read the bills and the coins.

Ask: How much is the change in all?
What is the symbol for peso? for centavo?

Tell pupils to write on their drill board the amount in words and in symbol.

2. Performing the Activity

Ask: What paper bills and coins were included in the change counted by Amanda?

Tell pupils to count the number of each kind of paper bills and coins and write the partial amount on their drill board.

5 orange paper bills = PhP100



5 silver colored coins = PhP5



2 red paper bills = PhP100



3 gold colored coins = PhP15



1 yellow paper bill = PhP500



Write the partial amounts on the board and have pupils read them.

PhP100 PhP5 PhP100 PhP15 PhP500

Tell the class to add the amounts. Call one pupil to write the amount in symbol and another to read the total amount. (PhP720)

Say: The total amount of change is seven hundred twenty pesos.

3. Processing the Activity

Call on pupils to answer.

- How many paper bills did mother receive? How many coins?
- What did you do to easily count the change?
- What is the total amount of change?
- What symbol/sign do we use in writing money in different denominations?

Explain the importance of using the peso sign in writing money in symbol.

4. Reinforcing the Concept

- Put strips of paper under pupils' chairs before the class starts. Tell one pupil to look under his/her chair and read what is written, while another pupil writes it on the board. Ask the class if it was read or written correctly. Do the same with the rest of the strips. Emphasize that the decimal point is read as "and."

PhP250.50	PhP380.75
PhP348.75	PhP798.25
One hundred twenty-six and 25 centavos	Five hundred eighty-nine and ninety centavos
PhP986.20	PhP675.55
Eight hundred fifty and fifty centavos	Nine hundred thirty-five and twenty-five centavos

- b. Ask pupils to form four groups. Distribute play money to pupils and buy the items listed with their money. Refer them to Activity 1 in the LM. Guide pupils in doing the exercise.
- c. Read the cost of each item. Then, write the amount in your notebook. e.g.



PhP280.75

PhP550.25

PhP399.95

5. Summarizing the Lesson

How do we read and write money in symbol through PhP1 000?

- We read and write money in words and symbols.
- In writing the symbols, we write first the peso sign.
We use **PhP** for peso.
- A period is used to separate pesos and centavos.
- The point is read as "and."

Example:

Written in words: twenty-five pesos and fifty centavos

Written in symbol: PhP25.50

6. Applying to New and Other Situations

- a. Ask pupils to answer the exercises in Activity 2 in the LM. Give other exercises when deemed necessary.

Answer Key:

- 1) a. many possible combinations b. 2 five hundred-peso bills
- 2) a. 5 one hundred-peso bills b. 10 fifty-peso bills
- 3) a. 1 two hundred-peso bill b. 2 one hundred-peso bills
- 4) 1 two hundred-peso bills, 1 one hundred-peso bills and 3 ten-peso coins
- 5) 1 five hundred-peso bill, 2 two hundred-peso bills, 1 fifty-peso bill and 4 ten-peso coins

- b. Tell pupils to list down at least five things that their mother buys in the market or the grocery store like salt, sugar and oil. Let them indicate the price beside the item and write how much money their mother should have to be able to buy the items.

C. Evaluation

Give the exercises in Activity 3 in the LM, first the oral then the written exercises.

Answer Key:

- B. 1) PhP416.00 2) PhP285.00 3) PhP713.15 4) PhP834.11
5) PhP922.16

D. Home Activity

Have pupils work on Activity 4 at home. Discuss pupils' answers in class.

Answer Key:

- A. 1) 150 pesos and 25 centavos 2) 212 pesos and 75 centavos
3) 763 pesos and 50 centavos 4) 874 pesos and 25 centavos
5) 946 pesos and 50 centavos
B. 1) PhP641.25 2) eight hundred pesos and fifteen centavos
3) PhP356.13 4) five hundred five pesos and five centavos
5) PhP428.30

Lesson 11 Comparing Money through PhP500

Week 4

Objective

Compare values of the different denominations of coins and bills through PhP500 using relation symbols

Value Focus

Wise spending

Prerequisite Concepts and Skills

1. Comparing whole numbers using relation symbols
2. Identifying value of money in bills and coins
3. Reading and writing money in symbols through PhP500
4. Place value of whole numbers

Materials

Pictures of items with tag prices, "Show Me" board, flash cards

Instructional Procedures

A. Preliminary Activities

1. Drill

Give practice on reading money in symbols through PhP500. Use flash cards as snappily as possible.

2. Review

Using your "Show Me" boards, write the money in symbol as shown in each strip of paper. Then, read the amount of money you wrote.

One hundred-seven pesos

Two hundred forty-one pesos

Three hundred thirteen pesos and thirty-two centavos

Two hundred eighty-six pesos and fifty-five centavos

Four hundred-six pesos and sixty centavos

3. Motivation

Call on one boy and one girl in front while the rest of the class observe. Show real money of different denominations. As much as possible, show them the old and new faces or versions of Philippine money that are both still in use.

Say: Let's suppose I am your father and I am giving you your allowance for one week.

Give the boy one 100-peso bill and one 50-peso bill. Give the girl two 50-peso bills, two 20-peso bills and one ten-peso bill.

Ask: How much did the girl receive?
How much did the boy receive?

Give another situation:

The jeepney fare from your house to your school is twelve pesos while your classmate's fare for a tricycle ride from their house to the same school is fifteen pesos. Who pays more for the ride?

B. Developmental Activities

1. Presenting the Lesson

Ask: In the first situation above, who received more allowance, the boy or the girl?
How much did the boy receive? What about the girl?
How did you compare the amounts they received? (Start from the digits with the biggest place value then add the amounts.)

In the second situation, how much fare was paid for the jeepney? for the tricycle?
Which fare was more? Which was less?
How would you compare the fares?

2. Performing the Activity

Have pupils work in groups. Give each group two sets of paper bills and/or coins. Have them tell the value of each set. Then, ask which among each set has a bigger value. You may use play money.

Set A



Set B



Ask: How will you compare the values of each set of coins and bills?
(Elicit from the students the use of greater than and less than.)

Say: This time I will say two amounts of money. Compare their amounts by writing $<$, $>$, or $=$ on your drill boards.

Set A

1.

PhP50.50

 $\underline{\hspace{1cm}}$

2.

PhP98.00

 $\underline{\hspace{1cm}}$

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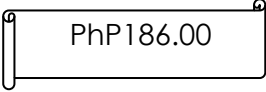
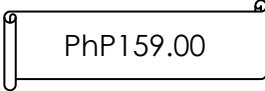
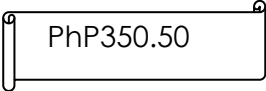
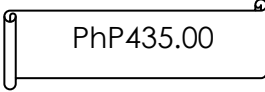
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Set B

PhP50.75

PhP68.25

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- | | | | |
|----|---|---|--|
| 3. | PhP126.25 | — | PhP89.90 |
| 4. |  PhP186.00 | — |  PhP159.00 |
| 5. |  PhP350.50 | — |  PhP435.00 |

Ask: In which activity is it easier for you to compare amounts of money? Why?

3. Processing the Activity

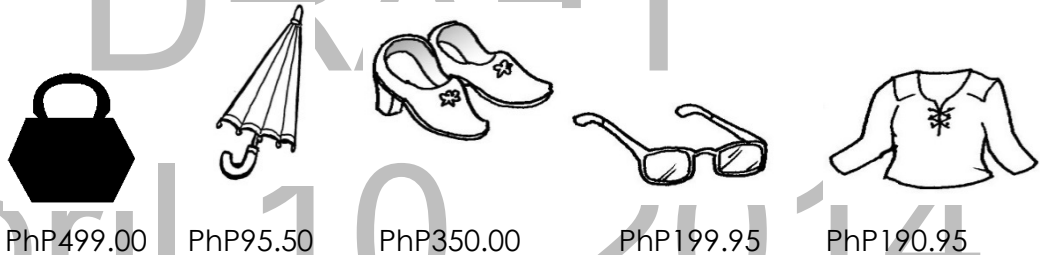
Ask: What relation symbols did we use in comparing money?
When do we use >? What about the symbol <? the symbol =?

How do we compare the values of money?

Why is it important to learn to compare values of Philippine coins and bills? On what occasions do we use this skill?

4. Reinforcing the Activity

Let the pupils work in pairs. Show the items with their corresponding amounts. Then answer the questions that follow.



Ask: Which item is the cheapest?
Which item is the most expensive?
Which is cheaper, the bag or the umbrella?
Which is more expensive, the sunglasses or the shirt?

If you have PhP500.00, which items would you buy? Why?

What did you consider in choosing those items to be bought?

Ask your partner which items he/she would buy and why.

Have pupils count the bills and coins then write the relation symbol for each pair in Activity 1 in the LM.

Ask pupils to write the relation symbols between each pair of amounts under Activity 2 in the LM.

5. Summarizing the Lesson

Ask: What symbols do we use to show the relation of the value of money?

- Use the symbols $>$, $<$, $=$ to show the relation of the value of money.

How do we compare value of money?

- Know the value/amount of money before comparing them.
- Start comparing the digits from the biggest place value to the least place value.

6. Applying to New and Other Situations

Group the class into four. Give each group 3 pairs of envelope containing bills and coins. (Use play money).

Ask them to count and compare the two amounts of money in each pair.

Let them write the facts in number sentences.

Example: PhP79.25 $>$ PhP65.05

Ask each group to report their work in the class.

Ask the pupils to answer the exercises under Activity 3 in the LM.

Answer Key:

A. 1) PhP23 $<$ PhP25 2) PhP60.40 $>$ PhP60 3) PhP250 $>$ PhP140

4) PhP500 $>$ PhP250

B. 1) PhP645.50 $>$ PhP280.75
2) PhP399.95 $<$ PhP540.95
3) PhP698.95 $>$ PhP295.45

C. Evaluation

Ask the pupils to compare the denominations of bills and coins in Activity 4 in the LM.

Answer Key:

1) PhP110.00	$<$	PhP140.00
2) PhP270.00	$>$	PhP200.00
3) PhP320.00	$<$	PhP500.00
4) PhP470.00	$>$	PhP400.00
5) PhP450.00	$<$	PhP500.00

D. Home Activity

Ask the pupils to work on the exercises in Activity 5 at home. Tell pupils to ask the help of their parents. Check pupils' answers.

Lesson 12 Comparing Money through PhP1 000

Week 4

Objective

Compare values of the different denominations of coins and bills through PhP1 000

Value Focus

Thrift

Prerequisite Skills

1. Comparing whole numbers using relation symbols
2. Identifying value of money in bills and coins
3. Comparing values of the different denominations of coins and bills through PhP500 using relation symbols

Materials

Pictures of Items with tag prices, Show-Me Board, flash cards, chart, play money

Instructional Procedures

A. Preliminary Activities











1. Drill


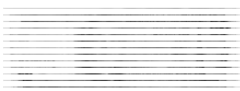

Comparing numbers in symbols using $>$, $<$, $=$.
Do this as snappily as possible.

300		418	820		800
899		950	409		455

2. Review

Use different denominations of money (teacher-made or play money) to have an equal value with the money in the table. Paste them in the space provided. The first one has been done for you to follow.

Money	Symbol	Different Denominations
	=	       
	=	

	=	
	=	
	=	

3. Motivation

Ask the pupils the fruit bearing trees they have in their backyard.

Ask further what they do with the fruits, especially when their harvest is more than they can consume.

Call on volunteers to name the common fruits that are being sold in the market.

B. Developmental Activities

1. Presenting the Lesson

Present this situation on a chart.

Mother is planning to go to market. She has the following paper bills and coins inside her wallet:



She asked father for additional money so he looked inside his wallet and found these:



1. How much is in mother's wallet? What combinations of bills and coins are there?

(PhP336.25; Combinations of: one 100-peso bill, one 200-peso bill, one 20-peso bill, one 10-peso coin, one 5-peso coin, one 1-peso coin, two ten-centavo coins, and one five-centavo coin)

2. How about father, what bills and coins are in his wallet? How much does he have?

(Combinations of one 200-peso bill, two 100-peso bills, one 50-peso bill, two 1-peso coins, two 25-centavo coins, one 10-centavo coin, and one 5-centavo coin; PhP452.65)

Let the pupils answer the questions in the situation given. Lead them to arrive at the answer to the problem by enumerating first the different denominations of bills and coins and then their corresponding values.

2. Performing the Activity

Have the pupils work in pairs.

Ask: Who has more money, mother or father?

If you are to count the number of bills and coins, how many bills and coins does mother have? (3 bills and 6 coins)

How about father, how many bills and coins are in his wallet? (4 bills and 6 coins)

So, why can't we say that father has more money when he has more bills and coins than mother?

Say: Let us compare their money by giving the value of the denominations each of them has.

Let us look at the table.

	Bills	Value	Amount of bills	Coins	Value	Amount of coins	Total amount
Mother	1 PhP200 1 PhP100 1 PhP20	PhP200 PhP100 PhP20	PhP320	1 PhP10 1 PhP5 1 PhP1 2 10 ¢ 1 5 ¢	PhP10 PhP5 PhP1 20 ¢ 5 ¢	PhP16.25	PhP336.25
Father	1 PhP200 2 PhP100 1 PhP50	PhP200 PhP200 PhP50	PhP450	2 PhP1 2 25 ¢ 1 10 ¢ 1 5 ¢	PhP2 50 ¢ 10 ¢ 5 ¢	PhP2.65	PhP452.65

Ask: Is there another way to compare their money? How?

Is the recognition of Philippine money bills and coins important in

comparing values of different denominations of bills and coins?
Why?

3. Processing the Activity

Divide the class into 4 groups and have them act out the situation and come out with a final scene. (Different possibilities)

Guide them by asking: Will mother proceed in going to market? What items or goods could she buy?

4. Reinforcing the Concept

- a. Divide the class into 2 groups and work on these activities (written on an index card), then give each group an envelope which contains play money bills and coins (do not include PhP1 000 bill).

Group 1: How would you make PhP1 000 with the fewest bills and coins?

Show it in 2 different combinations.

	Bills	Coins
Set 1		
Set 2		

Group 2: How would you make PhP1 000 with the fewest bills?
Show it in 2 different combinations

	Bills	Coins
Set 1		
Set 2		

(After checking their answers and if there is still time, ask the two groups to exchange their index cards and work on the activity first done by the other group.)

- b. Ask the pupils to answer Activity 1 in the LM.

5. Summarizing the Lesson

Ask: How do we compare values of different denomination of bills and coins?

- We should know the amount of money before comparing them. We start comparing the digits on the biggest place value to the least place value.
- Write the value of each kind of bills and coins, then add.

- Use the symbols $>$, $<$, $=$ to show the relation of the value of money.

6. Applying a New and Other Situations

Ask the pupils to answer Activity 2 in the LM.

Answer Key: Answers vary

Example: 1) four 100-peso bills, one 10-peso coin, one 1-peso coin

2) one 200-peso bill, one 50-peso bill, one 20-peso bill, one 1-peso coin, one 25-centavo coin

C. Evaluation

Ask pupils to answer Activities 3 and 4 in the LM. Check pupils' answers.

Answer Key:

Activity 3: 1) PhP600.00 $>$ PhP450.00 2) PhP550.00 $<$ PhP580.00

Activity 4: 1) 1 000 pieces 2) 100 pieces 3) 10 pieces 4) 5 pieces

5) 2 pieces

D. Home Activity

Ask the pupils to answer the tasks in Activity 5 in the LM.

Answer Key: 1) Answers vary, Ex. one 500-peso bill, four 100-peso bills, one 25-centavo coin 2) answers depend on the prevailing prices of the items in the community

Lesson 13 Adding 3- to 4-Digit Numbers without Regrouping

Week 4

Objective

Add 3- to 4-digit numbers up to three addends with sums up to 10 000 without regrouping

Value Focus

Cleanliness

Prerequisite Concepts and Skills

Adding 2- to 3-digit numbers up to two addends with sums up to 1 000 without regrouping

Materials

Flash cards, number cards 0–9, printed exercises and story problem, place value chart

Instructional Procedures

A. Preliminary Activities

1. Drill

Play a "Bring Me" game to drill on addition basic facts using flash cards.

Form pupils into two groups of 10 pupils each. Give each pupil number cards 0–9.

Say these addition facts to pupils.

1. Bring me $12 + 10$
2. Bring me $9 + 8$
3. Bring me $14 + 32$
4. Bring me $41 + 11$
5. Bring me $23 + 40$

For each round, the pupils must bring the card with the correct answer to the number problem.

The first group to bring the correct number card gets a point.

The first group to score five points wins the game.

2. Review

Write the letter of the correct answer to the addition problem on the chalkboard.

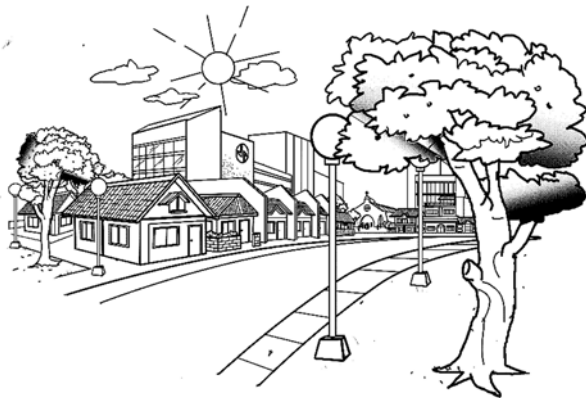
1)
$$\begin{array}{r} 214 \\ + 21 \\ \hline \end{array}$$
 a. 235 b. 532 c. 325 d. 523

2)
$$\begin{array}{r} 214 \\ + 123 \\ \hline \end{array}$$
 a. 316 b. 337 c. 349 d. 637

3)
$$\begin{array}{r} 365 \\ + 412 \\ \hline \end{array}$$
 a. 767 b. 677 c. 778 d. 777

Answer Key: 1) a 2) b 3) d

3. Motivation



Show the picture or similar picture to the class.

Ask: What is the picture all about?

How would you help maintain the cleanliness in your community? in your school?

Let's see whose desks will remain clean up to the last minute of the class.

B. Developmental Activities

1. Presenting the Lesson

Present this problem.

In response to the municipality's "Clean and Green" campaign, the Boy Scouts and Girl Scouts of Barangay Malinis held a tree planting activity. They planted 1 432 narra seedlings, 3 124 mahogany seedlings and 1 300 ipil-ipil seedlings. How many seedlings did they plant in all?

Ask: What was the campaign of the municipality?

Who participated in the municipal campaign?

What did they plant?

How many of these seedlings were planted?

narra seedlings _____

mahogany seedlings _____

ipil-ipil seedlings _____

Lead the pupils in analyzing the problem. Illustrate the problem using flats, longs and ones.

Express the grouping into symbols by writing the equivalent numbers into expanded form.

Add the numbers in expanded form. Then write the sum in standard form.

Expanded form:

$$\begin{array}{rcl} 1432 & = & 1000 + 400 + 30 + 2 \\ 3124 & = & 3000 + 100 + 20 + 4 \\ + 1300 & = & 1000 + 300 + 00 + 0 \\ \hline 5856 & & 5000 + 800 + 50 + 6 = 5856 \end{array}$$

Present another way of adding numbers. Put the given numbers in the place value chart before adding them. Emphasize that the numbers must be written in the appropriate column, otherwise they will arrive at the wrong answers.

Thousands	Hundreds	Tens	Ones
1	4	3	2

3	1	2	4
1	3	0	0

Do the steps one at a time.

First: Add the ones.

$$\begin{array}{r} 1\ 432 \\ 3\ 124 \\ 1\ 300 \\ \hline 6 \end{array}$$

Next: Add the tens.

$$\begin{array}{r} 1\ 432 \\ 3\ 124 \\ 1\ 300 \\ \hline 56 \end{array}$$

Then: Add the hundreds

$$\begin{array}{r} 1\ 432 \\ 3\ 124 \\ 1\ 300 \\ \hline 856 \end{array}$$

Finally: Add the thousands.

$$\begin{array}{r} 1\ 432 \\ 3\ 124 \\ 1\ 300 \\ \hline 5\ 856 \end{array}$$

Present more examples. Do the steps one at a time. Stress that the numbers must be written first in their appropriate column.

2. Performing the Activity

Write the addends in column form with the digits properly aligned. Then find the sum. Write your answers in your notebook.

- | | |
|-------------------------------|---------------------|
| 1) $1\ 150 + 2\ 034 + 2\ 011$ | (answer: $5\ 195$) |
| 2) $1\ 131 + 1\ 140 + 1\ 023$ | (answer: $3\ 294$) |
| 3) $2\ 032 + 1\ 221 + 1\ 212$ | (answer: $4\ 465$) |
| 4) $1\ 213 + 1\ 331 + 3\ 124$ | (answer: $5\ 668$) |

3. Processing the Activity

Ask: What steps do we follow in adding numbers?

Explain the steps in adding numbers. Remind pupils to always align the numbers in their proper columns.

4. Reinforcing the Concept

Have pupils answer the exercises under Activity 1 on their papers.

Answer Key:

- 1) $14\ 687$ 2) $8\ 343$ 3) $9\ 333$

5. Summarizing the Lesson

Ask: What should be done first before adding 3-to 4-digit numbers?

How do we add 3- to 4-digit numbers up to three addends with sums up to 10 000?

- Before adding, write first the numbers in their proper columns.
- To add whole numbers with 3 to 4 digits, add the ones first, next add the tens, then the hundreds, and lastly, the thousands.

6. Applying to New and Other Situations

Ask the pupils to read the sheet under Activity 2 in the LM on the number of enrolment in Gen. Gregorio del Pilar Elementary School. Have them write their computations on their paper.

Answer Key:

- 1) 4 222 2) 3 566 3) 6 588 4) a. 4 655 b. 5 444 c. 5 688
5) school year 2012

C. Evaluation

Tell pupils to answer Activity 3 in the LM. Have them write the numbers in column before finding the sum. Let them write the answer on their paper.

Answer Key:

1) 3 052 4 614 + 1 231 ----- 8 897	2) 5 143 1 705 + 2 030 ----- 8 878	3) 1 672 3 104 + 4 123 ----- 8 899	4) 6 084 1 703 + 2 112 ----- 9 899	5) 5 416 1 370 + 1 003 ----- 7 789
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D. Home Activity

Let the pupils work on Activity 4 in the LM at home. Ask them to look at the picture before answering the questions.

Answer Key: 1) 60 2) 150 3) 120 4) 455

Lesson 14 Adding 3- to 4-Digit Numbers with Regrouping

Week 4

Objective

Add 3- to 4-digit numbers up to three addends with sums up to 10 000 with regrouping

Value Focus

Value of recycling things

Prerequisite Concepts and Skills

1. Adding 2 – 3 digit numbers up to two addends with sums up to 1 000 with regrouping
2. Addends with sum up to 1 000
3. Adding 3- to 4-digit numbers up to 10 000 without regrouping

Materials

Printed exercise, chalkboards

Instructional Procedures

A. Preliminary Activities

1. Drill

Pair pupils. Play a relay game "Name the Babies."

Say aloud: The name of the mother is 12. Name the babies. (Pupils will give addition combinations that will give 12 as the sum). The pair who would give the correct answer first wins a point. The pair with the most points wins the game.

2. Review

A. Answer the following questions:

- 1) What is 27 more than 15? (42)
- 2) What is the sum of 216 and 248? (464)
- 3) If one of the addends is 19 and the sum is 43, what is the other addend? (24)
- 4) If you add 72 and 18, what is the total? (90)
- 5) What is 138 increased by 15? (153)
- 6) If the sum is 12, what are the two possible even addends that you can give? How about two odd addends? (even: 6 & 6, 8 & 4, 10 & 2; for odd addends: 3 & 9, 5 & 7, 11 & 1)

Add:

1) $\begin{array}{r} 1\ 415 \\ 5\ 423 \\ +\ 2\ 041 \\ \hline \end{array}$	2) $\begin{array}{r} 1\ 310 \\ 2\ 301 \\ +\ 1\ 211 \\ \hline \end{array}$	3) $\begin{array}{r} 1\ 246 \\ 3\ 120 \\ +\ 4\ 212 \\ \hline \end{array}$	4) $\begin{array}{r} 5\ 332 \\ 2\ 501 \\ +\ 1\ 023 \\ \hline \end{array}$	5) $\begin{array}{r} 1\ 243 \\ 3\ 223 \\ +\ 1\ 100 \\ \hline \end{array}$
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Answer Key: 1) 8 879 2) 4 822 3) 8 578 4) 8 856 5) 5 566

3. Motivation

Who among you reads newspapers? What does your family do with the newspapers?

Why do you need to recycle them?

What is the value of recycling at home?

B. Developmental Activities

1. Presenting the Lesson

Story Problem

Have the pupils listen to a story problem.

The primary pupils of Masaya Elementary School brought plastic bottles to support the school's "Plastic Bottle Fund Drive".

Ask: What did the pupils bring?

Why did they bring plastic bottles?

Let the pupils give the number of plastic bottles brought by each grade.

Plastic Bottle Fund Drive

Grade	Plastic Bottles (Contribution)
Kinder	834
Grade I	1 272
Grade II	1 321
Grade III	2 526

Have the pupils study the table and let them answer the following questions:

1. Who bought the most plastic bottles?
2. Who bought the least?
3. How many plastic bottles did the pupils bring in all? (5 953)
4. How did you come up with your answer?

Guide the pupils in analyzing the problem. Have them write the numbers on the place value chart.

Thousands	Hundreds	Tens	Ones
1	8	3	4
1	2	7	2
1	3	2	1
2	5	2	6

Emphasize the importance of putting numbers in proper column. Copy the numbers the way they are written. Show how addition is done from right to left.

Emphasize the process of regrouping on a certain place, that is regrouping is done when the sum of the numbers in a place is ten or more.

Have the pupils study and follow the steps in adding numbers with regrouping.

Step 1

Add the ones.

$$4 + 2 + 1 + 6 = 13$$

Rename 13 as 1 ten
and 3 ones.

Regroup 11 to the tens
place.

$$\begin{array}{r} 1 \\ 834 \\ 1\,272 \\ 1\,321 \\ \hline 2\,526 \\ 3 \end{array}$$

Step 2

Add the tens.

$$1 + 3 + 7 + 2 + 2 = 15$$

Rename 15 as 1
hundred and 5 tens.

Write 5 under the
tens column.

Regroup 1 to the
hundreds place.

$$\begin{array}{r} 1 \\ 834 \\ 1\,272 \\ 1\,321 \\ \hline 2\,526 \\ 53 \end{array}$$

Step 3

Add the hundreds.

$$1 + 8 + 2 + 3 + 5 = 19$$

$$\begin{array}{r} 1 \\ 1\,834 \\ 1\,272 \\ \hline 61 \end{array}$$

Step 4

Add the thousands.

$$1 + 1 + 1 + 2 = 5$$

$$\begin{array}{r} 1\,1 \\ 1\,834 \\ 1\,272 \\ \hline \end{array}$$

Rename 19 as 1 thousand and 9 hundreds.

Write 9 under the hundreds column.

Regroup 1 to the thousands place.

$$\begin{array}{r} 1\ 321 \\ \underline{2\ 526} \\ 953 \end{array}$$

Write 5 under the thousands column.

$$\begin{array}{r} 1\ 321 \\ \underline{2\ 526} \\ 5\ 953 \end{array}$$

Ask the children to use the same procedure in solving/answering the questions in the presentation of the table.

Present other exercises for children to work on.

$$\begin{array}{r} 3\ 572 \\ 2\ 415 \\ + 973 \\ \hline \end{array} \quad \begin{array}{r} 2\ 125 \\ 2\ 553 \\ 2\ 321 \\ + 2\ 432 \\ \hline \end{array}$$

Answer Key: 6 960 and 9 431

2. Performing Activities

Work in Pairs.

Arrange the numbers in each box in column then add and check.

1 614, 1 948, 1 321

1 742, 326, 3 287

2 641, 1 376, 2 213

4 231, 1 323, 1 264

742, 5 411, 3 211

Individual Activity

$$\begin{array}{r} 1) \quad 2\ 344 \\ 1\ 265 \\ + 526 \\ \hline \end{array}$$

$$\begin{array}{r} 2) \quad 678 \\ 4\ 324 \\ + 1\ 125 \\ \hline \end{array}$$

3. Processing the Skills

Ask: How did you add the numbers in each box?

How did you arrange them?

Where did you start adding?

What did you do when you got a sum of 10 or more in one column?

In which place was regrouping done?

4. Reinforcing the Concept

Let the pupils do the exercises in Activity 1 in the LM. Have them write their answers on their paper.

Answer key: 1) d 2)a 3)d 4) b 5)a

5. Summarizing the Lesson

How do we add 3- to 4-digit numbers with three addends with regrouping?

- Before adding, write first numbers in column.
- To add whole number with 3- to 4-digit, add the ones first, next add the tens, then the hundreds and lastly, the thousands.
- Regroup if needed.

6. Applying to New and Other Situations

Refer pupils to Activity 2 in the LM. Ask them to look at the number chart to find out the total number. Let them do the activity on their own paper.

Answer Key:

1) a. 4 758 b. 2 388 c. 2 647 d. 5 097 e. 5 601

C. Evaluation

Have pupils do Activity 3 in the LM. Assess the result of the test.

Answer Key: 1) 5 254 2) 7 716 3) 16 236 4) 8 928 5) 5 621

D. Home Activity

Let the pupils copy the exercises under Activity 4 and Activity 5 in their notebooks. Ask them to work on them at home.

Answer Key:

Activity 4 - 1) 1 779 2) 3 965 3) 7 473 4) 6 717 5) 5 717 6) PhP4 560.00

Activity 5 - 1) PhP43.00 2) PhP40.00 3) No, because she only has PhP25.00 and the total cost of the snack is PhP35.00.

4) PhP60.00 for sopas, pansit and hot chocolate or sandwich

Lesson 15 Estimating Sums of 3- to 4-Digit Addends

Week 5

Objective

Estimate the sum of 3- to 4-digit addends using appropriate strategies

Value Focus

Entrepreneurship

Prerequisite Concepts and Skills

Rounding off numbers

Materials

Printed exercises, chalkboards, number wheels

Instructional Procedures

A. Preliminary Activities

1. Drill

Group pupils into tens

- Give each group a chalkboard.
- Let the pupils listen attentively as you give a word problem.
- Members of the group will work cooperatively to come up with the correct answer.
- The group with the most correct answers wins the game.

Word problems to be asked:

- What is the sum of 9 and 6? (15)
- What number is 4 more than 8? (12)
- Combine 7 and 6. (13)
- Think of two numbers whose sum is 14. (1&13, 2&12, 3&11...etc)
- Think of two addends whose sum is 18. (1&17, 2&16, 3&13...etc)

2. Review

Let a pupil pick a card in the box and answer the written exercise on it orally.

$$1500 + 100$$

$$300 + 200$$

$$2000 + 100$$

$$3800 + 100$$

$$260 + 110$$

3. Motivation

Distribute "Show Me" boards to the pupils. Show the number wheels. Spin the wheels and let pupils see where the pointer stops. Instruct them to round the number where the pointer stops.



When the pointer stops at the white part of the wheel, round off the number to the nearest tens. When it stops on the black, round the number to the nearest hundreds.

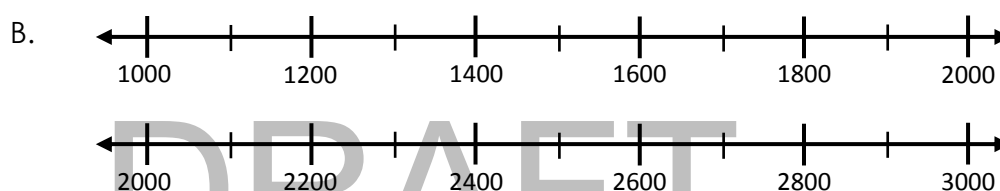
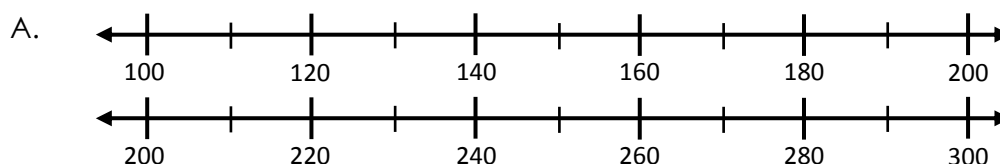


When the pointer stops at the white part of the wheel, round off the number to the nearest hundreds. When it stops on the black, round to the nearest thousands.

B. Developmental Activities

1. Presenting the Lesson

Show the pupils these segments of the number line.



Have them study each segment of the number line. Ask from what number each one starts with and ends. (Set A starts with 100 and ends with 200/starts with 200 and ends with 300) (Set B starts with 1000 and ends with 2000/starts with 2000 and ends with 3000.)

Call on volunteers to plot 142 and 253 on the number lines.

Ask: In which hundred is 142 nearer? (100)

In which hundred is 253 nearer? (300)

Call on volunteers to plot 1942 and 2535 on the number lines.

Ask: In which thousand is 1942 nearer? (2000)

In which thousand is 2535 nearer? (3000)

Tell them that the numbers were rounded to the nearest hundreds and nearest thousands.

Ask other pupils to write the rounded off numbers on the board then add.

Have them come up with the following:

A. $100 + 300 = 400$

B. $2000 + 3000 = 5000$

Have the pupils compare the actual sum with the estimated sum.

Present other examples:

$$\begin{array}{r} 486 \\ + 312 \\ \hline \end{array} \quad \begin{array}{r} 5\,425 \\ + 1\,238 \\ \hline \end{array}$$

Ask pupils to identify the hundreds or thousands each number is closest.

$$\begin{array}{r} 486 \\ 312 \end{array} \quad \begin{array}{r} 5\,425 \\ 1\,238 \end{array}$$

Then, recall the rules of rounding numbers using the given numbers. Lead the pupils to find out that the numbers are rounded in their highest/greatest place value.

Given Numbers		Rounded Numbers		Given Numbers		Rounded Numbers
486	→	500		5 125	→	5 000
<u>312</u>	→	<u>300</u>		<u>1 238</u>	→	<u>1 000</u>
798		800		6 363		6 000
↓		↓		↓		↓
Actual Sum		Estimated Sum		Actual Sum		Estimated Sum

The estimated sum may either be larger or smaller than the exact sum. The estimated sum is very close to the value of the exact sum.

2. Performing the Activity

Perform the activity in pair.

Estimate the sum to the nearest:

hundreds	thousands
1) $\begin{array}{r} 532 \\ + 526 \\ \hline \end{array}$	2) $\begin{array}{r} 2\,345 \\ + 3\,637 \\ \hline \end{array}$

3. Processing the Skills

Ask:

- To what place value was the number 532 rounded? How about 526?
- To what place value were the numbers in item 2 rounded? Why?
- What rules in rounding should you remember?
- What final step did you do to find the estimated sum?

4. Reinforcing the Concept

Hold a contest on estimating sums. The first three pupils to give the answers quickly are the winners. Refer to the exercises in Activity 1 in the LM.

Answer Key: 1) 8 500 2) 8 500 3) 4 400 4) 9 000 5) 8 000

5. Summarizing the Lesson

What steps do we follow in estimating the sum of 3- to 4- digit addends?

To estimate the sum up to 3- to 4- digit addends, round the numbers to their greatest place value then add the rounded numbers.

6. Applying to New and Other Situations

Let pupils find the estimated sum and the actual sum in the exercises under Activity 2 in the LM. Check pupils' answers.

Answer Key:

Estimates	Actual Sum	Good Estimates?
1) 2 000	2 179	Yes
2) 5 700	5 302	Yes
3) 8 000	8 086	Yes
4) 4 000	3 830	Yes
5) 8 000	8 564	No

C. Evaluation

Ask pupils to read the situation in Activity 3 of the LM. Have them answer the questions that follow. Let them do this on their papers.

Answer Key: 1) 4 000 2) 2 900 3) 2 800 4) a. 2 800 b. 4 000

5) a. 8 370 b. 7 700 or 8 000

D. Home Activity

Ask pupils to work on Activity 4 in the LM at home. Check pupils' answers.

Answer Key: 1) PhP20 000 2) PhP11 013 3) PhP15 000 4) PhP14 000

5) Store C – PhP9 000

Lesson 16 Adding 1- to 2-Digit Numbers Mentally without and with Regrouping

Week 5

Objective

Add mentally 1- to 2-digit numbers without or with regrouping using appropriate strategies

Value Focus

Helpfulness and industry

Prerequisite Concepts and Skills

1. Addition basic facts
2. Adding multiples of 10s
3. Place value and value of 2-digit whole numbers
4. Adding 2-digit numbers without and with regrouping

Materials

2- digit numbers and exercises printed in cards, boxes of toys/playthings, 2 boxes of marbles

Instructional Procedures

A. Preliminary Activities

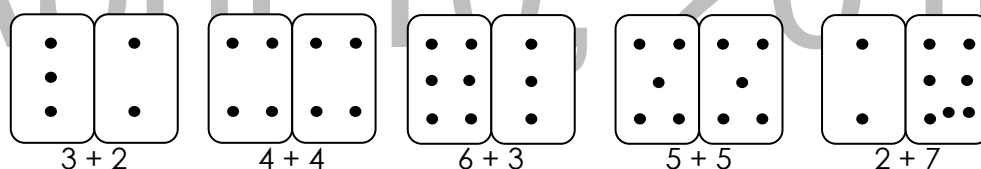
1. Drill

Game: "Sit Down"

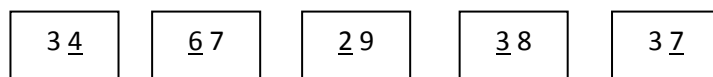
Ask all pupils to stand near their desks/chairs.

Flash some domino cards. Pupils give their answers.

The first pupils to give the correct answer will sit down.



Flash the cards. Pupils tell the value of the underlined digit.



Flash these number cards. Pupils state their answers orally.

- | | | | | |
|---|---|---|---|---|
| $\begin{array}{r} 30 \\ + 50 \\ \hline \end{array}$ | $\begin{array}{r} 20 \\ + 40 \\ \hline \end{array}$ | $\begin{array}{r} 10 \\ + 70 \\ \hline \end{array}$ | $\begin{array}{r} 50 \\ + 10 \\ \hline \end{array}$ | $\begin{array}{r} 40 \\ + 30 \\ \hline \end{array}$ |
|---|---|---|---|---|
2. Review

Have the pupils solve and write the answer to these exercises using chalkboards or "Show Me" boards.

- a. 27 more than 31 is what number? (58)
- b. 35 increased by the sum of 6 and 8 is equal to what number? (49)
- c. 42 added to 45 is equal to what number? (87)
- d. Combine 16 and 51. (67)
- e. Write the sum of 84 and 12. (96)

3. Motivation

Show a box of toys.

Ask pupil volunteers to pick some toys they like most from the box.

Have them tell the class their reason for choosing the toy.

B. Developmental Activities

1. Presenting the Lesson

Tell pupils this story about two brothers.

Arvin and Nico are brothers. Both received a box of marbles from their father as reward for helping him clean the yard. Arvin counted 24 marbles in his box. Nico counted 35 marbles. How many marbles do they have in all?

- Ask:
- Who are the brothers?
 - Why did their father give them rewards?
 - What reward was given to them?
 - How many were given to Arvin? to Nico?

Present the two boxes with marbles to the pupils.

Call two volunteers to count the marbles in each box.

- Ask:
- What would you do to find the total number of marbles?
- Lead the pupils to give the answer by putting together and counting all the marbles in the two boxes.
- Have one volunteer write the addition sentence on the board:

$$24 + 35 = n$$

Call on other pupils to write the numbers on the board in column and find the sum.

Have other pupils check the answer. See to it that they get 59 marbles as the answer.

Have pupils see that the given addends can also be solved mentally using some strategies.

Tell them that through these strategies they would be able to perform the addition in their mind.

Write the addition equation again on the board.

$$24 + 35 = n$$

Tell pupils that they will be using the front-end addition strategy to be able to add the numbers mentally.

Check that the pupils understand what the numbers really mean.

Have the pupils see 3 as 30 and 2 as 20.

Let them follow these steps:

1. Split up each number to its place value.

$$\begin{array}{r} 24 + 35 \\ (20 + 4) + (30 + 5) \end{array}$$

2. Add the tens, and then add the ones.

$$\begin{array}{r} (20 + 30) + (4 + 5) \\ 50 + 9 \end{array}$$

3. Put together the tens and the ones.

$$50 + 9 = 59$$

With this strategy, pupils will see that 59 is not a simple number of 5 and 9 but a sum of 50 and 9.

Show them another way of doing this strategy.

Think:

$$\begin{array}{r} 24 + 35 \\ \swarrow \searrow \end{array}$$

$$\begin{array}{r} 20 + 30 = 50 \\ 4 + 5 = 9 \\ \hline 59 \end{array}$$

$$\begin{array}{r} 50 + 9 \\ \swarrow \searrow \\ 59 \end{array}$$

Try another example. This time, adding numbers mentally with regrouping.

Have them write $46 + 38$ on the board.
Have the pupils see 4 as 40 and 3 as 30.

Let them follow these steps:

$$46 + 38$$

1. Split each number as to its place value.

$$\begin{array}{r} 46 \quad + \quad 38 \\ (40 + 6) + (30 + 8) \end{array}$$

2. Add the ones.

$$6 + 8 = 14 \rightarrow \text{(Think: } 14 = 10 + 4 \text{)}$$

3. Add the tens and ones.

$$\begin{array}{r} (40 + 30 + 10) + 4 \\ 80 \quad + 4 \end{array}$$

4. Put together the tens and ones.

$$80 + 4 = 84$$

2. Performing the Activity

Have pupils work in pairs.

Ask them to work with their partners in giving the answers to the exercises in the table like the one shown below.

Instruct them to use any of the strategies they learned in computing for the answer mentally.

Addends		Sum
1) 26	42	
2) 14	65	
3) 35	51	
4) 48	37	
5) 63	18	

3. Processing the Activity

Ask: Which digits in item no. 1 are the ones digits? the tens digits?

Ask the same questions for items 2 to 5.

How were the addends in item no. 1 split as to their place values?

Let the pupils answer the same questions for items 2 to 5.

How would you know that regrouping should be done in order to find the answer?

Which values were added first in item numbers 1, 2, and 3?

Which were added next?

What was done as the last step?

Which values were added first in item numbers 3, 4, and 5?

Why do you think this was done first?

Which were added next?

What was done as the last step?

4. Reinforcing the Concept

Refer pupils to Activity 1 in the LM. Have them give each sum orally. Tell them that knowing at once when to regroup is very important and should become automatic. Instruct them to place paper upside down and wait for the signal for them to start answering. Set a timer. Then, give the signal.

Answer Key: 1) 26 2) 55 3) 64 4) 44 5) 61

Emphasize the rule of not using paper and pencil computations.

5. Summarizing the Lesson

How do we add mentally?

Lead the pupils in saying:

To add 1- to 2-digit numbers mentally:

- First, split the numbers as tens and ones.
- Add the tens, and then add the ones.
- For addends that require regrouping, add the ones first then the tens.
- As a last step, add the tens and ones.

6. Applying to New and Other Situations

Have pupils work on activity 2 in the LM. Ask the pupils to solve the word problems mentally.

Answer Key: 1) 40 2) 60 3) 38 4) 39 5) 50

C. Evaluation

Let pupils perform the exercises under Activity 3 in the LM without using paper and pencil. Then have them solve the number sentences in Activity

4. Tell pupils to write their answers on their papers. Evaluate the results.

Answer Key (Activity 3)

- 1) 34 2) 52 3) 42 4) 40 5) 82

Answer Key (Activity 4)

- 1) E 2) A 3) D 4) C 5) B

D. Home Activity

Tell pupils to count and add the following mentally. Have them write their answers in their notebooks.

1. the number of classrooms in their school
2. the number of desks in two classrooms
3. the number of grade 3 teachers in their school

Lesson 17 Adding Mentally 2- to 3-Digit Numbers with Multiples of Hundreds

Week 5

Objective

Add mentally 2- to 3-digit numbers with multiples of hundreds using appropriate strategies

Value Focus

Sharing

Prerequisite Concepts and Skills

1. Basic facts in addition
2. Place value through tens and hundreds
3. Adding multiples of 10

Materials

Story on the chart, numbers on a chart, number cards of 2- and 3-digit numbers

Instructional Procedures

A. Preliminary Activities

1. Drill

Encircle the addends for the following sums. Addends can be 2 or more.

- 1) 5
- 2) 9
- 3) 10
- 4) 12
- 5) 15

3	5	8	7	2	8
2	6	9	5	1	7
7	2	0	6	5	3
9	3	4	3	6	4
1	4	1	9	0	9

2. Review

Flash a set of number cards. Have the pupils identify the digits in the tens place. Repeat the same procedure in letting them identify the digits in the hundreds place. Announce the specific place to be identified (tens and hundreds alternately) with the other set of cards.

Let them do these exercises.

Fill in the blanks with the correct number.

- 1) 30 = _____ tens and _____ ones
- 2) 50 = _____ tens and _____ ones
- 3) 70 = _____ tens and _____ ones
- 4) 100 = _____ tens and _____ ones
- 5) 400 = _____ tens and _____ ones

3. Motivation

Ask the pupils their birthdays. Talk about their ways of celebrating their birthdays.

B. Developmental Activities

1. Presentation

Present this story problem.

It was Ena's 8th birthday. Her mother promised to give her a simple treat. She bought 80 pieces of pandan cupcakes and 100 pieces of buko cupcakes. How many cupcakes did she buy in all?

Ask: Who celebrated her birthday?
How old is she now?
Who gave her a treat?

What did mother buy?
 How many pieces of pandan cupcakes did mother buy?
 How many pieces of buko cupcakes did mother buy?
 How many cupcakes did she buy in all?
 How would find out the total number of cupcakes mother bought?

Ask volunteers to write the number sentence on the board.
 Use the place value chart below in arriving at the answer.
 Call on volunteers to plot the numbers on the place value chart.

Lead them to do the following steps:

Step 1: Add the ones.	Hundreds	Tens	Ones
		8	0
	1	0	0
Sum			0

Step 2 Add the tens.	Hundreds	Tens	Ones
		8	0
	1	0	0
		8	0
Sum		8	

Step 3 Add the hundreds	Hundreds	Tens	Ones
		8	0
	1	0	0
		8	0
Sum	1		

Thus $100 + 80 + 0 = 180$

Tell pupils that there is a shorter way of arriving at the answer and this can be done mentally.

Say: Add $100 + 80$

Let them recall that $180 = 10$ tens and 0 ones, and 8 tens and 0 ones. Using the same steps in adding mentally, use the front-end strategy to show them how addition is done mentally.

Let them follow these steps used in the front-end strategy:

Add: $100 + 80$

Let them recall that $100 = 10$ tens and 0 ones
and $80 = 8$ tens and 0 ones

1. Adding the tens: $10 + 8 = 18$
2. Annex/write the terminal zero, which means that there are zero ones (since $0 + 0 = 0$).
3. Annex/write the terminal zero after 18 $\rightarrow 180$
Therefore, the answer is 180.

In adding 3-digit numbers with multiples of hundreds, let them see these steps:

Add: $400 + 700$

1. Add the digits in the hundreds place which are 4 and 7.
 $4 + 7 = 11$
2. Annex/write the two zeros after the sum. This means that there are 0 tens and 0 ones.
3. Annex/write the 2 terminal zeros $\rightarrow 1\ 100$
Therefore, the answer is 1 100.

2. Performing the Activity

Introduce a game for this activity.

Group pupils. Provide each group with activity cards like these.

$20 + 10 =$
 $400 + 20 =$
 $800 + 600 =$
 $90 + 300 =$
 $50 + 10 =$
 $500 + 40 =$
 $900 + 30 =$

Have them write the answers to the exercises within the shortest time possible. The group to finish first and with the correct answers is the winner.

3. Processing the Activity

Ask: What step was done first in adding multiples of tens and hundreds? the multiples of tens? the multiples of hundreds?
What was done with terminal zero in the addends which are all tens?

What was done with terminal zero in the addends which are tens and addends?

What was done with terminal zeros in the addends which are all hundreds?

4. Reinforcing the Concept

Ask the pupils to work on Activity 1 in the LM and find the addends mentally.

Answer Key: 1) 450 2) 710 3) 890 4) 320 5) 600
6) 370 7) 650 8) 810 9) 440 10) 700

5. Summarizing the Lesson

Ask: How do we add 2-digit and 3-digit numbers with multiples of tens and hundreds mentally?

In adding without regrouping 2-digit and 3-digit numbers with multiples of tens and hundreds mentally, first we add the numbers in the ones place, then the tens and lastly, the hundreds.

6. Applying to New and Other Situations

Have the pupils read each problem and let them give the correct answer using mental addition.

- a. Marion has read 302 pages of the 400 pages of his favorite book. Her brother Jay lent him another book which she read at once. She finished reading all 128 pages of the book in two days. How many pages did she read in all? (430)
- b. A 50-seater bus can carry up to 65 passengers both seated and standing. Bus A had 60 passengers during its first trip in the morning and Bus B had 59. How many passengers did the two buses have altogether? (119)
- c. In a small hospital, 35 babies were delivered in the first three months of the year and 46 during the last three months. How many babies were delivered in six months' time? (81)

C. Evaluation

Ask the pupils to work on the exercises under Activity 2 in the LM. Have them give the answers orally.

Answer Key: 1) 90 2) 70 3) 90 4) 260 5) 220 6) 330 7) 590 8) 680
9) 900 10) 900

D. Home Activity

Ask your parents' help in doing the exercises below.

If your parents are working, ask how much your mother earns in a month and how much your father earns at the same period. Add mentally the total earnings of your parents.

Lesson 18 Solving Routine Problems involving Addition

Week 6

Objective

Solve routine problems involving addition of whole numbers with sums of 10 000 including money using appropriate problem solving strategies and tools

Value Focus

Awareness on the preservation of the environment

Prerequisite Concepts and Skills

1. Concept of whole numbers
2. Concept of addition
3. Steps in problem solving

Materials

Illustration, problems printed on a chart, flash cards on addition of 2- and 3-digit numbers without or with regrouping

Instructional Procedures

A. Preliminary Activities

1. Drill

Use flash cards with addition of 2- and 3-digit numbers without or with regrouping which the pupils can answer orally. Call pupils at random to answer each.

Add:

$$\begin{array}{r} 12 \\ + 8 \\ \hline \end{array}$$

$$\begin{array}{r} 20 \\ + 12 \\ \hline \end{array}$$

$$\begin{array}{r} 32 \\ + 16 \\ \hline \end{array}$$

$$\begin{array}{r} 13 \\ + 27 \\ \hline \end{array}$$

$$\begin{array}{r} 28 \\ + 24 \\ \hline \end{array}$$

2. Review

Present these problems on a chart. Ask pupils what they should do to find the answer. How did they know? Let them give the answer orally.

- a. Cliff picked 23 guavas. Mel picked 19. How many guavas were picked in all?
What word tells you to add?

- b. Romy gathered 240 eggs in their farm last Saturday. He gathered 170 eggs on Sunday. How many eggs was he able to gather in two days?
- c. Nicolette was asked to count the books on a shelf. She counted 97 Math books and 40 Science books. How many books were there on the shelf?

3. Motivation

Ask the pupils what plants or trees they have in their school garden.
Ask further what they do to maintain them.
Call on volunteers to name some plants which they have planted themselves.
Talk about the importance of preserving the environment.



B. Developmental Activities



1. Presenting the Lesson

Present the problem to the class.

The pupils of two neighboring schools joined the School Greening Project.

Show this illustration to the pupils.

School Greening Project		
School	Pupils	Number
San Nicolas Elem. School	 _____	_____
San Roque Elem. School	 _____	_____

Legend:  = 1 000
 = 100

$$\begin{aligned} \text{Person icon} &= 10 \\ \text{Person icon} &= 1 \end{aligned}$$

- Ask: How many pupils joined the project?
Which schools were mentioned in the problem?
How many pupils does San Nicolas Elementary have?
How many pupils does San Roque Elementary have?
How will you find the answer? Why?

Let the pupils give the number sentence for the illustration.
Have one pupil solve the problem on the board.

$$\begin{array}{r} 2\,123 \\ + \, 2\,645 \\ \hline 4\,768 \end{array}$$

- Ask: How do we know that the answer to the problem is correct or not?

Therefore, **4 768** pupils joined the project.

2. Performing the Activity

Have the pupils work in groups. Provide them with problems like these in activity cards.

- A. Draw pictures to represent the problem, then write a number sentence for it and solve.

Aling Fely earned PhP1 115 from her sari-sari store last Saturday and PhP1 035 on Sunday. How much money did she earn in two days?

Saturday's Earnings	Sunday's Earnings		
Amount _____	Amount _____	Total	<input type="text"/>

- B. Make a table for this problem.
Answer the questions that follow.

The population of Remelian Elementary School is 4 167 while that of Emarian Elementary School is 4 213. What is the total population of the two schools?

1. What is the school population of Remelian Elementary school?
the Emarian Elementary School?
2. How are you going to solve the problem? Why?
3. What is the number sentence for the problem?
4. How is the solution done?
5. How do we check the correctness of our answer?
6. What is the correct answer?

Have the group do the reporting.

3. Processing the Activity

Ask: How will you solve a problem? (*Look for word clues.*)
 What should you find out? (*What is needed in the problem, the given facts, operation to use, number sentence*)
 How did you check the correctness of your answer?

4. Reinforcing the Concept

Have the pupils to solve the problems under Activity 1 in the LM.
 Remind them on how to solve problems.
 Answer Key: 1) 2 046 pupils 2) 7 163 mangoes 3) PhP8 700.00

5. Summarizing the Lesson

How can you solve a problem?

In solving problems, follow Polya's 4-step Procedure:

1. Understand the problem.
2. Plan. Determine the process to be used to solve the problem.
3. Carry out the plan.
4. Check or look back.

6. Applying to New and Other Situations

Have the pupils analyze and solve the problems under Activity 2 in the LM. Tell them to write their answers on their papers.
 Answer Key: 1) 3 582 pineapples 2) 6 211 coconuts

C. Evaluation

Let pupils write a number sentence for each problem in Activity 3 and Activity 4 in the LM.

Answer Key: (Activity 3)

- 1) PhP275
- 2) 6 876 eggs

Answer Key: (Activity 4)

- 1) 3 016 tickets
- 2) PhP 8 074.00

D. Home Activity

Ask pupils to copy the problems in Activity 5 and Activity 6 in their notebooks. Let them analyze and solve the problems.

Answer Key:

Activity 5:

- 1) 900
- 2) 1 250
- 3) 50
- 4) a. 62 marbles, b. green marbles
- 5) 72 slices, 63 pupils. Yes , because there are 9 slices more than the number of pupils.

Activity 6: 1) 500 straws 2) 580 bottle caps

Lesson 19 Solving Non-Routine Problems involving Addition

Week 6

Objective

Solve non-routine problems involving addition of whole numbers with sums of 10 000 including money using appropriate problem solving strategies and tools

Value Focus

Courtesy, Politeness

Prerequisite Concepts and Skills

Solving one-step problems involving addition

Materials

Word problems printed on a chart

Instructional Procedures

A. Preliminary Activities

1. Drill

If the number sentence is true, raise your right hand, if it is false, raise your left hand.

$$\begin{array}{r}
 1. \quad 8 \\
 + 6 \\
 \hline
 12
 \end{array}
 \quad
 \begin{array}{r}
 2. \quad 13 \\
 + 14 \\
 \hline
 27
 \end{array}
 \quad
 \begin{array}{r}
 3. \quad 15 \\
 + 32 \\
 \hline
 36
 \end{array}
 \quad
 \begin{array}{r}
 4. \quad 18 \\
 + 13 \\
 \hline
 31
 \end{array}
 \quad
 \begin{array}{r}
 5. \quad 48 \\
 + 12 \\
 \hline
 60
 \end{array}$$

2. Review

Read and analyze the problem.

Maria picked 12 red roses and 10 white roses in her rose garden. How many roses were picked in all?

Ask: What is the problem all about?

What will you do to find the answer to the problem?

What are the needed given data?

What will you do check if your answer is correct?

3. Motivation

Let the pupils read the dialog.

Storyteller: One morning, Elmer went to an eatery to have his snack.

Mrs. Flores owned the place.

Elmer: Good morning, Mrs. Flores.

Mrs. Flores: Good morning. What can I do for you?

Elmer: I would like to order food for snack.

Mrs. Flores: What do you want?

Elmer: I want a sandwich and fruit juice.

Mrs. Flores: Here they are.

Elmer: Thank you, Ma'am.

Mrs. Flores: You're welcome.

Ask: What can you say about Elmer?

What kind of boy is he? Why do you say so?

B. Developmental Activities

1. Presenting the Lesson

MENU

Snacks		Meals	
Sandwich	PhP15.00	Fried fish and rice	PhP35.00
Banana cue	PhP8.00	Chopsuey and rice	PhP35.00
Crackers	PhP5.00	Fried chicken and rice	PhP40.00

Bottled water	PhP8.00	Beef caldereta and rice	PhP50.00
Gulaman	PhP10.00	Banana	PhP5.00
Fruit juice	PhP12.00		

Talk about the food ordered by Elmer.

Ask: How much is the cost of a sandwich? fruit juice?
How much did Elmer spend for his snacks?

Use the given list of food in the eatery in solving the following problems:

1. Kobe has PhP25.00 for snacks. What can he order with this amount?

Ask the pupils to compute the total amount of each set of food ordered.

Possible answers:

sandwich	PhP15	banana cue	PhP 8.00
gulaman	<u>PhP10</u>	crackers	PhP 5.00
	PhP25	fruit juice	<u>PhP12.00</u>
			PhP25.00

Use the same procedure for question numbers 2 and 3.

2. If you have PhP20.00 for snacks, what will you buy?

Possible answers:

banana cue	PhP 8.00	banana cue	PhP 8.00
fruit juice	<u>PhP 12.00</u>	crackers	PhP 5.00
	PhP 20.00	bottled water	<u>PhP 8.00</u>
			PhP 21.00

3. It is lunchtime. What meal will you order if you have PhP50?

Possible answers:

fried fish and rice	PhP 35.00	chopsuey and rice	PhP 35.00
banana	PhP 5.00	banana	PhP 5.00
gulaman	PhP 10.00	gulaman	PhP 10.00
	PhP 50.00		PhP 50.00

chicken and rice	PhP 40.00	beef caldereta and rice	PhP 45.00
gulaman	PhP 10.00	banana	PhP 5.00
	PhP 50.00		PhP 50.00

2. Performing the Activity

Have the pupils work in groups of four. Tell them they will play with needed data to solve problems in this activity. They have to give the answer snappily to win the game.
Provide strips of cartolina or any available paper where answers are to be written.

a.

Marlon was given 15 blue marbles and 20 red marbles.
How many marbles does Marlon have in all?

- 1) Process to be used
- 2) Mathematical sentence
- 3) Data asked for
- 4) Answer to the problem
- 5) Given data

b. If you add 234 to 122, what is the sum?

- 1) Needed data
- 2) Process to be used
- 3) Word clue
- 4) Mathematical sentence

Ask the pupils to present their work. Check them.

3. Processing the Activity

How did you solve the problem?
What did you do to solve it?
What process did you use?

4. Reinforcing the Concept

Ask pupils to find out if the sums of the numbers in any row, column or diagonal is always the same. Let them do Activity 1 on their papers.

Answer Key: 1) 31 2) 96 3) 118

5. Summarizing the Lesson

How did you solve the problem?
What helped you solve it?

6. Applying to New and Other Situations

Divide the class into five groups. Refer them to Activity 2 in the LM. Tell them to arrange the scrambled digits in the star in the circles to make addition sentences. Tell them to use the sums as guide.

Answer Key: 1) $837 + 245$ 2) $967 + 384$ 3) $879 + 325$
4) $7974 + 1356$ 5) $5493 + 2618$

C. Evaluation

Ask the pupils to answer the questions under Activity 3 in the LM. Tell pupils to do these on their papers.

Answer Key: 1) 25 and 26 2) 31, 32 and 33

D. Home Activity

Refer pupils to Activity 4 in the LM. Let them form 3-digit numbers from the numbers in the box that will give the least sum and the greatest sum.

Have them do these in their notebooks.

Answer Key:

2)

1	2	3
6	5	4

$136 + 245 = 381$ or $135 + 246 = 381$
 $631 + 542 = 1\,173$ or $642 + 531 = 1\,173$

3)

5	4	3
7	6	8

$368 + 457 = 825$ or $357 + 468 = 825$
 $853 + 764 = 1\,617$ or $864 + 753 = 1\,617$

Lesson 20 Creating Problems Involving Addition

Week 6

Objective

Create problems involving addition of whole numbers including money with reasonable answers

Value Focus

Cooperation, Unity, Sportsmanship

Prerequisite Concepts and Skills

1. Basic addition facts
2. Concept of addition and its operation
3. Estimating sums
4. Steps in solving problems

Materials

Flash cards, charts, activity charts, 3 sets of tangram puzzle

Instructional Procedures

A. Preliminary Activity

1. Drill

Give the pupils a drill on basic addition facts. Use flash cards like:

$\begin{array}{r} 8 \\ + 6 \\ \hline \end{array}$	$\begin{array}{r} 14 \\ + 8 \\ \hline \end{array}$	$\begin{array}{r} 7 \\ + 9 \\ \hline \end{array}$	$\begin{array}{r} 5 \\ + 4 \\ \hline \end{array}$	$\begin{array}{r} 24 \\ + 6 \\ \hline \end{array}$	$\begin{array}{r} 21 \\ + 11 \\ \hline \end{array}$	$\begin{array}{r} 15 \\ + 23 \\ \hline \end{array}$	$\begin{array}{r} 13 \\ + 6 \\ \hline \end{array}$	$\begin{array}{r} 4 \\ + 8 \\ \hline \end{array}$	$\begin{array}{r} 3 \\ + 7 \\ \hline \end{array}$
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2. Review

Have a review on how to analyze and solve word problems. Ask the pupils the steps in analyzing and solving problems.

Let them also recall the different ways of solving word problems.

3. Motivation

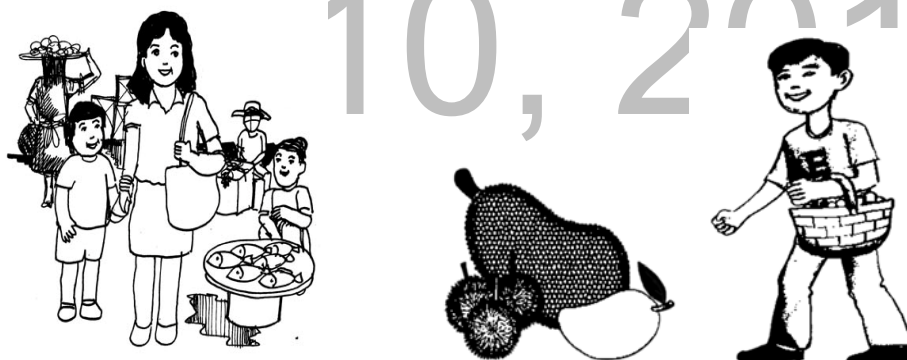
Divide the class into three groups. Distribute puzzle pieces to each group. There are questions and answers written in the puzzle. Pupils will put the pieces together by connecting the answer to the question to form a square. The first group to form a square wins.

Ask: Who won the game?
 Why do you think they won?
 What qualities did you observe in their group?
 What about the group which did not win?
 How do you feel? What will your group do next time?

B. Developmental Activities

1. Presenting the Lesson

Present the illustration below:



Ask: Can you make a short story out of the pictures?

Give ample time for the pupils to collect their thoughts and form a short story.

Call some pupils and ask them to share their stories. Let each of them read the story he/she created. (Accept all possible stories the pupils created.)

Ask them why they made such stories.
Also ask what clues in the picture helped them make their story.

Pose a challenge:

If I ask you to make a word problem using the pictures, will you be able to make one? (Let the pupils make a problem story and report their work to the class.)

Ask: Are the pictures enough to make a word problem?
Can you explain why?

What things/data would you need to see so that you can create a word problem?

2. Performing the Activity

Give an example of a word problem.

The diagram shows a word problem text box with several annotations. A box labeled 'word clues' points to the underlined phrase 'they collect in two weeks?'. A box labeled 'given data' points to the numbers '122' and '705'. A box labeled 'asked in the problem' points to the question 'How many bottles did they collect in two weeks?'.

Ms. Cruz's class collected empty plastic bottles as their project in Science. On the first week they collected 122 empty plastic bottles, and on the second week they collected 705. How many bottles did they collect in two weeks?

Ask: Is the problem a complete one?
How do you know?
What things are needed to have a complete word problem?
Can you identify the things needed to make a complete word problem?

The teacher will make markings on the problem to emphasize the data needed to form a problem.

Ask pupils how they will know the operation to use to solve the problem, how they solve it and what the solution will be. Call one pupil to do it on the board.

Possible answer:

Operation: Addition
Number sentence: $122 + 105 = n$
Solution: $122 + 105 = 225$
Complete answer: 225 empty plastic bottles were collected in two weeks.

Say: Now let us try to create a word problem.

Divide the class into three groups. Let them choose a leader and a secretary. Ask the groups to use the given data below. Then let each group post their work on the board. The leader will report to the class about the word problem they have created and the solution and answer to it.

Chicken sandwich – PhP15.00
Orange Juice – PhP10.00
Amount spent in all?

Give the pupils another set of data for them to create a word problem individually. Let the pupil who created the most appropriate word problem write his/her problem on the board and its corresponding solution and answer. Give him/her recognition for the work well done.

3. Processing the Activity

Ask: What things/data are needed so that you can create a word problem?
How will you check if the answer to the problem you have created is correct?
What are the things you should remember when creating a word problem?

4. Reinforcing the Concept

Group Activity

Divide the class into five groups. Let them choose a leader and a secretary. Give each group an activity card with data to be used in creating a problem. Then let each group post their work on the board. The leader will report to the class the word problem they have created and the solution and answer to it.

Activity Card 1

Monday's Savings – PhP5.00
Tuesday's Savings – PhP3.00
Wednesday's Savings – PhP3.00
Thursday's Savings – PhP2.00
Fridays' Savings – PhP4.00
Total Savings?

Activity Card 2

Pencil – PhP5.00
Ballpen – PhP10.00
Pad paper – Ph 15.00
Total amount spent?

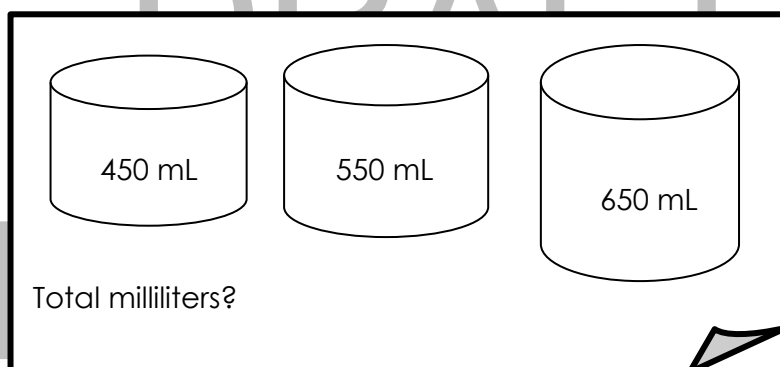
Activity Card 3

Length of rectangle – 54 cm
Width of the rectangle – 42 cm
How long are the sides of the rectangle?

Activity Card 4

1st Number – 352
2nd Number – 285
Sum of the 2 numbers?

Activity Card 5



Pair Activity

Tell pupils to find a partner. Have the pairs answer Activity 1 in the LM.
Check pupils' answers.

Answer Key:

- 1) 112 pages and 98 pages
- 2) 25 Philippine stamps and 15 foreign stamps
- 3) PhP150.00 and PhP35.00
- 4) 25 boys and 30 girls
- 5) 205 words and 212 words

Individual Activity

Have the pupils answer Activity 2 of LM individually. Check pupils' work.

Answer Key:

- 1) How many pupils joined the Peace Parade activity?
 $345 + 412 = 757$ pupils
- 2) How many kilograms of vegetables were sold in all?
 $32 + 25 + 28 + 38 = 123$ kg of vegetables
- 3) How many caimitos do the two boys have altogether?
 $120 + 203 = 323$ caimitos
- 4) How many pages of the pocketbook did he read in all?
 $123 + 118 = 241$ pages

5. Summarizing the Lesson

How do we create word problems?

What are the things needed to formulate a problem?

To create word problem, you need the following:

- data or numbers
- word clues/operation
- the questions asked or needed to be answered

How will you check if the answer to the problem you have created and solved is correct?

- To check if the problem created is correct, all the given data that are needed to solve the problem should be there.
- To check if the solution to the created problem is correct, the answer must be the one that answers what is asked for.

6. Applying to New and Other Situations

a. Group Activity

Divide the class into 2 groups. Give each group some data for them to make a problem. Let each group write their answer on a 1/2 manila paper and post their answer on the board. Have one pupil from each group report on their work.

Group 1

No. of mango trees – 54
No. of santol trees – 27
Total number of trees?

Group 2

2 mangoes for PhP25.00
1 melon for PhP30.00
Total amount spent?

b. Individual Activity

Have the pupils individually answer Activity 3 in the LM.

Answer Key:

- 1) There were 27 tomato seedlings and 38 eggplant seedlings in a nursery. How many seedlings are there in all? ($27 + 38 = 65$ seedlings)
- 2) In a school foundation day celebration, there were 236 men and 324 women joined the parade. How many joined the parade? ($236 + 324 = 560$)
- 3) Leomar has 48 marbles. Kim has 36 marbles. How many marbles do they have in all? ($48 + 36 = 84$)

C. Evaluation

Have pupils work on Activity 4 of the LM. Check their answers.

Answer Key:

- 1) There were 223 rattan chairs and 247 wooden chairs in the social hall. How chairs were there in all? ($223 + 247 = 470$)
- 2) There were 70 jackfruit seedlings and 110 camias seedlings in the nursery. How many seedlings were there in all? ($70 + 110 = 180$)
- 3) Kenneth painted 24 flower pots. Ben painted 18 flower pots. How many flower pots did they paint in all? ($24 + 18 = 42$)

D. Home Activity

Ask pupils to work on Activity 5 in the LM at home. Check their answers.

Answer Key:

- 1) In a school fair, the Grade 3 pupils sold 128 tickets and the Grade 4 pupils sold 119 tickets. How many tickets did the pupils sell? ($128 + 119 = 247$)
- 2) The Grade 3 and Grade 4 pupils collected 312 and 428 plastic bottles for their Science Club recycling project. How many plastic bottles did the pupils collect? ($312 + 428 = 740$)
- 3) Pupils to create their own problems.

Lesson 21 Subtracting Numbers without Regrouping

Week 7

Objective

Subtract 3- to 4-digit numbers from 3- to 4-digit numbers without regrouping

Value Focus

Love for reading

Prerequisite Concepts and Skills

1. Addition basic facts
2. Place value of whole numbers
3. Writing numbers in expanded form
4. Subtraction basic facts
5. Subtraction as the process of taking away
6. Subtraction as the inverse of addition
7. Subtraction as getting/finding the difference/comparing

Materials

Flats, longs, ones, story and word problem charts, flash cards, place value chart

Instructional Procedures

A. Preliminary Activity

1. Drill

Use flash cards of basic subtraction facts

Mechanics for the game:

1. Group the class into two. The group chooses one representative from their group.
2. Let the two representatives stand at the back.
3. As you flash the basic subtraction facts, the pupil should give the correct answer.
4. The first pupil who answers correctly will step forward.
5. Repeat steps 3 and 4 until the pupil reaches the front. The one who reaches the front first wins and the group gets a point. The group with the most points wins.

2. Review

- a. Name the place value of the underlined digit.

1. 9457 2. 298 3. 53 4. 61 5. 7428

- b. Write the following numbers in expanded form.

Example: 987 = 900 + 80 + 7

1. 374 = ____ + ____ + ____
2. 528 = ____ + ____ + ____
3. 7 229 = ____ + ____ + ____ + ____
4. 2 563 = ____ + ____ + ____ + ____
5. 8 492 = ____ + ____ + ____ + ____

3. Motivation

Ask the pupils their favorite story books. Have some volunteers tell how many of these books they have finished reading.

Ask: Why do you love reading books?
Do you learn by reading books? How?
What benefits do you get from reading books?

B. Developmental Activities

1. Presenting the Lesson

Ask a good reader to read the problem situation.

Mercy loves to read. One morning after she finished her household chores, she started to read a book with 253 pages. After a week, she was able to finish reading 131 pages. How many more pages does she need to read to finish the book?

2. Performing the Activity

Ask the following comprehension questions:

What does Mercy love to do?

How many pages does the book have?

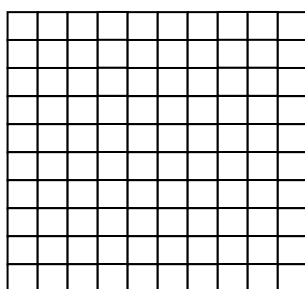
How many pages was she able to read after a week?

What is asked in the problem?

What process will you use to solve the problem?

How are you going to do it?

Ask the pupils to represent 253 using flats, longs and squares.
Let them recall the representation of flats, longs and squares.



1 flat = 100 ones
= 10 longs
= 100 (value)

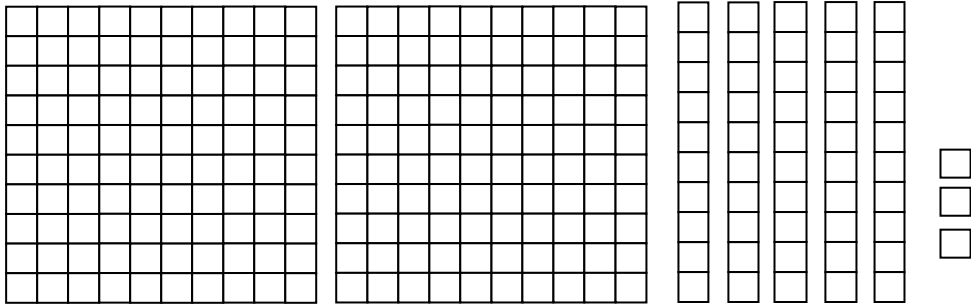


1 long = 10 squares
= 10 (value)

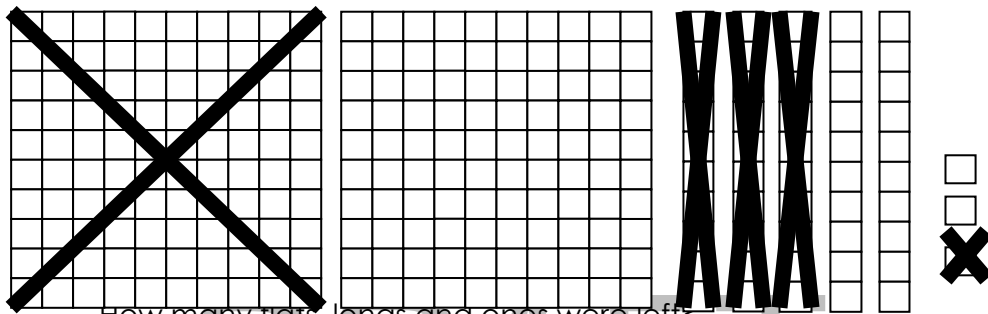


1 square = 1 (value)

How many flats, longs and ones will represent 253?

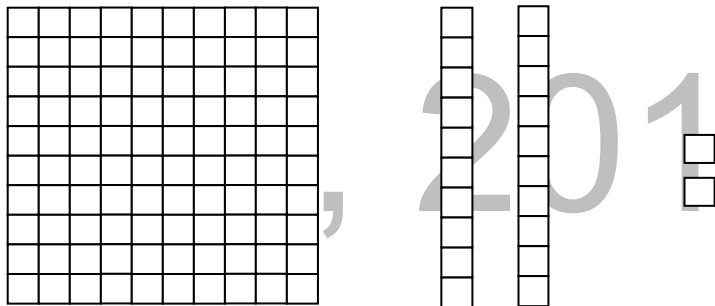


Now, how will you take away 131?
How many flats, longs and squares are we going to remove?



How many flats, longs and ones were left?

How many flats, longs and squares will represent 253?
(1 flat, 2 longs and 2 squares)



What is the total value of 1 flat, 2 longs and 2 squares?
(100 + 10 + 10 + 1 + 1 = 122)

What operation do we use when we take away things?
(Subtraction)

How will you write the number sentence for this problem? Which will be the minuend? the subtrahend? **253 - 131 = n**

Now, let us try to see the process using the expanded form.
Call on volunteers to write 253 - 131 in expanded form.

Lead pupils to arrive at this:

$$\begin{array}{r} 253 = 200 + 50 + 3 \\ - 131 = 100 + 30 + 1 \\ \hline \end{array}$$

Remind pupils on the importance of proper alignment of values.

Ask: Where do we start subtracting?

In which place value are we going to start?

What direction are we going to follow?

Subtraction is done by subtracting the values from right to left.

$$\begin{array}{r} 253 = 200 + 50 + 3 \\ - 131 = -100 + 30 + 1 \\ \hline 2 \end{array}$$

$$\begin{array}{r} 253 = 200 + 50 + 3 \\ - 131 = -100 + 30 + 1 \\ \hline 20 + 2 \end{array}$$

$$\begin{array}{r} 253 = 200 + 50 + 3 \\ - 131 = -100 + 30 + 1 \\ \hline 100 + 20 + 2 = 122 \end{array}$$

Present the short way of subtracting numbers.

Have one pupil write the numbers in place value chart

Ask: Which digits are in the ones place? tens place? hundreds place?

Hundreds	Tens	Ones
2	5	3
1	3	1

Point out the importance of writing the numbers with the same place values in the same column.

Let them see the steps in subtraction as shown:

Hundreds	Tens	Ones
2	5	3
1	3	1
		2

In what place value are we going to start subtracting?

(Subtract first the ones.)

Hundreds	Tens	Ones
2	5	3
1	3	1
	2	2

In what place value are going to subtract next?

(Subtract the tens.)

Hundreds	Tens	Ones
2	5	3
1	3	1
1	2	2

In what place value are we going to subtract last?
(Subtract the hundreds.)

Ask: Did we get the same answer in each method?

Therefore, Mercy still needs to read 122 pages to finish the book.

How do we check if our answer is correct? What part of subtraction will you add?

Solution:

$$\begin{array}{r} 253 - \text{minuend} \\ - 131 - \text{subtrahend} \\ \hline 122 - \text{difference} \end{array}$$

Checking :

$$\begin{array}{r} 122 - \text{difference} \\ + 131 - \text{subtrahend} \\ \hline 253 - \text{minuend} \end{array}$$

3. Processing the Activities

Ask: Why is it important in subtraction to know which number is the minuend and subtrahend?

In which place value did you start subtracting? next? last?

What direction did you follow?

Why it is important to write the digits with the same place values in the same column?

How will you check if your answer is correct?

Give your reason for choosing this method of checking.

4. Reinforcing the Concept

Group Work Activity

Provide each group with a set of number cards.

(See to it that the pupils will work with numbers that will require them to do subtraction without regrouping).

Place the cards face down on a table.

Ask each group to pick six cards from the set.

Instruct them to make a subtraction equation out of two cards and copy it on their paper.

Give them time to find the difference of each pair they got.

Provide cards like the following:

445	968	205	546	4 989	1331
-----	-----	-----	-----	-------	------

Discussion

- What subtraction sentences did you form?
- Which numbers did you write as the subtrahend? the minuend?
- In which place value did you start subtracting? next? last?
- What direction did you follow?
- Why is it important to write the digits with the same place values in the same column?
- How will you check if your answer is correct?

Give your reason for choosing this method of checking.

Have pupils do Activity 1 in the LM by pairs. Make sure the pupils clearly understand the directions.

Choose two numbers from the right whose difference is the number in the box on the left. Write the two numbers on your paper.

Example:

	424
324	573
	897

Answer : 897, 573

Answer Key:

- A. 1) 763 and 522 2) 578 and 210 3) 2 684 and 333
4) 5 132 and 3 727 5) 5 437 and 3 425
- B. 1) 270 2) 336 3) 307 4) 4 712 5) 3 665

Have the pupils do Activity 2 in the LM individually.

Answer Key:

- 1) 145 biscuits 2) 311 cupcakes 3) 152 sandwiches

5. Summarizing the Lesson

How do we subtract 3- to 4-digit numbers from 3- to 4-digit numbers without regrouping?

- When subtracting numbers, align the digits according to their place values.
- Subtract starting from the ones, then the tens and so on up to the digits in the highest place values.

6. Applying to New and Other Situations

Let pupils do Activity 3 in the LM by group.

Answer Key: 1) $976 - 235 = 741$ 2) $9\ 876 - 1\ 235 = 8\ 641$
3) $987 - 102 = 885$ 4) $9\ 876 - 102 = 9\ 774$ 5) $9\ 876 - 1\ 023 = 8\ 853$

Give them Manila paper to write their solution and let them present their work in the class.

C. Evaluation

Have the pupils do Activity 4 individually in their notebook. Arrange the numbers in column. Then find the difference. Check your answer using addition.

Answer Key: 1) 322 2) 463 3) 7 4 31 4) 5 014 5) 4 113

D. Home Activity

Let the pupils copy Activity 5 and do it at home.

Answer Key:

1) $984 - 104 = 880$	2) $3\,769 - 503 = 3\,266$
$984 - 350 = 634$	$3\,769 - 647 = 3\,122$
$984 - 582 = 402$	$3\,769 - 2\,032 = 1\,737$
$984 - 261 = 723$	$3\,769 - 1\,645 = 2\,124$
$984 - 743 = 241$	$3\,769 - 3\,203 = 566$

Lesson 22 Subtracting Numbers with Regrouping

Week 7

Objective

Subtract 3- to 4-digit numbers from 3- to 4-digit numbers with regrouping

Value Focus

Importance of planting trees

Prerequisite Concepts and Skills

1. Place value of whole numbers
2. Writing numbers in expanded form
3. Subtraction as the process of taking away
4. Subtraction as the inverse of addition
5. Subtraction as getting/finding the difference
6. Subtraction of 1- and 2-digit numbers

Materials

Story and word problem charts, flash cards, show-me board, place value chart, activity cards

Instructional Procedures

A. Preliminary Activity

1. Drill

Pop Up Recitation

Flash the card and let the pupils who know the answer stand and say the answer.

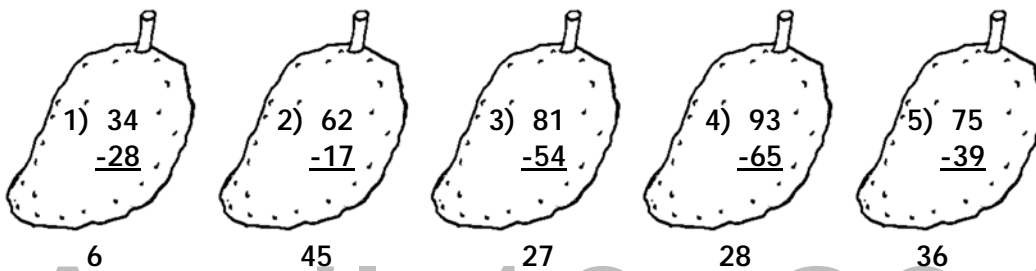
$\begin{array}{r} 8 \\ -6 \\ \hline \end{array}$	$\begin{array}{r} 15 \\ -9 \\ \hline \end{array}$	$\begin{array}{r} 13 \\ -5 \\ \hline \end{array}$	$\begin{array}{r} 7 \\ -4 \\ \hline \end{array}$	$\begin{array}{r} 8 \\ -3 \\ \hline \end{array}$	$\begin{array}{r} 12 \\ -3 \\ \hline \end{array}$	$\begin{array}{r} 37 \\ -3 \\ \hline \end{array}$	$\begin{array}{r} 45 \\ -32 \\ \hline \end{array}$	$\begin{array}{r} 28 \\ -15 \\ \hline \end{array}$	$\begin{array}{r} 19 \\ -17 \\ \hline \end{array}$
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2. Review

A. The pupils recall the concept of subtraction of 2-digit numbers with regrouping.

Post a subtraction sentence on the board and pupils will solve it in their show me board.

Give them ample time to solve the problem then ask them to show their answers. Then teacher will tell the correct answer.



B. Write the following numbers in expanded form.
Example: $234 = 200 + 30 + 4$

- 1) $562 = 500 + 60 + 2$
- 2) $921 = 900 + 20 + 1$
- 3) $8429 = 8000 + 400 + 20 + 9$
- 4) $6854 = 6000 + 800 + 50 + 4$
- 5) $7183 = 7000 + 100 + 80 + 3$

3. Motivation

Ask the pupils who among them are boy scouts or girl scouts.

Have them tell the activities they do in scouting.

Ask who among them have experienced planting trees. Discuss briefly the importance of trees in the environment.

Ask: What will happen if we cut down trees and never replace these with new ones?

Have you heard of the news of flash floods and landslides?

What is one cause of flashfloods and landslides?

B. Developmental Activities

1. Presenting the Lesson

Present the problem on a chart.

Two hundred twenty-nine mahogany seedlings were brought to the scouts' campsite for the tree planting activity. There were 241 scouts in the camp. How many of them will not have a seedling to plant?

Flash the card and let the pupils who know the answer stand and say the answer.

Ask: What is the activity about?
How many mahogany seedlings were brought to the campsite?
How many scouts were there?

Lead pupils to make some comparison by asking:
Are there enough seedlings for the scouts? Why?

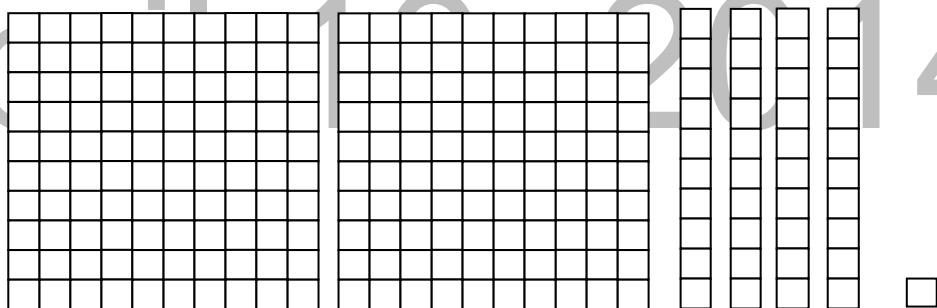
2. Performing the Activities

Let us represent the number of scouts through flats, long and squares.

How many scouts are there in the campsite? 241 scouts

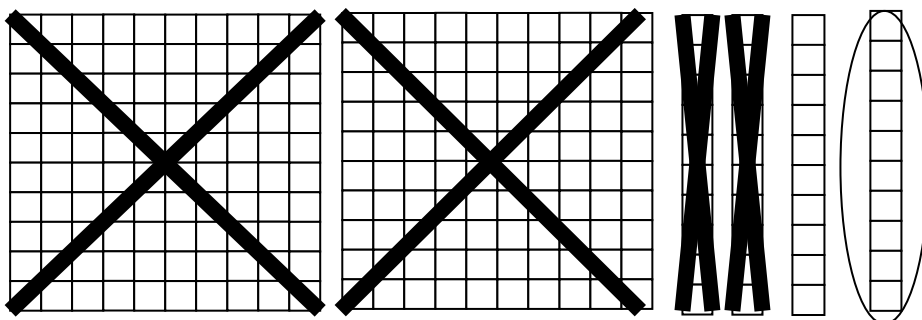
How will you represent 241 using flats, longs and squares?

How many flats, longs and squares will represent 241?



Now, let us get the number of mahogany seedlings brought to the campsite.

How many flats, longs and squares are we going to get to represent 229?





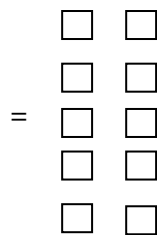
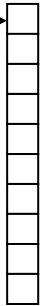
Did you get enough flats? What about the longs? What about the squares?

What do you notice with the squares? Are there enough squares to get 9 squares?

What are you going to do? Where are you going to borrow?

How many longs are you going to borrow?

What will you do to 1 long to make it into squares? (Trade 1 long with 10 squares)



So, how many squares are there in 1 long?

How many ones do you have in all now?



So, can you now get 9 squares?

How many longs and ones are left? (1 long and 2 squares)



What is the value of 1 long and 2 squares? $10 + 1 + 1 = 12$

So, 12 scouts will not have seedlings to plant.

What operation or process do we use when we take away things?
(Subtraction)

How will you write the number sentence for this problem?

Which will be the minuend? the subtrahend?

$$241 - 229 = n$$

Now, let us try to see the process using the expanded form.

Call on volunteers to write $241 - 229$ in expanded form.

Lead them to arrive at this:

$$\begin{array}{r} 241 = 200 + 40 + 1 \\ - 229 = 200 + 20 + 9 \\ \hline \end{array}$$

Remind them on the importance of proper alignment of values.

Ask: Where do we start subtracting?

In which place value are we going to start?
 What direction are we going to follow?
 Subtraction is done by subtracting the values from right to left.

$$\begin{array}{r} 241 = 200 + 40 + 1 \\ - 229 = 200 + 20 + 9 \\ \hline \end{array}$$

$$\begin{array}{r} 241 = 200 + (30 + 10) + 1 \\ - 229 = 200 + 20 + 9 \\ \hline \end{array}$$

$$\begin{array}{r} 241 = 200 + 30 + (10 + 1) \\ - 229 = 200 + 20 + 9 \\ \hline \end{array}$$

$$\begin{array}{r} 241 = 200 + 30 + 11 \\ - 229 = 200 + 20 + 9 \\ \hline 2 \end{array}$$

$$\begin{array}{r} 241 = 200 + 30 + 11 \\ - 229 = 200 + 20 + 9 \\ \hline 10 + 2 \end{array}$$

$$\begin{array}{r} 241 = 200 + 40 + 11 \\ - 229 = 200 + 20 + 9 \\ \hline 0 + 10 + 2 = 12 \end{array}$$

In which place value are we going to start subtracting? Subtract first the least values.
 Can you get 9 from 1? Where will 1 borrow so that it will have more ones?
 What will you do with 40? How will you regroup it?
 What will happen now to 10 and 1? (Add them.)
 So, how many ones do you have now?
 Can you now get 9 from it? What is the difference?

Can we now subtract the next bigger value?
 Can you get 20 from 30? What is the difference?

What about the number with the biggest value?
 Can we subtract 200 from 200? What is the answer?

Present the short way of subtracting numbers.
 Have one pupil write the numbers on a place value chart.
 Ask: Which digits are in the ones place? tens place? hundreds place?

	Hundreds	Tens	Ones
	2	4	1
-	2	2	9

Point out the importance of writing the numbers with the same place values in the same column.

Let them see the steps in subtraction as shown:

	Hundreds	Tens	Ones
	2	4	1
-	2	2	9

In what place value are we going to start subtracting? (Subtract first the ones.)
 What did you notice about the numbers?
 Can you get 9 ones from 1 ones? In what place value are you going to borrow?

Regroup the tens as 3 tens + 1 tens. Then, get 1 tens and add it to the ones place. How many ones are there in 1 tens? So, how many ones are there in all?

	Hundreds	Tens	Ones
	2	³ 2	10 + 1
-	2	2	9

	Hundreds	Tens	Ones
	2	³ 2	11
-	2	2	9
			2

	Hundreds	Tens	Ones
	2	³ 2	11
-	2	2	9
		1	2

	Hundreds	Tens	Ones
	2	³ 2	11
-	2	2	9
		1	2

Did we get the same answer in each method?

Therefore, 12 scouts will not have a seedling to plant.

What do you think will the 12 scouts do if they don't have any seedlings to plant?

How do we check if our answer is correct? What part of the subtraction sentence will you add?

Solution:

$$\begin{array}{r} 311 \\ 2\cancel{2}\cancel{1} \\ - 229 \\ \hline 12 \end{array}$$

Checking:

$$\begin{array}{r} 1 \\ 12 \\ + 229 \\ \hline 241 \end{array}$$

3. Processing the Activities

- Ask:
- Why it is important in subtraction to know which number is the minuend and subtrahend?
 - In which place value did you start subtracting?
 - What direction did you follow?
 - Why it is important to write the digits with the same place values in the same column?
 - If the digit in the minuend is less than the subtrahend, what will you do?
 - How will you check if your answer is correct?

4. Reinforcing the Concept

Group Activity

Divide the class into 3 groups. Provide them activity cards with questions like:

1. How much greater is 527 than 263?
2. What is the difference if you take away 3 841 from 6 275?
3. How much less is 287 than 7 409?

All groups will solve item no. 1 first using the different methods.

Group 1 will use flats, longs and ones.

Group 2 will use the expanded form of subtraction.

Group 3 will use the short form of subtraction.

Each group will have one representative to report on their work in class.

Ask: Did you get the same answer? Which method do you like best?

Let the groups do item numbers 2 and 3 using the method they like most.

As an additional output, have the groups write their own subtraction sentences where regrouping is done in the tens place or hundreds place.

Let the groups exchange subtraction sentences and solve for the answer.

Have the pupils complete the table under Activity 1 in the LM. Have them work in pairs and let them write their answer in their notebook.

Answer Key:

-	908	7 195	5 939
294	614	6 901	5 645
675	233	6 520	5 2 64
843	65	6 352	5 096

Have the pupils do Activity 2 in the LM individually.

Answer Key: A. 1) 243 2) 243 3) 2 122 4) 3 626 5) 5 322

B.1) $848 - 745 = 103$ 2) $686 - 645 = 41$ 3) $745 - 645 = 100$

4) $848 - 645 = 203$ 5) $745 - 686 = 59$

5. Summarizing the Lesson

How do we subtract 3- to 4-digit numbers from 3- to 4-digit numbers with regrouping?

- When subtracting numbers, align the digits according to their place values.
- **Regroup whenever the digit in the minuend is less than the digit in the subtrahend.**
- Start subtracting from ones place, then tens and so on up to the digits in the highest place value.

6. Applying to New and Other Situations

Group the class into five groups and let them answer Activity 3 in the LM.

Ask them to write their solution and answer on Manila paper.

Give them ample time to finish the assigned task.

Let each group present their work in the class.

Have the pupils do Activity 3 in the LM by pairs. Let them write their answer in their notebook.

Answer Key: 1) 9 2) 7 3) 9 and 5 4) 5 and 3 5) 4 and 7

C. Evaluation

Have pupils work on Activity 4 of the LM. Check pupils' work.

Answer Key: 1) 152 2) 335 3) 4 515 4) 5 273 5) 163

D. Home Activity

Have pupils copy the task in Activity 5 in the LM and work this at home.

Answer Key: 1) 439 2) 164 3) 3 259 4) 1 282 5) 4 731

Lesson 23 Estimating Differences

Week 8

Objective

Estimate the difference of two numbers with three to four digits

Value Focus

Appreciation of the value of small things

Prerequisite Concepts and Skills

1. Place value of whole numbers
2. Subtraction basic facts
3. Concept of rounding whole numbers
4. Concept of subtraction

Materials

Flash cards of 3- to 4-digit numbers, number lines on strips of paper, number cut- outs, pictures, tables/charts, story on the chart, word problems, "Show-Me" board, activity card

Instructional Procedures

A. Preliminary Activity

1. Drill

Place Value

Flash some cards with numbers written on them. The pupil will write on their show-me board:

- A if the underlined digit is in the ones place
- B if it is in the tens place
- C if it is in the hundreds place
- D if it is in the thousands place

The teacher will ask the pupils to raise their boards. The pupil with the correct answer earns a point.

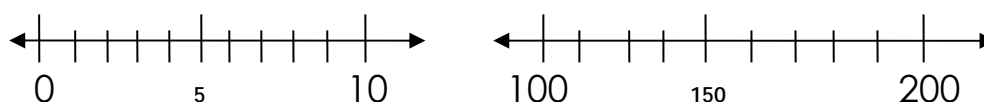
Examples:

4 <u>5</u> 73	<u>7</u> 035	1 8 <u>3</u> 4	2 8 <u>3</u> 7	2 <u>1</u> 05
<u>3</u> 710	8 <u>5</u> 39	2 5 <u>0</u> 8	<u>8</u> 421	6 <u>4</u> 72

2. Review

- Post two strips of number lines on the board. One will be on the left side and the other on the right side. The first long strip will show number line 1 to 10 and the second strip, number line 100 to 200.

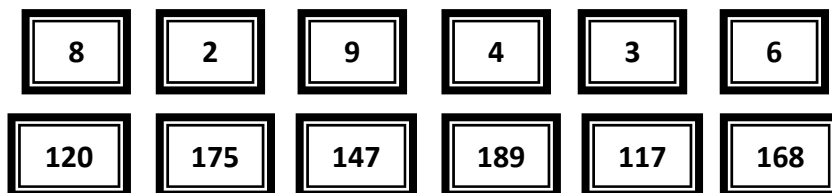
The number line will look like this :



- Distribute 2 sets of number cards to the pupils. The first set will be posted on the first number line while the second set for the second number line.
- Have pupils recall the rules in rounding tens and hundreds.

- d. Ask pupils to post their number cards to the number it is nearest to, either to zero or ten; 100 or 200. Continue until all numbers are posted on the board. Check if their answers are all correct.

Example of number cards:



- e. As a follow up to this activity, have pupils write their answers to the following:

Round off the following numbers to the nearest thousands.

- | | | | |
|----------|----------|----------|----------|
| a. 2 312 | b. 7 481 | c. 5 926 | d. 4 534 |
| (2 000) | (7 000) | (6 000) | (5 000) |

3. Motivation

- a. Show the pupils a set of marbles, shells, paper clips, colored pebbles, buttons and other similar objects.
Ask: Which of these small things do you like to collect? Why?
- b. Talk about the value of things no matter how small they are.

B. Developmental Activities

1. Presenting the Lesson

- a. Guessing Game
- 1) Show a bottle filled with multi-colored buttons.
Ask: How many buttons do you think there are in this bottle?
Give 10 seconds for the pupils to give their guesses. Let them write their answers on their "Show-Me" board.
 - 2) Call 1 or 2 pupils to count the number of buttons in the bottle.
The one who can give the closest guess will be the winner.
 - 3) Ask: How did you come up with the correct/nearest answer?
Why is it not possible to get the exact answer immediately?
- There are times when we do not need the exact answer to a problem. All we need is just the closest possible answer or an estimate.

b. Present this story problem.

There were 515 visitors on the first day of a school's Foundation Day and 786 visitors on the second day. About how many more visitors were there on the second day than on the first day?

c. Let us understand the problem.

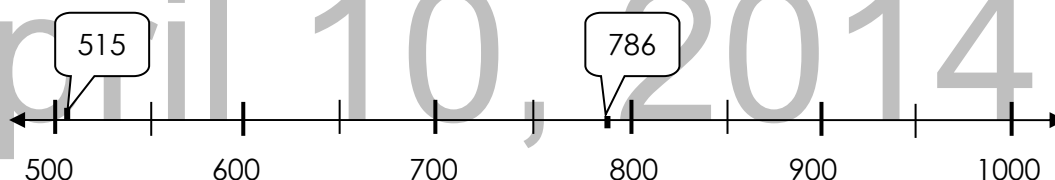
- 1) What are given in the problem?
 - the number of visitors on the first day
 - the number of visitors on the second day
- 2) What is asked for in the problem?
 - about how many more visitors were there on the second day than on the first day
- 3) Do we need an exact answer?
 - No
- 4) What word clues tell that we do not need an exact answer?
 - The phrase "about how many" tells us that we do not need an exact answer.
- 5) What operation are we going to use?
 - Subtraction

2. Performing the Activities

a. Let us plan on how we can solve the problem. Ask:

- 1) What will be the number sentence for the problem?
- 2) Call on pupil to write the number sentence on the board.
- 3) Construct a number line on the board.

Say: Let us locate 515 and 786 on the number line.



- 4) Ask: Where is 515 nearest to? 500 or 600?
Where is 786 nearest to? 700 or 800?

b. Let us execute our plan.

- 1) To find the estimated difference, round off each number to the greatest place value
 - 2) Perform the subtraction operation.
- | | |
|--------------|--------------|
| 786 | 800 |
| <u>- 515</u> | <u>- 500</u> |
| | |
| | 800 |
| | <u>- 500</u> |
| | 300 |

- 3) Around 300 more visitors were on the second day than on the first day.

c. Check your work.

	Exact Difference	Estimated Difference
1) Did I answer the question?	786	800
2) Compare the estimated difference with the exact difference.	$\begin{array}{r} - 515 \\ 277 \end{array}$	$\begin{array}{r} - 500 \\ 300 \end{array}$
3) Is my answer sensible?	277 is close to 300	

- d. Sometimes, rounding off to the next lower place gives a better estimate.

Example:

Estimate the difference between 4 943 and 3 225.

Round off to the highest possible place value	
4 943 rounds off to 5 000 → 5 000	
$\begin{array}{r} - 3\,225 \\ \hline \end{array}$ rounds off to 3 000 → 3 000	
	2 000
Round off to the next lower place value	
4 943 rounds off to 4 900 → 4 900	
$\begin{array}{r} - 3\,225 \\ \hline \end{array}$ rounds off to 3 200 → 3 200	
	1 700
Actual Difference	
$\begin{array}{r} 4\,943 \\ - 3\,225 \\ \hline \end{array}$	1 718

Now, which one is more reasonable estimated difference, 2 000 or 1 700?

- e. Give more exercises for pupils to solve.

Round each number then estimate the difference.

$$\begin{array}{r} 845 \\ - 458 \end{array} \rightarrow \underline{\quad ? \quad} \qquad \begin{array}{r} 7\,541 \\ - 1\,825 \end{array} \rightarrow \underline{\quad ? \quad}$$

Is the estimated difference close to the exact one?

3. Processing the Activities

Ask pupils the following questions:

- When do you say that a number should be estimated using its highest place value or the next lower place value?
- What did we do first before we made an estimate?

- c. How do we know if we over-estimated or under-estimated?
- d. How will you decide if you are going to estimate using the highest place value or the next lower value?
- e. How is estimating useful in your day-to-day activities?

4. Reinforcing the Concept

a. Group Activity

Provide each group with an activity card bearing the table and questions below.

Have each group do the activity and write their answer on Manila paper to be posted and reported to the class.

Activity Card

Mrs. Cruz records the number of sheets of bond paper used every day in their office.

Day	Number of pieces of bond paper used
Monday	2 256 pieces
Tuesday	3 567 pieces
Wednesday	1 742 pieces
Thursday	943 pieces
Friday	891 pieces

- 1) About how many pieces of bond paper more were used on Tuesday than on Monday?
- 2) About how many pieces less were used on Thursday than on Wednesday?
- 3) About how many pieces of bond paper less were used on Thursday than on Tuesday?
- 4) Why do you think the office uses more pieces of bond paper on Tuesday than any other days?
- 5) Why do you think the office uses the least number of pieces of bond paper on Friday?

b. Have the pupils answer Activity 1 of their LM in their notebook.

Let this activity be done individually. Go around and check if all pupils are doing it right.

Answer Key: 1) $300 - 200 = 100$ 2) $500 - 200 = 300$

3) $800 - 400 = 400$ 4) $5\ 000 - 3\ 000 = 2\ 000$ 5) $2\ 000 - 1\ 000 = 1\ 000$

6) $7\ 000 - 3\ 000 = 4\ 000$

c. Have the pupils do Activity 2 of their LM by pairs.

Ask the pupil to find a partner and do Activity 2 in the LM. Let them study the picture/illustration and answer the question that follows. See to it that the pupils know the different musical instruments in the picture.

Answer Key: 1) trumpet 2) guitar 3) drum 4) flute 5) guitar

5. Summarizing the Lesson

How do we estimate the difference of two numbers with three to four digits?

To estimate the difference of two numbers, round off both numbers to their highest place value then subtract.

6. Applying to New and Other Situations

a. Group Work Activity

Divide the class into three groups then give them activity cards to work on. Then let them write their solution and answer on a 1/4 Manila paper. Have them post their work on the board and report to their classmates. Move around to check the work of each group.

Activity Card 1

Using the numbers for each letter A 873 B 458 C 691
write YES if the estimated difference is reasonable. If not, write NO.

Subtraction	Estimate	YES or NO
A – B	400	Yes
C – B	200	Yes
A – C	100	No

Activity Card 2

Estimate the difference by rounding first the numbers to the highest place value. Write > or < on the box.

1. $9\,347 - 4\,385$ $9\,348 - 4\,585$ (>)
2. $7\,083 - 3\,141$ $7\,463 - 2\,434$ (<)
3. $3\,724 - 1\,572$ $1\,100 - 1\,026$ (>)

Activity Card 3

Find the missing number. Choose the answer from the box.

1 235 1 732 2 473 2 873 3 573

1. $3\,643 - \square$ is about 2 000. (1 732)

2. $8\,536 - \square$ is about 6 000. (2 873)

3. $7\,945 - \square$ is about 4 000. (3 573)

b. Have the pupil do Activity 3 of the LM individually.

Answer Key: 1) PhP1 000 2) PhP2 000 3) PhP1 000 4) PhP1 000
5) PhP2 000

C. Evaluation

Have pupils work on activity 4 in the LM. Check pupils' work.

Answer Key: 1) PhP100 2) 7 bundles 3) PhP400 4) PhP200 5) PhP300

D. Home Activity

Let pupils work on Activity 5 in the LM.

Answer Key: 1) 10 ballpens 2) Yes 3) Answers will vary (example:10 ballpens, 10 pencils, 5 boxes of crayons and 3 sets of pad paper)

Lesson 24 Subtracting Mentally 1- to 2-Digit Numbers without and with Regrouping

Week 8

Objective

Subtract mentally 1- to 2-digit numbers without and with regrouping using appropriate strategies

Value Focus

Speed with accuracy

Prerequisite Concepts and Skills

1. Place value of whole numbers
2. Addition basic facts
3. Subtraction basic facts
4. Multiples of 10/sums of 10 facts

Materials

Flash cards, activity cards, charts, story problem chart, cut-outs or drawings of fruits with subtraction sentence below each

Instructional Procedures

A. Preliminary Activities

1. Drill

Flash cards of subtraction and addition facts.

Give the pupils a snappy drill on subtraction and addition facts like the following:

$\begin{array}{r} 18 \\ -6 \\ \hline \end{array}$	$\begin{array}{r} 10 \\ -9 \\ \hline \end{array}$	$\begin{array}{r} 17 \\ -15 \\ \hline \end{array}$	$\begin{array}{r} 9 \\ -4 \\ \hline \end{array}$	$\begin{array}{r} 18 \\ -3 \\ \hline \end{array}$	$\begin{array}{r} 5 \\ +3 \\ \hline \end{array}$	$\begin{array}{r} 7 \\ +6 \\ \hline \end{array}$	$\begin{array}{r} 4 \\ +9 \\ \hline \end{array}$	$\begin{array}{r} 12 \\ +16 \\ \hline \end{array}$	$\begin{array}{r} 23 \\ +13 \\ \hline \end{array}$
---	---	--	--	---	--	--	--	--	--

Place value and rounding off numbers to the nearest tens

Flash some cards with the numbers written on them. The pupil will tell the place value of the underlined digit and round the number to the nearest tens.

Examples of cards:

$\begin{array}{r} 4\mathbf{\underline{5}} \end{array}$	$\begin{array}{r} \mathbf{\underline{2}}2 \end{array}$	$\begin{array}{r} 2\mathbf{\underline{6}} \end{array}$	$\begin{array}{r} \mathbf{\underline{7}}5 \end{array}$	$\begin{array}{r} 8\mathbf{\underline{9}} \end{array}$	$\begin{array}{r} \mathbf{\underline{6}}3 \end{array}$	$\begin{array}{r} 1\mathbf{\underline{8}} \end{array}$	$\begin{array}{r} \mathbf{\underline{3}}7 \end{array}$	$\begin{array}{r} 5\mathbf{\underline{7}} \end{array}$
--	--	--	--	--	--	--	--	--

3. Motivation

Game: The 10 family

a. Distribute to pupils two sets of number cards from 0 to 10.

b. Ask: Do you still remember "The 10 family"?

Who will be the partner of 3 to make a 10? (7)

c. Say: I have distributed number cards earlier, right?

I want you now to find your partner to complete "The 10 family." Once you find your partner, you will both come up front and sit down.

(Give ample time for pupils to complete the set/pairs. Move around to check if the pairing is correct.)

B. Developmental Activities

1. Presenting the Lesson

a. Present a problem.

Ben gathered 36 shells at the beach. If he gave 12 shells to his friend, how many shells were left?

b. Ask the following questions:

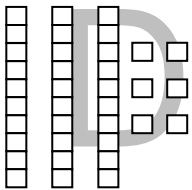
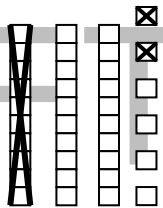
1. What did Ben gather?

2. How many shells did he gather?
3. How many shells did he give to his friend?
4. How many shells does he have left?
5. Can you solve the problem mentally?
6. If Ben decided to give 19 shells instead of 12, how many shells would be left?

2. Performing the Activity

Ask: How are we going to solve the problem?
 What operation are we going to use?
 Do you want to use your longs and squares or use the short form?
 Who can represent 36 using longs and squares?
 What about the short form?

Call on two pupils to represent 36 shells, one using longs and squares and the other the short form. Then let them do the operation.

Longs and Squares	Short Form	Longs and Squares	Short Form
	36		$\begin{array}{r} 36 \\ - 12 \\ \hline 24 \end{array}$

Ask: Do you think we can solve the problem mentally without the using longs and squares? How?

Say: We can subtract mentally and even start with the highest place value if there is no regrouping to be done.

Example:

$$\begin{array}{r} 36 \\ - 12 \\ \hline 24 \end{array}$$

Ask: Can you subtract 1 from 3? What about 2 from 6?
 Check if there is no regrouping, then you can subtract the numbers right away.
 So, 24 shells were left with Ben.

What if Ben decided to give 19 shells rather than 12? Can we still subtract the numbers mentally?

How can you solve $36 - 19$ mentally? Is there regrouping to be done?

Use the compensation strategy

$\begin{array}{r} 36 \\ - 19 \\ \hline \end{array}$ Look at your subtrahend. What number will you add to it to make it a multiple of 10 or to make it 20?

$\begin{array}{r} 36 \\ - 19 \\ \hline \end{array}$ Change 19 to 20.
Think: $19 + 1 = 20$
20 is easier to use than 19.

$\begin{array}{r} 36 \\ - 20 \\ \hline 16 \end{array}$ Subtract $36 - 20 = 16$

$\begin{array}{r} 36 \\ - 20 \\ \hline 16 \\ + 1 \\ \hline 17 \end{array}$ Add 1 to compensate for subtracting the extra 1.

What if we add 1 to both subtrahend and minuend?
Will we have the same answer?

$\begin{array}{r} 36 \\ - 19 \\ \hline \end{array}$ How can we make the subtrahend a multiple of 10? (Add 1 to it.)
So, $19 + 1 = 20$.

$\begin{array}{r} 36 \\ - 20 \\ \hline \end{array}$ What you did in the subtrahend, you also do in the minuend. So, $36 + 1 = 37$

$\begin{array}{r} 37 \\ - 20 \\ \hline \end{array}$ Subtract the numbers.

$\begin{array}{r} 37 \\ - 20 \\ \hline 17 \end{array}$ Did we get the same difference?

Let us try another subtraction problem. e.g. $42 - 8 = \underline{\hspace{2cm}}$

Using the compensation strategy, we add 2 to both minuend and subtrahend.

$$\begin{array}{r} 42 + 2 = 44 \\ - 8 + 2 = 10 \\ \hline 34 \end{array}$$

3. Processing the Activity

Ask:

- How do we subtract mentally without regrouping? with regrouping?
- Which is easier the compensation strategy or the second one?

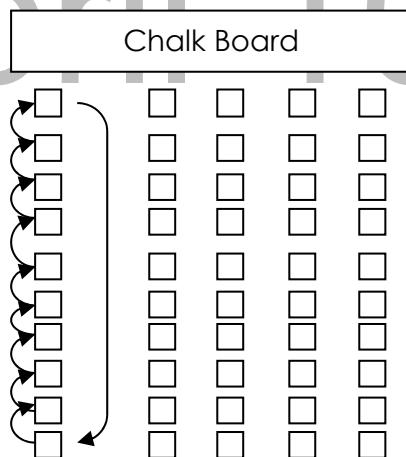
- c. What do you do when using the “compensation method”? (We make the subtrahend a multiple of ten, then subtract. Then add to the difference the number you added to the subtrahend.)
- d. How do you improve the compensation method? (Add the number you added to the subtrahend to the minuend then subtract.)
- e. When do we use mental subtraction?
- f. In what ways does mental computation help you?

4. Reinforcing the Concept

- a. Group Activity – Telephone Game

Mechanics:

- 1) Set the pupils to stand in columns with 10 members in each column.
- 2) The teacher gives a subtraction sentence written on a piece of paper.
- 3) On cue, the pupils who received the piece of paper simultaneously solve the subtraction sentence mentally.
- 4) Then he/she whispers the answer to the next pupil until it reaches the pupil in front.
- 5) The pupil in front of each group will then write the answer on the board. The group with the correct answer gets a point.
- 6) Then the pupil in front will go to the back and the rest will move forward so that rotation is done. The game continues following the same rules.
- 7) The first group to get 5 points wins.



Write the following subtraction sentences on a strip of paper in as many as the number of groups formed.

1) $\begin{array}{r} 18 \\ -8 \\ \hline \end{array}$	2) $\begin{array}{r} 25 \\ -7 \\ \hline \end{array}$	3) $\begin{array}{r} 31 \\ -6 \\ \hline \end{array}$	4) $\begin{array}{r} 59 \\ -32 \\ \hline \end{array}$	5) $\begin{array}{r} 89 \\ -19 \\ \hline \end{array}$
6) $\begin{array}{r} 79 \\ -45 \\ \hline \end{array}$	7) $\begin{array}{r} 54 \\ -26 \\ \hline \end{array}$	8) $\begin{array}{r} 63 \\ -37 \\ \hline \end{array}$	9) $\begin{array}{r} 46 \\ -26 \\ \hline \end{array}$	10) $\begin{array}{r} 65 \\ -48 \\ \hline \end{array}$

Did you do it fast? Were all your answers correct?

- b. Ask the pupils to answer Activity 1 in the LM individually. Ask them to say the correct difference orally. Make sure that they will not use paper and pencil to get the answer.

Answer Key: 1) 20 2) 11 3) 37 4) 23 5) 27 6) 34 7) 15 8) 28

- c. Have pupils work on Activity 2 in the LM. Make sure the pupils create a subtraction sentence that can be solved mentally. Monitor the activity closely.

(Answers vary)

5. Summarizing the Lesson

How do we subtract mentally 1- to 2-digit numbers without and with regrouping?

- To subtract numbers mentally without regrouping, subtract the numbers by place value either from left to right or from right to left.
- To subtract numbers with regrouping, add a digit to the subtrahend to make it a multiple of ten. Then subtract the numbers. Finally, add to the difference the number you added to the subtrahend (compensation method).
- To make compensation method easier, you can add to the minuend the same digit that you added to the subtrahend to make it a multiple of 10.

How do you we do the compensation method? (We make the subtrahend a multiple of ten, then subtract. Then add to the difference the number you added to the subtrahend.)

How do you we improve the compensation method? (Add the number you added to the subtrahend to the minuend then subtract.)

6. Applying to New and Other Situations

- a. Class Activity – Rally Robin Game

Pupils will make their own subtraction sentence. Then they will pass it to the pupils to their right and the pupil on the right answers the question. Then, they will do the reverse way. The one who answers correctly will also make a subtraction sentence and pass it to her/his right.

- b. Have pupils work on Activity 3 in the LM. They subtract each number from 81 using mental arithmetic and write their answers in their notebook.

Answer Key: 1) $81 - 43 = 38$ 2) $81 - 34 = 47$ 3) $81 - 57 = 24$

4) $81 - 22 = 59$

C. Evaluation

Have pupils work on Activity 4 in the LM. Check pupils' work.

Answer Key: A. 1) 14 2) 25 3) 35 4) 16 5) 17

B. $89 - 9 = 80 - 15 = 65 - 44 = 21$

D. Home Activity

Give Activity 5 in the LM. Check pupils' work during the next meeting.

Answer Key: 1) 41 pupils 2) 17 pupils 3) 5 pupils 4) 19 pupils

Lesson 25 Subtracting Mentally 2- to 3-Digit Numbers with Multiples of Hundreds

Week 9

Objective

Subtract mentally 2- to 3- digit numbers with multiples of hundreds without and with regrouping using appropriate strategies

Value Focus

Speed with accuracy

Prerequisite Concepts and Skills

1. Place value of whole numbers
2. Addition basic facts
3. Subtraction basic facts
4. Multiples of 10 and 100/sums of 10 facts

Materials

Flash cards, activity cards, charts, story problem chart, puzzles

Instructional Procedures

A. Preliminary Activities

1. Drill

Have the pupils drill on subtraction facts using flash cards. Do this as snappily as possible. Use difficult facts (those that are not yet mastered).

2. Review

Recall the concept of subtracting mentally 1- to 2-digit numbers without and with regrouping.

Provide exercises like the following:

- a. $32 - 12$
- b. $45 - 27$
- c. $67 - 39$
- d. $54 - 15$
- e. $68 - 44$

3. Motivation

Have the pupils play a game. Give them two sets of number cards. The first set of cards are numbers written in standard form. The second set of cards are the expanded form of the numbers in the first set. Have the pupils find the correct pairs of numbers. The first one to finish wins the game.

Examples of cards:

45	$40 + 5$	123	$100 + 20 + 3$	38	$30 + 8$
----	----------	-----	----------------	----	----------

B. Developmental Activities

1. Presenting the Lesson

- a. Present this equation: $345 - 123 =$.
Pose a challenge: How fast can you solve this equation?
- b. Ask volunteers to show their solutions. Provide set of time limit for this activity. Record pupils' time and compare. Commend the one who finished first correctly.
- c. Ask a pupil if there was regrouping in the process and where they started subtracting.

Ask: Can problem be solved mentally?
What about $575 - 300$? Can you solve this mentally?
How will you solve the number sentence mentally?

- d. Pose another problem:
Solve this mentally as fast as you can;
 $314 - 143 = \underline{\hspace{2cm}}$
Provide a time limit for this activity. Record pupils' time and compare the time with the first challenge question.
Ask: How did you find the answer?
Which is easier to solve, the first problem or the second one?
Why?
- Say: Let us discover a faster way of doing this.

2. Performing the Activity

Present the following strategies:

- a. Expanding the subtrahend
Do subtraction in three steps:

Example: $314 - 143$
 $314 - (100 + 40 + 3)$

Step 1 Start first with the highest place value.
Perform $314 - 100$.
 $314 - 100 = 214$

Step 2 Round the minuend to the nearest tens, subtract 40 more, then add 4.

$$\begin{array}{l} 214 - 40 = 210 - 40 = 170 + 4 = 174 \end{array}$$

Step 3 Subtract 3 more in the ones place.
 $174 - 3 = 171$

the ones digit in the subtrahend

143.

So, $314 - 143 = 171$

Other examples:

$$\begin{array}{rcl} \begin{array}{r} 500 \\ - 240 \\ \hline \end{array} & \longrightarrow & \begin{array}{r} 500 \\ - 200 \\ \hline 300 \end{array} \end{array}$$

$$\begin{array}{rcl} \begin{array}{r} 300 \\ - 40 \\ \hline 260 \end{array} & \longrightarrow & \begin{array}{r} 300 \\ - 20 \\ \hline 280 \end{array} \end{array}$$

b. Place Value Method

Now, try to solve mentally for the difference of the following:

$$1) 800 - 200 = \quad 2) 536 - 300 =$$

Ask: What did you notice with the minuends? the subtrahends?
How did you get the difference mentally? Did you expand
or did you consider the place value?

So, if both the minuend and the subtrahend or if the
subtrahend is a multiple of tens or hundreds and there is no
regrouping, subtract them by place value either left to right
or right to left.

Examples:

$\begin{array}{r} 800 \\ - 200 \\ \hline 600 \end{array}$	$\begin{array}{r} 650 \\ - 200 \\ \hline 450 \end{array}$	$\begin{array}{r} 536 \\ - 300 \\ \hline 236 \end{array}$	$\begin{array}{r} 486 \\ - 300 \\ \hline 186 \end{array}$
---	---	---	---

c. Compensation method

Try these. Subtract mentally.

$$1) 94 - 49 = n \quad 2) 486 - 99 = n$$

Ask: What have you noticed with the subtrahends? How did you
get the difference mentally? Did you expand or by place
value?

The easier way to get the difference if the subtrahend ends with 9,
99, or 999 is the compensation method. (Recall the rule on
compensation method in Lesson 24.)

$\begin{array}{r} 94 + 1 = 95 \\ - 49 + 1 = 50 \\ \hline 45 \end{array}$	$\begin{array}{r} 486 + 1 = 487 \\ - 99 + 1 = 100 \\ \hline 387 \end{array}$
--	--

3. Processing the Activity

Ask:

- How do we subtract mentally without regrouping? with regrouping?
- Which is easier to use, expanded form, place value or the compensation method?
- What do you do when using the expanded method? place value method? compensation method?

- d. When do you use expanded method, place value method and compensation method in mental subtraction?
- e. In what ways does mental computation help you?

4. **Reinforcing the Concept**

- a. Group Activity: "What's the End?"

Divide the class into five groups. Give each group an activity card to work on. No paper and pencil will be used. Tell pupils to work cooperatively with their group. The first one to finish the task wins.

Activity Card 1

Mentally determine what should be inside the box at the end.

Start **End**

200

- 25

- 22

- 28

Activity Card 2

Mentally determine what should be inside the box at the end.

Start **End**

192

- 100

- 27

- 6

Activity Card 3

Mentally determine what should be inside the box at the end.

Start **End**

300

- 100

- 21

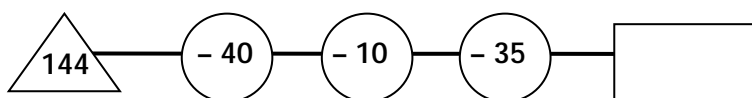
- 5

Activity Card 4

Mentally determine what should be inside the box at the end.

Start **End**

123



Activity Card 5

Mentally determine what should be inside the box at the end.

Start
End

b. Have pupils do Activity 1 inside LM by pairs

Answer Key: 1) 50 2) 24 3) 654 4) 66 5) 300 6) 500 7) 187
8) 330 9) 445 10) 220

c. Have pupils do Activity 2 in the LM individually. Check pupils' work.
Answer Key: 1) c 2) b 3) d 4) e 5) a

5. Summarizing the Lesson

How do we subtract mentally 2- to 3-digit numbers with multiples of hundreds without and with regrouping using appropriate strategies?

- To subtract numbers mentally without regrouping with subtrahend or both minuend and subtrahend that are multiples of tens or hundreds, subtract the numbers by place value either from left to right or right to left.
- To subtract numbers with regrouping, use the compensation method where numbers are added to both minuend and the subtrahend to make it a multiple of tens or hundreds then subtract. You can also use the expanded method in subtracting mentally 2-3 digit numbers.

a. Group Activity: **"Puzzle Time"**

Divide the class into five groups. Give each group a puzzle for them to work on. Discourage pupils from using paper but they can use pencil to write their answer in the puzzle. Monitor them to work cooperatively with their group. The first one to finish the task wins.

Mental Subtraction Puzzle

Solve the equations mentally. Then complete the puzzle.

1	2		3	4	
---	---	--	---	---	--

5		6		7	8
		9	10		
	11				
12			13		

Across

1. $74 - 12 =$
3. $91 - 39 =$
5. $501 - 349 =$
7. $71 - 48 =$
9. $30 - 17 =$
11. $660 - 160 =$
12. $85 - 57 =$
13. $39 - 22 =$

Down

1. $90 - 29 =$
2. $50 - 25 =$
4. $84 - 62 =$
6. $430 - 220 =$
8. $400 - 100 =$
10. $705 - 404 =$
11. $74 - 26 =$

Answer Key:

1 6	2 2		3 5	4 2	
5 1	5 5	6 2		7 2	8 3
		9 1	10 3		0
	11 4	0	0		0
12 2	8		13 1	7	

b. Have pupils do Activity 3 in the LM individually.

Answer Key: 1) 3; 19 2) 2; 34 3) 6; 49 4) 1; 31 5) 4; 45 6) 3; 38
7) 1; 55 8) 6; 80 9) 1; 135 10) 2; 125

C. Evaluation

Pupils work on Activity 4 in the LM. Check pupils' work.

Answer Key: 1) b 2) d 3) d 4) a 5) b

D. Home Activity

Give Activity 5 in the LM as assignment.

Answer Key: 1) No 2) No 3) Yes

Lesson 26 Solving One-Step Problems involving Subtraction

Week 9

Objective

Solve one-step word problems involving subtraction of whole numbers including money

Value Focus

Thrift

Prerequisite Concept and Skills

1. Subtracting 3-digit numbers without and with regrouping
2. Concept of subtraction
3. Analyzing word problems
4. Writing number sentences

Materials

Window cards, story on the chart, word problems

Instructional Procedures

A. Preliminary Activities

1. Drill

Flash cards on subtraction basic facts with 3–digit numbers

2. Review

Review the steps in problem solving. Then give sample problems to solve.

- a. Understand the problem
- b. Plan the solution procedure
- c. Carry out the plan
- d. Look back or check your answer

3. Motivation

Play "Give Me" game.

- Give each pupil a number card.
- Show a number then, announce: Give me two numbers that would give this sum.
- Pupils find their match by showing a pair of numbers that will give the sum.
- The first pair to give the correct numbers wins.

Example:

12

 →

5

 and

7

,

8

 and

4

Ask: What is the important thing that you should do to win the game?

B. Developmental Activities

1. Presenting the Lesson

Ask: What do you know about "piggy bank"?
Do you save money from the allowances you receive from your parents? Why do you have to save money?
Have them read the problem story.

Mommy gave Rico P30.00 last Friday. Rico spent P15.00 for his snacks. How much money was left?

Ask: What is asked in the problem?
What are you going to do?
What is the best strategy that you can use?
How are you going to do it?

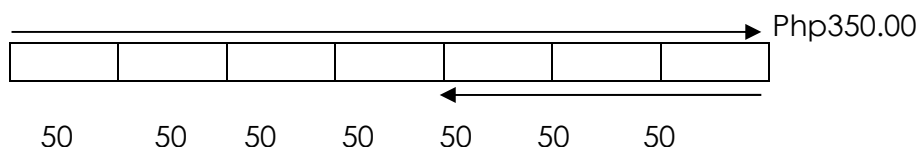
Discuss the steps in problem solving with pupils.

1. Understand
 - What is asked for? *The amount of money left as savings*
 - What are given? *PhP30.00 and PhP15.00*
2. Plan (Choose a strategy.)
 - What is the process to be used? *Subtraction*
 - What is the number sentence? *PhP30.00 – PhP15.00 = n*
3. Solve using the strategy
Answer the number sentence. *PhP15.00*
4. Check, find out if the answer is reasonable or is there another way of solving the problem. *The answer is correct. 15 and 15 will make 30.*

Give another example.

Mark has PhP350.00. He gave P150.00 to his friend Jose. How much money does he still have?

Have the pupils solve the problem using the steps in solving a problem.
 Point out that they may use other strategies to arrive at the answer.
 Say: Let us use this block in solving the problem. (Explain the steps.)



Solve:

The original cost of slippers is Php150.00. Avee bought a pair of slippers for Php35.00 less than the original cost. How much did she spend for the pair of slippers?

Illustrate: _____

Number Sentence: _____

Answer: _____

2. Performing the Activity

Form pupils into groups. Guide pupils in solving the word problems under Activity 1 in the LM. Always point out the steps in solving problems for every problem discussed. Discuss the different methods they will use in solving the problems.

Answer Key: 1) 11 pages 2) 18 straws 3) $642 - 246 = 396$

3. Processing the Activity

Ask: What did you do to solve the first word problem?
 What steps did you undertake?
 In what other ways of solving do you think the problem can be solved? Which of these is better to use? Why?

Discuss how the other problems were solved and the methods they used to solve these.

4. Reinforcing the Concept

Tell pupils to answer the word problems individually. Remind them to use the steps in problem solving.

- a. Allan's rope is 974 centimeters long while Tino's rope is 855 centimeters long. How many centimeters longer is Allan's rope than Tino's rope?

Solution: $974 - 855 = 119 \text{ cm}$

- b. What number is to be subtracted from 345 to get the difference of 123?

Solution: $345 - 123 = 222$, subtract 222 from 345 to get 123

5. Summarizing the Lesson

In solving problems:

- Analyze and solve word problems using different strategies like the Polya's method, block model and number line.

6. Applying to New and Other Situations

Have pupils work in pairs to solve the problem in Activity 2 in the LM.
Answers will vary depending on the height difference among pupils.

C. Evaluation

Tell the pupils to answer the word problems under Activity 3 in the LM.
Check their work.

Answer Key: 1) 19 eggplants 2 PhP691.00 3) 333

D. Home Activity

Have pupils analyze and solve the word problems in Activity 4 in the LM.

Answer Key:

- 1) PhP75.00
- 2) Pupils will create a problem using subtraction involving 15 big stars and 14 small stars

Lesson 27 Solving Two-Step Problems involving Addition and Subtraction

Week 9

Objective

Solve two-step problems involving addition and subtraction of whole numbers including money

Value Focus

Sharing

Prerequisite Concepts and Skills

1. Concept of addition
2. Concept of subtraction

3. Analyzing and solving one-step word problems involving addition and subtraction

Materials

Word problems on a chart, flash cards of addition and subtraction

Instructional Procedures

A. Preliminary Activities

1. Drill

Use the flash cards of addition and subtraction facts for the drill.

2. Review

Have the pupils read the problem.

There were 234 Grade 1 and 357 Grade 2 pupils in a school.

- How many pupils were there in all?
- How many more Grade 2 pupils are there than Grade 1 pupils?

Ask: What are asked for in the problem?
How will you solve the problem?
What are the possible ways of solving the problem?

3. Motivation

Have pupils form a three-part puzzle such as the one below. Provide them colored cut-outs to be pasted on hard paper. Commend pupils who formed the puzzle first.



Ask: What do you want to know about this picture?

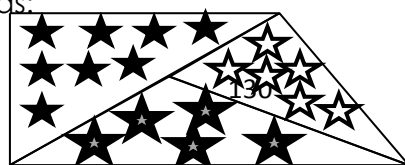
B. Developmental Activities

1. Presenting the Lesson

Use the parts of the puzzle in presenting the lesson.

Ask: How many stars are there in each part of the puzzle?
How many stars are there in the whole puzzle?

Use 2 or 3 parts of the puzzle each time you present a problem situation such as:



Ask: If you put all the stars altogether then take away 10 stars, how many stars would be left?
 What will you do to solve this problem?
 What steps are you going to use?

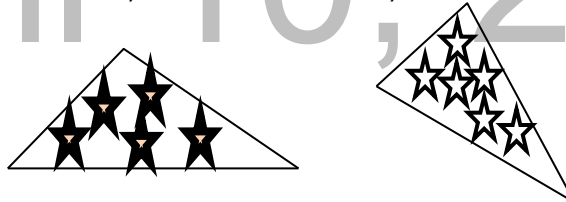
Say: Let's study the steps.

Understand	Plan	Solve	Look Back
What is asked? How many stars would be left	What process will be used? Addition and Subtraction	Answer the number sentence. $(8 + 5 + 6) - 10 =$ $19 - 10 = 9$	Check if the answer is reasonable. $9 + 10 = 19$
What are given? 8, 5, and 6	What is the number sentence? $(8 + 5 + 6) - 10 =$		

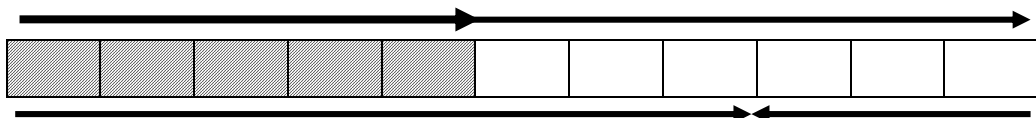
Discuss the process thoroughly with pupils.

Say: Here's another problem.

If you put together the black stars and white stars, and then take away 3 stars, how many stars would be left?



Ask: How will you illustrate/show your answer using this block?



What did you do?

Guide the pupils to find the answer using traditional counting. (Let pupils count each group of stars as represented by the blocks.)

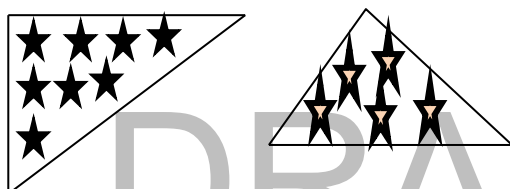
Ask: How many (stars) blocks are there in all?
Go back to the problem and ask pupils how many stars are to be taken away.

Say: From the last blocks let us count backwards to three. Now, count how many blocks are left.

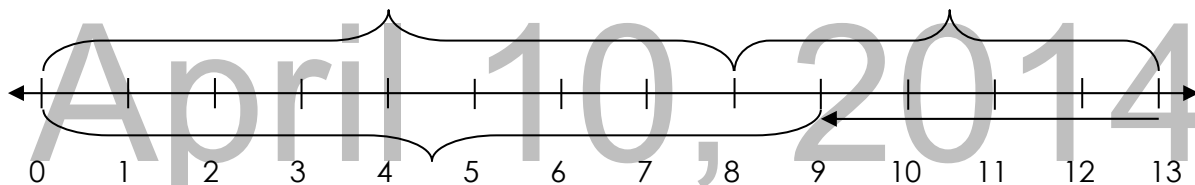
Tell pupils that the problem can also be solved using a number sentence. Guide them to illustrate the problem in symbols as
 $(5 + 6) - 3 = 8$.

Take another part of the puzzle.
Give this problem.

1. If you put the small and big stars together, then subtract 4 from the sum, how many stars would there be?



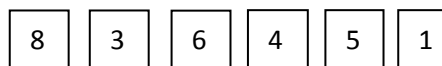
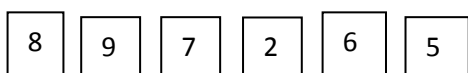
Ask: How will you illustrate/show your answer using this number line?



Lead the pupils to find the answer using traditional counting.
Tell them that the problem can be solved using a number sentence.
Guide them to illustrate the problem in symbols as
 $(8 + 5) - 4 = 9$.

Present another example.

Prepare number blocks to be used in this activity.
Tell the pupils to use the numbers in the number blocks and answer the questions given. Below are examples of the six faces of dice.



A

B

Ask: If you roll the number block twice in A and in B, what will happen? If in A, you got **7 and 6**, what is the sum? If in B, you got **8 and 9**, what is the sum? If you subtract the smaller sum from the bigger sum, what could be the answer?

Let pupils answer individually.

Give another problem.

Jose and Nilo went to the seashore to gather shells for their science project. Jose was able to gather 231 seashells while Nilo has 187 seashells. They put together their seashells and gave 115 seashells to Helena. How many seashells were left?

Emphasize the use of grouping symbols, in writing a number sentence in 2-step word problems.

Tell pupils that the hidden question is represented in symbols, such as the grouping symbols.

Using the puzzle parts, ask volunteers to make their own story problems and find the answer using the two methods learned.

2. Performing the Activity

Group pupils. Have them solve the problems in Activity 1 in the LM using Polya's method, number line or block model.

Answer Key:

- 1) $(12 + 12) - 15 = N$; $12 + 12 = 24$; $24 - 15 = 9$ eggs
- 2) $(224 + 216) - 325 = N$; $440 - 325 = 115$
- 3) $(\text{PhP}3\ 400 + \text{PhP}2\ 900) - \text{PhP}1\ 800 = N$;
 $\text{PhP}6\ 300 - \text{PhP}1\ 800 = \text{PhP}4\ 500$
- 4) $43 + 12 = 55$; $43 - 12 = 31$

3. Processing the Activity

Ask:

- a. What operations did you use in solving problem 1? 2? 3? 4?
- b. What grouping symbols did you use?
- c. What do these grouping symbols tell?
- d. What steps did you follow in solving the word problems?
- e. What different ways did you use to solve the problem?

4. Reinforcing the Concept

Call on pupils to do the exercises in Activity 2 of the LM. Guide pupils in solving the word problems using the different strategies.

Answer Key:

- 1) $(673 + 75) - 569 = 179$ 2) $(\text{PhP1 } 457 + \text{PhP985}) - \text{PhP895} = \text{PhP1 } 547$
3) $(\text{PhP1 } 500 + \text{PhP900}) - (\text{PhP950} + \text{PhP295}) = \text{PhP2 } 400 - \text{PhP1 } 245 = \text{PhP1 } 155$

5. Summarizing the Lesson

Ask: How do we solve two-step word problems involving addition and subtraction of whole numbers?

In solving two-step word problems involving addition and subtraction, the following steps are to be followed:

1. Read, understand, plan, and solve the problem then review/check your answer (Polya's method).
2. Use other ways or strategies in answering the problem such as the block model and number line.

6. Applying to New and Other Situations

Tell pupils to write an appropriate number sentence for the problem then solve.

Gina bought a pack of biscuit for PhP5.00 and a glass of gulaman for PhP5.00. If she was given PhP20.00 allowance that day, how much money did she still have?

C. Evaluation

Tell the pupils to answer the word problems in Activity 3 in the LM. Have pupils choose from any of the strategies in solving the word problems. Check pupils' answers.

Answer Key:

- 1) $(\text{PhP125.00} + \text{PhP36.00}) - \text{PhP100.00} = \text{PhP61.00}$
2) $(62 + 37) - 45 = 54$
3) $(\text{PhP5 } 500.00 + \text{PhP2 } 500.00) - \text{PhP6 } 500.00 = \text{PhP1 } 500.00$

D. Home Activity

Give Activity 4 in the LM as assignment. Check pupils' answers during the next meeting.

Answer Key:

- 1) $(45 + 50) - 35 = 60$ 2) $\text{PhP2 } 680 - (\text{PhP670.00} + \text{PhP56.00}) = \text{PhP1 } 954.00$

Lesson 28 Creating Problems Involving Addition

and Subtraction

Week 10

Objective

Create problems involving addition and/or subtraction of whole numbers including money with reasonable answers

Value Focus

Accuracy

Prerequisite Concepts and Skills

Steps in analyzing and solving word problems

Materials

Word problems involving addition and subtraction including money

Instructional Procedures

A. Preliminary Activities

1. Drill

Use flash cards of addition and subtraction facts.

2. Review

Use strips of paper with given data, number sentence and operation to be used. Then have pupils plot this on a chart.

Example:

- Ramon picked 16 guavas from one tree and 15 guavas from another tree. How many guavas did he pick in all?
- He gave 18 guavas to his friends. How many guavas were left?

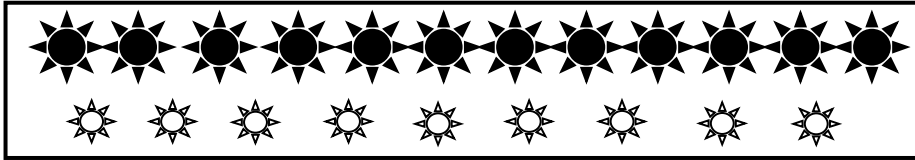
In all	16 and 15 guavas	$31 - 18 = n$	left
Subtraction	18 guavas	addition	$16 + 15 = n$

Operation	Given Facts	Number Sentence	Clue
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3. Motivation

Look at the picture in Activity 1 in the LM.



- Ask: What can you say about the picture?
 How many objects are big?
 How many objects are small?
 How many objects are there in all?
 If we remove 8 objects, how many would be left?

B. Developmental Activities

1. Presenting the Lesson

a. Tell pupils to perform the activity individually.

Say: Using the picture above, create a simple problem involving addition and subtraction processes.

1) Addition

--

2) Subtraction

--

3) Two-step procedure

--

Show another box with words/figures. Do the same procedure above.

Say: Create a simple problem using the data in the box.

b. Let pupils create a word problem in Activity 2 in the LM.

2. Performing the Activity

Form pupils into groups consisting of at least four pupils in each group. Create addition and subtraction word problems using the given data in Activity 3 in the LM.

3. Processing the Activity

Ask: How did you create one-step word problems involving addition and involving subtraction?

4. Reinforcing the Concept

Answer the exercise in pairs using the Activity 4 A in the LM. Compose word problems using the given data using addition and subtraction processes.

5. Summarizing the Lesson

Ask: What are the important things to remember in creating word problems?

Follow these steps in analyzing and solving word problems.

1. Determine what to find in the problem.
2. Determine the needed given facts.
3. Determine the operation to be used.
4. Identify the number sentence.
5. Find the answer to the problem.

6. Applying to New and Other Situations

Answer individually the exercise in Activity B in the LM. Create word problems using the given data in the LM involving addition and subtraction processes.

C. Evaluation

Give the exercise under Activity 5 in the LM. Let them answer individually. Pupils create word problems using the given data using addition and subtraction processes. Then, they solve the problem.

D. Home Activity

Give Activity 6 in the LM. Have pupils create word problems based on their expenses in a day using addition, subtraction and two-step process. Then have them solve the word problem.

Lesson 29 Visualizing Multiplication of the Numbers 6 and 7

Week 1

Objective

Visualize the multiplication of the numbers 6 and 7

Value Focus

Orderliness

Prerequisite Concepts and Skills

1. Multiplication tables from 1, 2, 3, 4, and 5
2. Concept of getting the product from the multiplicand and multiplier

Materials

1. Multiplication sentence on the chart and flash cards of multiplication tables from 1, 2, 3, 4, and 5
2. Manipulatives like popsicle sticks, flats and longs, etc.

Instructional Procedures

A. Preliminary Activities

1. Drill

Use the flashcards of multiplication tables from 1, 2, 3, 4, and 5 for the drill.

2. Review

In $4 \times 2 = 8$, which is the multiplicand? the multiplier? the product?

Have the pupils complete some multiplication sentences on the board.

1) 3	2) 4	3) 5	4) 6	5) 7
x 1	x 2	x 3	x 4	x 5
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3. Motivation

Ask:

What are the things that you need during art activities?

After you finished your art activities, what do you do with your materials? Why do you have to do this?

B. Developmental Activities

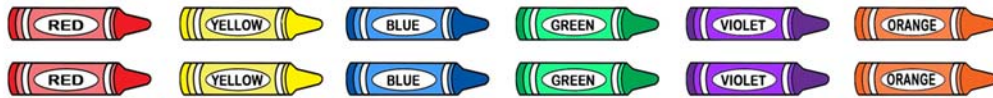
1. Presentation

Have the pupils read the story problem in LM.

Carla has crayons: 2 red, 2 yellow, 2 blue, 2 green 2 violet and 2 orange crayons. How many crayons does Carla have?

Ask: How many crayons are there?

Say: These are Carla's crayons.



red yellow blue green violet orange

Ask: How many groups of crayons are there?
How many crayons are there in each group?
How many crayons are there in all?

2 2 2 2 2 2

Say: There are 6 groups of crayons.
There are 2 crayons in each group.

$$2 + 2 + 2 + 2 + 2 + 2 = 12$$

Ask: How many groups of two's are there? (*6 groups of two's*)
This is the way we write the multiplication sentence: $6 \times 2 = 12$
So, 6 groups of two's is $6 \times 2 = 12$

Repeated addition sentence: $2 + 2 + 2 + 2 + 2 + 2 = 12$

Multiplication sentence: $6 \times 2 = 12$

Show another set of boxes with circles. Do the same procedure above.



$$3 + 3 + 3 + 3 + 3 + 3 = 18$$

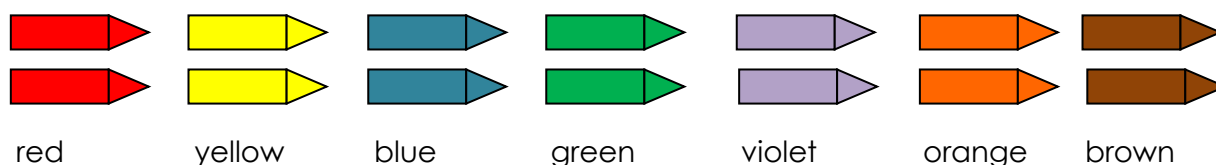
Ask: How many groups of circles are there? (*6*)
How many circles are there in each group? (*3*)
How many circles are there in all? (*18*)

This is the way we write the multiplication sentence: $6 \times 3 = 18$

Repeated addition sentence: $3 + 3 + 3 + 3 + 3 + 3 = 18$

Multiplication sentence: $6 \times 3 = 18$

Ask: What if you will add 2 more brown crayons, how many crayons will there be?



Repeated addition sentence: $2 + 2 + 2 + 2 + 2 + 2 + 2 = 14$

Multiplication sentence: $7 \times 2 = 14$ crayons

Show another box with circles. Do the same procedure above.



$3 + 3 + 3 + 3 + 3 + 3 + 3 = 21$

Repeated addition sentence: $3 + 3 + 3 + 3 + 3 + 3 + 3 = 21$

Multiplication sentence: $7 \times 3 = 21$ circles

2. Performing the Activities

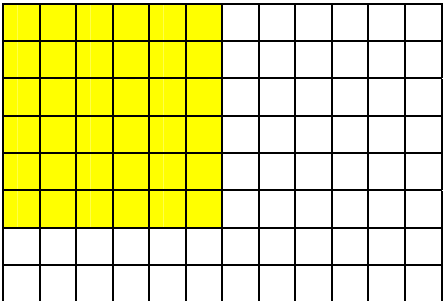
Divide the class into 4 groups. Let each group complete the activity given to them. Encourage pupils to use other objects to visualize multiplication of the numbers 6 and 7.

Group 1 – Ask the group to draw objects to show multiplication.

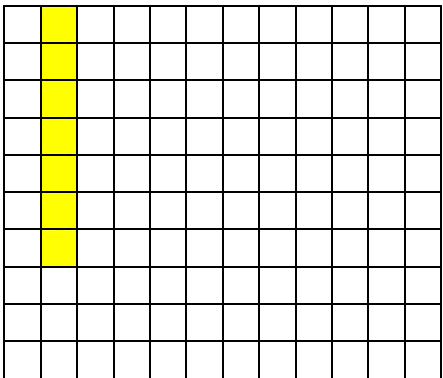
	Illustration (using objects)	Repeated addition sentence	Multiplication sentence
6 groups of 1		$1 + 1 + 1 + 1 + 1 + 1 = 6$	$6 \times 1 = 6$
6 groups of 2			
6 groups of 3			
6 groups of 4			

6 groups of 5			
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Group 2 – Provide enough graphing paper/s and let them color the squares to show multiplication.

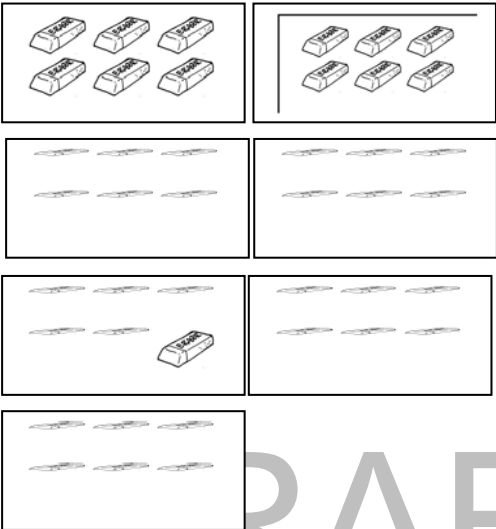
	Illustration (using array)	Repeated addition sentence	Multiplication sentence
6 groups of 6	 <p>6 rows with 6 squares in each row</p>	$6 + 6 + 6 + 6 + 6 + 6 = 36$ $6 \times 6 = 36$	
6 groups of 7			
6 groups of 8			
6 groups of 9			
6 groups of 10			

Group 3 – Provide enough graphing paper/s and let them color the squares to show multiplication.

	Illustration (using array)	Repeated addition sentence	Multiplication sentence
7 groups of 1	 <p>7 rows with 1 square in each row</p>	$1 + 1 + 1 + 1 + 1 + 1 + 1 = 7$ $7 \times 1 = 7$	
7 groups of 2			

7 groups of 3			
7 groups of 4			
7 groups of 5			

Group 4 – Provide enough graphing paper/s and let them color the squares to show multiplication.

	Illustration (using objects)	Repeated addition sentence	Multiplication sentence
7 groups of 6			$7 \times 6 = 42$
7 groups of 7			
7 groups of 8			
7 groups of 9			
7 groups of 10			

3. Processing the Activities

What did your group do in visualizing multiplication of the numbers 6 and 7?

Group 1?

Group 2?

Group 3?

Group 4?

How is repeated addition related to multiplication sentence?

What is a multiplier? multiplicand? product?

4. Reinforcing the Concept

Let the pupils answer Activity 1 and 2 in LM in pairs.

5. Summarizing the Lesson

What is multiplication?

How do we get the product in multiplication?

What is a multiplier? multiplicand?

a. Multiplication is repeated addition.

- b. To get the product in multiplication, multiply the multiplicand by the multiplier.
- c. **Multiplier** tells the number of times a number is to be added or the number of sets/groups while **multiplicand** is the number to be added or the number of elements in a set.

6. Applying to New and Other Situations

Lead pupils to complete multiplication sentences with the correct product in Activity 3 in the LM.

7. Evaluation

Tell the pupils to answer the Activity 4 in the LM individually.

8. Home Activity

Let pupils do Activity 5 in the LM.

Answer Key: 1) 18 2) 42 3) 8 4) 9 5) 54

Lesson 30 Visualizing Multiplication of the Numbers 8 and 9

Week 1

Objective

Visualize the multiplication of the numbers 8 and 9

Value Focus

Sharing

Prerequisite Concepts and Skills

1. Concept of multiplication tables from 1, 2, 3, 4, and 5
2. Concept of getting the product from the multiplicand and multiplier

Materials

Flash cards of multiplication tables from 1, 2, 3, 4, 5, 6 and 7

Instructional Procedures

A. Preliminary Activities

1. Drill

Use the flashcards of multiplication tables from 1, 2, 3, 4, and 5 for the drill.

2. Review

Multiply:

	Product
6×4	
6×7	
7×3	
7×5	
7×8	

3. Motivation

Show a picture of a girl.

Say: This is Mary Ann. She likes to share whatever snack she has for her "*baon*" with her classmates.

Do you also share things like Mary Ann? What are the things that you like to share? Why is it good to share some of your things like food, toys, etc.?



B. Developmental Activities

1. Presentation

Have the pupils read the story problem below (also found in the LM).

Mary Ann's mother bought 8 boxes of donuts for Maryann's birthday party. If there were 6 donuts in a box, how many donuts were there in all ?

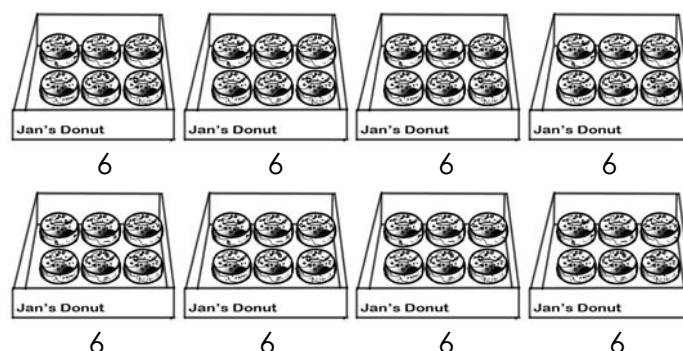
Ask: How are you going to solve the problem?

Ask: How many boxes were there? _____

How many donuts in each box? _____

How many donuts are there in all? _____

Let's illustrate:

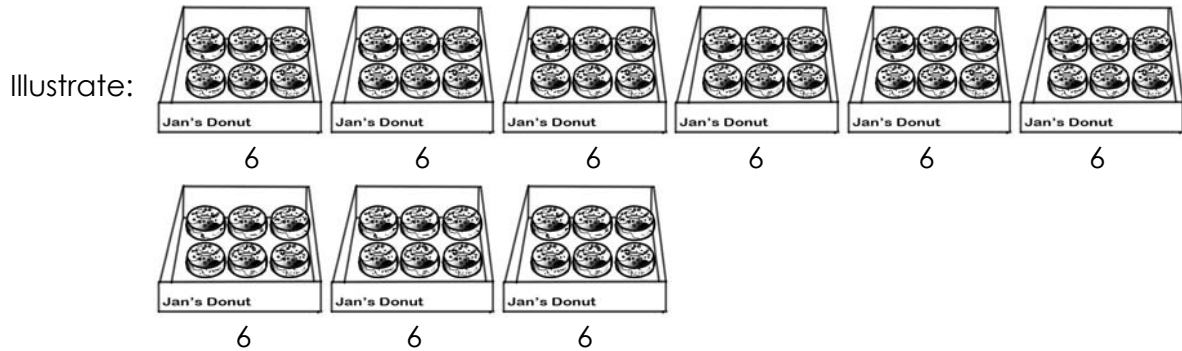


Repeated addition sentence: $6 + 6 + 6 + 6 + 6 + 6 + 6 + 6 = 48$

Multiplication Sentence: $8 \times 6 = 48$ donuts

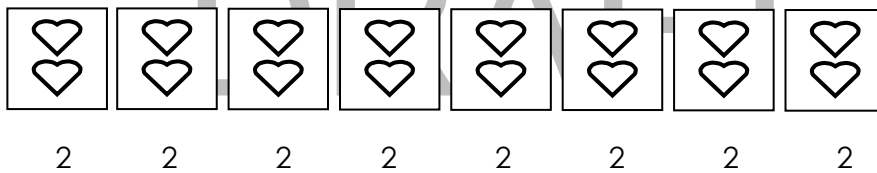
Say: There are 8 boxes.
 Each box has 6 donuts.
 There are 48 donuts altogether.

Ask: What if there were nine boxes with 6 donuts, how many donuts are there?



Repeated addition sentence: $6 + 6 + 6 + 6 + 6 + 6 + 6 + 6 + 6 = 54$
 Multiplication sentence : $9 \times 6 = 54$ donuts

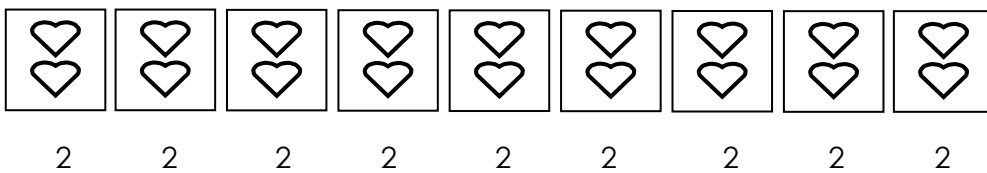
Show another set of boxes with s in each. Do the same procedure above.



Ask: How many boxes are there?
 How many s are there in each box?
 How many s are there in all? (16)

Write: Repeated addition sentence: $2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 = 16$
 Multiplication sentence: $8 \times 2 = 16$

Show another set of boxes with s in each. Do the same procedure above.



Ask: How many boxes are there?
 How many s are there in each box?
 How many s are there in all? (18)

Write: Repeated Addition sentence: $2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 = 18$
 Multiplication sentence : $9 \times 2 = 18$

2. Performing the Activities

Divide the class into groups. Let them complete the multiplication table of 8 and 9 in LM Activity 1 in the LM. Discuss their answers afterwards.

3. Processing the Activities

What did you do in visualizing multiplication of the numbers 8 and 9?

How is repeated addition related to multiplication sentence?

What is a multiplier? multiplicand? product?

Let pupils identify the multiplier, multiplicand and product in some of the multiplication sentences.

4. Reinforcing the Concept

Let pupils answer Activity 2 in the LM by pairs. Discuss their answers afterwards.

5. Summarizing the Lesson

What is multiplication?

How do we get the product in multiplication?

What is a multiplier? multiplicand?

- a. Multiplication is repeated addition.
- b. To get the product in multiplication, multiply the multiplicand by the multiplier.
- c. **Multiplier** tells the number of times a number is to be added or the number of sets/groups while **multiplicand** is the number to be added or the number of elements in a set.

6. Applying to New and Other Situations

Let pupils answer Activity 3 in the LM by pairs.

Answer Key:

1) Repeated addition: $3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 = 27$

Multiplication sentence: $9 \times 3 = 27$

2) Repeated addition: $5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 = 40$

Multiplication sentence: $8 \times 5 = 40$

3) Repeated addition: $6 + 6 + 6 + 6 + 6 + 6 + 6 + 6 + 6 = 54$

Multiplication sentence: $9 \times 6 = 54$

7. Evaluation

Let pupils answer Activity 4 in the LM individually in their notebook.

8. Home Activity

Assign Activity 5 in the LM.

Lesson 31 Stating Multiplication Facts for Numbers 1 to 10

Week 2

Objective

State multiplication facts for numbers 1 through 10

Value Focus

Be alert

Prerequisite Concepts and Skills

Basic facts in Multiplication 1 through 10

Materials

Flash cards of basic facts in multiplication

Instructional Procedures

A. Preliminary Activities

1. Drill

Tell the pupils to give the product. Use flash cards with multiplication facts 1 to 5.

e.g.

2×6	2×3	3×8	5×1	4×7
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2. Review

Lead the pupils in answering the activity.

Give the multiplication sentence for the given number phrase.

1. 3 rows of 2
2. 2 rows of 6
3. 4 sets of 5
4. 6 sets of 7
5. 9 groups of 4

3. Motivation

Ask: Is 4 rows of 2 the same as 4 sets of 2?

Is 3 sets of 5 the same as 5 sets of 3?

Prove your answer.

B. Developmental Activities

1. Presentation

Tell pupils to answer the basic facts in multiplication using window cards or worksheet or written on a Manila paper. e.g.

$\begin{array}{r} 6 \\ \times 2 \\ \hline \end{array}$	$\begin{array}{r} 4 \\ \times 5 \\ \hline \end{array}$	$\begin{array}{r} 9 \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} 4 \\ \times 4 \\ \hline \end{array}$	$\begin{array}{r} 8 \\ \times 8 \\ \hline \end{array}$	$\begin{array}{r} 4 \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} 3 \\ \times 3 \\ \hline \end{array}$
$\begin{array}{r} 2 \\ \times 5 \\ \hline \end{array}$	$\begin{array}{r} 8 \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} 7 \\ \times 4 \\ \hline \end{array}$	$\begin{array}{r} 8 \\ \times 2 \\ \hline \end{array}$	$\begin{array}{r} 5 \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} 6 \\ \times 5 \\ \hline \end{array}$	$\begin{array}{r} 5 \\ \times 7 \\ \hline \end{array}$
$\begin{array}{r} 6 \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} 8 \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} 6 \\ \times 4 \\ \hline \end{array}$	$\begin{array}{r} 8 \\ \times 4 \\ \hline \end{array}$	$\begin{array}{r} 2 \\ \times 5 \\ \hline \end{array}$	$\begin{array}{r} 2 \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} 9 \\ \times 7 \\ \hline \end{array}$
$\begin{array}{r} 9 \\ \times 6 \\ \hline \end{array}$	$\begin{array}{r} 6 \\ \times 0 \\ \hline \end{array}$	$\begin{array}{r} 2 \\ \times 3 \\ \hline \end{array}$	$\begin{array}{r} 4 \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} 3 \\ \times 8 \\ \hline \end{array}$	$\begin{array}{r} 5 \\ \times 4 \\ \hline \end{array}$	$\begin{array}{r} 3 \\ \times 9 \\ \hline \end{array}$

Call pupils to give the products.

Group the equation according to multiplication table.

2. Performing the Activity

Lead the pupils in answering Activity 1 in the LM in groups.

Directions:

1. The numbers in the 1st column are the multipliers while the numbers in the 1st row are the multiplicands.
2. Write the products in line with the multiplier.

After the groups have finished their work, call some pupils to answer the activity.

Call some pupils to recite the products of multiplication table 1, 2, 3, and so on.

3. Processing the Lesson

What is the process of stating the multiplication facts?

What is multiplication?

How do we get the product in multiplication?

4. Reinforcing the Concept

Call pupils to give the products of the number sentences in Activity 2 in LM on the board.

Answer Key: 1) 5 2) 18 3) 21 4) 16 5) 30 6) 6 7) 21 8) 64 9) 90 10) 20
11) 18 12) 32 13) 54 14) 80 15) 28

5. Summarizing the Lesson

What is multiplication?

How do we get the product in multiplication?

How do we get the product of numbers in the Table of 10?

Multiplication is repeated addition.

To get the product in multiplication, multiply the multiplicand to the multiplier.

6. Applying to New and Other Situations

Lead the pupils in answering Activity 3 in the LM individually.

Answer Key: Pupils' answers may vary

Sample answer:

A. 1) $2 \times 5 = 10$ 2) $5 \times 6 = 30$ 3) $5 \times 7 = 35$ 4) $6 \times 9 = 54$ 5) $7 \times 9 = 63$

7. Evaluation

Lead pupils to do Activity 4 in the LM individually.

Answer Key: 1) 12 2) 56 3) 60 4) 16 5) 63 6) 21 7) 30 8) 35 9) 36 10) 40
11) 40 12) 81 13) 14 14) 24 15) 36 16) 3 17) 27 18) 24 19) 48 20) 12

8. Home Activity

Let pupils do Activity 5 in the LM.

Answer Key: 1) 10 2) 27 3) 5 4) 35 5) 10 6) 8 7) 24 8) 2 9) 80 10) 6

Lesson 32 Commutative Property of Multiplication

Week 2

Objective

Apply the commutative property of multiplication

Value Focus

Accuracy

Prerequisite Concepts and Skills

Multiplication tables 1 to 10

Materials

Flash cards of multiplication sentences

Instructional Procedures

A. Preliminary Activities

1. Drill

Use flashcards of basic multiplication facts.

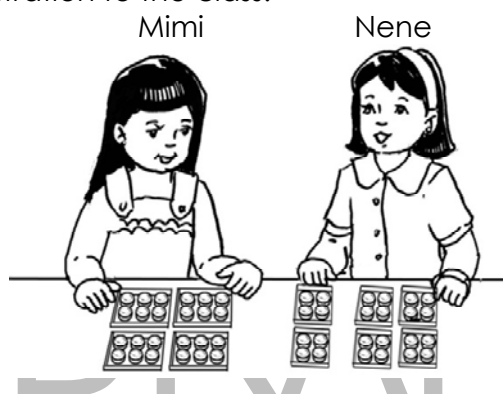
2. Review

Have some pupils recite the multiplication table from 1 to 10 through a game entitled "Who am I?"

Example: My factors are 3 and 4, what number am I?

3. Motivation

Show the illustration to the class.



Ask: What can you see in the picture?

How many boxes of bread did Mimi arranged? How many pieces of bread are there in each box?

How many pieces of bread did Mimi arranged in all?

How many boxes of bread did Nene arranged? How many pieces of bread are there in each box?

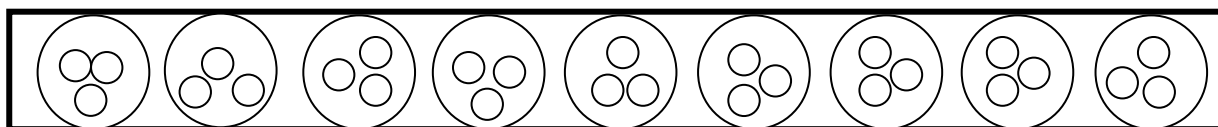
How many pieces of bread did Nene arranged in all?

Do they have the same number of pieces?

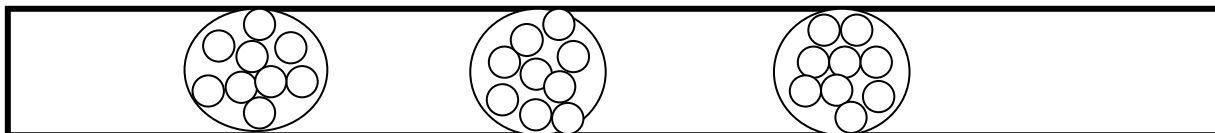
B. Developmental Activities

1. Presenting the Lesson

Say: Let pupils look at the similar illustration in Lesson 32 of the LM. Have them study the given data. Ask pupils to write the multiplication sentence for each set of objects.



Multiplication sentence: 9×3



Multiplication sentence: _____

Ask: If you are to put a relation symbol in between the two number sentences, what would that be: $>$, $<$ or $=$? Why?

How did you determine the pairs of multiplication facts?

Why did you say that the numbers are in pairs?

What are these pairs of numbers?

Let's study another example:

$$\begin{array}{ccc} 3 \times 4 & \text{is equal to} & 4 \times 3 \\ 12 & & 12 \end{array}$$

Therefore: $3 \times 4 = 4 \times 3$
 $12 = 12$

Ask: What did you notice about the factors?

How about the product?

Say: The position of the factors changes but the product is the same.

This property of multiplication is called **commutative property**.

If the given equation is 5×2 , what will be the other equation that exhibits the commutative property?

2. Performing the Activity

Lead the pupils to perform Activity 1 in the LM. Have them work in pairs.

Guide pupils while doing the activity. Answer the activity afterwards. Clarify misconceptions if necessary.

Answer Key: 1) e 2) f 3) b 4) a 5) d

3. Processing the Activity

Ask: What is the commutative property of multiplication?

How do we apply the commutative property of multiplication?

4. Reinforcing the Concept

Lead pupils to name the missing factors in Activity 2 in the LM.

Answer Key: 1) 4 2) 5 3) 6 4) 4 5) 7

5. Summarizing the Lesson

What is the commutative property of multiplication?

How do we apply the commutative property of multiplication?

The **commutative property of multiplication** states that the order of the given factors does not affect the product or changing the order of the factors does not change the product.

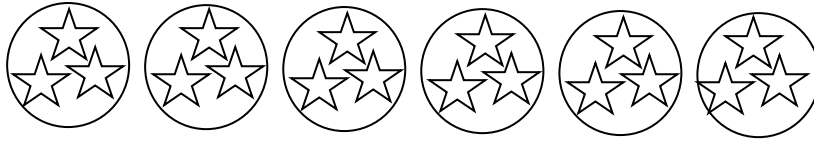
Example: $9 \times 3 = 3 \times 9$

6. Applying to New and Other Situations

Guide pupils in answering Activity 3 in the LM. Provide similar situations if necessary.

Answer Key:

Lilibeth's stars: $6 \times 3 = 18$



Ana's stars:



$$\begin{aligned} 6 \times 3 &= 3 \times 6 \\ 18 &= 18 \end{aligned}$$

Lilibeth's stars is equal to Ana's stars

7. Evaluation

Tell the pupils to apply commutative property of multiplication by doing Activity 4 in the LM.

Answer Key: 1) d, 8 2) e, 45 3) a, 42 4) b, 48 5) c, 72

8. Home Activity

Assign Activity 5 in the LM as their homework.

Answer Key: 1) $8 \times 5 = 40$ 2) 7; 42 3) 7; 63 4) 4; 24 5) 9; 27 6) $2 \times 7 = 14$

Lesson 33 Distributive Property of Multiplication over Addition

Week 2

Objective

Multiply 2-digit numbers by 1-digit numbers using the distributive property of multiplication

Value Focus

Active participation and Orderliness

Prerequisite Concepts and Skills

1. Writing 2-digit numbers in expanded form
2. Basic multiplication facts
3. Adding 2- to 3-digit numbers

Materials

Flash cards, number sentences

Instructional Procedures

A. Preliminary Activities

1. Drill

Call five pupils and have them answer multiplication facts like 8×5 . Call on a new set of 5 pupils for every multiplication fact.

e.g.

$$3 \times 7$$

$$8 \times 9$$

$$6 \times 2$$

2. Review

Flash cards and call on pupils to give the expanded form of the number.

e.g.

$$37 = 30 + 7$$

$$76 = 70 + 6$$

3. Motivation

Present this situation:

I have 2 sets of 59 ribbons. How many ribbons do I have in all?

Ask: How can we get the answer to this problem?

B. Developmental Activities

1. Presenting the Lesson

Show the answer to 2×59 using repeated addition.

$$59 + 59 =$$

Say: Another way is by using the expanded form.

Call a pupil to write 59 in expanded form.

Call another pupil to multiply 50 by 2 and 9 by 2. Let them write the partial products. Ask them to add the partial products to get the final product.

$$\begin{array}{r} 59 = 50 + 9 \\ \times 2 \quad \times 2 \quad + \quad \times 2 \\ \hline 100 \quad 18 \end{array}$$

So, $100 + 18 = 118$

2. Performing the Activities

Have the pupils answer Activity 1 in the LM.

a. Use the first number for discussion.

$$\begin{array}{r} 12 \\ \times 4 \end{array} = 10 + 2$$

Say: When we write 12 we have the tens and the ones part (point to 10 and 2 while saying tens and ones). We now use the expanded form to multiply with 4.

Write $\times 4$ under 10 to show $12 = 10 + 2$

Multiply 4×10 . Write the product.

$$\begin{array}{r} 12 \\ \times 4 \end{array} = 10 + 2$$
$$\begin{array}{r} \times 4 \\ \hline 40 \end{array}$$

Write $\times 4$ under 2 and get the product

$$\begin{array}{r} 12 \\ \times 4 \end{array} = 10 + 2$$
$$\begin{array}{r} \times 4 \quad \times 4 \\ \hline 40 \quad 8 \end{array}$$

Say: Since $10 + 2 = 12$, then we also add 40 and 8 to get the product.

$$\begin{array}{r} 12 \\ \times 4 \end{array} = 10 + 2$$
$$\begin{array}{r} \times 4 \quad \times 4 \quad \times 4 \\ \hline 48 \quad = \quad 40 + 8 \end{array}$$

Let us try this:

$$\begin{array}{r} 25 = 20 + 5 \\ \times 2 = \times 2 \quad \times 2 \\ \hline 40 + 10 = 50 \end{array}$$

Give emphasis on multiplying multiples of 10 by 1-digit number. If possible, have a snappy exercise using flash cards. Give also exercises on multiplying with 0.

Have the pupils answer Activity 1 numbers 3 to 5 in pairs.

Answer Key:

3) $39 = 30 + 9$	4) $41 = 40 + 1$	5) $57 = 50 + 7$
$\times 5 = \times 5$	$\times 8 = \times 8$	$\times 3 = \times 3$
$150 + 45 = 195$	$320 + 8 = 328$	$150 + 21 = 171$

3. Processing the Activities

Call pupils to share how they solve numbers 3 to 5 of Activity 1.

Call on pupils to give each step of multiplying 2-digit number by 1-digit number.

Emphasize on "distributing" the multiplier over sum of the tens and ones and say that this is called the distributive property of multiplication.

4. Reinforcing the Concept

Have the pupils answer Activity 1 numbers 6 to 10 and Activity 2 in the LM.

Let them observe that it is easier to use the distributive property of multiplication especially if one of the factors is a 2-digit number.

Answer Key:

Activity 1:

6) $6 = 6$ $\times 54 = \times 50 + 4$ $300 + 24 =$ 324	7) $7 = 7$ $\times 93 = \times 90 + 3$ $630 + 21 =$ 651	8) $9 = 9$ $\times 82 = \times 80 + 2$ $720 + 18 =$ 738	9) $2 = 2$ $\times 79 = \times 70 + 9$ $140 + 18 =$ 158	10) $3 = 3$ $\times 68 = \times 60 + 8$ $180 + 24 =$ 204
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Activity 2:

1) $14 = 10 + 4$ $\times 2 = \times 2$ $20 + 8 =$ 28	2) $25 = 20 + 5$ $\times 5 = \times 5$ $100 + 25 =$ 125	3) $52 = 50 + 2$ $\times 2 = \times 2$ $100 + 4 =$ 104	4) $19 = 10 + 9$ $\times 3 = \times 3$ $30 + 27 =$ 57	5) $27 = 20 + 7$ $\times 4 = \times 4$ $80 + 28 =$ 108
6) $33 = 30 + 3$ $\times 2 = \times 2$ $60 + 6 =$ 66	7) $43 = 40 + 3$ $\times 2 = \times 2$ $80 + 6 =$ 86	8) $36 = 30 + 6$ $\times 5 = \times 5$ $150 + 30 =$ 180	9) $43 = 40 + 3$ $\times 6 = \times 6$ $240 + 18 =$ 258	10) $54 = 50 + 4$ $\times 7 = \times 7$ $350 + 28 =$ 378

5. Summarizing the Lesson

Ask: What is an easy way of multiplying 2-digit numbers by 1-digit numbers?

How do you use the distributive property?

- To multiply 2-digit numbers by 1-digit numbers easily, use the distributive property.
- We use the 1-digit number to multiply with the tens first, then with the ones and add. (Emphasize that this is used for mental computation.)

6. Applying to New and Other Situations

- Introduce the sentence game. Make multiplication sentences enough for the class.
- Write the multiplication facts, distributive form of the factors and their corresponding products separately on sheets of paper.

e.g.

43×6	$(40 \times 6) + (3 \times 6)$	258
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- Distribute the papers to the class. Make sure that all pupils will receive a sheet of paper.
- Tell the pupils to find their group mates so that the numbers written on the sheets of paper that they are holding will give them the same answer.
- Once they find their group mates, let them sit down together.
- Give the class only three minutes to do this. Remind them to find their group mates quietly and orderly.

After 3 minutes, the pupils will post their numbers on the board. Call each group to present their numbers. Let them explain why they put together those numbers.

Ask the pupils how the class performed/did the game. Why is it necessary to participate actively and in orderly manner?

C. Evaluation

Have pupils answer Activity 3 in the LM. Check their work.

Answer Key: 1) c 2) a 3) e 4) b 5) f

D. Home Activity

Ask pupils to do Activity 4 in the LM at home.

Answer Key:

1) $15 = 10 + 5$ $\times 9 = \begin{array}{r} \times \quad 9 \\ 90 + 45 = \\ 135 \end{array}$	2) $29 = 20 + 9$ $\times 2 = \begin{array}{r} \times \quad 2 \\ 40 + 18 = \\ 58 \end{array}$	3) $38 = 30 + 8$ $\times 7 = \begin{array}{r} \times \quad 7 \\ 210 + 56 = \\ 266 \end{array}$	4) $63 = 60 + 3$ $\times 3 = \begin{array}{r} \times \quad 3 \\ 180 + 9 = \\ 189 \end{array}$	5) $82 = 80 + 2$ $\times 4 = \begin{array}{r} \times \quad 4 \\ 320 + 8 = \\ 328 \end{array}$
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Lesson 34 Associative Property of Multiplication

Week 2

Objective

Multiply three 1-digit numbers by using the associative property of multiplication

Prerequisite Concepts and Skills

Basic multiplication facts, properties of multiplication

Materials

Flash cards with multiplication facts, ball or an improvised ball (e.g. made from crumpled paper/newspaper), picture of fruits with numbers

Instructional Procedures

A. Preliminary Activities

1. Drill

Let the pupils pass a ball or an improvised ball while singing a song learned in Music class. Say, "STOP" after they sang a few lines of the song. The pupil who

$$\begin{array}{r} 8 \\ \times 6 \\ \hline \end{array}$$

is handling the ball will answer one multiplication fact, e.g. 8×6 . Do this until they have finished singing the song or all the prepared items have been answered.

2. Review

Review pupils on multiplying 2-digit numbers by 1-digit numbers using the distributive property of multiplication. Formulate exercises where they supply the missing digit in the problem.

e.g. $18 \times 6 = (10 \times \underline{\quad}) + (\underline{\quad} \times 6) = \underline{\quad} + \underline{\quad} = \underline{\quad}$

3. Motivation

Draw a flower with 5 big petals on the board or Manila paper. Mark the

petals 1-5. Have pupils answer the multiplication facts, e.g. 7×3 and call on pupils to write their answers on the petals.

B. Developmental Activities

1. Presenting the Lesson

Divide the class into four groups. Let them listen to you and ask them to follow the directions carefully. Provide each group with the same three 1-digit number. The numbers are 6, 2, 5.

Let the pupils do the following:

- Form two circles on a piece of paper.
- Write your solution on the first circle. Multiply the first and second number. Then multiply your answer to the third number. What is the answer? Put a box on your final answer.
- Now, write your solution on the second circle. Multiply the second digit and third digit. Then, multiply their product with the first digit. What is the answer? Box your final answer.

Expected answer on the first circle:

$$\begin{aligned}(6 \times 2) \times 5 &= \\ 12 \times 5 &= 60\end{aligned}$$

Expected answer on the second circle:

$$\begin{aligned}6 \times (2 \times 5) &= \\ 6 \times 10 &= 60\end{aligned}$$

Let a pupil write on the board his/her solution and answer on the first circle. Let another pupil write on the board his/her answer on the second circle.

- Ask:
- What are the three 1-digit numbers? (6, 2, 5)
 - What did you do on the first circle?
 - What did you do on the second circle?
 - What did we use to group the factors? (*parentheses*)
 - Did we use the same numbers?
 - What can you say about the answers?

Discuss extensively that when grouping and multiplying the factors, we arrive at the same answer.

Present the steps in multiplying three 1-digit numbers using associative property.

To multiply three 1-digit numbers using associative property, here are the following steps:

- Multiply first the factors enclosed in parentheses.
- Multiply the answer to the remaining factor.

Ask this question.

What answers did you get?

Elicit this answer from the pupils.

When three numbers are multiplied, the product is the same regardless of the grouping of the factors.

(Put open and close parentheses for two 1-digit numbers that should be multiplied.)

Say: If a , b and c are the three numbers, then $a \times (b \times c) = (a \times b) \times c$.

Give more examples.

2. Performing the Activity

Divide the class into groups. Refer pupils to Activity 1 in the LM. Have them find the product of the numbers using associative property of multiplication.

Answer Key:

- 1) $3 \times 4 \times 2 = (3 \times 4) \times 2 = 3 \times (4 \times 2) = 24$
- 2) $1 \times 6 \times 6 = (1 \times 6) \times 6 = 1 \times (6 \times 6) = 36$
- 3) $4 \times 5 \times 6 = (4 \times 5) \times 6 = 4 \times (5 \times 6) = 120$
- 4) $6 \times 2 \times 3 = (6 \times 2) \times 3 = 6 \times (2 \times 3) = 36$
- 5) $9 \times 8 \times 5 = (9 \times 8) \times 5 = 9 \times (8 \times 5) = 360$

3. Processing the Activity

How did you find the activity? Do you find it easy/difficult to multiply three 1-digit numbers?

What steps do we follow in multiplying three 1-digit numbers by using the associative property of multiplication?

4. Reinforcing the Concept

Let the pupils do Activity 2 in the LM.

Let them find the product using the associative property of multiplication by grouping the first two factors first or by grouping the last two factors first before multiplying to the third factor.

Discuss their solutions and answers afterwards

Answer Key:

- 1) $2 \times 3 \times 5 = (2 \times 3) \times 5$ or $2 \times (3 \times 5) = 30$
- 2) $4 \times 7 \times 2 = (4 \times 7) \times 2$ or $4 \times (7 \times 2) = 56$
- 3) $6 \times 1 \times 4 = (6 \times 1) \times 4$ or $6 \times (1 \times 4) = 24$
- 4) $8 \times 5 \times 3 = (8 \times 5) \times 3$ or $8 \times (5 \times 3) = 120$
- 5) $9 \times 4 \times 5 = (9 \times 4) \times 5$ or $9 \times (4 \times 5) = 180$

5. Summarizing the Lesson

To multiply three 1-digit numbers using associative property:

- Multiply first the factors in parentheses.
- Multiply the answer to the remaining factor.
- When three numbers are multiplied, the product is the same regardless of the grouping of the factors.

6. Applying to New and Other Situations

Have pupils do the puzzle given in Activity 3 in the LM. Guide them in answering the puzzle.

Answer Key:

		¹ 5				
	² 4	³ 2		⁴ 4	9	
		⁵ 1	⁶ 2	0		
		⁷ 9		4		
⁸ 1	6	0			⁹ 7	2

C. Evaluation

Let the pupils answer Activity 4 in the LM on their paper.

Answer Key:

A. 1) □ 2) Δ 3) Δ 4) □ 5) Δ

B. 1) 3; 54 2) 8; 160 3) 7; 168 4) 2; 108 5) 8; 24

D. Home Activity

Let the pupils do Activity 5 in the LM. Check pupils' answers.

Answer Key:

$$1) (2 \times 8) \times \underline{3} = (2 \times 8) \times 3 = \underline{48}$$

$$2) (7 \times \underline{4}) \times 6 = 7 \times (4 \times 6) = \underline{168}$$

$$3) 5 \times (9 \times 2) = (\underline{5} \times 9) \times 2 = \underline{90}$$

$$4) (4 \times \underline{8}) \times 7 = 4 \times (8 \times \underline{7}) = \underline{224}$$

$$5) 6 \times (\underline{6} \times 3) = (6 \times \underline{6}) \times 3 = \underline{108}$$

Lesson 35 Multiplying 2- to 3-Digit numbers by 1-Digit Numbers without Regrouping

Week 3

Objective

Multiply 2- to 3-digit numbers by 1-digit numbers without regrouping

Value Focus

Cooperation

Prerequisite Concepts and Skills

1. Basic multiplication facts
2. Place value
3. Properties of multiplication

Materials

Flashcards, charts, activity cards, flats, longs and ones, place value mat/chart, 24 balls

Instructional Procedures

A. Preliminary Activities

1. Drill

Conduct a drill on basic multiplication facts using flash cards.
Use facts that are not yet mastered by the pupils.

2. Review

Review the parts of a multiplication sentence.
In the following multiplication sentences, box the multiplicand, encircle the multiplier, and underline the product.

1) $7 \times 8 = 56$

2) $4 \times 9 = 36$

3) $5 \times 10 = 50$

$$\begin{array}{r} 4) \quad 6 \\ \times 5 \\ \hline 30 \end{array}$$

$$\begin{array}{r} 5) \quad 8 \\ \times 6 \\ \hline 48 \end{array}$$

3. Motivation

Introduce the "Box that Ball" game to the class.

Form two groups of pupils with 12 members each. Give 12 balls to each group. Let them line up parallel to each other. Place one box opposite each group. At the given signal, each member will run towards the box, put one ball inside it then go back to the line. The first runner will tap the next runner's shoulder to signal that he will be the next. This will continue until the 12th

member has placed his/her ball in the box. The first group to finish will be declared winner.

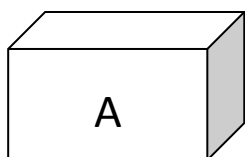
Valuing:

- Ask:
1. Which group won?
 2. What did the group do to become the winner?
 3. What caused the delay of the other group?
 4. What will you do next time?

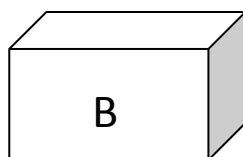
B. Developmental Activities

1. Presenting the Lesson

Post the problem on the board.



Box A has 12 balls.



Box B has 12 balls.

Ask: How many balls are there in box A? in box B?
How many balls are there in all?

2. Performing the Activities

Let us solve the problem in different ways:

- Using real objects/manipulatives

Ask 3 pupils to get the balls from box A and another 3 pupils to get the balls from box B. Let them count all the balls and write the answer on the board.

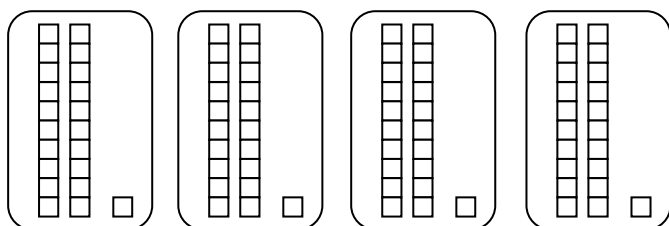
$$12 \text{ balls} + 12 \text{ balls} = 24 \text{ balls}$$

How will you write the addition sentence into a multiplication sentence? How many groups of 12 balls do we have?

$$2 \text{ groups of } 12 \text{ balls} \rightarrow 2 \times 12 = 24$$

Suppose you want to find how many are 4 groups of 21.

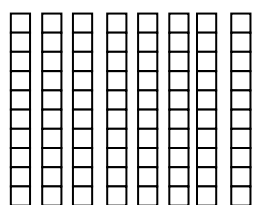
You can use you flats, longs and ones to represent the contents of the groups.



4 groups of 21

$$4 \times 21 = ?$$

Ask: How many ones are there? How many longs?
If we will place all the longs and ones together, what will be the product?



- ☐ What is the value of 8 longs? ($8 \times 10 = 80$)
- ☐ What is the value of 4 ones? ($4 \times 1 = 4$)
- ☐ So, what is the total value of 8 longs and 4 ones?
- ☐ $8 \text{ longs} + 4 \text{ ones} \rightarrow 80 + 4 = 84$
- ☐ So, $4 \times 21 = 84$

- Using Place Value/Long Method

We can also write 4×21 in vertical form. Which of the two factors is the multiplicand? multiplier?

$$\begin{array}{ccccccc}
 4 & \times & 21 & = & 84 & \rightarrow & 21 - \text{multiplicand} \\
 \downarrow & & \downarrow & & \downarrow & & \times 4 - \text{multiplier} \\
 \text{multiplier} & & \text{multiplicand} & & \text{product} & & 84 - \text{product}
 \end{array}$$

How will you multiply the numbers in vertical form?

We will do it by place value.

tens	ones
2	1
x	4
	4

Multiply the digits in the ones place. ($4 \times 1 = 4$)

Place the answer in the ones place.

tens	ones
2	1
x	4
8	4

Then, multiply the multiplier by the digit in the tens place. ($4 \times 2 = 8$)

Place the answer in the tens place.

So, the product is 84.

3. Processing the Activities

Ask: Did we get the same answer using the two methods?
Which of the two do you like more? Why?
Can you also use repeated addition in getting the product?
How do we multiply numbers using the place value method?
Where do we start multiplying? In what place value do we always start?

4. Reinforcing the Concept

a. Group Activity

Now, let us try to get the product of more numbers.

Divide the class into 2. Give each group an activity card. One group will use the manipulative method to get the product and the other group will

do the place value method. Have one pupil from each group to be a leader and report to the class their answer.

Activity Card 1

Find the product using flats, longs and ones.

a. 34×2

b. 232×3

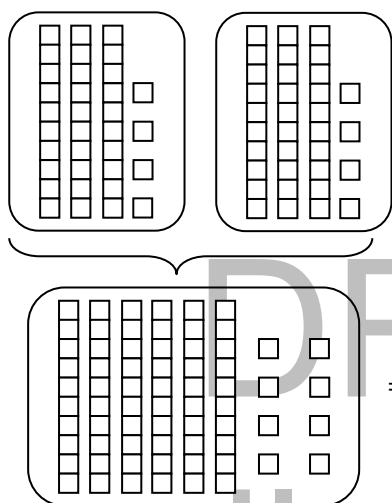
Activity Card 2

Find the product using the place value method.

a. 34×2

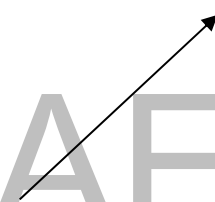
b. 232×3

Expected answers:

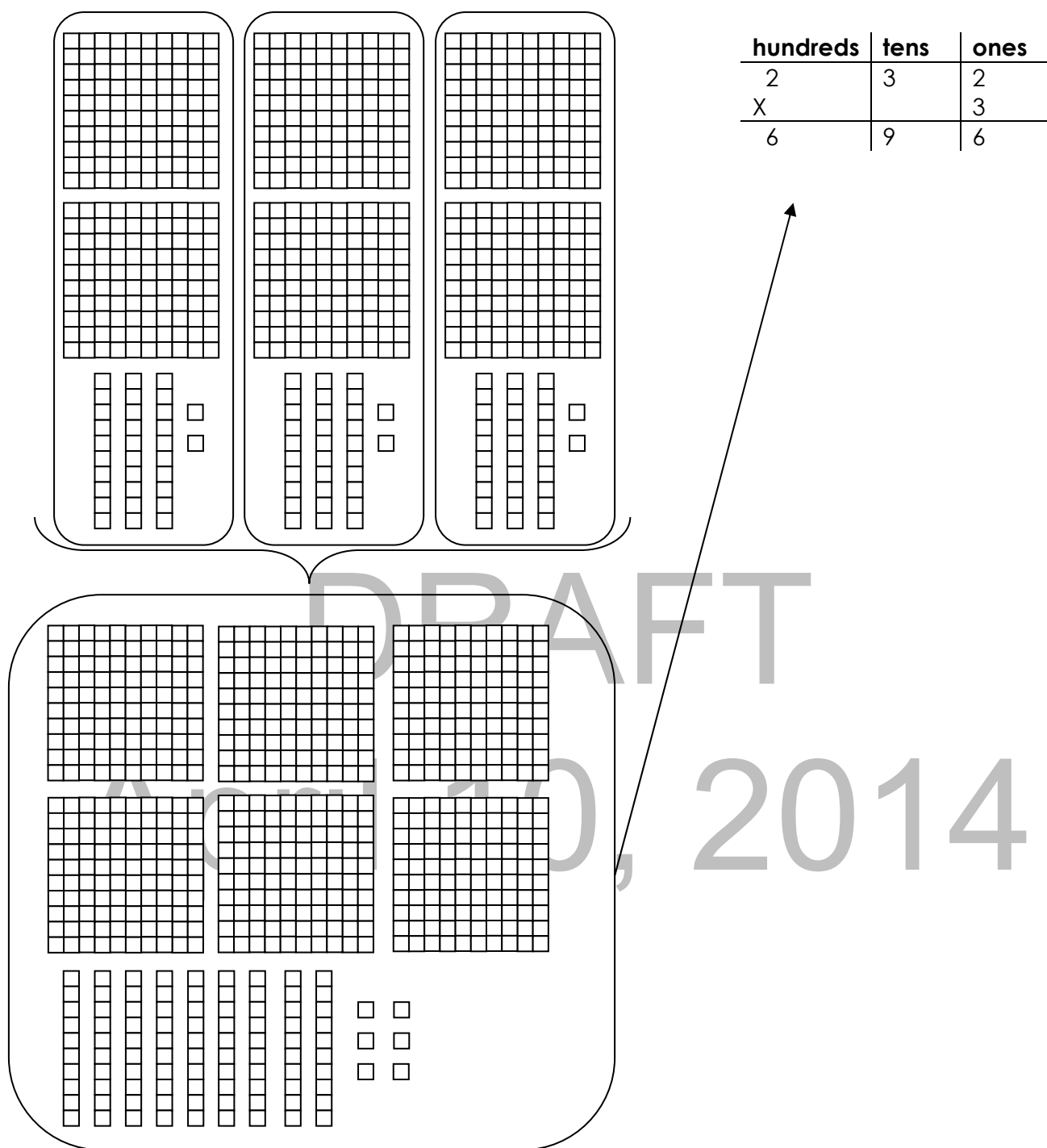


= 68

tens	ones
3	4
x	2
6	8



DRAFT
April 10, 2014



b. Pair Activity

Have the pupils answer Activity 1 in their LM by pair. Let them use their flats, longs and ones in finding the product.

Answer Key:

1) 84 2) 99 3) 69 4) 488 5) 484

c. Individual Activity

Have the pupils answer Activity 2 in their LM individually. Let them use the place value method to get the product.

Answer Key:

1) 48 2) 86 3) 159 4) 1 648 5) 628

5. Summarizing the Lesson

Ask: How do we multiply 2- to 3-digit numbers by 1-digit numbers without regrouping?

In multiplying 2- to 3-digit numbers by 1-digit numbers without regrouping, remember the following steps:

- Multiply the ones. Write the product under the ones place.
- Then, multiply the digit in the tens place by the multiplier. Write the product under the tens place.
- Lastly, multiply the digit in the hundreds place by the multiplier. Write the product under the hundreds place.

6. Applying to New and Other Situations

a. Group Activity

Divide the class in 5 groups. Let them choose a leader and a secretary. Give each group an activity card to solve. Let them use the place value method to get the answer. Then let each group post their work on the board. The leader will report to the class the solution and answer of their group.

Activity Card 1

Read and solve the problem. Show the solution and label your final answer.

The library has 3 shelves of books. Each shelf has 32 books. How many books are there in all?

Activity Card 2

Read and solve the problem. Show the solution and label your final answer.

There are 54 pieces of cotton buds in one pack. If there are 5 packs, how many pieces of cotton buds are there?

Activity Card 3

Read and solve the problem. Show the solution and label your final answer.

What is the product of 321 times 3?

Activity Card 4

Read and solve the problem. Show the solution and label your final answer.

There were 123 Cab Scouts went on a tour. Each Cab Scout brought back 2 kinds of leaves for the show and tell. How many leaves did they bring in all?

Activity Card 5

Read and solve the problem. Show the solution and label your final answer.

Kathleen collected 21 seashells. Kate Anne collected four times as many seashells as Kathleen has. How many seashells did Kate Anne collect in all?

b. Individual Activity

Have pupils work on Activity 3 in the LM. Check pupils' work.

Answer Key:

1) 33 2) 99 3) 93 4) 363 5) 69 6) 696 7) 336 8) 639

C. Evaluation

Ask pupils to work on the exercises under Activity 4 in the LM.

Answer Key:

1) 128 2) 624 3) 448 4) 309 5) 84

D. Home Activity

Give Activity 5 in the LM as assignment. Check pupils' work.

Answer Key:

1) 96 2) 86 3) 48 4) 633 5) 848

Lesson 36 Multiplying 2- to 3-Digit Numbers by 1-Digit Numbers with Regrouping

Week 3

Objective

Multiply 2- to 3-digit numbers by 1-digit numbers with regrouping

Value Focus

Cooperation

Prerequisite Concepts and Skills

1. Basic multiplication facts
2. Concept of multiplication and its operation
3. Place value
4. Properties of multiplication

Materials

Flash cards, charts, activity cards, flats, longs and ones, place value mat/chart

Instructional Procedures

A. Preliminary Activities

1. Drill

Conduct a drill on basic multiplication facts using flash cards. Use facts that are not yet mastered by the pupils.

2. Review

Checking of assignment

3. Motivation

Invite pupils to a game: "Find my Product."

Make 2 sets of cards. The first set of cards is multiplication sentences while the other set is the answers to it. Distribute the cards to the pupils. Give the pupils 3-5 minutes to find their partners by finding the correct multiplication sentence with its correct product. The first pair to find his/her partner is the winner.

Examples of cards:

$12 \times 3 =$	$233 \times 3 =$	36	699	262
$42 \times 2 =$	$131 \times 2 =$	84	824	884
$32 \times 3 =$	$221 \times 4 =$	96	50	906
$22 \times 4 =$	$412 \times 2 =$	$10 \times 5 =$	$302 \times 3 =$	88

B. Development Activities

1. Presenting the Lesson

Pose a challenge: "What is the product of 28 and 4?"

Give them time to answer the question.

Call some pupils to tell their answers and ask how they came up with that answer. Let them explain their answer.

2. Performing the Activities

Ask: How did you know which of the two numbers is the multiplicand? multiplier?

If you exchange the position of the factors, is the product affected? What property of multiplication does it show?

Now, let us solve the problem using flats, longs and ones.

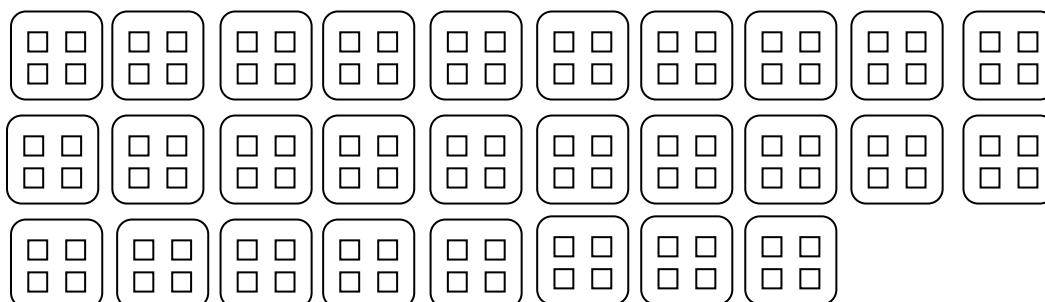
Ask: What will be our multiplication sentence?

(28×4 or 4×28)

What does 28×4 or 4×28 mean in terms of groups or sets?

(28 groups of 4 or 4 groups of 28)

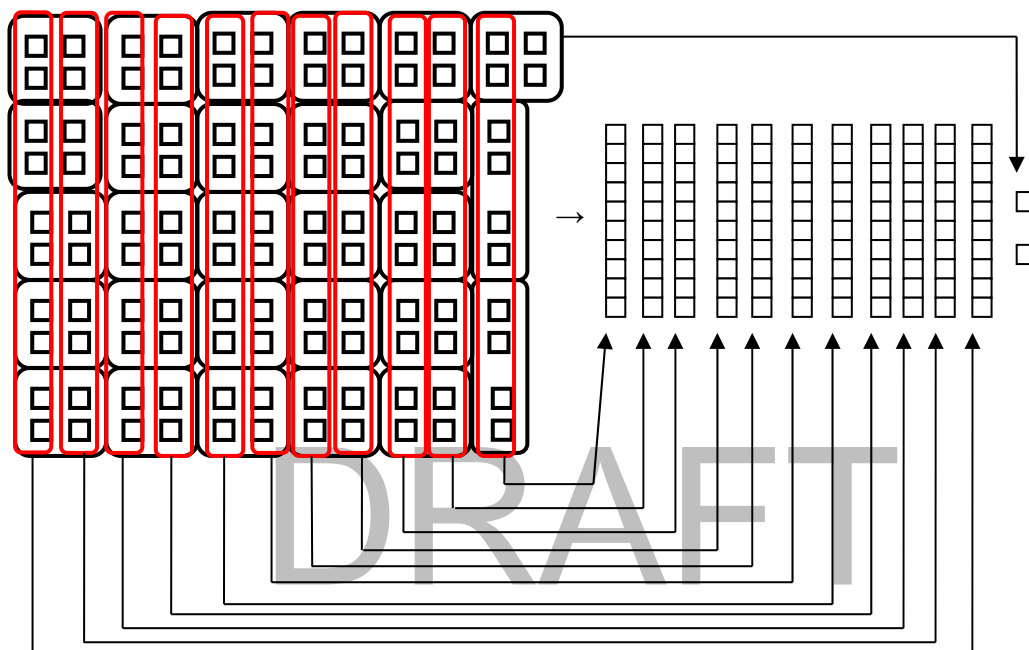
Divide the class into two. One group will do 28 groups of 4 and the other group will do 4 groups of 28. Supervise the pupils in doing the activity.



28 groups of 4

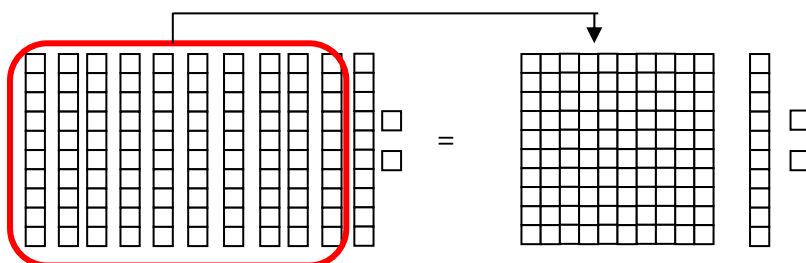
Ask: How many ones do you have in all?
 How many ones will make one long?
 How many longs can you make out of the 28 groups of 4?

Guide the pupils to trade 10 ones for one long and let them arrange the longs and the remaining ones.



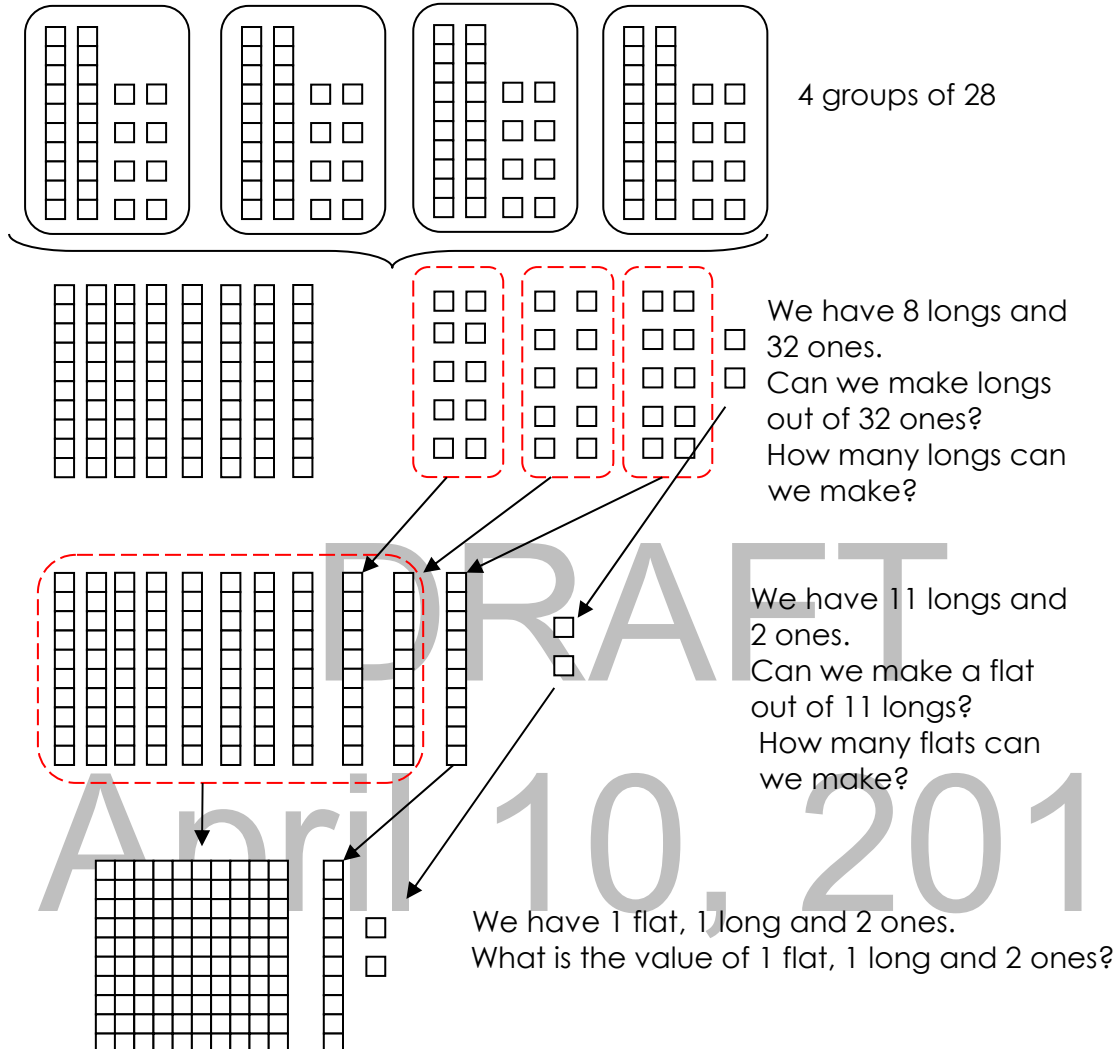
Ask: How many longs did we make? (11 longs)
 How many longs will make one flat? (10 longs)
 Can we make one flat out of 11 longs?

Let the pupils trade 10 longs with one flat.
 How many flats do you have now?
 How many longs are there?
 How many ones are there?
 So how many flats, longs and ones do we have in all?



What is the value of one flat, one long and two ones? (112)
 So what is 28×4 equal to? (112)

Let us try to see the other group.
 Did you get the same answer?



Did the two groups get the same answer?
 Does changing the position of the factors affect the product?
 Which one is easier, 28 groups of 4 or 4 groups of 28? Why?

What if you do not have flats, longs and ones to use? What will you do to get the answer? $4 \text{ groups of } 28 = 28 + 28 + 28 + 28 = 112$ but there are times when adding the same repeatedly becomes tiring. We can use the place value method or the long form of multiplication instead.

hundreds	tens	ones
	3	8
	2	4
x		2

Multiply the digits in the ones place. ($4 \times 8 = 32$)
 Regroup 32 ones as 3 tens and 2 ones.
 Place 2 under the ones place and carry 3 in the tens place.

hundreds	tens	ones
1	3	8
	2	4
x		2

Multiply the digit in the multiplier by the digit in the multiplicand in the tens place. ($4 \times 2 = 8$)
 Then add 3 to the product. ($8 + 3 = 11$)
 Regroup 11 tens as 1 hundred and 1 ten.
 Place 1 under the tens place and carry 1 in the hundreds place.

hundreds	tens	ones
1	3	8
	2	4
x		2
↓	1	2

Since there is no digit to be multiplied in the hundreds place, just bring down 1 in the hundreds place.
 What answer did we get?
 Did we get the same answer when we used flats, longs and ones?

Answer: 112

Ask: Now, how will you get the product of 234 and 4 using the place value method?

Let the pupils do the activity by pair and have some do it on the board.
 Guide them in doing the activity.

3. Processing the Activities

Did we get the same answer using flats, longs and ones; repeated addition and place value method?

Which of those methods do you like best? Why?

How do we multiply numbers using the place value method?

Where do we start multiplying? In what place value do we always start?

4. Reinforcing the Concept

a. Group Activity

Now, let us try to work on finding the product of more numbers.

Divide the class into 3. Give each group an activity card. One group will use the manipulative method to get the product; the second group will do the place value method; and the last group will use repeated addition method. Have each group choose a leader to present to the class their answer.

Activity Card 1

Find the product using flats, longs and ones.

a. 54×7

b. 325×6

Activity Card 2

Find the product using the place value method.

a. 54×7

b. 325×6

Activity Card 3

Find the product using repeated addition method.

a. 54×7

b. 325×6

Ask: Did we get the same answers?
Which method do you like best? Why?

b. Pair Activity

Have the pupils answer Activity 1 in their LM by pair. Let them use their flats, longs and ones in finding the product.

Answer Key:

1) 378 2) 315 3) 304 4) 1 308 5) 815

c. Individual Activity

Have the pupils work on Activity 2 of the LM individually. Let them use the place value method to get the product.

Answer Key:

1) 595 2) 320 3) 584 4) 2 864 5) 2 538

5. Summarizing the Lesson

Ask: How do we multiply 2- to 3-digit numbers by 1-digit numbers with regrouping?

In multiplying 2- to 3-digit numbers by 1-digit numbers with regrouping, remember the following steps:

- To multiply a number by a one-digit multiplier, multiply each digit in the multiplicand by the multiplier starting from the right. If the product or total in any place is 10 or more, regroup the last digit and add this digit to the next product.

6. Applying to New and Other Situations

a. Group Activity

Divide the class into five groups. Let them choose a leader and a secretary. Give each group an activity card to solve. Let them use the place value method to get the answer. Then let each group post their work on the board. The leader will report to the class the solution and answer of their group.

Activity Card 1

Read and solve the problem. Show the solution and label your final answer.

Nine dozen eggs are how many eggs?

Activity Card 2

Read and solve the problem. Show the solution and label your final answer.

Cora bought 145 ball pens that cost PhP8.00 each. How much did she pay for the ball pens?

Activity Card 3

Do as indicated. Show the solution and label your final answer.

Find the product of 370 and 9.

Activity Card 4

Read and solve the problem. Show the solution and label your final answer.

There were 348 pupils. Each of them sold 5 tickets for the school's variety show. How many tickets were sold?

Activity Card 5

Read and solve the problem. Show the solution and label your final answer.

How many days are there in 38 weeks?

b. Individual Activity

Have pupils work on Activity 3 in the LM.

Answer Key:

1) 1 224 2) 576 3) 288 4) 1 888 5) 152 6) 3 776 7) 2 592 8) 344

C. Evaluation

Have pupils work on Activity 4 of the LM. Check their work.

Answer Key: 1) 371 2) 498 3) 1 265 4) 2 808 5) 4 072

D. Home Activity

Give Activity 5 in the LM as assignment.

Answer Key: 1) 576 2) 438 3) 336 4) 2 928 5) 1 696

Lesson 37 Multiplying 2-Digit Numbers by 2-Digit Numbers without or with Regrouping

Week 3

Objective

Multiply 2-digit numbers by 2-digit numbers without or with regrouping

Value Focus

Taking care of things that are borrowed/given

Prerequisite Concepts and Skills

Multiplication tables from 1 to 10

Materials

Flash cards

Instructional Procedures

A. Preliminary Activities

1. Drill

Flash cards of basic multiplication facts.

Example:

$\begin{array}{r} 3 \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} 4 \\ \times 5 \\ \hline \end{array}$	$\begin{array}{r} 9 \\ \times 2 \\ \hline \end{array}$	$\begin{array}{r} 5 \\ \times 6 \\ \hline \end{array}$	$\begin{array}{r} 10 \\ \times 4 \\ \hline \end{array}$	$\begin{array}{r} 8 \\ \times 3 \\ \hline \end{array}$
--	--	--	--	---	--

2. Review

Let pupils give the product of the following:

$\begin{array}{r} 25 \\ \times 2 \\ \hline \end{array}$	$\begin{array}{r} 20 \\ \times 4 \\ \hline \end{array}$	$\begin{array}{r} 43 \\ \times 2 \\ \hline \end{array}$	$\begin{array}{r} 32 \\ \times 4 \\ \hline \end{array}$	$\begin{array}{r} 11 \\ \times 6 \\ \hline \end{array}$
---	---	---	---	---

3. Motivation

Let pupils do the puzzle below.

Message in Boxes

Multiply. Write the letter that is next to each answer in the correct box below. Read the secret message.

9 x 2 <div style="border: 1px solid black; display: inline-block; padding: 2px 10px;">A</div>	4 x 9 <div style="border: 1px solid black; display: inline-block; padding: 2px 10px;">E</div>	3 x 4 <div style="border: 1px solid black; display: inline-block; padding: 2px 10px;">H</div>	9 x 7 <div style="border: 1px solid black; display: inline-block; padding: 2px 10px;">O</div>	5 x 2 <div style="border: 1px solid black; display: inline-block; padding: 2px 10px;">R</div>
9 x 8 <div style="border: 1px solid black; display: inline-block; padding: 2px 10px;">S</div>	5 x 9 <div style="border: 1px solid black; display: inline-block; padding: 2px 10px;">T</div>	9 x 9 <div style="border: 1px solid black; display: inline-block; padding: 2px 10px;">U</div>	9 x 3 <div style="border: 1px solid black; display: inline-block; padding: 2px 10px;">W</div>	6 x 9 <div style="border: 1px solid black; display: inline-block; padding: 2px 10px;">Y</div>

Answer Key:

27	63	27
W	O	W

45	12	18	45
T	H	A	T

72	81	10	36
S	U	R	E

27	18	72
W	A	S

36	18	72	54
E	A	S	Y

B. Developmental Activities

1. Presenting the Lesson

Ask: Do you borrow books from your school library? If you borrow or were given a book, how do you take care of it? Why do we need to take care of things we borrowed or that are given to us?

Present this problem. Have children read the same problem found in their LMs.

The school librarian has bundled the books to be distributed to different grade levels and sections. There are 36 books in a bundle. How many books are there in 17 bundles?

Let pupils analyze the problem. Guide them with the following steps and questions.

■ Understand the problem

What is asked for in the problem? *(Total number of books)*

What are given? *(36 books in a bundle, 17 bundles)*

■ Plan

How can we find the answer?

Possible answers:

- by illustration/drawing.
- by repeated addition using number line
- by lattice method of multiplication
- by distributive property of multiplication
- by short method of multiplication

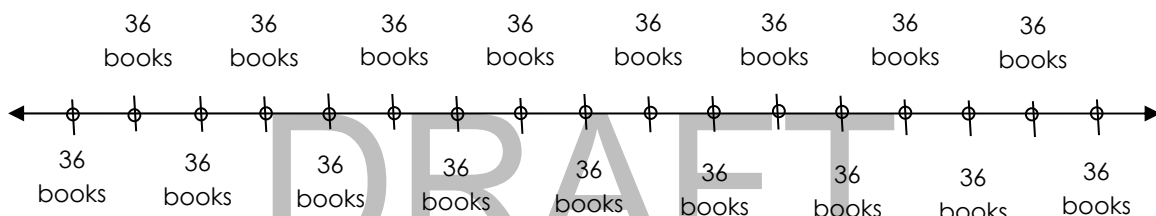
■ Carry out the plan

- By repeated addition using number line

Ask: Into how many equal parts should we divide the number line to show 17 bundles? (17 equal parts)

How many books were there in each bundle?

Let them illustrate. Let a pupil draw a number line. Guide them in dividing the number line into 17 equal parts



Let them count the total number of books using repeated addition.

$$36 + 36 + 36 + 36 + 36 + 36 + 36 + 36 + 36 + 36 + 36 + 36 + 36 + 36 + 36 + 36 + 36 = \underline{\hspace{2cm}}$$

Ask: How many books are there in all? What operation can we also use which means "repeated addition"? Let them write the number sentence.

- Distributive Property of Multiplication over Addition

Guide the class in finding the answer applying the distributive property of multiplication.

Call a pupil to write the factors vertically on the board. Let them write the factors in expanded form. Let them do the steps as shown below.

Step 1: Multiply the digit in the ones place in the multiplier to all the digits in the multiplicand.

$$\begin{array}{r}
 36 = (30 + 6) \\
 \times 17 = \times (10 + 7) \\
 \hline
 210 + 42
 \end{array}$$

$7 \times 6 = 42$

$7 \times 30 = 210$

Step 2: Multiply the digit in the hundreds place in the multiplier.

$$\begin{array}{r} 36 = (30 + 6) \\ \times 17 = \times (10 + 7) \\ \hline 300 + 60 \end{array}$$

$$10 \times 30 = 300$$

Step 3: Add the partial products.

$$\begin{array}{r} 36 = 30 + 6 \\ \times 17 = 10 + 7 \\ \hline 210 + 42 \\ + 300 + 60 \\ \hline 510 + 102 = 612 \text{ books} \end{array}$$

c. Multiplication using the short method.

Call a pupil to write the factors vertically. Relate what they had done in using distributive property of multiplication in doing the short method of multiplication. Guide them in doing the steps below.

Ask: What will we multiply first?

What will we multiply next? (Guide them again in writing the product.)

What will we do next?

Multiply the multiplicand by the ones in the multiplier.

Regroup if necessary. Write the product (252) beginning from the ones place.

Multiply the multiplicand by the tens in the multiplier.

Regroup if necessary. Write the product (360)

Multiply by ones. Multiply by tens.

$$\begin{array}{r} 36 \\ \times 17 \\ \hline 252 \\ 360 \end{array}$$

Add the two partial products.

$$\begin{array}{r} 36 \\ \times 17 \\ \hline 252 \\ + 360 \\ \hline 612 \end{array}$$

partial products

product

Ask: How many books were there in all? (*There are 612 books in all.*)

2. Performing the Activities

Divide the class into groups of 4. Assign groups to do one number sentence using any of the techniques or strategies learned.

	Using Repeated Addition	Using Distributive Property of Multiplication	Using the Short-Cut Method of Multiplication
$\begin{array}{r} 42 \\ \times 23 \\ \hline \end{array}$			
$\begin{array}{r} 58 \\ \times 34 \\ \hline \end{array}$			

3. Processing the Activities

Call some groups to show their solutions. Let them compare their solutions and answers.

Ask: How did your group solve the number sentence given to you?
Which solution or strategy is easier to use in finding the product? Why?
How can we multiply 2-digit numbers by 2-digit numbers without or with regrouping?

4. Reinforcing the Concept

Form pupils into groups. Let them answer Activities 1 and 2 in the LM.

Answer Key:

Activity 1: 1) $50 \times 32 = 1\,600$ 2) $72 \times 63 = 4\,536$ 3) $90 \times 85 = 7\,650$

Activity 2: 2) $40 \times 25 = 1\,000$ 3) $76 \times 15 = 1\,140$ 4) $22 \times 41 = 902$

5) $63 \times 24 = 1\,512$ 6) $28 \times 92 = 2\,576$

5. Summarizing the Lesson

Ask: How do you multiply 2-digit numbers by 2-digit numbers without or with regrouping?

- Multiply the 2-digit multiplicand by the ones of the multiplier. Regroup if necessary.
- Multiply the multiplicand by the tens of the multiplier. Regroup if necessary.
- Add the partial products to get the final product.

6. Applying to New and Other Situations

Lead pupils to complete multiplication sentences with the correct product in Activity 3 in the LM. In Activity 4, have them find the product then compare the products using $>$, $<$, or $=$.

4) $\underline{64} \times 4 = 256$; $(256 - 178) \times 5 = \underline{78} \times 5 = \underline{390}$

The sum of the four final products is 8 433.

Lesson 38 Multiplying Numbers by Multiples of 10 and 100

Week 4

Objective

Multiply 2- to 3-digit numbers by multiples of 10 and 100

Value Focus

Appreciate the value of giving and receiving

Prerequisite Skills

Multiplication of 2- to 3-digit numbers by 2- to 3-digit numbers; skip counting by 10s and by 100s

Materials

Flash cards, illustrations, multiplication table exercises written on cartolina

Instructional Procedures

A. Preliminary Activities

1. Drill

Skip Counting by 10s and by 100s

Complete the table below. (Skip counting by 10s)

10		30				70			100
110			140		160		180		
210	220			250				290	

Complete the table below. (Skip Counting by 100's)

100	200			500		700			1 000
1 100		1 300		1 500				1 900	2 000
2 100			2 400		2 600				

2. Review

Have the pupils recall the concept of multiplying 2-digit numbers by 2-digit numbers with regrouping.

Call on volunteer pupils to solve the following exercises on the board.

$$\begin{array}{r}
 1. \quad 56 \\
 \times 17 \\
 \hline
 \end{array}
 \quad
 \begin{array}{r}
 2. \quad 36 \\
 \times 55 \\
 \hline
 \end{array}
 \quad
 \begin{array}{r}
 3. \quad 26 \\
 \times 35 \\
 \hline
 \end{array}
 \quad
 \begin{array}{r}
 4. \quad 73 \\
 \times 39 \\
 \hline
 \end{array}
 \quad
 \begin{array}{r}
 5. \quad 35 \\
 \times 28 \\
 \hline
 \end{array}$$

B. Developmental Activities

1. Presenting the Lesson

Post the problem on the board.

Mrs. Rivera is listing items to buy for Christmas gifts. Let us help her complete the list.

Mrs. Rivera's Christmas List

Item	Number of Sets	Number of Pieces in Each Set	Total Number of Items
Pencil	12	10	
Paper	23	100	
Handkerchief	43	20	
Ballpen	50	30	
Bag	15	50	

Solving the problem in different ways:

a. By repeated addition

Guide the pupils to answer the first item on the list.

Ask: How many sets of pencils does Mrs. Rivera need?

How many items are there in each set of pencils?

Guide them to write the repeated addition sentence.

$$10 + 10 + 10 + 10 + 10 + 10 + 10 + 10 + 10 + 10 + 10 + 10 = 120$$

Ask the one group to complete the table by adding the number of items as many times as given in the number of sets.

b. By multiplying the number of pieces and the number of sets

- Using the short-cut method of multiplication with multiples of 10 and 100 by annexing the zero in the product.

Multiply the non-zero digits in the factors then annex as many zeros as there are in the factor which is a multiple of 10 or 100.

e.g. $12 \times 10 = 120$ (add one zero)

$$\begin{array}{r}
 \downarrow \quad \downarrow \quad \uparrow \\
 12 \times 1 = 12
 \end{array}$$

Ask another group to complete the table by using multiplication.

2. Performing the Activity

Call on volunteer pupils to solve the following exercises on the board, and then, explain their solutions to the class.

$$\begin{array}{r} 1. \quad 34 \\ \times 20 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 622 \\ \times 10 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 114 \\ \times 80 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 352 \\ \times 400 \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 426 \\ \times 200 \\ \hline \end{array}$$

3. Processing the Activity

Ask the groups to show their work in class. Let them tell the class how they arrived at their answers.

Expected answers from the pupils:

We added the number of pieces in each set. We did the addition as many times as the number of sets given.

We multiplied the number of items with the number of sets.

Ask: What did you find out in adding numbers ending in 0?
What pattern helped you multiply the numbers easily?

Emphasize that in multiplying 2- to 3-digit numbers with the multiples of 10 and 100, multiply first the whole numbers. Then, annex as many zeros that are present in the factors. The number of zeros in the factors is equal to the number of zeros in the product.

4. Reinforcing the Concept

Have pupils answer Activity 1 in the LM. Let them discuss their answers. Then, have them do Activities 2 and 3 in the LM by pairs. Let the pupils write their answers in their notebook.

Answer Key:

Activity 1:

1) 450 2) 740 3) 5 440 4) 2 190 5) 3 500 6) 2 300 7) 7 220 8) 1 760
9) 4 900 10) 8 100

Activity 2:

1) 10; 100; 1 000 2) 18; 180; 1 800 3) 28; 280; 2 800 4) 40; 400; 4 000
5) 54; 540; 5 400

Activity 3:

1) 10 2) 750 3) 10 4) 7 600 5) 100

5. Summarizing the Lesson

How do we multiply 2- to 3-digit numbers with multiples of 10 and 100?

In multiplying 2- to 3-digit numbers with multiples of 10 and 100, multiply first the non-zero digits.

Then, annex the zeros in the factors. The number of zeros in the factors is equal to the number of zeros in the product.

6. Applying to New and Other Situations

Do Activity 4 in the LM. Let pupils write their answers in their notebooks.

Answer Key:

1) $23 \times 50 = 1\ 150$ *pechay* seedlings 2) $200 \times 3 = 600$ lamps

C. Evaluation

Have pupils work on Activity 5 in the LM. Let them answer on their paper.

Answer Key:

x	100	10	20	50	500
24	2 400	240	480	1 200	12 000
53	5 300	530	1 060	2 650	26 500
67	6 700	670	1 340	3 350	33 500

D. Home Activity

Let pupils do Activity 6 in the LM as their homework.

Answer Key:

1) 8 300 2) 5 880 3) 4 550 4) 7 700 5) 6 450

Lesson 39 Multiplying 1- to 2-Digit Numbers by 1 000

Week 4

Objective

Multiply 1- to 2-digit numbers by 1 000

Value Focus

Observe rules and regulations in the community

Prerequisite Concepts and Skills

1. Skip counting by 10s, 100s and 1 000s
2. Concept of multiplying 2- to 3-digit numbers by multiples of 10s and 100s

Materials

Drill cards, window cards

Instructional Procedures

A. Preliminary Activities

1. Drill - Skip counting by 10s, 100s and 1000s

Look at the chart below. Each letter is associated with a number that corresponds to the missing number in the given series. Write the letter of your answer before the number.

N	3 000
C	20
T	1 000
G	6 000
U	560
N	500
O	350
I	3 500

- ____ 1. 10, ____, 30, 40, 50
____ 2. 310, 320, 330, 340, ____
____ 3. 530, 540, 550, ____, 570
____ 4. 100, 200, 300, 400, ____
____ 5. 800, 900, ____, 1 100, 1 200
____ 6. 3 200, 3 300, 3 400, ____, 3 600
____ 7. 1 000, 2 000, ____, 4 000, 5 000
____ 8. 4 000, 5 000, ____, 7 000, 8 000

What word is formed? _____

2. Review

Have pupils recall multiplying 2- to 3-digit numbers by multiples of 10s and 100s. Call on volunteer pupils to solve the following exercises on the board.

- a. $10 \times 34 =$
b. $100 \times 567 =$
c. $50 \times 56 =$
d. $300 \times 239 =$
e. $70 \times 76 =$

B. Developmental Activities

1. Presenting the Lesson

Post the problem on the board.

To invite customers, MM Supermarket gives 1 000 shopping points for every purchase of 1 pair of shoes. How many points will you get if you buy 4 pairs?

Solving the problem:

Solution 1: By repeated addition

$$1\,000 + 1\,000 + 1\,000 + 1\,000 = 4\,000 \text{ points}$$

Solution 2: By Multiplying

$$\begin{array}{r} 1\,000 \\ \times 4 \\ \hline 4\,000 \end{array}$$

Note: Multiply the non-zero digit then annex the number of zeros in the product.

2. Performing the Activity

Call on volunteer pupils to solve the following exercises on the board, and then explain their solutions to the class.

$$\begin{array}{ccccc} 1) \, 1\,000 & 2) \, 1\,000 & 3) \, 1\,000 & 4) \, 1\,000 & 5) \, 1\,000 \\ \times 2 & \times 8 & \times 20 & \times 32 & \times 19 \end{array}$$

3. Processing the Activity

Ask some pupils to show their work in class. Let them explain their answers.

Expected answers from pupils:

We added four 1 000s to get the answer.
We multiplied 1 000 by 2 to get the answer.

Emphasize the following:
To multiply 2 to 3-digit numbers by 1 000, multiply the non-zero digit first, and then annex zeros in the product.

4. Reinforcing the Concept

Let the pupils play "Marathon 1 000", a game about multiplying numbers by 1 000.

Group the class with ten members each. One of the members of the group will stand in front. Flash 1 to 2-digit number which the pupils will multiply to 1 000. The first pupil to write the correct answer on the board shall be given 100 points. The first group to accumulate 1 000 points will be the winner.

Sample 1- to 2-digit numbers:

23 4 10 24 65 72 3 23 27 42 40 7

Let the pupils do more exercises. Have them work on Activities 1 and 2 in the LM.

Answer Key:

Activity 1: 1) 4 000 2) 3 000 3) 5 000 4) 7 000 5) 2 000 6) 6 000
7) 8 000 8) 12 000 9) 39 000 10) 46 000

Activity 2: 1) $1\ 000 \times 5 = 5\ 000$ eggs 2) PhP1 000 $\times 2 =$ PhP2 000

5. Summarizing the Lesson

How do we multiply 2- to 3-digit numbers by 1 000?

To multiply 2 to 3-digit numbers by 1 000, multiply the non-zero digits first, and then annex zeros in the product.

The number of zeros in the factors is equal to the number of zeros in the product.

6. Applying to New and Other Situations

Let the pupils answer the problem in Activity 3 in the LM individually.

Answer Key: 1) $1\ 000 \times 5 = 5\ 000$ *pandesals* 2) $1\ 000 \times 8 = 8\ 000$ *calamansis*

C. Evaluation

Pupils do Activity 4 in the LM. Provide the pupils an activity sheet.

Answer Key: 1) 3 000 2) 6 000 3) 7 000 4) 5 000 5) 9 000 6) 10 000
7) 46 000 8) 30 000 9) 28 000 10) 78 000

D. Home Activity

Assign Activity 5 in the LM as homework.

Answer Key:

	1)	2)	3)	4)	5)		6)	7)	8)	9)
Answer	8 000	17 000	5 000	43 000	55 000		7 000	17 000	8 000	12 000
Letter	M	A	G	I	C		L	A	M	P

He came out of the MAGIC LAMP!

Lesson 40 Estimating Products

Week 4

Objective

Estimate the product of 2- to 3-digit numbers and 1- to 2-digit numbers with reasonable results

Value Focus

Neatness in one's computation

Prerequisite Skills

Rounding off numbers

Materials

Number cards, word problems, pictures

Instructional Procedures

A. Preliminary Activities

1. Drill

Flash number cards and let pupils identify the place value of the underlined digits.

Examples: $\begin{array}{r} 23\textbf{4} \\ 13\textbf{5}6 \end{array}$ $\begin{array}{r} 345\textbf{6} \\ 190\textbf{9}8 \end{array}$ $\begin{array}{r} 12\textbf{3}5 \\ 120\textbf{9}8 \end{array}$ $\begin{array}{r} 1\textbf{0}234 \end{array}$

2. Review

Group the class into two. Each group will select a representative who will write the answers on the board (one contestant for every item). The group with the highest number of points wins.

Flash the numbers. Contestants will write the rounded off number on the board. Examples:

a. Round off to the nearest tens

159 238 142 2385

b. Round off to the nearest hundreds

258 128 235 368 912

c. Round off to the nearest thousands

3456 1242 7821 3219 1245

B. Developmental Activities

1. Presenting the Lesson

Present the problem on the board.

Everyday, 594 food packages are delivered to the Typhoon Pablo Operation Tulong Center. About how many food packages are being received by the Operation Tulong Center in 7 days?

Explain to the pupils the meaning of the word "about." Tell them that it implies a number that is "not exact," and that for this purpose, the nearest estimate is being asked.

Emphasize the following:

When estimating products, round off each factor to its highest place value, then multiply.

(Remember: Do not round off 1-digit factors.)

Show to the pupils the steps:

- Round off the factors to their highest place value.
- Multiply the resulting factors.

$$\begin{array}{r} 594 \\ \times 7 \\ \hline 4158 \end{array}$$

$$\begin{array}{r} 600 \\ \times 7 \\ \hline 4200 \end{array}$$

Actual product Estimated product

4 158 is nearest to 4 200 so the answer is reasonable.

2. Performing the Activity

Let the pupils explain their own understanding of the two steps. Give two more practice exercises.

a. $44 \longrightarrow 40$

$$\begin{array}{r} 44 \\ \times 18 \\ \hline \end{array} \longrightarrow \begin{array}{r} 40 \\ \times 20 \\ \hline \end{array}$$

$$\begin{array}{r} 352 \\ 44 \\ \hline 792 \end{array}$$

$$\begin{array}{r} 800 \\ \hline \end{array}$$

estimated product

Actual product

b. $154 \longrightarrow 200$

$$\begin{array}{r} 154 \\ \times 13 \\ \hline \end{array} \longrightarrow \begin{array}{r} 200 \\ \times 10 \\ \hline \end{array}$$

$$\begin{array}{r} 462 \\ 154 \\ \hline 2002 \end{array}$$

$$\begin{array}{r} 2000 \\ \hline \end{array}$$

estimated product

Actual product

Ask: What is 37 in rounded form?
What is 15 in rounded form?
What is the rounded form of 202?
What is the rounded form of 14?
Is your answer reasonable? Why?

3. Processing the Activity

Ask: What steps do you follow in estimating products?
When do we round up?
When do we round down?

4. Reinforcing the Concept

Do Activity 1 in the LM by pairs. Discuss their answers afterwards.

Let the pupils do Activities 2 and 3 in the LM individually.

Answer Key:

Activity 1: 1) 350 2) 540 3) 280 4) 3 000 5) 5 600

6) 800 7) 3 200 8) 2 500 9) 1 800 10) 6 000
 Activity 2: 1) $300 \times 30 = 9\ 000$ 2) $200 \times 50 = 10\ 000$
 3) $300 \times 20 = 6\ 000$ 4) $100 \times 40 = 4\ 000$ 5) $800 \times 10 = 8\ 000$
 Activity 3: 1) $10 \times 40 = 400$ (about 400 ball pens)
 2) $130 \times 3 = 390$ (about 390 marbles)

5. Summarizing the Lesson

How do we estimate the product of 2- to 3-digit numbers multiplied by 1- to 2-digit numbers?

To estimate the product:

- Round off either the multiplicand or multiplier or both to its greatest place value.
- Multiply the rounded factors.
(Remember: Do not round off 1-digit factor.)

6. Applying to New and Other Situations

Have pupils work on Activity 4 in the LM. Provide similar exercises in estimating products.

Answer Key:

1) $130 \times 10 = 1\ 300$ (about 1 300 jeepneys) 2) $30 \times 20 = 600$ (about 600 birds)

C. Evaluation

Let the pupils do Activity 5 in the LM individually.

Answer Key:

1) 720 2) 2 800 3) 8 000 4) 6 000 5) 4 000

D. Home Activity

Have the pupils find the factors that when multiplied will give an estimated product. Refer them to Activity 6 in the LM.

Answer Key:

1) 6×14 2) 5×28 3) 9×26 4) 6×58 5) 9×487

Lesson 41 Multiplying Mentally 2-Digit Numbers by 1-Digit Numbers with Products up to 100

Week 4

Objective

Multiply mentally 2-digit numbers by 1-digit numbers without regrouping with products of up to 100

Value Focus

Cooperation and independence, readiness to help others

Prerequisite Skills

Addition of 3- to 4-digit numbers without regrouping

Materials

Flash cards, crayons, illustrations

Instructional Procedures**A. Preliminary Activities****1. Drill**

Flash number cards with basic multiplication facts.

2. Review

Let the pupils give the estimated product.

Examples: 125×25 346×18 981×15

B. Developmental Activities**1. Presenting the Lesson**

Post the problem on the board.

Four boys helped their teacher return some workbooks to the library. Each boy carried 12 workbooks. How many workbooks did they carry altogether?

Multiply 12 by 4. Do it mentally.

Think:

Multiply the ones by ones. Multiply the tens by ones.

Give the product.

$$\begin{array}{r} 12 \\ \times 4 \\ \hline 48 \end{array}$$

The product is 48.

So, 48 workbooks were carried by the boys.

2. Performing the Activity

Let pupils work in pairs and answer the following mentally.

$$\begin{array}{r} 13 \\ \times 3 \\ \hline \end{array} \quad \begin{array}{r} 11 \\ \times 8 \\ \hline \end{array} \quad \begin{array}{r} 21 \\ \times 4 \\ \hline \end{array} \quad \begin{array}{r} 23 \\ \times 2 \\ \hline \end{array} \quad \begin{array}{r} 13 \\ \times 2 \\ \hline \end{array} \quad \begin{array}{r} 12 \\ \times 3 \\ \hline \end{array}$$

3. Processing the Activity

Ask: Who was able to give the answer first?

Was the answer correct?

What technique did you use that helped you compute the answer quickly?

Emphasize to the pupils that to multiply mentally 2-digit numbers by 1-digit numbers:

1. Multiply the ones by ones.
2. Multiply the tens by ones.
3. Give the product.

4. Reinforcing the Concept

- a. Form two groups with 7 members. Flash combinations of numbers. The first one who can give the correct answer will have the chance to color the first shape in the house. Repeat the process until the group had completed coloring the shapes in the house. The first group to complete coloring the house wins the game.

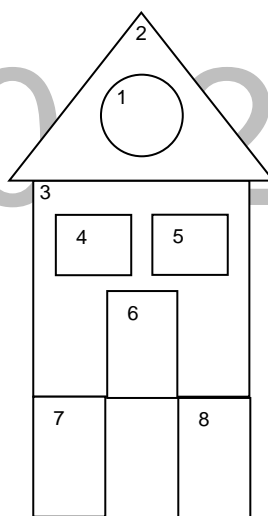
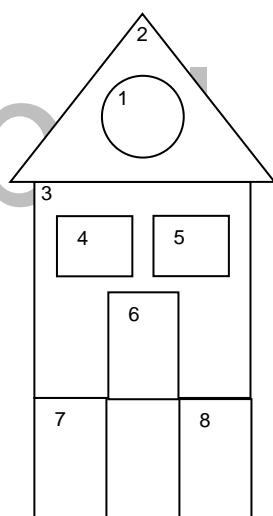
Prepare the following flashcards and houses.

GAME: Color the House

1	2	3	4	5	6	7	8
$\begin{array}{r} 23 \\ \times 2 \\ \hline \end{array}$	$\begin{array}{r} 24 \\ \times 2 \\ \hline \end{array}$	$\begin{array}{r} 14 \\ \times 2 \\ \hline \end{array}$	$\begin{array}{r} 11 \\ \times 4 \\ \hline \end{array}$	$\begin{array}{r} 10 \\ \times 3 \\ \hline \end{array}$	$\begin{array}{r} 43 \\ \times 3 \\ \hline \end{array}$	$\begin{array}{r} 33 \\ \times 3 \\ \hline \end{array}$	$\begin{array}{r} 51 \\ \times 2 \\ \hline \end{array}$

Group 1

Group 2



- b. Ask: Have you experienced hunting treasures?

Do you want to experience it? Refer pupils to Activity 1 in the LM.

Answer Key:

$22 \times 2 = 44$	$20 \times 5 = 100$	$31 \times 3 = 93$	$29 \times 2 = 58$
$12 \times 5 = 60$	$41 \times 2 = 82$	$22 \times 4 = 88$	$12 \times 3 = 36$
$49 \times 1 = 49$	$22 \times 3 = 66$	$12 \times 4 = 48$	

5. Summarizing the Lesson

What helped you answer the computation problems easily? How do you multiply mentally 2-digit numbers by 1-digit number without regrouping?

To multiply mentally 2-digit numbers without regrouping

- Multiply the ones by ones.
- Multiply the tens by ones.
- Give the product.

6. Applying to New and Other Situations

Have pupils do Activity 2 in the LM in groups with 4 members each. Provide each group with the secret message activity.

12	13	23	11	12	13	13	26	20	22	23
$\times 5$	$\times 2$	$\times 2$	$\times 4$	$\times 3$	$\times 2$	$\times 3$	$\times 1$	$\times 3$	$\times 2$	$\times 3$
60	26	46	44	36	26	39	26	60	44	69
I	T	S	M	A	T	H	T	I	M	E

C. Evaluation

Let the pupils work on Activity 3 in the LM. Have them read each problem carefully then write only the product in their own paper.

Answer Key:

- 1) 36 sampaguita plants 2) 88 eggplant seedlings 3) PhP100 4) 48 seedlings
5) 26 oranges

D. Home Activity

1. Have pupils work on Activity 4 in the LM.

Answer Key:

- 1) 77 2) 24 3) 69 4) 48 5) 39

2. Let each pupil write one word problem involving multiplication of 2-digit by 1-digit number without regrouping. On the next class day, let pupils exchange their word problems by pairs and solve the problems mentally.

Lesson 42 Solving Problems involving Multiplication of Whole Numbers

Week 5

Objective

Solve routine and non-routine problems involving multiplication of whole numbers including money using appropriate problem solving strategies and tools

Value Focus

Helpfulness, Cooperation, Thriftiness

Prerequisite Skills

1. Basic multiplication facts
2. Multiplication of whole numbers
3. Steps in solving word problem

Materials

Flashcards, activity card, story problem

Instructional Procedures

E. Preliminary Activities

1. Drill

Conduct a drill on basic multiplication facts using double roulette. Let the pupils answer in their "Show Me" board.



2. Review

Let pupils give the steps in solving word problems.

F. Developmental Activities

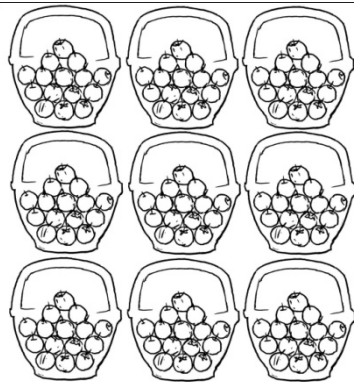
1. Presenting the Lesson

Present the story problem below.

The family of Mr. Ruiz enjoys harvesting star apple in their backyard. They placed them in 9 baskets. Each basket contains 15 star apples. How many star apples did they harvest in all?

Ask: Who harvested star apples?
Where did they place the fruits?

Present this guide to the children in analyzing and illustrating the problem.

Problem:	
What is asked for?	
What are the given information?	
Draw/illustrate the problem.	<p>Guide the pupils to illustrate the problem such as this.</p> 
What is the process or operation to be used?	
What word/s help you determine the operation to use?	
Write the number sentence.	

If you were to solve the problem, what process would you use?
Is there a word or words in the problem that tell what process or operation to use?

2. Performing the Activity

Group the children into three. Provide them with problems like these in activity cards. Let them analyze.

- 1) A vendor buys 25 boxes of candies. Each box has 50 candies. How many candies are there in all?
- 2) Nena bought 12 sets of baby dresses. Each set costs PhP185. How much did she pay for all the dresses?
- 3) Mr. Santos is a postman. He has to deliver 178 letters a day. How many letters must he deliver in 25 days?

3. Processing the Activity

Ask: How do we analyze word problem?
What should you find out?
What are the given facts?
How did you check the correctness of your answer?

4. Reinforcing the Concept

Have pupils solve the problems in Activity 1 in the LM. Remind them on how to solve problems correctly.

Answer Key: 1) 1 125 atis 2) PhP3 000 3) 180 pencils
4) PhP300 5) 275 pages

5. Summarizing the Lesson

Ask: How can you solve a problem?
What are the steps that we should follow in solving problems?

- The steps in solving a word problem are:
1. Understand
 2. Plan. Determine the process to be used to solve the problem.
 3. Act out the plan.
 4. Check or look back.

6. Applying to New and Other Situations

Refer to Activity 2 in the LM. Have the pupils solve the illustrated problem and write their answers on their paper.

Answer Key:

1) $6 \times 7 = 42$ mangoes 2) $10 \times 6 = 60$ pencils 3) $12 \times 5 = 60$ flowers

G. Evaluation

Let pupils analyze and solve Activity 3 in the LM. Ask them to write a number sentence for each problem.

Answer Key:

1) 9×5 ; 15×3 ; 45×1 2) 15 3) PhP5 200 4) PhP15 400 5) 364 days

H. Home Activity

Let pupils copy Activity 4 in their notebook as their assignment. Let them analyze and solve the problems.

Answer Key:

1) 900 passengers 2) PhP1 600 3) 1 175 bottle caps 4) PhP5 805 5) 1 280 words

Lesson 43 Solving Problems Involving Multiplication with Addition and/or Subtraction of Whole Numbers

Week 5

Objective

Solve routine and non-routine problems involving multiplication with addition and subtraction of whole numbers including money using appropriate problem solving strategies and tools

Value Focus

Honesty, Cooperation

Prerequisite Skills

1. Basic addition, subtraction and multiplication facts
2. Steps in solving word problem

Materials

Flash cards, activity card, story problem

Instructional Procedures

A. Preliminary Activities

1. Drill

The teacher flashes the cards and the children write their answers on their "Show Me" board.

$$\begin{array}{r} 32 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 20 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 83 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 42 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 21 \\ \times 2 \\ \hline \end{array}$$

2. Review

Present the problem written on Manila paper.

Laura made 56 sampaguita garlands. Each garland has 13 pieces of sampaguita. How many pieces of sampaguita did she use in all?

Ask: Who made sampaguita garlands?
 How many sampaguita garlands did she make?
 What is asked in the problem?
 What are given?
 What is the operation to be used to solve the problem?

Let the children solve the problem and show the answer in their "Show Me" board.

3. Motivation

Present the word problem.

Joy bought 5 shirts for PhP94.00 each. If she had PhP475.00, how much change would she get?

Ask: Who bought 5 shirts?
 How much did each shirt cost?
 How much money did she have?
 How much would he spend for his five shirts?

The salesgirl happened to give a change more than what Joy should receive. If you were Joy, what would you do? Why?
 Is it good to return the money that does not belong to you? Why?

B. Developmental Activities

1. Presenting the Lesson

- a. Using the problem in the motivation, ask the pupils to act out through "Play Store" wherein pictures or objects like shirts, play money, etc. are used. A pupil will go to the store and buy shirts.

b. Present the problem using a diagram.



Read → How many shirts were bought?

How much did a shirt cost?

How much money did Joy have?

Plan → What is the hidden question? *the cost of 5 shirts*

What is asked? *change Joy would get*

What operation should be used?

What is the number sentence?

$\text{PhP}475 - (\text{PhP}94.00 \times 5) = N$

Solve

STEP 1 - Look for the cost of 5 shirts.

PhP 94.00	cost of 1 shirt
x 5	number of shirts bought
PhP470.00	cost of 5 shirts

STEP 2

PhP 475.00	money of Joy
-470.00	cost of 5 shirts
PhP 5.00	change

Check: Go over the solution.

Is it correct?

Is your answer reasonable?

Is it complete?

2. Performing the Activity

Let the pupils solve the problems by group.

- a. There are 2 boxes of marbles. Each box has 12 marbles. How many marbles are there in all? If you get 5 marbles in one box, how many marbles will be left?

Solution 1. Role Play

Call 1 group to act out the situation. Let them present the 2 boxes. Let the class count the number of marbles in each box. Request one pupil to get 5 marbles in one box. Ask the class to count the number of marbles left.

Solution 2. By Drawing

Call 1 group to draw 2 boxes on a Manila paper. Let another group draw 12 marbles in each box. Ask one pupil to remove 5 marbles in one box. Let the whole class count the number of marbles left.

- b. Four persons can sit at a square table. How many persons can sit at three square tables placed end-to-end?

Solution 1. By drawing a picture

Directions:

1. Draw three square tables placed end-to-end.
2. Count how many persons can be seated after the three tables are placed end-to-end.

Solution 2. By using a number sentence

Answer the following questions:

1. How many persons can be seated on individual square tables? Write the number sentence.
2. Will there be the same number of persons seating if the square tables are placed end-to-end? Why?
3. How many persons cannot be seated? What will be the number sentence?
4. How many persons can be seated if the square tables are placed end-to-end? Show your solutions using the number sentence.

3. Processing the Activity

Ask the groups assigned to show their work in class. Ask them to explain how they got their answers.

Expected answers of pupils for Problem 1

We had a role play of the situation. We added the number of marbles first. Then, we subtracted the 5 marbles from one box. We found the total number of marbles by counting the remaining marbles.

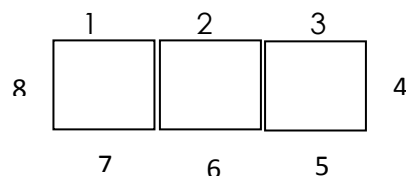
$$(12 + 12) - 5 = n$$

We drew 2 boxes and 12 marbles in each box. We crossed-out five marbles in one box. We counted the number of marbles left in the two boxes to get the answer to the question.

$$(2 \times 12) - 5 = n$$

Expected answers of pupils for for Problem 2

Solution 1. By drawing a picture



Solution 2. By using a number sentence

Ask:

How many persons can be seated on individual square tables? Let them write the number sentence.

$$3 \times 4 = n$$

$$3 \times 4 = 12 \text{ persons}$$

Will there be the same number of persons (12 persons) seating if the square tables are placed end-to-end? Why? How many persons cannot be seated?

What will be the number sentence?

$$(3 \times 4) - 4 = n$$

So, how many persons can be seated if the square tables are placed end-to-end?

Let the pupils solve using the number sentence.

$$(3 \times 4) - 4 = n$$

$$12 - 4 = 8$$

So, the number of persons who can sit at three square tables placed end-to-end is **8 persons**.

Emphasize to the pupils that in solving 2-step word problems, answer the hidden question first, then the given question. The operation inside the parentheses is done first.

In solving two-step word problems, use the following questions as guide:

- What is asked for in the problem?
- What are the given facts?
- What is the hidden question?
- What processes will you use to answer the hidden question?
- What is the number sentence?
- What is the complete answer?
- What strategy/ strategies will you use to solve the problem?

4. Reinforcing the Concept

Let the pupils read, analyze and solve the problems in Activity 1 in the LM. Let them do the activity on their paper.

Answer Key:

1) $6 \times 8 = 48$; $55 - 48 = 7$; No, they still need 7 chairs.

2) $(45 \text{ min} \times 4) + (10 \text{ min} \times 3) = 180 \text{ min} + 30 \text{ min} = 210 \text{ minutes}$

$$\begin{aligned}
 &3) \text{ PhP1 000} - (2 \times \text{PhP160}) + \text{PhP85} + (4 \times \text{PhP130}) \\
 &= \text{PhP1 000} - (\text{PhP320} + \text{PhP85} + \text{PhP520}) \\
 &= \text{PhP1 000} - \text{PhP925} \\
 &= \text{PhP75}
 \end{aligned}$$

5. Summarizing the Lesson

Ask: How did you solve the problem?
What helped you solve it?

6. Applying to New and Other Situations

Let pupils work on Activity 2 in the LM. Read and analyze the problems. Let them write their answer in their notebooks.

Answer Key: 1) PhP20 2) 300 *pastillas* 3) PhP375

C. Evaluation

Have pupils work on Activity 3 in the LM individually. Let them write their answers on their paper.

Answer Key:

1) PhP260 2) PhP1 940 3) 384 mangoes 4) 48 stamps 5) PhP555

D. Home Activity

Let the pupils copy Activity 4 in the LM and have pupils work on this at home.

Answer Key:

1) $(5 \times \text{PhP1}) + (2 \times \text{PhP5}) + (7 \times \text{PhP10}) = \text{PhP5} + \text{PhP10} + \text{PhP70} = \text{PhP85}$

2) $25 + (3 \times 25) = 100$ one-peso coins

3) $12 + (12 \times 2) + ((12 \times 2) + 14) + (12 + (12 \times 2)) = 12 + 24 + 38 + 36 = 110$ pieces of art paper

Lesson 44 Creating Problems Involving Multiplication without or with Addition or Subtraction

Week 6

Objective

Create problems involving multiplication without or with addition or subtraction of whole numbers including money with reasonable answers

Value focus

Environmental awareness

Prerequisite Concepts and Skills

Multiplication, addition, and subtraction of whole numbers including money

Materials

Textbook, flashcard/smart board, roulette, activity number cards, pictures of waste materials/garbage improperly disposed of

Instructional Procedures

A. Preliminary Activities

1. Drill

Use the following.

- Roulette to practice learners skills in multiplication
- Flash cards to practice learners skills in addition and subtraction

$$75 + 25$$

$$60 - 15$$

$$13 + 36$$

$$45 - 23$$

$$80 + 29$$

2. Review

Ask pupils to give the missing number in each expression.

$$18 - 9 = \underline{\quad}$$

$$12 - 6 = \underline{\quad}$$

$$32 - 12 = \underline{\quad}$$

$$16 - 8 = \underline{\quad}$$

$$20 - 10 = \underline{\quad}$$

3. Motivation

Divide the class into 8 groups. Let each group discuss the problem below.

Ask: What are the environmental problems created by people in destroying the environment? How can people provide solutions to these problems? How can people lessen environmental problems?

Ask a representative from each group to share their ideas.

After the sharing of each group, infuse the value of "Environmental Awareness."

Note: Teacher should use the statements below in valuing.

Examples of environmental issues:

- improper disposal of garbage (Elimination/reduction of wastes in the environment)
- Use of carbon dioxide which contributes to global warming (Shift in behavior towards the environment and individuals' use of natural

resources, ensuring sustainable development and conservation of the environment.)

B. Developmental Activities

1. Presenting the Lesson

Post the problem on the board. Ask a pupil to read it.

One morning Ruby saw 4 guavas in their backyard with 4 birds eating on each guava.

Ask the following:

- Who saw guavas in their backyard?
- How many guavas did she see in their backyard?
- How many birds eat in each guava?
- How many birds all in all did Ruby see eating the guavas?
- Putting together the birds and the guavas, how many are there in all?
- How many operations are used in the problem?
- Can you also create/make your own problem, like the one given, where you can apply multiplication with addition, or multiplication with subtraction?

2. Performing the Activities

Group Work Activity

Divide the class into 6 groups. Let each group discuss how they will make a problem based on the given situation. Three groups will focus on Problem 1, while the other three groups will focus on Problem 2.

Problem 1. Involve multiplication with addition (two-step problem).

Situation: Mark needs 3 white t-shirts to be used in camping.
T-shirt price is PhP120.00.
Mark has only PhP300.00.

Problem 2. Use multiplication with subtraction (Two-step problem.)

Situation: Adore plans to donate 3 plants in school.
Adore has PhP500.00.
Price of plants is PhP130.00 each.

While the pupils are doing the activity, go around and guide/assist the pupils. Ask each group to show their work and give them time to explain their output in class.

3. Processing the Activities

After the activities have been done, let the groups post their created problems in each situation and let them do the tasks below.

- a. Role play the situation. (Call at least 2 groups to do it. Then ask the class to solve the problem.)
- b. Illustrate the problem and make the number sentence. Then solve the problem with the solution.

4. Reinforcing the Concept

Pair Work Activity

Ask the pairs to create/make a problem based on the given situation. Half of the pair will focus on Problem 1, while the other half will focus on Problem 2.

Problem 1. Use multiplication with addition (two-step procedure).

Situation: Eric needs to buy 3 boxes of chocolates.
Price is PhP200.00 for every box of chocolate.
Eric has only PhP350.00.

Problem 2. Use multiplication with subtraction (two-step procedure).

Situation: Tom wants to buy a pair of pants.
He has PhP1000.00.
Price of pair of pants is PhP700.00.

5. Summarizing the Lesson

What did you do to be able to create a problem given some situations?

Steps in creating word problems:

- a. Familiarize yourself with the concepts in math. Think of the application to every day life situations.
- b. Think of the type of problem you want to create and the operations to be used. Relate the problem to a real-life situation.
- c. Read more on math problem solving. Study the solution in solving the problems.
- d. Make your own styles/strategies to justify the solutions.

6. Applying to New and Other Situations

Let the pupils do Activity 1 in the LM. Discuss their work afterwards.

(Answers vary)

Sample Problem:

- 1) Mother bought 2 boxes of donuts with 12 donuts in each box. How many donuts are there in all?

- 2) Each cup of soup costs PhP5.00. Edna was not able to sell 4 cups out of the 16 cups. How much was the amount of soup sold?

C. Evaluation

Let pupils do Activity 2 in the LM. Check pupils' work.

(Answers vary)

Sample Problem:

- 1) Andoy placed the eggs in three trays. If there are 12 eggs in each tray and there are 5 eggs not placed in any tray, how many eggs are there in all?
- 2) Joey bought 9 balloons for her 3 sisters. Each balloon costs PhP15.00. If each girl received the same number of balloons, how much did Joey spend for the balloons he gave to each of his sisters?

D. Home Activity

Divide pupils into five groups. Let them do Activity 3 in the LM as homework on their papers.

Answers vary for A and B.

Sample Answers for B:

- 1) 1) John has 5 pencil cases. There are 12 pencils of different color in each case. How many pencils does he have? $5 \times 12 = 60$ pencils
- 2) There are 4 dozens of eggs in a box. One dozen was sold. How many eggs are left in the box? (Hint: one dozen = 12)
 $(4 \times 12) - 12 = 48 - 12 = 36$ eggs are left in the box
- 3) In a mathematics class, fourteen pupils are seated in a row and 3 of the pupils were absent. If there are 4 rows in the classroom, how many pupils are present in the Math class? $(4 \times 14) - 3 = 56 - 3 = 53$ pupils are present

Lesson 45 Multiples of 1- to 2-Digit Numbers

Week 6

Objective

State the multiples of 1- to 2-digit numbers

Value Focus

Cooperation

Prerequisite Concepts and Skills

Four fundamental operations

Materials

Flashcards, wooden blocks, number wheel, pictures of different activities of man that destroys the environment

Instructional Procedures

A. Preliminary Activities

1. Drill

Show division facts written on flash cards. Ask learners by row/group to give the quotient. e.g.

30, 27, 24, 21, 18, 15	by 3
70, 60, 50, 40, 30, 20	by 5
84, 77, 56, 49, 28, 21	by 7
88, 72, 64, 8, 24, 32	by 8

2. Review

Supply the missing number to complete each number sentence.

- 1) $\underline{\quad} \div 7 = 4$
- 2) $35 \div \underline{\quad} = 5$
- 3) $50 \div 10 = \underline{\quad}$
- 4) $36 \div 6 = \underline{\quad}$
- 5) $\underline{\quad} \div 9 = 9$

3. Motivation

Do the opposite of your drill. Give the multiplication facts. Ask other learners by row/group (to give others a chance to participate) to give the answer/product.

4	multiply the number by 8, 9, 10, 11, 12, 13
6	multiply the number by 6, 7, 8, 9, 10, 11, 12
9	multiply the number by 4, 5, 6, 7, 10, 20, 30
10	multiply the number by 6, 7, 8, 9, 10, 15, 20

B. Developmental Activities

1. Presenting the Lesson

Show these numbers.

Ask: What are the next numbers? Why do you think they are the next numbers?

- a. 2, 4, 6, 8, __, __, __
- b. 3, 6, 9, 12, __, __, __
- c. 10, 20, 30, 40, __, __, __
- d. 12, 24, 36, 48, __, __, __

2. Performing the Activities

Show the series of numbers. Ask the pupils to observe and determine the pattern.

a.	2	4	6	8	10	12	14
b.	3	6	9	12	15	18	21
c.	10	20	30	40	50	60	70
d.	12	24	36	48	60	72	84

Ask: How did you get your answers in each of the number patterns?
Note to the teacher: Answers can be any of the following strategies:

- a. Multiplying the first number by 2, 3, 4, 5, ... to get the next 3 missing numbers.
- b. Adding the common difference of the numbers to the next numbers and so forth to get the next 3 missing numbers.

Ask: Extend the number patterns in given activity, give the next 5 multiples for a, b, c, and d using any of the above strategies.

Group Activity

Let each group do Activity 1 in the LM. Let them find the next 6 multiples of the given number. Let them write their answers on their answer sheets.

Discuss the groups' answers.

1)	3	6	9	12	15	18	21
2)	5	10	15	20	25	30	35
3)	7	14	21	28	35	42	49
4)	8	16	24	32	40	48	56
5)	9	18	27	36	45	54	63
6)	11	22	33	44	55	66	77
7)	13	26	39	52	65	78	91
8)	15	30	45	60	75	90	105
9)	24	48	72	96	120	144	168
10)	33	66	99	132	165	198	231

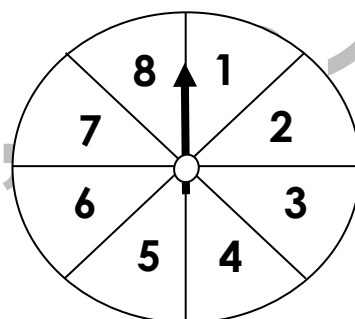
3. Processing the Activities

Ask each group to present their work and ask them how they were able to get the multiples of a given number.

Ask them to discuss their answers on the work sheet.

4. Reinforcing the Concept

Show a number wheel to the class. e.g.



Call a group and ask a member to spin the number wheel.

a. In the first spin, whichever number will show up all members of the group will state 10 of the multiples of that 1- digit number.

b. In the second spin, whichever number will show up in the first and in the second spin, all members will state 5 multiples of that 2 – digit numbers.

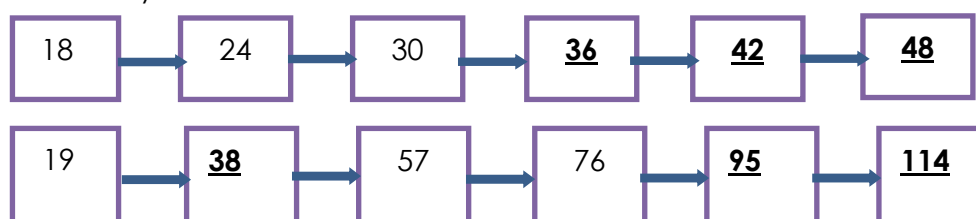
5. Summarizing the Lesson

- a. Multiplying the first number by 2, 3, 4, 5, and so on will determine the next multiples of number.
- b. Adding the common difference of the numbers to the next numbers and so forth will arrive at the next multiples of the number.

6. Applying to New and Other Situations

- a. Show a calendar. Ask pupils what pattern of multiples of numbers they can see in the calendar.
- b. Let pupils answer Activity 2 by pairs.

Answer Key:



C. Evaluation

Ask pupils to answer Activities 3 and 4 in the LM individually.

Key Answer:

Activity 3: 1) b 2) e 3) d 4) c

Activity 4:

1) 21, 24, 27 2) 45, 54, 63 3) 112, 120, 128 4) 135, 150, 165 5) 85, 102, 119

D. Home Activity

Assign Activity 5 in the LM as pupils' homework.

Answer Key:

	x	12	23	37
1)	19	228	437	703
2)	26	312	598	962
3)	37	444	851	1 369
4)	43	516	989	1 591

Lesson 46 Dividing Numbers up to 100 by 6, 7, 8, and 9

Week 7

Objective

Visualize division of numbers up to 100 by 6, 7, 8 and 9

Value Focus

Envisioning the beauty and abundance of nature

Prerequisite Concepts and Skills

Concept on the four fundamental operations

Materials

Activity cards, spin a wheel number, flashcard/smart board, wooden blocks, pictures of different activities of man taking care of the environment

Instructional Procedures**A. Preliminary Activities****1. Drill**

Flash cards with basic division facts and ask pupils by row/group to give the answer/ quotient.

Examples:

30	by 3, 5, 6	30	
20	by 2, 4, 5	16	by 2, 4, 8
18	by 2, 3, 6	40	by 2, 4, 5
12	by 2, 3, 4	30	

2. Review

Call pupils to supply the missing number to complete each sentence.

6) $\underline{\quad} \times 7 = 42$

7) $5 \times \underline{\quad} = 35$

8) $6 \times 9 = \underline{\quad}$

9) $\underline{\quad} \times 8 = 56$

10) $\underline{\quad} \times 9 = 81$

3. Motivation

Ask pupils to read the quotation.

A quote as lovely as my inspiration ...

Let our life in school be like playing an arithmetic...

JOYS added,
FRIENDS multiplied,
SORROWS subtracted,

But note that **LOVE** cannot be divided among our teachers
and us, learners.

Ask pupils to explain what they have read. Elaborate or explain further.

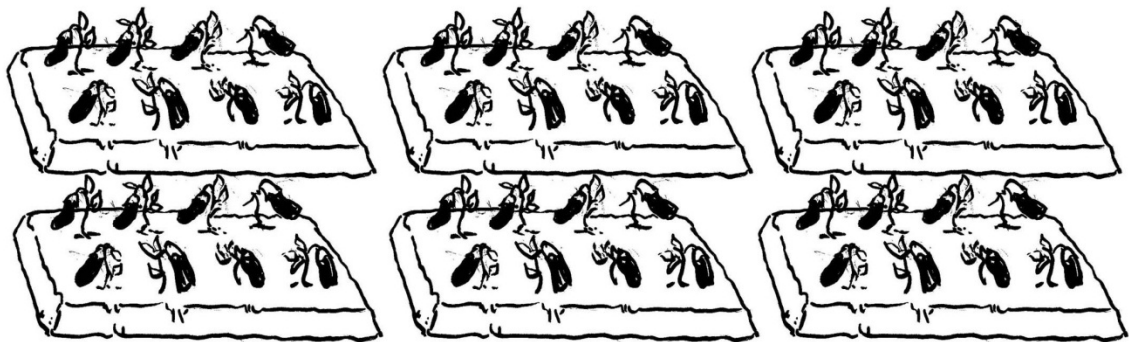
B. Developmental Activities

1. Presenting the Lesson

Present a problem situation and ask pupils to think of the answer. Allow 2 or 3 of them to show their solution/s.

My older brother and sister wanted to help shoulder our parents' expenses at home. They plan on how they can help our parents. In our backyard, my brother and sister made a garden plot for planting eggplant seedlings to sell in the market after the harvest. They planted 48 eggplant seedlings equally in 6 rows. How many seedlings were in each row?

a. Analyze and solve the problem using an illustration:



Ask: (suggested questions)

- 1) Who wanted to help the parents in family expenses at home?
- 2) What did they do to help their parents?
- 3) Do you want to help your Nanay and Tatay too?
- 4) What kind of brother and sister are they? Do you want them?
- 5) How many seedlings did they plant in all?

Show their solutions.

- 6) How many seedlings are there in all?
- 7) How many rows are there?
- 8) How many seedlings are there in each row?

- 9) Write your mathematical sentence and solve.
(Hint to teacher: $48 \div 6 = n$)

2. Performing the Activity

Let pupils do this problem.

There are 98 pupils in Grade 4. They are assigned in each section equally to the 4 mathematics teachers and the 3 science teachers as the class advisers. How many pupils will be under the class advisory of each teacher?

Guide questions:

- How many pupils are there?
- How many are teachers?
- What is your dividend?
- What is your divisor?
- What is missing in the problem?
- Write the number sentence.
- Solve!

3. Processing the Activity

Ask:

- How did you solve the problem above?
- What information/data did you consider to solve the problem?

Say: Look at the division sentence.

$56 \div 8 = 7$, if we use instead of **56**, we have

$\div 8 = 7$. How will you find the value of ? We multiply 8 by 7.

$56 \div 8 = 7$.

Explain that in finding the quotient we are finding on the factors. When multiplying the product and divisor we are finding the dividend. Lead the pupils to see that **division is opposite of multiplication**.

Group Activity

In your group get your partner and do the activity in pair. Fill in the appropriate data and solve.

Number sentence	Dividend	Divisor	Quotient
Ex. $56 \div \underline{\quad} = 7$	56	8	7
1) $\underline{\quad} \div 6 = 7$			

2)	$81 \div 7 = \underline{\quad}$			
3)	$72 \div 9 = \underline{\quad}$			
4)	$63 \div \underline{\quad} = 9$			
5)	$36 \div \underline{\quad} = 4$			
6)	$\underline{\quad} \div 8 = 16$			
7)	$42 \div 7 = \underline{\quad}$			
8)	$99 \div 9 = \underline{\quad}$			
9)	$54 \div \underline{\quad} = 9$			
10)	$78 \div \underline{\quad} = 13$			

Discuss pupils' answers.

4. Reinforcing the Concept

Let the pupils answer Activity 1 in the LM in their notebook. Discuss how they solve the problems.

Answer Key:

1) 8 shelves 2) 8 balls

5. Summarizing the Lesson

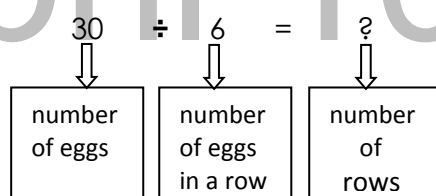
- How do you visualize a problem in division?
- Name the terms involved in division facts.
- How do you call the result/answer in dividing two numbers?

6. Applying to New and Other Situations

Think and visualize the problem.

Example 1:

Thirty eggs in a basket were transferred to an egg box. How many rows are there in an egg box, if 6 eggs are placed in each row of an egg box?



Let the pupils answer Activity 2 in the LM by pairs. Discuss their answers afterwards.

Answer Key: 1) 8 trees 2) 8 pomelos

C. Evaluation

Let the pupils answer Activity 3 in the LM individually.

Answer Key: 1) PhP 16 2) 9 dalandan

D. Home Activity

Let the pupils answer Activity 4 in the LM individually in their notebook.

Answer Key: 1) 10 pupils 2) 3 star apples

Lesson 47 Stating Division Facts of Numbers up to 10

Week 7

Objective

State basic division facts of numbers up to 10

Value Focus

Orderliness and Cooperation

Prerequisite Concepts and Skills

Multiplication

Materials

Flashcards with multiplication and division facts

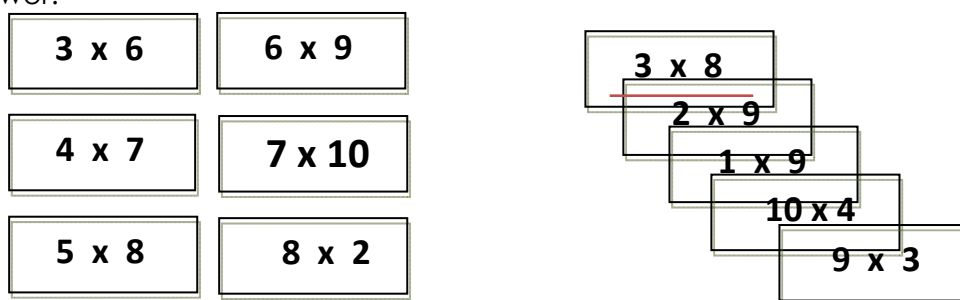
Instructional Procedures

A. Preliminary Activities

1. Drill

Multiplication basic facts

Show flash cards with basic multiplication facts and ask pupils to give the answer.



2. Review

Flash cards with division sentences (around 4 to 5 sentences).

Let pupils identify the terms in a division sentence.

Ask: Which is the dividend? divisor? quotient?

Example:

$$24 \div 6 = 4$$

3. Motivation

Play the game "The boat is sinking" for 3 minutes.

Mechanics of the game:

- Let the pupils stand and stay in one place altogether.
- The teacher/leader says, "The boat is sinking, lifeboats for five." The pupils will form groups with five members in each group. The pupils who cannot form a group with 5 members will sit down.
- The teacher/leader will say again, "The boat is sinking, lifeboats for eight." The pupils will again form groups with eight members in each group. The pupils who cannot form a group with 8 members will sit down.
- Do the activity until only 1-3 pupils are left or until the given time is over.

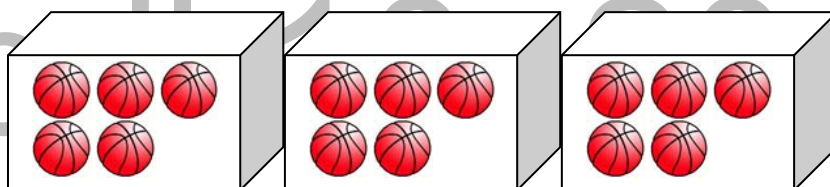
Ask: How did the class perform the game? (*orderly, cooperatively*)

B. Developmental Activities

1. Presenting the Lesson

Show a picture of objects grouped equally.

Example:



Ask:

- How many boxes are there in all?
- How many balls are there in each box?
- How many balls are there in all?
- What multiplication facts/sentences can we give/write? ($3 \times 5 = 15$) This means there are 5 balls in each box and there are 3 boxes, so, 15 balls in all.
- What division facts/sentences can we give/write? ($15 \div 3 = 5$) This means 15 balls divided equally in 3 boxes equals 5 balls in each box; or $15 \div 5 = 3$; this means 15 balls divided equally with 5 balls in each box equals 3 boxes.)

2. Performing the Activity

Let pupils study the table below. Call a pupil to show the multiplication and division facts/sentences given in the example. Call more pupils to give 2 or 3 multiplication and division sentences.

Example: $6 \times 4 = 24$ $4 \times 6 = 24$ $24 \div 4 = 6$ $24 \div 6 = 4$

	x 1	x 2	x 3	x 4	x 5	x 6	x 7	x 8	x 9	x 10
2	2	4				12				
3	3				15					30
6				24				48		
9							63			
10					50				90	

Divide the class into 5 groups. Let each group complete the table. Let them give/write 5 families of multiplication and division sentences/facts.

3. Processing the Activity

Let the groups present their work.

Ask:

- What multiplication facts have you given/written?
- How were you able to give/write the division facts/sentences? (by knowing the multiplication facts, we can give the division facts)
- What can you say about the multiplication facts and the division facts? (The *division facts are the inverse of the multiplication facts*)

4. Reinforcing the Concept

Let pupils answer Activities 1–3 in the LM. Discuss some items in the activities that need to be emphasized.

Answer Key:

Activity 1 - (family of facts can be written in any order)

$8 \times 7 = \underline{56}$	$7 \times 8 = \underline{56}$	$56 \div 7 = \underline{8}$	$56 \div 8 = \underline{7}$
$72 \div 9 = \underline{8}$	$72 \div 8 = \underline{9}$	$9 \times 8 = \underline{72}$	$8 \times 9 = \underline{72}$
$48 \div 6 = \underline{8}$	$48 \div 8 = \underline{6}$	$8 \times 6 = \underline{48}$	$6 \times 8 = \underline{48}$
$10 \times 7 = \underline{70}$	$7 \times 10 = \underline{70}$	$70 \div 10 = \underline{7}$	$70 \div 7 = \underline{10}$
$35 \div 5 = \underline{7}$	$35 \div 7 = \underline{5}$	$7 \times 5 = \underline{35}$	$5 \times 7 = \underline{35}$

Activity 2

- $5 \times 7 = \underline{35}$, $35 \div 7 = \underline{5}$ or $35 \div 5 = \underline{7}$
- $3 \times 9 = \underline{27}$, $27 \div 9 = \underline{3}$ or $27 \div 3 = \underline{9}$
- $8 \times 6 = \underline{48}$, $48 \div 8 = \underline{6}$ or $48 \div 6 = \underline{8}$
- $10 \times 2 = \underline{20}$, $20 \div 2 = \underline{10}$ or $20 \div 10 = \underline{2}$
- $4 \times 8 = \underline{32}$, $32 \div 8 = \underline{4}$ or $32 \div 4 = \underline{8}$

Activity 3:

- 1) 2 2) 3 3) 6 4) 27 5) 6 6) 6 7) 9 8) 2 9) 63 10) 4

5. Summarizing the Lesson

Ask:

How can we give or state the division facts?

(We can give or state the division facts by knowing or giving the multiplication *facts then convert this into division facts.*)

6. Applying to New and Other Situations

Let pupils answer Activity 4 in the LM. If necessary, discuss the puzzle. Ask pupils how they got their answers.

Answer Key:

	36	÷	6	=	6
			÷		
	9	x	3	=	27
8	x	7	=	56	
	2		2		
	=				
	18	÷	2	=	9

C. Evaluation

Let pupils do Activity 5 in the LM. Check pupil's work.

Answer Key:

1) $20 \div 5 = 4$ or $20 \div 4 = 5$

2) $18 \div 6 = 3$ or $18 \div 3 = 6$

3) $5 \times 4 = 20$ or $4 \times 5 = 20$; $20 \div 4 = 5$ or $20 \div 5 = 4$

4) 3

5) $40 \div 8 = 5$

D. Home Activity

For pupils' homework, let them do Activities 6 and 7 in the LM.

Answer Key:

Activity 6

Multiplication Sentence	Division Sentence	Division Sentence
1) $2 \times 9 = \underline{18}$	$18 \div 9 = 2$	$18 \div 2 = 9$
2) $3 \times \underline{7} = 21$	$21 \div 7 = 3$	$21 \div 3 = 7$
3) $9 \times 7 = \underline{63}$	$63 \div 7 = 9$	$63 \div 9 = 7$
4) $\underline{6} \times 6 = 36$	$36 \div 6 = 6$	
5) $8 \times \underline{9} = 72$	$72 \div 9 = 8$	$72 \div 8 = 9$
6) $12 \times 4 = \underline{48}$	$48 \div 12 = 4$	$48 \div 4 = 12$

Activity 7: 1) $48 \div 11 = 4 \text{ r } 4$; 4 hectares each child, 4 hectares remain

2) $80 \div 10 = 8$ stacks

Lesson 48 Dividing 2- to 3-Digit Numbers by 1-Digit Numbers

Week 8

Objective

Divide 2- to 3-digit numbers by 1-digit numbers without or with remainder.

Value Focus

Sharing

Prerequisite Concepts and Skills

Multiplication and division basic facts

Materials

Flashcards, wooden blocks

Instructional Procedures

A. Preliminary Activities

1. Drill

Flash cards with division facts. Ask pupils to give the quotient.

Example:

$24 \div 8$	$18 \div 9$	$24 \div 6$
$27 \div 9$	$14 \div 2$	$15 \div 5$

2. Review

Ask pupils to supply the missing number to complete each sentence.

- 1) $\underline{\quad} \div 7 = 4$
- 2) $35 \div \underline{\quad} = 5$
- 3) $50 \div 10 = \underline{\quad}$
- 4) $36 \div 6 = \underline{\quad}$
- 5) $\underline{\quad} \div 9 = 9$

B. Developmental Activities

1. Presenting the Lesson

Post this problem on the board.

Jose and Almar love to share their toys and food with their friends and relatives. Jose has 36 marbles. He wants to share the marbles equally with his brother. Almar has 43 marbles and wants to share these equally with his friend. How many marbles will Jose's brother and Almar's friend get?

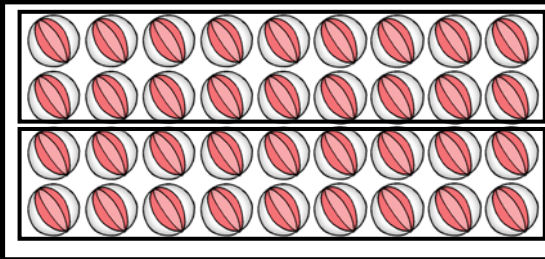
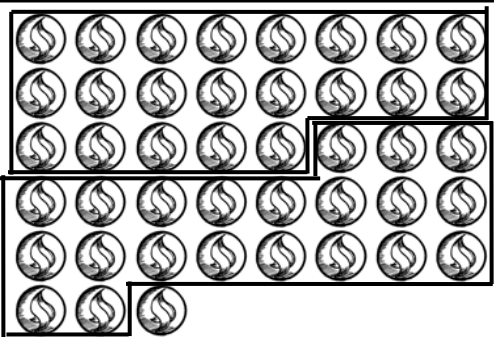
Ask:

- What do Jose and Almar love to do?
- Do you also share your things? Why is it good to share? Cite instances wherein you have shared your food or toys to others.
- How many marbles does Jose have? How about Almar?
- After they share their marbles, how many marbles will each of them get?

Guide the pupils in solving the problem in different ways.

Solution 1. Solving the problem using drawing/illustration and by grouping

Present a drawing/illustration of Jose's and Almar's marbles (a sample is shown below). Let pupils count Jose's marbles, then, Almar's marbles. Ask: Into how many groups will Jose's marbles be divided? Almar's marbles? Then call a pupil to group the marbles equally.

Jose's marbles	Almar's marbles
	
<p>Ask:</p> <p>How many marbles are there in each group?</p> <p>How many marbles will his brother get?</p> <p>Is there any left-over? How many?</p> <p>What is the number sentence?</p>	<p>Ask:</p> <p>How many marbles are there in each group?</p> <p>How many marbles will his friend get?</p> <p>Is there any left-over? How many?</p> <p>What is the number sentence?</p>

Solution 2. Solving the problem using renaming method

Guide pupils in renaming the dividend into a sum of two numbers where the first number is a multiple of 10 that can be divided easily by the divisor.

Jose's marbles	Almar's marbles
<p>Ask: What will we divide?</p> <p>$36 \div 2 = \underline{\quad}$</p>	<p>Ask: What will we divide?</p> <p>$43 \div 2 = \underline{\quad}$</p>

$36 \div 2 = (20 + 16) \div 2$ $= (20 \div 2) + (16 \div 2)$ $= 10 + 8$ $= 18$ Ask: How many twos are there in 20? in 16? Is there any left-over? How many? How many marbles will his brother get?	$43 \div 2 = (40 + 3) \div 2$ $= (40 \div 2) + (3 \div 2)$ $= 20 + 1 \text{ with one left-over}$ $= 21 \text{ with one left-over}$ Ask: How many twos are there in 40? in 3? Is there any left-over? How many? How many marbles will his friend get?
--	---

Solution 3. Solving the problem using long division

Show the steps in dividing using long division.

1. Write the division sentence using $\overline{)}$. Example: $2 \overline{)36}$
2. Start from the digit with the highest place value in the dividend. If the digit with the highest place value in the dividend is smaller than the divisor, use also the next digit. Divide the digit/s by the divisor. Write the partial quotient right above the digit.

Example:

$$\begin{array}{r}
 1 \leftarrow \\
 2 \overline{)36} \\
 \hline
 \end{array}
 \quad
 3 \div 2 = 1$$

Ask: How many 2s are there in 3?

3. Multiply the partial quotient and the divisor and write the answer right below the digit.

$$\begin{array}{r}
 1 \\
 2 \overline{)36} \\
 \underline{-2} \\

 \end{array}
 \quad
 1 \times 2 = 2$$

4. Subtract.

$$\begin{array}{r}
 1 \\
 2 \overline{)36} \\
 \underline{-2} \\
 1
 \end{array}
 \quad
 3 - 2 = 1$$

5. Bring down the next or last digit.

$$\begin{array}{r} 1 \\ 2 \overline{) 36} \\ \underline{-2} \\ 16 \end{array}$$

6. Repeat the previous steps (division, multiplication and subtraction and bring down) until all the digits in the dividend are used up.

$$\begin{array}{r} 18 \\ 2 \overline{) 36} \\ \underline{-2} \\ 16 \\ \underline{-16} \\ 0 \end{array}$$

$16 \div 2 = 8$
 $8 \times 2 = 16$

Jose's marbles	Almar's marbles
<p>Ask: What will we divide? $36 \div 2 = \underline{\quad}$</p> <div style="display: flex; align-items: center;"> <div style="margin-right: 20px;"> $\begin{array}{r} 18 \\ 2 \overline{) 36} \\ \underline{-2} \\ 16 \\ \underline{-16} \\ 0 \end{array}$ </div> <div style="border: 1px solid black; padding: 5px; text-align: center;"> <p>To check:</p> $\begin{array}{r} 18 \\ \times 2 \\ \hline 36 \end{array}$ </div> </div> <p>Ask: Is there any left-over? How many? How many marbles will Jose and his brother each get?</p>	<p>Ask: What will we divide? $43 \div 2 = \underline{\quad}$</p> <div style="display: flex; align-items: center;"> <div style="margin-right: 20px;"> $\begin{array}{r} 21 \text{ r } 1 \\ 2 \overline{) 43} \\ \underline{-4} \\ 03 \\ \underline{-2} \\ 1 \end{array}$ </div> <div style="border: 1px solid black; padding: 5px; text-align: center;"> <p>To check:</p> $\begin{array}{r} 21 \\ \times 2 \\ \hline 42 \\ + 1 \\ \hline 43 \end{array}$ </div> </div> <p>Ask: Is there any left-over? How many? How do we write the left-over or remainder? Explain that r 1 means "remainder 1" and it should be written outside the bar. Ask: How many marbles will Almar and his friend each get?</p>

Ask: Did we get the same answer using the three solutions?

Which is easier to use? Why?

Do you think it is easier to use the drawing method if we are going to divide bigger numbers say, $196 \div 6$?

Let pupils try drawing this. Emphasize that drawing method involves longer time in drawing over a hundred objects or more and counting them.

Ask: How can we find the quotient for $196 \div 6$? Guide the pupils to use the long division method?
 Is there a remainder? What is the remainder? How and where do we write the remainder?
 How can we check if the answer is correct?
(Multiply the quotient and the divisor. the product should be the same as the dividend. If there is a remainder, add it to the product and the sum will be the same as the dividend.)

2. Performing the Activity

Let pupils work by fours. Give the worksheet for their activity.

Worksheet 1

Use the long division method to find the quotient of the following.

a. $205 \div 5 = \underline{\hspace{2cm}}$

b. $561 \div 9 = \underline{\hspace{2cm}}$

Show your solutions here.

Answer the following questions.

1. How did you get the answer?
2. Which of the division sentence has a remainder?
3. What is the remainder?
4. Which solution is easier to use? Why?

Call some pupils to share their answers.

If the pupils have difficulty in doing the activity, guide them in doing the solutions on the board. Have a discussion on each of the solutions.

Example: Solution using long division method

$$\begin{array}{r} 41 \\ 5 \overline{) 205} \\ \underline{-20} \\ 05 \\ \underline{-5} \\ 0 \end{array}$$

$$\begin{array}{r} 62 \text{ r } 3 \\ 9 \overline{) 561} \\ \underline{-54} \\ 21 \\ \underline{-18} \\ 3 \end{array}$$

Sample discussion questions:

- a. Is it easy to show division by grouping if the objects are more than 100? Why?

- b. Do you think it is also easy to use the drawing method in dividing the numbers given to you? Why?
- c. What is the quotient of $205 \div 5$? $561 \div 9$?
- d. Which division sentence has a remainder?
- Let the pupils show the solutions for checking.

3. Processing the Activities

Ask:

- a. Which strategy/solution did we use to find the quotient?
- b. Which of the solutions is easier to use in finding the quotient of 2- to 3-digit number by 1-digit numbers? Why?
- c. What is the relationship of the remainder to the divisor?
- d. How can we check if our answer is correct?

4. Reinforcing the Concept

Let pupils work on Activities 1 and 2 in the LM.

Answer Key:

Activity 1: 1) 24 2) r 3 3) 12 garlands in each tray, 3 garlands left
4) 34 mangoes

Activity 2: 1) r 6 2) no remainder, 3) r 2 4) r 2 5) no remainder 6) r 8

5. Summarizing the Concept

Ask:

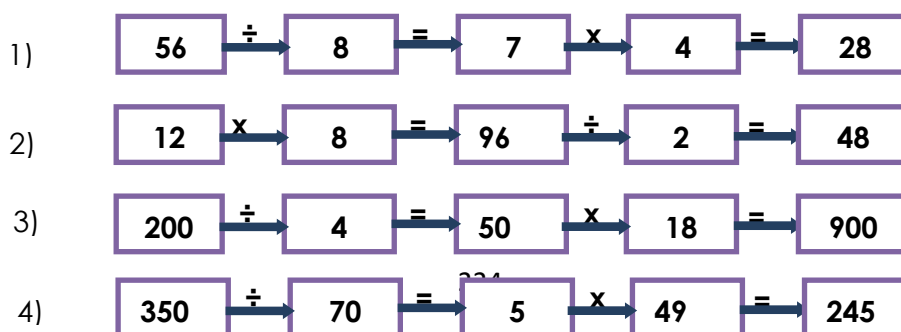
- a. What are the different ways of finding a quotient?
- b. What are the steps in dividing 2- to 3-digit numbers by 1-digit numbers using long division method?
- c. When do we have a remainder? *(There is a remainder if the dividend could not be divided exactly by the divisor.)*
- d. How do we write a quotient with remainder?
- e. What do we do to check if our quotient is correct?

6. Applying to New and Other Situations

Group pupils and let them do Activities 3 and 4 in the LM.

Answer Key:

Activity 3



Activity 4: 1) 16 r 3 2) 33 r 1 3) 74 r 4

C. Evaluation

Let the pupils work on Activity 5 in the LM.

Answer Key: 1) 23 2) Yes; the remainder is 5. 3) Yes because $258 \div 6 = 43$.
4) 88 r 4 5) 95 r 8

D. Home Activity

Let the pupils solve the problems in Activities 6 and 7 in the LM.

Answer Key:

Activity 6: Pupils' answers vary. Possible answers are as follows:

2- or 3-digit Number	Divisor	Quotient
1) 60	4	15
2) 63	6	10 r 3
3) 360	7	51 r 3
4) 706	9	78 r 4

Activity 7

Start $423 \div 4 = \underline{105} \text{ r } \underline{3}$

Add your remainder to the dividend in station 1 before answering.

Station 1: $(319 + \underline{3}) \div 5 = \underline{64} \text{ r } \underline{2}$

Use the quotient as dividend in station 2.

Station 2: $\underline{64} \div 3 = \underline{21} \text{ r } \underline{1}$

Station 3: Add the three remainders: $\underline{3 + 2 + 1 = 6}$

Finish line: Add 91 to the sum of the three remainders: $\underline{6} + 91 = \underline{97}$.

Lesson 49 Dividing 2- to 3-Digit Numbers by 2-Digit Numbers without and with Remainder

Week 8

Objective

Divide 2- to 3- digit numbers by 2-digit numbers without and with remainder

Value Focus

Love for reading/Care for books

Prerequisite Concepts and Skills

1. Basic division facts
2. Concept of repeated subtraction
3. Concept on dividing 2- to 3-digit numbers by 1-digit numbers without and with remainder

Materials

Flashcards on basic division facts, problems printed on the board

Instructional Procedures**A. Preliminary Activities****1. Drill**

Conduct a drill on basic division facts.

2. Review

Ask pupils to solve this problem on the board.

- I have 50 packs of biscuits and I'm giving them equally among 8 groups of pupils. How many packs of biscuits will be left?

3. Motivation

Show storybook to the pupils.

Ask: Who among you likes to read books? Why?

What kind of books do you read?

Do you love your books?

How do you take care of your books?

B. Developmental Activities**1. Presenting the Lesson**

Post this problem on the chart.

- a. Mang Ramon is selling 39 kilograms of lanzones. If each of the 13 customers will buy the same number of kilograms of lanzones, how many kilograms of lanzones will each customer buy?

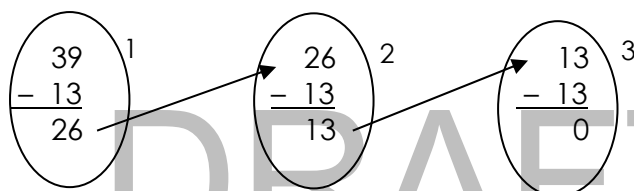
Ask: How will you solve the problem?

- 1) Divide 39 by 13 to get the answer.
Look for the multiples of the divisor 13.

$$\begin{aligned}1 \times 13 &= 13 \\2 \times 13 &= 26 \\3 \times 13 &= 39\end{aligned}$$

So $39 \div 13 = 3$ kilograms of lanzones for each customer

- 2) Use of repeated subtraction
Let the pupils subtract 13 from 39 repeatedly until they reach the difference of 0.



So, what is the division sentence that we can use to represent the problem? ($39 \div 13 = 3$)

- a) How many times did we subtract 13 from 39?
b) Is the number of times 13 is subtracted from 39 equivalent to the quotient 3?
- b. Collette has PhP48. She wants to buy handkerchiefs for her sister. If each handkerchief costs PhP15, how many handkerchiefs can she buy with her money? How much change will she get?

- 1) Have the pupils divide 48 by 15 to solve the problem.
Let them look for the multiples of the divisor 15.

$$\begin{aligned}1 \times 15 &= 15 \\2 \times 15 &= 30 \\3 \times 15 &= 45\end{aligned}$$

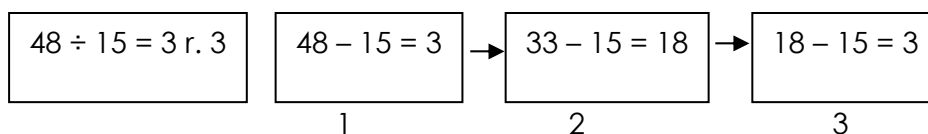
There are 3 groups of 15 in 48. Since $3 \times 15 = 45$, subtract 45 from 48.

$$48 - 45 = 3$$

Therefore: $48 \div 15 = 3 \text{ r } 3$

Collette can buy 3 handkerchiefs with her money. Her change would be PhP3.

2) Another solution: Repeated subtraction



$$\begin{array}{r}
 3 \\
 15 \overline{) 48} \\
 \underline{- 45} \quad \leftarrow \\
 3
 \end{array}$$

How many 15s are there in 48?

$$48 \div 15 = 3$$

$$3 \times 15 = 45$$

$$48 - 45 = 3$$

(The remainder is 3 since there is no more digit to bring down in the division process.)

2. Performing the Activities

Divide the class into three groups.

Have the pupils solve the problem in different ways. Let them present their work to the class.

Cleff has 96 pieces of marbles to be placed equally in 12 boxes.
How many marbles will be in each box?

3. Processing the Activities

How do we divide 2-digit numbers by 2-digit divisors?

4. Reinforcing the Concept

Ask pupils to find the quotient in the exercises of Activity 1 in the LM. Let them write their answers on their papers.

Answer Key: 1) 10 r 11 2) 7 3) 20 r 4 4) 6 5) 37 r 4 6) 30 r 1 7) 12

5. Summarizing the Lesson

How are 2- to 3-digit numbers divided by 2-digit numbers?

6. Applying to New and Other Situations

Refer to Activity 2 in the LM. Have the pupils find the quotient. Let them show their solutions on their paper.

Answer Key: 1) 8 2) 3 3) 4 r 4 4) 8 r 12 5) 19

C. Evaluation

Refer to Activity 3 in the LM. Let the pupils fill in the blanks. Ask them to choose the answer from the numbers in the box. Have them write their answers on their papers.

Answer Key: 1) 7 2) 1 3) 20 4) 23 5) 11

D. Home Activity

Refer to Activity 4 in the LM. Ask the pupils to complete the table. Let them copy the activity on their notebooks. Have them work at home.

Answer Key: 1) 2 r 12 2) 4 3) 5 4) 11 r 6 5) 20 r 8

Lesson 50 Dividing 2- to 3-Digit Numbers by 10 and 100

Week 8

Objective

Divide 2- to 3-digit numbers by 10 and 100

Value Focus

Helpfulness

Prerequisite Concepts and Skills

Division and Multiples of 10 and 100

Materials

"Show me" boards

Instructional Procedures

A. Preliminary Activities

1. Drill

Skip counting activities: Provide a sample activity for this.

Give the missing numbers to complete the pattern.

10	20	30		50
	70	80	90	100
160	170	180	190	
900	800			500

2. Review

Complete each table by following the rule.

Given	Multiply by 10	Multiply by 100
2	20	200

3	30	300
4		
5		
6		
7		
8		
9		

3. Motivation

Divide the class into three groups. Provide each group a multiplication grid.
Example: (6 x 15)

	Multiplier
Multiplicand	

- First, show partition of larger number to make it easier for them to complete the grid. Example: $15 = 10 + 5$
- Write the sum of the number (10 and 5) under the "multiplicand" column. The larger number (10) should be written first followed by the smaller number 5.

	Multiplier
Multiplicand	6
10	
5	

- Then, multiply the digit on the top row by the multiplier ($10 \times 6 = 60$). Write the answer on the first row under the "multiplier" column. Repeat the same procedure for the other number ($5 \times 6 = 30$).
- Finally, add the products of these two number ($60 + 30 = 90$)

	Multiplier
Multiplicand	6
10	60
5	30

Sum: 90

Answer the following using the grid.

Group 1: 4×65

	Multiplier
Multiplicand	4

Group 2: 7 x 48

	Multiplier
Multiplicand	7

Group 23: 6 x 32

	Multiplier
Multiplicand	6

B. Developmental Activities

1. Presenting the Lesson

A civic organization receives a donation of 200 bottles of mineral water for the victims of Typhoon Yolanda in Tacloban City. The bottles of mineral water will be distributed equally among 10 families. How many bottles of mineral water would each family receive?

Can you help them find ways on how to distribute the number of bottles equally among them?

Let us find 200 divided by 10.

<p>1. Use of family of multiplication and division facts</p> <p> $2 \times 1 = 2 \longrightarrow 2 \div 1 = 2$ $20 \times 1 = 20 \longrightarrow 20 \div 10 = 2$ $20 \times 10 = 200 \longrightarrow 200 \div 10 = 20$ </p> <p>Each Barangay will receive 20 boxes of noodles</p>	<p>2. Cross Out Method/Short cut method</p> <p>Cross out zeros to make division easier.</p> <p>$20\cancel{0} \div 1\cancel{0} = 2$</p> <p>Cross out the same number of zeros in both the dividend and divisor.</p> <p>$2\cancel{0} \div 1\cancel{0} = 2$</p> <p>Think: 2 tens \div 2 = 2 tens</p>	<p>3. Long Method</p> <p>Step 1</p> $\begin{array}{r} 20 \\ 10 \overline{) 200} \\ \underline{- 20} \\ \end{array}$ <p>Divide: $20 \div 10 = 2$ Multiply $2 \times 10 = 20$ Subtract $20 - 20 = 0$</p> <p>Step 2</p> $\begin{array}{r} 20 \\ 10 \overline{) 200} \\ \underline{- 20} \\ 0 \text{ bring down} \\ \underline{- 0} \text{ zero in the} \\ 0 \text{ ones place} \end{array}$
--	--	---

	So $200 \div 10 = 20$	Divide $0 \div 10 = 0$ Multiply $0 \times 10 = 0$ Subtract $0 - 0 = 0$
--	-----------------------	--

Ask:

- Which method would you think is easier to use? Why?
- As a pupil what can you offer/give to these people who were victims of typhoon Yolanda? Why?

Let us have another example:

$$9000 \div 100 =$$

Look at the number of zeros in the divisor, then cross-out as many zeros in the dividend as there are in the divisor. What do you get?

$$9000 \div 100 =$$

$$90 \div 1 = 90$$

$$\text{So, } 9000 \div 100 = 90$$

Let us have more examples

Let us find $42 \div 10$.

$$\begin{array}{r} 4 \text{ r } 2 \\ 10 \overline{) 42} \\ \underline{40} \\ 2 \end{array}$$

There are no digits left to divide, so 2 is the remainder.

The answer is 4 remainder 2.

Let us find $8250 \div 100$.

$$\begin{array}{r} 8 \text{ r } 25 \\ 100 \overline{) 8250} \\ \underline{800} \\ 25 \end{array}$$

100 is greater than 25, so 25 is the remainder.

The answer is 8 remainder 25.

2. Performing the Activities

- Divide the pupils into four groups.
Group 1 and 2 will find the answer using the family of multiplication and division facts and the remaining groups will be using cross-out method or cancellation.
Ask the pupils to post their answers on the board and let the group leader explain their work.

Groups 1 and 2	Groups 3 and 4
----------------	----------------

1) $320 \div 10$	1) $460 \div 10$
2) $560 \div 10$	2) $680 \div 10$
3) $125 \div 10$	3) $375 \div 10$
4) $2560 \div 100$	4) $3150 \div 10$
5) $4500 \div 100$	5) $5420 \div 10$

- b. Have pupils work on Activities 1 and 2 in the LM. Tell them to write their answers on their papers.

Answer Key:

Activity 1: A. 1) 65 2) 10 3) 10 4) 48 r 6 5) 9 r 3

B. 1) 6 2) 25 3) 50 4) 40 5) 78

Activity 2: 1) a 2) b 3) a 4) a 5) d

3. Processing the Activities

What are the methods used in dividing numbers by 10 and 100 without remainder? with remainder?

4. Reinforcing the Concept

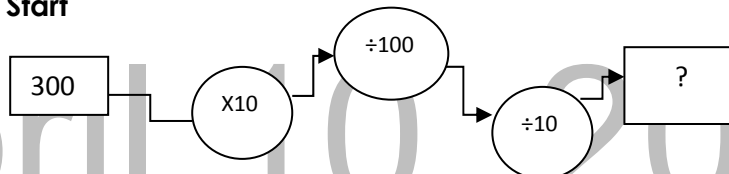
- a. Group Activity: Form the class into four groups. Let them answer the activity using their answer sheet.

Follow the number paths. Write the answer in your answer sheet.

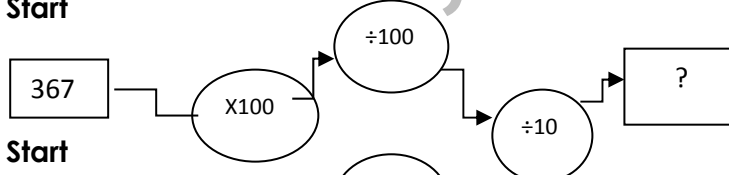
1) **Start**



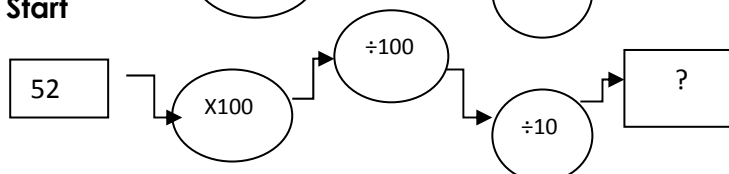
2) **Start**



3) **Start**



4) **Start**



Answer Key: 1) 500 2) 3 3) 36 r 7 4) 5 r 2

- b. Have pupils work on Activity 3 in the LM.

Answer Key:

1) 56 2) 8 3) 43 4) 75 5) 62 6) 81 7) 90 8) 10

- c. Have pupils work on Activity 4 in the LM. Have them solve the activity in their notebook.

Answer Key:

1) 56 2) 8 3) 43 4) 75 5) 62 6) 81 7) 40 8) 10 9) 12 10) 9

5. Summarizing the Concept

What do you do to divide whole numbers by 10 or 100?

To divide whole numbers by 10 or 100, cancel the same number of zeros from both the dividend and the divisor.

6. Applying to New and Other Situations

Solve the following problems. (Four in each group)

1. The 500 pupils of San Isidro Elementary School are going on a field trip. They will be distributed equally among ten buses. How many pupils will be in each bus?
2. The pupils are going to watch the dolphin show which can accommodate 100 pupils per group. How many groups of 100 will there be in 500?
3. Angela and Cathy assist their teacher in arranging books in the library. They have to put 400 books in 10 book shelves. How many books will there be in a bookshelf?
4. There are different kinds of books in the library. If there are 100 books of each kind, how many kinds of books are there in 800?
5. Renz and Angelu help their father pack mangoes to be sold in the market. They have gathered 850 mangoes to be divided equally between 10 baskets. How many mangoes are there in every basket?

Answer Key: 1) 50 buses 2) 5 groups 3) 40 books 4) 8 kinds 5) 85 mangoes

C. Evaluation

Have pupils work on Activities 5 and 6 in the LM. Check their answers.

Answer Key:

Activity 5

Quotient	Number sentence	
	Divisor: 10	Divisor: 100
1) 9	$90 \div 10$	$900 \div 100$
2) 7	$70 \div 10$	$700 \div 100$
3) 36	$360 \div 10$	$3\ 600 \div 100$
4) 60	$600 \div 10$	$6\ 000 \div 100$
5) 78	$780 \div 10$	$7\ 800 \div 100$

Activity 6

1) 48 2) 56 3) 61 4) 82 5) 95 6) 4 7) 5 8) 6 9) 8 10) 9 11) 4 r 9
12) 7 r 5 13) 1 r 25 14) 3 r 66 15) 95

D. Home Activity

Divide the following by 10 and then by 100. Write the answers in your notebook.

120	230	360	225	300	345	500	623	1400	2300
-----	-----	-----	-----	-----	-----	-----	-----	------	------

Answer Key:

Divisor	120	230	360	225	300	345	500	623	1 400	2 300
10	12	23	36	22 r 5	30	34 r 5	50	62 r 3	140	230
100	1 r 20	2 r 30	3 r 60	2 r 25	3	3 r 45	5	6 r 23	14	23

Lesson 51 Estimating the Quotient

Week 9

Objective

Estimate the quotient of 2- to 3-digit numbers by 1- to 2-digit numbers with reasonable results

Prerequisite Concepts and Skills

Rounding off numbers

Materials

"Show Me" boards, number wheel

Instructional Procedures

A. Preliminary Activities

1. Drill

Show the number wheel to the class. Distribute "Show me" boards to the pupils. Instruct them to round off each number that the pointer indicates.



2. Review

Divide the class into five groups. Let them complete the grid for 3 minutes.

Make a table as shown below. Let the pupils divide the numbers along the first row (dividend) with the numbers along the first column (divisor). Write the quotient in the grid. Provide an example.

		Dividend			
		÷	90	120	150
Divisor	3		30		
	6				
	10				

B. Developmental Activities

1. Presenting the Lesson

Present a problem.

Let the pupils analyze the given problem.

A jeepney driver travelled a total distance of 325 km in 31 days. About how many kilometers did he travel in each day? (This is assuming he did not have a day off and the distance covered daily is uniform).

Ask:

- What process will you use to solve the word problem?
- How will you represent the problem into a number sentence?
- Can you think of a possible solution to get the answer?

Look at the given: $325 \div 31$.

Ask the pupils to estimate $325 \div 31$.

Lead the pupils in discovering the steps.

Lead them to answer the problem by asking questions. Write the pupils' response on the chart.

Ask:

- d. What is the divisor in the given? How many digits are in the divisor?
- e. What about the dividend?
- f. What is 31 when you round it off to the nearest tens?

Now, can you think of a compatible number closer to 325 that can be divided by 31?

Explain compatible numbers in math are numbers that are close together in value. They can be used for estimations, or when attempting to do mental math. For example, $21 \div 11$, the compatible numbers are $20 \div 10$ because 20 can be easily divided by 10. So the estimated quotient of $21 \div 11$ is 2.

Given	Round the divisor	Think of Compatible Numbers	Estimate
What are given? $325 \div 31$	$352 \div 31$ 31 rounds to 30	$300 \div 30$ 10	$325 \div 31$ 10

(Ask the pupils to give possible answers.)

From your list, which among these numbers is closer to 325 and can be a compatible number to divide?

Now, what is your estimate answer?

How far did the driver travel a day?

Does it mean that the driver travels more or less than 10 kilometers in a day? Why? *(The driver travels more than 10 km in a day because $325 \div 31 = 10 \text{ r } 15$, which is greater than 10 km.)*

Let us have more examples:

If Karen pours 80 glasses of *buko* juice into 9 pitchers, about how many glasses of *buko* juice will be in each pitcher?

Let us estimate the quotient of $80 \div 9$. Look at the divisor. How many digits do we have in the divisor? What about the dividend?

This time let us analyze the dividend. Can you think of a number which is close to 80?

What is the closest number to 80 that can be divided by 9? *(81)*

Now, what is $81 \div 9$? (9)

So, there will be 9 glasses of *buko* juice in each pitcher.

Why is it important to think of the basic facts in estimating the quotient?

Is the quotient of $33 \div 4$ greater than or less than 8?

Now look at 33. This number is close to what number? (32)

$$32 \div 4 = 8$$

To check, let us multiply 8 and 4, and you will have the same answer.

Emphasize that, in estimating quotients, we do not round a 1-digit divisor.

2. Performing the Activities

- a. Present the activity to the class. Let the pupils answer Activity 1 in the LM using their paper.

Answer Key:

Given	Round off the divisor	Think of compatible numbers	Estimate
1) $184 \div 11$	10	$180 \div 10$	18
2) $338 \div 48$	50	$350 \div 50$	7
3) $508 \div 21$	20	$500 \div 20$	25
4) $677 \div 56$	60	$660 \div 60$	11
5) $889 \div 78$	80	$880 \div 80$	11

- b. Divide the class into five groups.
Provide an activity card for each group to perform.
Ask somebody from the group to report their output.

Group 1	1) $25 \div 6 =$ _____ 2) $274 \div 9 =$ _____
Group 2	3) $41 \div 7 =$ _____ 4) $526 \div 12 =$ _____
Group 3	5) $65 \div 8 =$ _____ 6) $615 \div 28 =$ _____
Group 4	7) $74 \div 9 =$ _____ 8) $479 \div 18 =$ _____
Group 5	9) $85 \div 5 =$ _____ 10) $285 \div 5 =$ _____

- c. Activity: Read and answer the activity below. Give this problem one at a time. Let the pupils answer each item for one minute.
(Present this sample first.)

Ask: What basic division fact can you use to help you estimate the quotient of $14 \div 5$? Explain.

Possible answer: $15 \div 5 = 3$. Since 14 is close to 15, the quotient is about 15.

Ask:

1) Is the quotient of $49 \div 6$ greater than or less than 8? Explain.

(Answer: $48 \div 6 = 8$, so $49 \div 6$ is greater than 8)

2) Is the quotient of $53 \div 9$ greater than or less than 6? Explain.

(Answer: $54 \div 9 = 6$, so $53 \div 9$ is less than 6)

3) Is the quotient of $41 \div 7$ greater than or less than 6? Explain.

(Answer: $42 \div 7 = 6$, so $41 \div 7$ is less than 6)

3. Processing the Activities

Ask:

a. How did you do to get the answer?

b. Why is it important to round off the divisor in estimating quotient?

4. Reinforcing the Concept

Have pupils answer Activity 2 in the LM. Check pupils' work.

Answer Key: Activity 2

A. 1) 40 2) 36 3) 40 4) 40 5) 36

B. 1) $20 \div 5 = 4$ 2) $28 \div 4 = 7$ 3) $36 \div 4 = 9$

4) $64 \div 8 = 8$ or $72 \div 8 = 9$ 5) $95 \div 5 = 19$

C. 1) $120 \div 20 = 6$ 2) $320 \div 80 = 4$ 3) $420 \div 60 = 7$

4) $720 \div 90 = 8$ or $800 \div 100 = 8$ 5) $810 \div 90 = 9$

For additional activity, let the pupils estimate the quotient of the following. Let them write their answers in their notebooks.

1) $16 \div 5$

a. Write the closest number to 16 that divides 5 evenly _____

b. Write a new number sentence

c. $16 \div 5$ is about _____

2) $786 \div 37$

a. Write the closest number to 786 that divides 37 evenly _____

b. Write a new number sentence

c. $786 \div 37$ is about _____

5. Summarizing the Lesson

Ask: How can we estimate the quotient?

To estimate a quotient, round the divisors.

Think of the compatible numbers to divide the estimate.

6. Applying to New and Other Situations

Have pupils work on Activities 3 and 4 in the LM. Discuss and check pupils' answers.

Answer Key:

Activity 3: 1) $64 \div 8 = 8$, about 8 pupils

2) $48 \div 3 = 16$, 16 in each group

3) $700 \div 10 = 70$, about 70 pupils or $732 \div 12 = 61$, about 61 pupils

Activity 4

Day	Number of Players	Number of Teams
1. Monday	73	<u>8</u>
2. Tuesday	37	<u>4</u>
3. Wednesday	82	<u>9</u>
4. Thursday	55	<u>6</u>
5. Friday	46	<u>5</u>

C. Evaluation

Have pupils work on Activity 5 in the LM. Check pupils' work.

Answer Key:

A.

	Estimate	> or <	Exact Quotient
1) $64 \div 7$	$63 \div 7 = 9$	<	9 r 1
2) $83 \div 9$	$81 \div 9 = 9$	<	9 r 2
3) $130 \div 8$	$120 \div 8 = 15$	<	16 r 2
4) $396 \div 4$	$400 \div 4 = 100$	>	99
5) $850 \div 9$	$850 \div 10 = 85$	<	94 r 4
6) $244 \div 37$	$240 \div 40 = 6$	<	6 r 22
7) $300 \div 59$	$300 \div 60 = 5$	<	5 r 5
8) $397 \div 4$	$400 \div 4 = 100$	>	99 r 1
9) $230 \div 73$	$210 \div 70 = 3$	<	3 r 11
10) $545 \div 50$	$550 \div 50 = 11$	>	10 r 45

B. 1) exact 2) exact 3) estimate

D. Home Activity

Have pupils work on Activity 6 in the LM. Have them estimate the quotient.

Answer Key: A. 1) 5 2) 50 3) $540 \div 6 = 90$ 4) 9 5) $440 \div 20 = 22$

B. Pupils' answers vary

Lesson 52 Dividing Mentally 2-Digit Numbers by 1-Digit Numbers without Remainder

Week 9

Objective

Divide mentally 2-digit numbers by 1-digit numbers without remainder

Value Focus

Cooperation

Prerequisite Skills

Division, factors of a given number

Materials

Cut-outs, real objects, flash cards

Instructional Procedures

A. Preliminary Activities

1. Drill

Contest: "A Step for Victory"

Mechanics:

1. Pupils will be grouped into fives. Participants from each group will be called one at a time.
2. Flash the cards with word problems or mathematical facts such as:

a. I'm thinking of a number. When you divide it by 3 the quotient is 6. What is the number?
b. The dividend is 10, the quotient is 2, what is the divisor?
c. The divisor is 5, the quotient is 9, what is the dividend?
d. The divisor is 7, the dividend is 21, what is the quotient?
e. The dividend is 81, the divisor is 9, what is the quotient?

$\begin{array}{r} 2 \\ \times 6 \\ \hline \end{array}$	$\begin{array}{r} 7 \\ + 8 \\ \hline \end{array}$	$\begin{array}{r} 30 \\ - 11 \\ \hline \end{array}$	$\begin{array}{r} 8 \\ \times 4 \\ \hline \end{array}$	$\begin{array}{r} 63 \\ \div 9 \\ \hline \end{array}$	$\begin{array}{r} 28 \\ \div 7 \\ \hline \end{array}$	$\begin{array}{r} 12 \\ + 23 \\ \hline \end{array}$
--	---	---	--	---	---	---

3. The first pupil to give the correct answer will make a step forward together with his/her group mates. The first set of pupils from each group will then go at the back of their other group mates.
4. Another set of pupils from each group will answer another mathematical problem. The first pupil to give the correct answer will make a step forward together with his/her group mates. This set of pupils from each group will also go at the back of their other group mates.
5. Do this activity until one group reaches the finish line and will be declared the winner.

2. Review

Find the missing numbers.

1. $3 \times 3 = \underline{\quad}$

2. $30 \times \underline{\quad} = 90$

3. $\underline{\quad} \times 3 = 900$

4. $4 \times 4 = \underline{\quad}$

5. $5 \times \underline{\quad} = 200$

What multiplication pattern did you use to find the missing number?

3. Motivation

Say:

Get 9 counters, e.g. popsicle sticks. Suppose you will give these counters equally to your 3 friends for your science activity, how many counters will each of your friends receive? Using your "Show me" boards, draw how you will group these counters equally.

1. Into how many groups did you divide the counters? Why?
2. How many counters will be given to each of your friends?
3. Using your show cards, draw different ways of grouping 12 equally.
4. What is the basic fact that you used in the problem? $(9 \div 3) = 3$
5. Do you also share your toys? Why?
6. How do you feel when you share your toys?

B. Developmental Activities

1. Presenting the Lesson

Present a word problem.

Miss Hilario has 90 books in mathematics. She wants to divide these books equally among 3 sections. How many books will each section receive?

Ask:

- a. How many books does Miss Hilario have?
- b. What does she want to do with the books?
- c. How shall she solve the problem?
- d. What is the number sentence? $(90 \div 3 = n)$

Let us analyse the given in the problem:

Say: Let's answer $90 \div 3$ mentally.

Ask: Look at the dividend. Is it divisible by 10?

Since 90 is a multiple of 10, you can simply use the basic fact to divide 90 by 3 mentally

$90 \div 3 = 9$ tens divided by 3 equals 3 tens.

So, $90 \div 3 = 30$

Each section will have 30 books.

What strategy did you use to get the answer? **(Family fact/basic division fact)**

If Miss Hilario will distribute the 90 books to 30 schools in Manila, how many books will each school receive?

What process will you use to solve the problem?

Look at the number of zeros in both the dividend and divisor.

Can we cross out the same number of zeros in both the dividend and divisor?
(Write the equation on the board.)

$$90 \div 30 = 3$$

Now think $9 \div 3 = 3$

So, what is $90 \div 30 = 3$

Each school will receive 3 books.

What do you call this strategy, when you cancelled the same number of zeros both in dividend and in divisor? **(Cross-out method)**

Can you divide 95 by 5 without using paper and pencil?

Let us find the answer:

Can you rename the dividend 95?

Write the pupils' response on the board

By renaming:

$$95 \div 5 = (60 \div 5) + (35 \div 5)$$
$$12 + 7 = 19$$

$$\text{So, } 95 \div 5 = 19$$

In this example, what did you do to divide mentally? (rename the dividend)

What do you call this strategy? **(Renaming)**

Let us use $95 \div 5$ in dividing mentally using another strategy:

Ask: What is the divisor? (5)

If the divisor is 5, multiply it by 2 to make it 10.

Multiply also the dividend by 2 to compensate and divide its product by 10.

$$95 \div 5 = (95 \times 2) \div (5 \times 2)$$
$$190 \div 10 = 19$$

What strategy did you use to divide? $95 \div 5$? **(Compensation)**

2. Performing the Activity

- a. Divide the following mentally using any method. Use your show me board.
The teacher will read the given. When she says "stop" the pupils will raise their show me board.

1. $45 \div 5$

6. $76 \div 4$

- | | |
|----------------|-----------------|
| 2. $54 \div 3$ | 7. $72 \div 3$ |
| 3. $60 \div 2$ | 8. $85 \div 5$ |
| 4. $68 \div 4$ | 9. $90 \div 6$ |
| 5. $70 \div 5$ | 10. $98 \div 7$ |

b. Group Activity

Divide the class into four groups. Ask a representative from each group to serve as guard in the other group. The guard will insure that the group members are not using paper and pencil to get the correct answer.

The fastest group with the most number of correct answers wins.

Let them do Activity 1 in the LM.

Answer Key: 1) 15 2) 19 3) 38 4) 17 5) 16

3. Processing the Activity

Ask:

- How did you get the answers in the activity?
- How many digits are there in the dividends? the divisor?
- Can we get the answer without using our paper and pencil? How?
- What strategies did you use in dividing mentally?
- Which among the strategies given is the easiest for you to divide mentally? Why?

4. Reinforcing the Concept

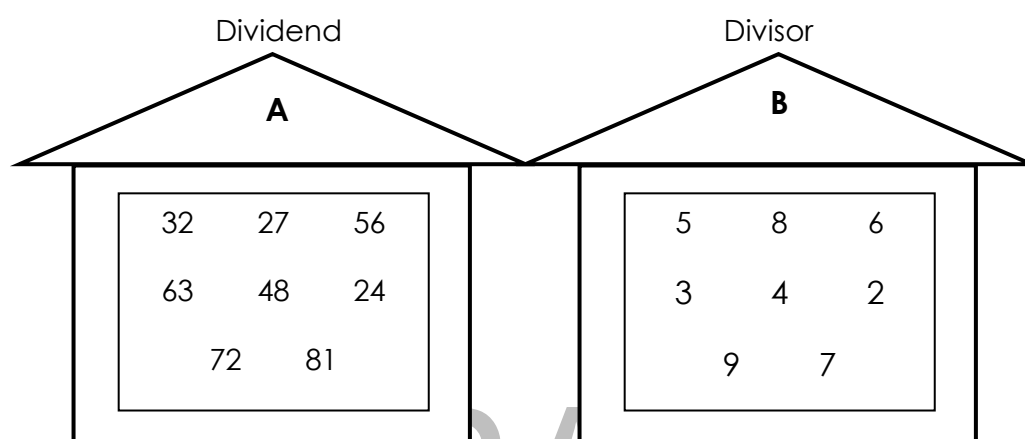
- a. Prepare cards with mathematical problems. Instruct one pupil to pick one card from the box. Then ask the pupil to read the question and give the correct answer. (The teacher should have ready-made questions before the activity.)

Examples:

1. $45 \div 3 = \underline{\quad}$
2. $\underline{\quad} \div 10 = 5$
3. $60 \div \underline{\quad} = 30$
4. $75 \div \underline{\quad} = 25$
5. How many tens are there in 60?
6. How many fives are there in 75?
7. What is $46 \div 2$?
8. How many 15s are there in 60?

- b. Refer pupils to Activity 2 in the LM. Have them use mental division to complete each table.

- c. Choose one dividend from house A and one divisor from house B to make a division sentence. You may use each number more than once.



5. Summarizing The Concept

How do we divide mentally 2-digit numbers by 1-digit numbers without remainder?

To divide mentally, rename the dividend to numbers that are easy to divide, then add their quotient.

When the divisor is 5, use compensation method to divide mentally. This means, multiply the divisor 5 by 2 to make it 10. Then multiply the dividend by 2 and divide its product by 10.

6. Applying to New and Other Situations

- a. Let the pupils solve the following problems mentally.
1. There are 36 mangoes on the table. If Rina will put 4 mangoes in each box, how many boxes will be used?
 2. Mang Tomas sells rice in the market. He wants to pack 75 kilos of rice into 5-kilo bags. How many bags will he need?
 3. Mrs. Padilla's class is 60 minutes. She wants to divide her class time into 3 equal periods. How many minutes will each period be?
 4. Mother buys 36 meters of cloth for her dress shop. She has to distribute it to her 3 sewers equally.
 - a. How many meters will each sewer receive?
 - b. How could you use a basic fact to find the answer?

- b. Give Activity 3 in the LM to pupils. Have them construct division sentences mentally using the given number as dividend.

C. Evaluation

1. Provide the activity below and let the pupils solve mentally then compare the quotients using greater than, less than or equal to.
1) $35 \div 7$ _____ $16 \div 4$
2) $48 \div 6$ _____ $63 \div 7$
3) $56 \div 7$ _____ $24 \div 3$
4) $88 \div 4$ _____ $60 \div 5$
5) $90 \div 3$ _____ $96 \div 3$
2. Have pupils work on Activity 4 in the LM. Have them explain the method they used to solve the problem.
Pupils' answers vary. Check the reasonableness of pupils' answers.
Possible answer:
 $(10 \text{ pieces of pencils} \times \text{PhP}6.00) + (1 \text{ pad paper} \times \text{PhP}15.00) = \text{PhP}75.00$

D. Home Activity

Assign Activity 5 in the LM as homework. Let pupils write their answers in their notebooks. (Pupils' answers vary)

Lesson 53 Solving Problems involving Division without or with any other Operations of Whole Numbers

Week 10

Objective

Solve routine and non-routine problems involving division of 2- to 4-digit numbers by 1- to 2-digit numbers without or with any other operations of whole number including money using appropriate problem strategies and tools

Value Focus

Resourcefulness, Helpfulness

Prerequisite Concepts and Skills

Division and multiplication facts

Materials

Flashcards

Instructional Procedures

A. Preliminary Activities

1) Drill

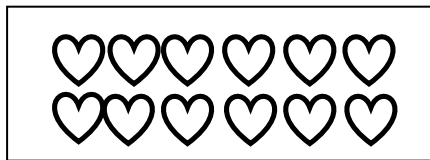
Flash cards with the division facts and let the pupils solve mentally.

- | | |
|------------------|--------------------|
| 1. $18 \div 3 =$ | 6. $63 \div 7 = 9$ |
| 2. $24 \div 4 =$ | 7. $70 \div 5 =$ |
| 3. $32 \div 8 =$ | 8. $80 \div 4 =$ |
| 4. $49 \div 7 =$ | 9. $81 \div 9 =$ |
| 5. $56 \div 9 =$ | 10. $90 \div 10 =$ |

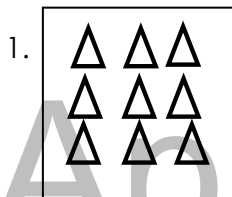
2) Review

Shows a flash card with illustration and ask the pupils to write the division and fact family using their "show me" board one at a time.

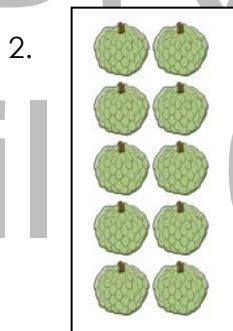
Example:



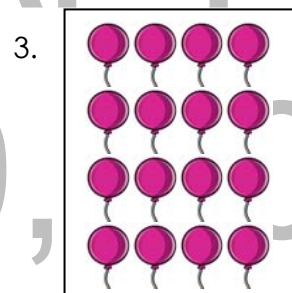
Number sentence: M $2 \times 6 = 12$ \longleftrightarrow D $12 \div 6 = 8$



M _____
D _____



M _____
D _____



M _____
D _____

3) Motivation

Ask:

What have you seen in the picture?

What can you say about the current price of rice in the market?

Why do you think most of us like to eat rice?



B. Developmental Activities

1. Presenting the Lesson

Present a problem.

Mang Ramon packed 96 kilos of rice into 12-kilo bags. A bag of rice was sold for PhP400 each. If he paid his helper PhP500, how much did he earn?

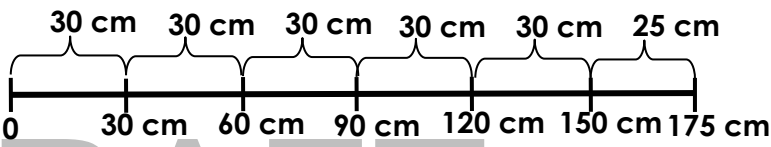
Let us analyze the problem. Use the following steps:

Steps	Questions	Response
Solving problem requires understanding and analysis of the problem.	What do you need to find out in the problem? What does the problem tell? What information do you have? What are the hidden questions?	The amount the owner earned 96 kilos of rice packed into 12-kilo bags. A bag of rice was sold at PhP400 each. Salary of helper PhP500, How many 12-kilo bags of rice were sold?
Plan: Knowing all the needed information and data, determining what operations to use.	What operations to use? Write a number sentence.	Division and multiplication and subtraction $((96 \div 12) \times \text{PhP}400) - \text{PhP}500 = \underline{\hspace{2cm}}$
Solve	Perform the operations. Do the operation inside the () first.	$96 \div 12 = 8$ $\text{PhP}400 \times 8 = \text{PhP}3\,200$ $\text{PhP}3\,200 - 500 = \text{PhP}2\,700$
Answer:		The vendor earned PhP270

Let's have more examples:

1. Annie is using plastic string to make key chains. Initially, she had 175 cm of plastic string. She used 30 cm for one key chain. Is Annie going to have enough plastic string for five more key chains of the same size?

Do you have any idea on how to solve this problem? Let's figure out!

Understand	<p>What facts do you know?</p> <ul style="list-style-type: none"> • The roll of string is 175 cm long. • Each keychain is 30 cm long. • She has already used 40 cm of string. <p>What do you need to find?</p> <ul style="list-style-type: none"> • Does Annie have enough string to make 6 more key chains?
Plan	<p>(The teacher should bring the following to facilitate the learning process.)</p> <p>Use the <i>act it out</i> strategy with a piece of string that is 175 cm long.</p> <p>Mark off the amount used for the first keychain, 30 cm, and continue marking off lengths of 30 cm until there are six more key chains or no more string left</p>
Solve	 <p>Notice that there is only enough string for 4 more key chains. So, there is not enough plastic string for 5 more key chains.</p>
Check	<p>Look back. Is the answer reasonable? Check by multiplying. Since $30 \times 5 = 150$ and $30 \times 6 = 180$, there is only enough string for 5 key chains in all, not 6.</p>

2.

has 15 pieces of stars. She wants to share them equally with her 3 friends, how many stars will each of them receive?
Can you think of different ways to solve this?

Provide cut-outs of 15 pieces of stars. Ask the pupils to group the stars to demonstrate equal sharing.

Ask: Can we group the stars into 3 equally?

Ask two pupils to demonstrate the groupings.

Possible Answers:

Pupil 1 will give the stars one at a time to her friends until all the stars are given.

Pupil 2 will give 5 stars at once to each of her friends.

So, each of them will receive 5 stars.

2. Performing the Activities

a. Work in pairs.

Instruct the pupils to work in pair. The teacher will post a question on the board.

Ask them to draw a picture to illustrate the sharing of 6 pieces of 50-peso bills equally distributed among 5 friends. How much will each receive?

Let the pupils explain their work.

- b. Have pupils read and answer Activity 1 in the LM. Have them use different strategies in finding the answer. Let them explain their answer. (Pupils' strategies may vary.)

Answer Key: (possible answers)

- 1) Yes, $60 - (7 \times 7) = 60 - 49 = 11$ sandwiches left
- 2) $\text{PhP}850 \div 120 = 7 \text{ r } 10$; 10 pesos would be left after 7 days
- 3) $2\ 161 \div 200 = 10 \text{ r } 161$, 10 baskets with 200 mangoes and 161 mangoes will be put in one basket

3. Processing the Activities

Ask: What are the different strategies in finding the answer?

4. Reinforcing the Concept

Group Activity

Divide the class into six groups. Distribute the activity cards. Ask them to show their solution and post their work after answering the activity.

Groups 1 and 2

Jovie saves PhP 225.00. She would like to buy identical gifts for her 3 friends. How much is the cost of gift that she would give to them?

Groups 3 and 4

Look at the table below.

1. Helper A	can carry 10 boxes of <i>rambutan</i>
2. Helper B	can carry 8 boxes of <i>rambutan</i>
3. Helper C	can carry 6 boxes of <i>rambutan</i>

How many different ways could the three helpers divide the boxes of rambutan? How do you know that you have shown all the possible ways of grouping 24?

Groups 5 and 6

There are 225 pupils in Grade 3. If the pupils are divided equally into 5 sections, how many pupils are there in each section?

Illustrate the sentences below and write the number sentence.

1. PhP3 200 is given to 80 pupils.
2. Mario bought 3 kilos of rice worth PhP112.
3. 32 pieces of *pandesal* given to 4 pupils
4. 60 goats owned equally by 6 farmers

5. How many 50's are there in 6 000?

5. Summarizing the Concept

Ask: What are the different strategies /methods in solving word problems?

6. Applying to New and Other Situations

a. Have pupils work on Activity 2 in the LM. Have them illustrate or show the different ways of grouping/answering the given problems.

Answer Key:

- 1) 4 cupcakes
- 2) Yes, because $\text{PhP}750 \div (5 + 2) = \text{PhP}107$ with PhP1 remaining
- 3) 3 packs of noodles, 4 kilos of rice and 1 bar of laundry soap for each household
- 4) Yes, because $35 \times \text{PhP}50 = \text{PhP}1\,750$, PhP1 750 is less than PhP6 000.
- 5) Pupils answers may vary

b. Have them work on Activity 3 in the LM.

Answer Key: Strategies of pupils' may vary.

Possible solutions:

- 1) Pupils may draw 76 objects and group them into 12 sets of 6. The number of objects left is 4.
- 2) $\text{PhP}920 \div 20 = 46$ twenty-pesos
- 3) 15 4) 25 5) 6 groups of 100

c. Let the pupils answer the following questions by pairs. Let them show their solutions in their notebook

- 1) A baker bakes 1 720 cookies. He placed 25 pieces in each plastic bag. How many plastic bags of cookies were there in all?
- 2) Seven boys ate their lunch at the canteen. The meal cost PhP238. They agreed to share equally the expenses. What was the share of each boy?

Answer Key:

- 1) 68 plastic bags with 25 cookies and 20 remaining cookies
- 2) PhP34 share of each boy

C. Evaluation

Let the pupils answer the problems below on their paper.

Direction: Read and answer the problems.

- 1) A sampaguita vendor gathered 800 sampaguita flowers. She used 10 flowers to make a garland. How many garlands did she make?
- 2) Mr Reyes's store had 144 pairs of socks. The socks were sold in packages of 12 pairs. How many packages were there?
- 3) Mrs. Abellardo withdrew PhP2 500 from the bank. She bought grocery items worth PhP1 375 and the remaining amount would be given equally among

her 3 children as their weekly allowance. How much would each child receive? Explain your answer.

Answer Key: 1) 80 garlands 2) 12 packages 3) PhP375 per child

D. Home Activity

Let pupils answer Activity 4 in the LM.

(Pupils' answers may vary.)

Lesson 54 Creating Problems Involving Divisions or with any of the other Operations of Whole Numbers

Week 10

Objective

Create problems involving division or with any of the other operations of whole numbers including money with reasonable answers

Value Focus

Sharing

Prerequisite Concepts and Skills

Multiplication, Addition and Subtraction of numbers including money

Materials

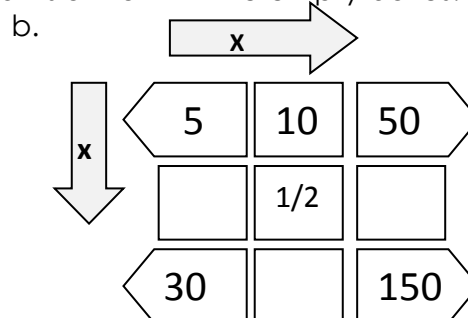
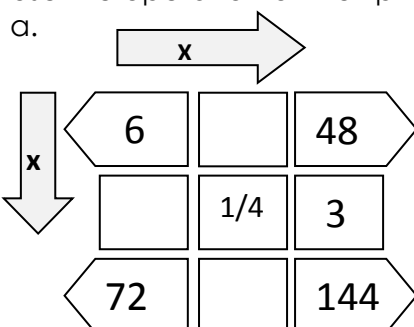
Flashcards, smartboard, pictures, guava fruits, plastic knives, cutouts, play money, coins

Instructional Procedures

A. Preliminary Activities

1. Drill

Use the operation of multiplication and division to fill in the empty boxes.



2. Review

Have the pupils complete some number sentences on the board.

1) 3

2) 4
□

3) □

4) 6

5) 7

$$\begin{array}{r} \times 3 \\ \square \end{array}$$

$$\begin{array}{r} \times \\ 8 \end{array}$$

$$\begin{array}{r} \times 3 \\ 12 \end{array}$$

$$\begin{array}{r} \times 4 \\ \square \end{array}$$

$$\begin{array}{r} \times \square \\ 21 \end{array}$$

3. Motivation

What steps do you follow in problem-solving?

- * Understand the problem
- * Plan the solution
- * Solve
- * Check for review

What do you do to understand a problem?

- Read and reread

How do you decide what to do?

- By noting how the quantities are related to each other

How do you check your answer?

- Do the problem over again, do the problem in a different way

B. Developmental Activities

1. Presentation

Post the story on the board. (also found in LM)

Six children were playing in the backyard. Two more children came to join. Then they picked 24 guavas.

Ask pupils to make questions that can be answered using division or with other operations. Then let them solve the created problem.

Examples:

How many guavas will each of the six children receive if they divide the guavas equally among them?

How many guavas will all the children receive if they divide the guavas equally among them?

2. Performing the Activities

Ask: Can you also create your own problem like the one given, where you can involve division or any other operations?

Divide the class into groups. Let each group answer the different situations.

Situation 1:

Read the story and make a problem involving division.

A shirt company made 475 shirts last week. The workers only work from Monday to Friday.

Situation 2:

Write a problem involving division and with any of the other operations using the information in the box.

afternoon snacks for your classmates,
PhP1 000 , banana, brown sugar, gulaman, tube ice

Situation 3:

Make a problem using the table below.

Animal	Number of Animals	Number of Cages
bird	20	2
dog	9	4
rabbit	18	3

3. Processing the Activities

Divide the class into groups of five.

Post the two best problems in each situation and let them do the tasks below.

- a. Ask each group to role play the situation and report on how many ideas they generated:
In how many ways can come up with PhP1 000 using 8 pieces of paper bills? List the combinations.

What is the least number of paper bills equivalent to PhP1 000?

What is the most number of paper bills equivalent to PhP1 000?

- b. Have the pupils share strategies that they can use to write problems in which the remainder is 3.
(Possible answer: Add 3 to the product of a multiplication fact that uses 3 as a factor, such as $4 \times 3 = 12$. Divide the sum by the other factor, $12 + 3 = 15$, $15 \div 4 = 3 \text{ r } 3$)

4. Reinforcing the Concept

Let the pupils answer Activity 1 in the LM. Ask the pupils to work with a partner and make a problem with reasonable answer based on the given situation.

Answer Key: Pupils' answers may vary.

Possible answers:

- There are 45 pupils in a class. They are given 100 packs of powdered milk. If each pupil will be given equal number of powdered milk, how many packs will each of them receive? $100 \div 45 = 2 \text{ r } 10$; two packs of powdered milk per pupil
- Teresa counted 100 feet of chickens and goats in their farm. If the number of goats is one more than the number of chickens, how many chickens and goats are there? 17 goats and 16 chickens

17 goats x 4 = 68 feet; 16 chickens x 2 feet = 32 feet

5. Summarizing the Lesson

How do you create a problem on a given situation?

- Familiarize with the concepts in math. Think of the application to everyday life situations.
- Think of the type of problem you want to make and the operations involved. Relate the problem to a real-life situation.
- Read more math problems. Study the solution in solving the problems.
- Make your own styles in generating ideas.

6. Applying to New and Other Situations

a. Let the pupils answer Activity 2 in LM.

Encourage the pupils to exchange and solve each other's riddles.

Answer for the sample riddle:

5 children, because the 4 daughters has only one brother

b. Divide the class into groups. Let the pupils answer Activity 3 in the LM.
(Pupils' answers may vary.)

C. Evaluation

Let the pupils make problems and give their reasonable answers to each data in Activity 4 in the LM.

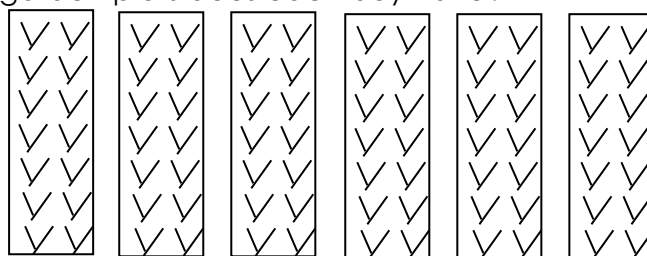
(Pupils' answers may vary.)


D. Home Activity

Let the pupils answer Activity 5 in the LM.

Possible Answers:

- 1) Three friends planted 84 *pechay*. Each plot has 14 *pechay*. How many garden plots does each boy have?



- 
one boy one boy one boy
- 2) No, at the rate of learning 2 words in 6 days, he will learn only 12 words
($2 \times 6 = 12$) not 15.
- 3) $13 \div 6 = 2 \text{ r } 1$; each person will get two glasses of pineapple juice

DRAFT
April 10, 2014

Lesson 55 Odd and Even Numbers

Week 1

Objective

Identify odd and even numbers

Value Focus

Alertness

Prerequisite Concepts and Skills

Skip counting by 2s

Materials

Printed exercises, counters

Instructional Procedures

A. Preliminary Activities

1. Drill

Have the children name which number is greater and which number is less.

5 and 7
23 and 21
424 and 426
1 330 and 1 329

2. Review

Have children discuss any pattern they see.

Add:

$2 + 3 = \square$

$2 + 4 = \square$

$3 + 4 = \square$

$3 + 5 = \square$

$4 + 5 = \square$

$3 + 5 = \square$

3. Motivation

Let pupils play a game "Open the Basket."

- Five pairs of pupils will hold hands to form a basket. The rest of the pupils will go inside the baskets.
- Say, "Open the basket three pupils* can go inside a basket". Only three pupils should be inside one basket. The pupil/s who was/were not able to go inside any one of the baskets will sit down.

e.g. 30 pupils - 5 pairs of pupils to be in the baskets (10 pupils), 20 pupils can go inside the basket; so if the teacher says, three pupils can go inside the basket ($3 \times 5 = 15$ pupils), 5 pupils will sit down

* Number of pupils who can go inside the basket may vary.

3. Remove one pair of the pupils who form a basket. Say again, "Open the basket two pupils can go inside a basket". Only two pupils should be inside one basket. The pupil/s who was/were not able to go inside any one of the baskets will sit down.
4. Repeat the game until only one pair of basket remains and only one pupil is inside the basket.

Ask: What happens to pupils who were not able to find an empty basket? What should you do so you will not sit down?

How many makes a pair?

B. Developmental Activities

1. Presenting the Lesson

Talk with pupils about things that come in pairs.

Let pupils work in fours.

- Provide each group 50 counters/objects. Tell them to count 20 counters/objects and group these in pairs.
- Next, tell the groups to count 19 counters/objects. Let them arrange their objects again in pairs.
- Ask the pupils to compare the two groups of objects. Let them describe how the 2 groups differ. Let them identify 20 as an even number and 19 as an odd number. Tell them that a number is even when all the objects come in pairs and it is odd when there is an object without pair.
- Repeat with several other numbers, always identify the numbers as even or odd. Have a pupil tell how it is decided that the number is even or odd.
- Let the pupils study the underlined digits of the following numbers: 40, 56, 72, 174 and 7958.
What kind of numbers are they? Why?
- Do the same procedure with these odd numbers. 47, 23, 165, 821 and 6429.

2. Performing the Activities

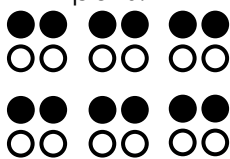
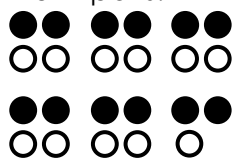
Present this story problem to pupils.

Mrs. Ching's class is going to join the school program, so the pupils are lining up in pairs. Today she has 24 pupils in class. Does each pupil

have a partner? Why? What if there are only 23 pupils, will all the pupils have a partner? Why?

Let the pupils solve the problem using their counters.

Ask them to show 24 and 23 in pairs.

<p>Show 24 in pairs.</p>  <p>24 is even.</p>	<p>Show 23 in pairs.</p>  <p>23 is odd.</p>
---	---

All even numbers make pairs

All odd numbers have one without pair.

Even numbers end in 0, 2, 4, 6 or 8.

Odd numbers end in 1, 3, 5, 7, or 9.

Since 24 ends in 4, it is an even number.

So, each pupil in Mrs. Ching's class has a partner.

Talk about it

- Can each person in your classroom have a partner? How can you find out?

You can also find odd or even number patterns in sums.

Give these examples to pupils.

Ask:

$$6 + 6 = 12$$

$$2 + 6 = 8$$

What kind of numbers are the addends.
What is the sum of 2 even numbers?

$$2 + 7 = 9$$

$$6 + 1 = 7$$

What is the sum of an even number and an odd number?

$$3 + 5 = 8$$

$$5 + 9 = 14$$

What is the sum of 2 odd numbers?

3. Processing the Activities

Ask: How did you find out whether a number is odd or even?

4. Reinforcing the Concept

Refer to Activity 1 in LM. Ask the pupils to copy the numbers on their paper. Let them write whether the number is odd or even.

Answer Key:

1) even 2) even 3) odd 4) odd 5) odd 6) odd 7) even 8) even
9) even 10) odd 11) odd 12) even 13) even 14) even 15) odd

5. Summarizing the Lesson

When is a number even?

When is it odd?

Even numbers are numbers that can be divided exactly by 2. Even numbers end in 0, 2, 4, 6 or 8.

Odd numbers are those numbers that cannot be exactly divided by 2. Odd numbers end in 1, 3, 5, 7, or 9.

6. Applying to New and Other Situations

Refer to Activity 2 in LM. Have the pupils identify the number asked for on their paper.

Answer Key: 1) 79 2) 123 3) 599 4) 1 398 5) 2 204

C. Evaluation

Refer to Activity 3 in LM. Have the pupils work on the puzzle on their paper. Ask them to color the odd numbers red and the even numbers green.

D. Home Activity

Refer to Activity 4 in LM. Ask the pupils to answer the questions in their notebooks.

Answer Key: 1) 16 2) 4 193 3) $9 + 8 = 17$ 4) 210
5) even numbers 6) even numbers 7) odd numbers
8) 1 009 or 1 011 9) 12 and 14 10) 975

Lesson 56 Fractions Equal to One and Greater than One

Week 1

Objective

Visualize fractions that are equal to one and greater than one

Value Focus

Sharing

Prerequisite Concepts and Skills

Fractions less than one

Materials

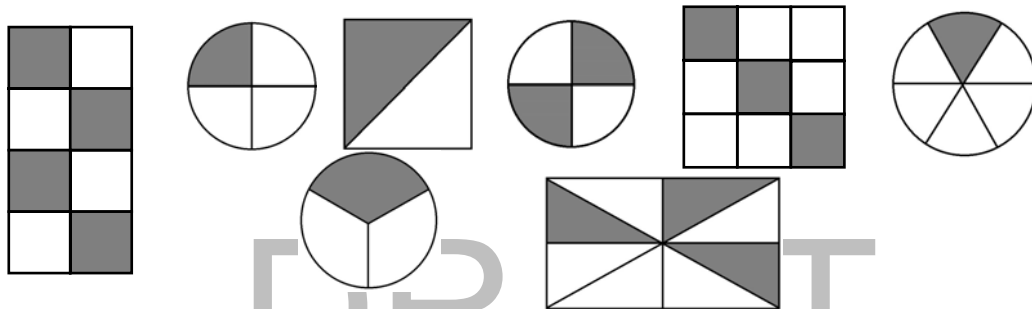
Illustration of fractions less than one, cake model, cut-outs of figures, number lines

Instructional Procedures

A. Preliminary Activities

1. Drill

Let the pupils give the fractions for the shaded parts and unshaded parts. Write their answer on the board.

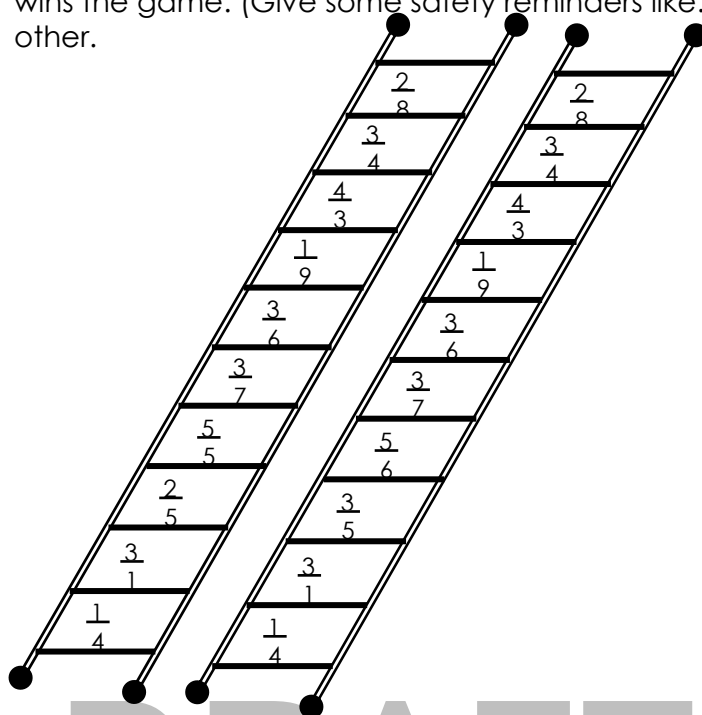


2. Review

Game – “Climbing the Ladder”

- Call on 2 pupils.
- Engage them in a race in climbing the ladder by checking out all fractions less than one. (The ladder should have the same fractions).

- c. The first pupil to come up with the most number of correct answers wins the game. (Give some safety reminders like: Do not push each other.)



Ask: When is a fraction less than one?
A fraction is less than one when the numerator is less than the denominator.

3. Motivation

Show a cake model.



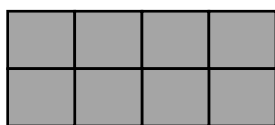
On Ena's birthday, her mother baked her a cake. Ena divided it into 8 equal parts to be shared among her friends.

Ask: How did Ena divide the cake?
Into how many equal parts was the cake divided?
What will Ena do with the cake?

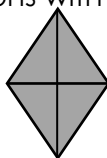
B. Developmental Activities

1. Presenting the Lesson

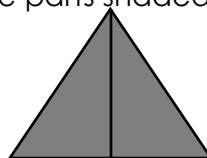
Present the following regions with all the parts shaded (cut-outs)



A



B



C

Ask: Into how many equal parts is figure A divided?
Figure B? Figure C?
What fractional parts are shaded?

What do you call the fractions $\frac{2}{2}$, $\frac{4}{4}$ and $\frac{8}{8}$?

Let the pupil discover that fractions equal to one have the same numerator and denominator.

Pose the problem story.

Mother came home with 2 egg pies. She cut each into 4 equal parts. She gave her five children one piece each. What part of the pies did mother give?

Illustrate the problem models of 2 egg pies cut into 4 equal parts. Have the pupils act out the problem situation and post the model showing the given parts.

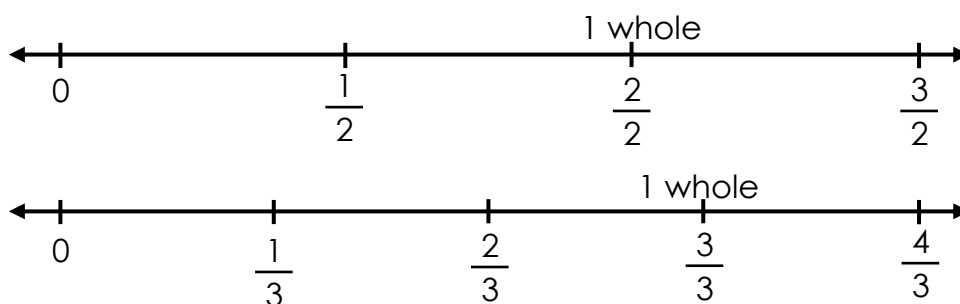
Ask: What do you call each part? How many parts are there?
How many wholes were formed using the parts?
How many parts were there with the whole?

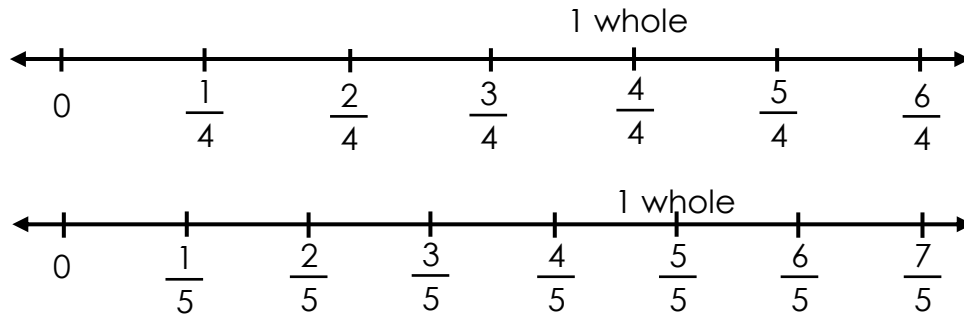
Lead them to see through the model posted on the board that these parts are equal to one and $\frac{1}{4}$, a fraction more than a whole.

Write this as a fraction more than one. ($\frac{5}{4}$)

Have the pupils compare the numerator and the denominator of the fraction. Ask which of the two is greater.

Show this other way of presenting the lesson

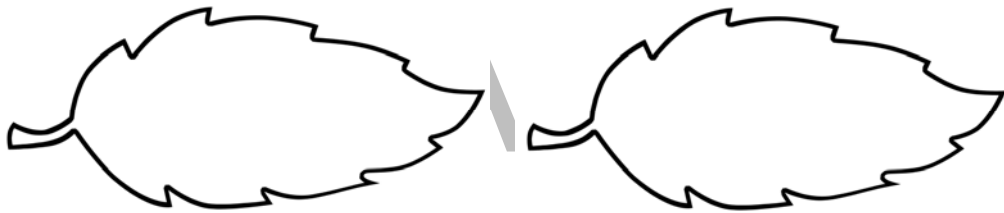




For each number line, have the pupils figure out the number of equally divided pieces needed to be equal to one. Have them express their answers as fractions. Also, have them locate the fractions greater than one in each number line. To increase their understanding, ask them to compare the length represented by the fractions.

2. Performing the Activities

a. What kind of fractions are the following:



Ask: What kind of fractions are in A? in B? Why?
What do you notice about their numerators and denominators?

b. Play a game. "Look for Partners"

1. Distribute different cut-outs of region divided into equal parts
2. Let them look for partners with shapes similar to theirs
3. When everybody has found his/her partner, let them form the model of a whole and name it along with other parts.

3. Processing the Activities

How do we visualize fractions equal to one? More than one?

4. Reinforcing the Concept

Refer to Activity 1 in LM. Let the pupils copy the activity on their paper. Ask them to encircle the fractions that are equal to one in each set of fractions. Box the fractions that are more than one.

5. Summarizing the Lesson

When are fractions equal to one? more than one?

Fractions are called “fractions equal to one” when their numerators and denominators are the same.

Fractions are called “fractions more than one” when the numerators are greater than the denominators.

6. Applying to New and Other Situations

Refer to Activity 2 in LM. Have the pupils write FE = 1 before fractions equal to one, FM > 1 before fractions more than one on their papers.

Answer Key: 1) FE = 1 2) FM > 1 3) FM > 1 4) FM > 1 5) FE = 1
6) FE = 1 7) FM > 1 8) FE = 1 9) FM > 1 10) FE = 1

C. Evaluation

Refer to Activity 3 in the LM in answering “Who Am I?” activity.

Answer Key:

1) $\frac{5}{5}$ 2) $\frac{9}{8}$ 3) $\frac{9}{4}$ 4) fractions equal to one 5) $\frac{10}{10}$

D. Home Activity

Refer to Activity 4 in LM. Ask the pupils to copy the exercise in their notebooks. Let them fill up the table with fractions.

Answer Key:

Fraction Less than One	Fraction Equal to One	Fraction More than One
$\frac{5}{6}$ $\frac{5}{11}$ $\frac{5}{12}$ $\frac{8}{15}$	$\frac{10}{10}$ $\frac{3}{3}$ $\frac{5}{5}$ $\frac{7}{7}$	$\frac{3}{2}$ $\frac{8}{6}$ $\frac{9}{4}$ $\frac{8}{4}$
$\frac{5}{10}$	$\frac{11}{11}$ $\frac{9}{9}$	$\frac{9}{2}$

Lesson 57 Reading and Writing Fractions Greater than One

Week 2

Objective

Read and write fractions that are greater than one in symbols and in words

Value Focus

Sharing, Fairness

Prerequisite Concepts and Skills

Reading and writing unit fractions in symbols and in words

Materials

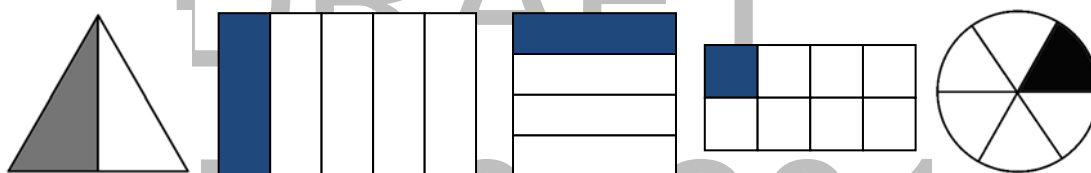
Cut-outs of different shapes, cards with fractions and shapes

Instructional Procedures

A. Preliminary Activities

1. Drill

Give the fractions for the shaded parts.



2. Review

Have a review on fractions equal to one and greater than 1.

Write A if the fraction is equal to one and B if the fraction is more than one.

$$\frac{6}{6} \quad \frac{9}{3} \quad \frac{9}{9} \quad \frac{11}{4} \quad \frac{10}{10}$$

3. Motivation

Ask the class to read the problem. Let the pupils act it out. Have them answer the questions below.

Jojo cut a *bibingka* into 8 equal parts. He gave 2 pieces to each of his 3 brothers and ate the rest. What part did each one get?



Ask: To whom did Jojo give the 3 parts of the *bibingka*?

How did he divide the *bibingka*?
 What kind of a boy is he?
 What value does he possess?
 Do you want to be like him? Why?

B. Developmental Activities

1. Presenting the Lesson

a. Talk about the story problem.

Ask: Who cut a whole *bibingka*?

Into how many parts did he cut the *bibingka*?

What do you call each part?

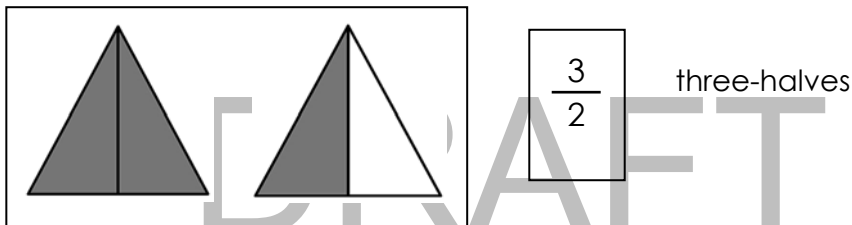
How do you write the fraction in words? in symbols?

What parts were eaten by Jojo and his brothers?

Write the fraction in symbol and in words.

b. Conduct a game.

- Make several pairs of cards like the one shown below.



- Shuffle the cards and place them on the pocket chart or taped on the board facing down.
- Divide the class into 2 groups. At the teacher's signal, a player from each group chooses 2 cards and match them, the player keeps the matched cards. Otherwise, the player puts back the cards to their original position. The group with the most number of matched cards wins.

2. Performing the Activities

Ask the class to read this problem.

Some pupils of Mrs. Molina's class colored game-squares. How many game-squares did the pupils color?

We see:

We read: $\frac{5}{2}$

We write: five-halves

Ask: How many game-squares did they color?
 What part of third game-square did they color?
 How do you write the total number of game-squares the pupils colored?

3. Processing the Activities

What do you call the number above the bar line?
 How about the number below the bar line?
 How do you write a fraction in symbol? in words?
 What can you say about the numerator and the denominator of a fraction greater than one?

4. Reinforcing the Concept

Ask pupils to answer Activity 1 in the LM.

Answer Key: 1) five-fourths, $\frac{5}{4}$, h 2) eight-sixths, $\frac{8}{6}$, e
 3) three-halves, $\frac{3}{2}$, c 4) five-thirds, $\frac{5}{3}$, b
 5) nine sixths, $\frac{9}{6}$, g 6) seven-fifths, $\frac{7}{5}$, d
 7) eight-fourths, $\frac{8}{4}$, a 8) twelve-ninths, $\frac{12}{9}$, f

5. Summarizing the Lesson

Can fractions greater than one be read and written in symbols and in words? How are they read? Written?

What is the relationship between the numerator and the denominator of a fraction that is greater than 1?

A fraction greater than one can be written in symbols and in words. The numerator is greater than the denominator.

6. Applying to New and Other Situations

Refer to Activity 2 in LM. Have the pupils write the number fractions on their papers.

Answer Key:

1) $\frac{4}{3}$ 2) $\frac{10}{8}$ 3) $\frac{8}{7}$ 4) $\frac{9}{6}$ 5) $\frac{11}{7}$ 6) $\frac{6}{5}$ 7) $\frac{12}{9}$ 8) $\frac{13}{10}$ 9) $\frac{12}{11}$
 10) $\frac{15}{3}$

C. Evaluation

Refer to Activity 3 in LM. Ask the pupils to write the fractions for the names on their papers.

Answer Key: 1) eight-sevenths 2) four-thirds 3) ten-eighths
4) six-fourths 5) nine-sixths 6) five-halves 7) nine-eighths
8) twelve-tenths 9) six-halves 10) seven-fifths

D. Home Activity

Refer to Activity 4 in LM. Let the pupils work on the activity on their notebooks at home. Ask them to write the fraction in symbols and in words.

Lesson 58 Representing Fractions using Regions, Sets, and Number Lines

Week 2

Objective

Represent fractions using regions, sets, and number lines

Value Focus

Equality

Prerequisite Concepts and Skills

Identifying, writing and reading unit fractions

Materials

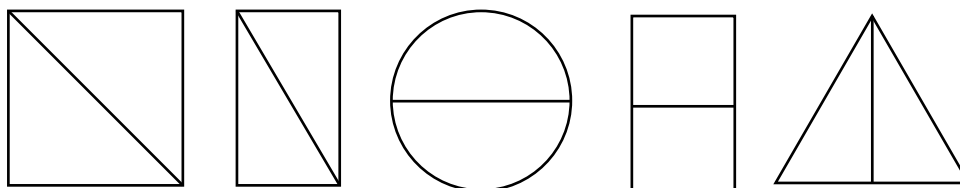
Number cards of fractions, square cards, connecting cubes, box with strips of paper on which fractions are written

Instructional Procedures

A. Preliminary Activities

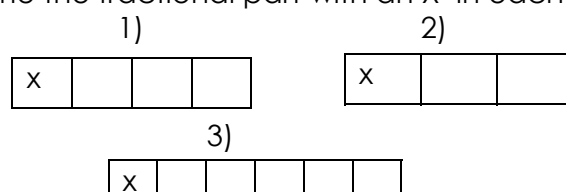
1. Drill

Prepare some cut-out shapes like the ones below. Show a variety of shapes, each divided into two. Prepare similar cards for thirds and fourths. Explain that each figure should be shaded to show the fraction flashed by the teacher



2. Review

Name the fractional part with an X in each given figure.



3. Motivation

Let pupils work in pairs. Provide each pair with one square card. Ask one group of pairs to divide their squares into three and shade a part to show one-third. Another group of pairs will divide their squares into four and shade a part to show one-fourth. And another group of pairs will divide their squares into two and shade a part to show one-half.

Ask pupils to name the fractional part of each square that is shaded.

Ask: What would you do if you and two friends had to share one rectangular cassava cake?

How will you divide the cassava cake?

If you divide it equally, what trait do you demonstrate?

B. Developmental Activities

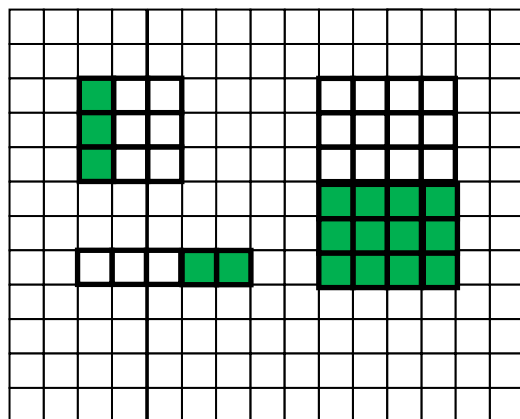
1. Presenting the Lesson

a. Representing fractions using regions

Distribute a graphing paper or a grid paper (as shown) and crayons to groups of 3.

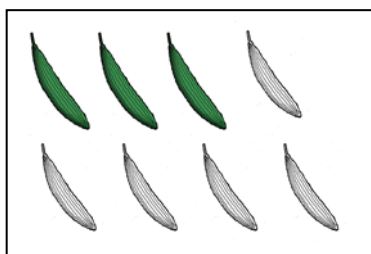
Let each group draw the following regions in the graphing or grid paper and color the parts asked for.

- Draw a 3 x 3 square region. Color 3 squares. Ask: What fractional part of the region is colored. Call some groups to show their work. Let them write the fraction form of the shaded portion.
- Draw a 1 x 5 rectangular region. Color 2 squares. Ask: What part of the rectangular region is not shaded or colored? Call some groups to show their work. Let them write the fraction form of the unshaded portion.
- Draw a region with 24 squares. (The groups may draw a 4 x 6, a 3 x 8, a 2 x 12 or a 1 x 24 rectangular region). Ask: If you color one-half of the region, how many squares are colored or shaded? Why? Let the groups explain their answer using their drawing.

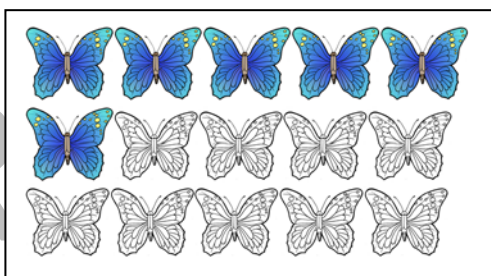


- b. Representing fractions using sets
Post the following illustrations on the board.
Let pupils study the sets of objects. Let them identify/name the objects in each set. Ask them to count the objects in each set.

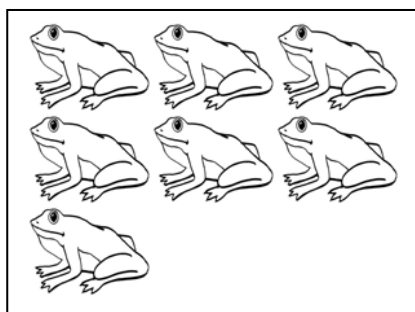
Set A



Set B



Set C



Ask:

In Set A, how many *ampalaya* are shaded? What part of the set is shaded? not shaded? Write the fraction for the shaded part, unshaded part. How many more *ampalaya* should we shade to show $\frac{1}{2}$? Explain their answer.

In set B, how many butterflies are shaded? What part of the set is shaded? not shaded? Write the fraction for the shaded part, unshaded part. Are we going to shade more butterflies or unshade some butterflies to show $\frac{1}{3}$ of the set? How many do we need to add or subtract? Why?

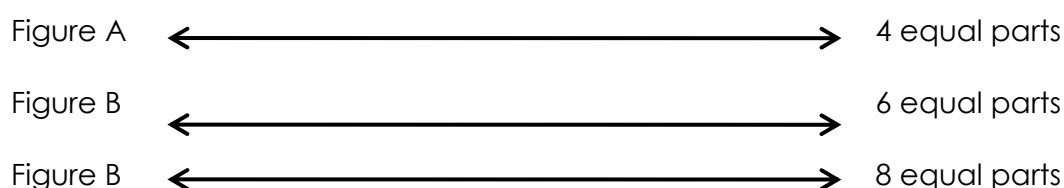
In set C, what is the fraction for the whole set? Let them write the fraction. How many frogs should we color to show two-sevenths? Let them color the frogs.

Call some pupils to draw the following sets on the board.
e.g. set of 10 balls, show $\frac{3}{10}$; set of 16 pencils, show $\frac{1}{2}$

c. Representing fractions using number line

Show this other way of representing the fractions using the number line.

Let the pupils equally divide the number line as described.



Ask: Into how many parts is each of the number lines divided?

What do we call one part of figure A? B? C?

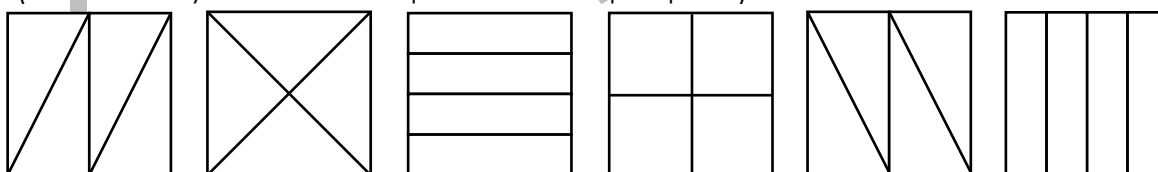
Let the pupils name and write the fractional part of each number line on their chalkboards.

2. Performing the Activities

Have the class work in pairs.

- Distribute two squares of the same size to each pair.
- Let pupils find two different ways to divide the squares into 4 equal parts and draw lines that illustrate the ways they found.
- When all the squares have been divided by the pairs, compare all the ways found to divide the same figure into equal parts.
- Let pupils give the fraction for one part, two parts, etc.

(Possible ways to divide a square into 4 equal parts)



- Distribute more squares of the same size to each pair. Repeat the activity by asking for different numbers of equal parts. e.g. 3 equal parts, 5 equal parts
- Ask pupils to give the fraction for one part, two parts, etc. of the given figure.

3. Processing the Activities

Ask: How are fractions represented?

How should you divide a region, a set and a numberline?

4. Reinforcing the Concept

Refer to Activity 1 in LM. Ask the pupils to name the fractional part of each figure. Let them write their answers on their papers.

Answer Key: 1) $\frac{2}{12}$ 2) $\frac{4}{8}$ 3) $\frac{1}{4}$ 4) $\frac{2}{4}$ 5) $\frac{2}{6}$

5. Summarizing the Lesson

How can fractions be represented?

Fractions can be represented by the use of regions, sets and segments of numberlines.

6. Applying to New and Other Situations

Refer to Activity 2 in the LM. Let the pupils write the fraction for the part of each group that is shaded on their papers.

Answer Key: 1) $\frac{2}{5}$ 2) $\frac{4}{5}$ 3) $\frac{6}{10}$ 4) $\frac{3}{9}$ 5) $\frac{3}{6}$

C. Evaluation

Refer to Activity 3 in the LM. Have the pupils write the fraction that names the part of the group described on their papers.

Answer Key: 1) $\frac{1}{3}$ 2) $\frac{2}{5}$ 3) $\frac{3}{10}$ 4) $\frac{3}{7}$ 5) $\frac{4}{9}$

D. Home Activity

Refer to Activity 4 in the LM. Ask the pupils to copy the activity in their notebooks. Let them do this at home.

Answer Key: A. 1) $\frac{3}{8}$ 2) $\frac{5}{6}$ 3) $\frac{7}{10}$ 4) $\frac{3}{5}$

B. 1) $\frac{1}{6}$ 2) $\frac{3}{3}$ 3) $\frac{5}{8}$ 4) $\frac{3}{9}$ 5) $\frac{4}{7}$

Lesson 59 Visualizing Dissimilar Fractions

Week 3

Objective

Visualize dissimilar fractions

Value Focus

Cooperation

Prerequisite Concepts and Skills

Unit fractions, fractions less than one and more than one and similar fractions

Materials

Activity sheets, flash cards, charts

Instructional Procedures

A. Preliminary Activity

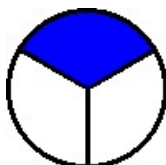
1. Drill

Name the fraction represented by the shaded part.

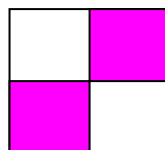
Examples:



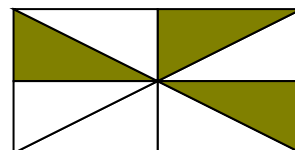
$$\frac{1}{2}$$



$$\frac{1}{3}$$



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



$$\frac{3}{8}$$

2. Review

A. Parts of a Fraction

1. What does 1 mean in $\frac{1}{2}$? What does 1 mean in $\frac{1}{3}$? What does 2 mean in $\frac{2}{4}$? What does 3 mean in $\frac{3}{8}$? What do we call these numbers written above the fraction bar?

3. What does 2 mean in $\frac{1}{2}$? What does 3 mean in $\frac{1}{3}$? What does 8 mean in $\frac{3}{8}$? What do you call these numbers written below the fraction bar?

B. Recall the concept of similar fractions.

Present exercises like:

1) $\frac{2}{5}$, $\frac{3}{5}$, $\frac{4}{5}$, ____

2) $\frac{3}{8}$, $\frac{4}{8}$, ____, $\frac{6}{8}$

3) $\frac{1}{7}$, ____, $\frac{3}{7}$, $\frac{4}{7}$

Ask: What do you notice with the fractions? Why do you call them similar fractions?

3. Motivation

Group Work

1. Divide the class into 3 groups. Group 1 will be "rectangle group". Group 2 will be "circle group". Group 3 will be "square group".

2. Give each group 3 pieces of cut-outs of the shape the group is named after.
3. Ask each group to get a shape and fold it into three equal parts. Let them darken the creases. The "rectangle group" will shade 1 part, the "circle group" will shade 2 parts and the "square group" 3 parts.
4. Ask them again to get another shape and fold it into four equal parts. Let them darken the creases again. The "rectangle group" will shade 1 part, the "circle group" will shade 2 parts and the "square group" 3 parts.
5. Ask them to get the last shape, fold the shape into 8 equal parts. Darken the creases. Let the "rectangle group" shade only one part; the "circle group", 3 parts; and the "square group", 5 parts.

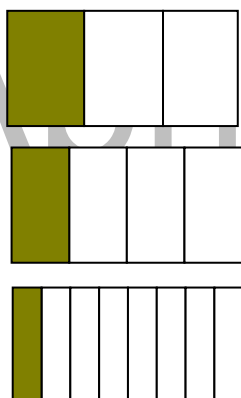
(Note: Give the importance of cooperation while doing the group activity)

B. Developmental Activities

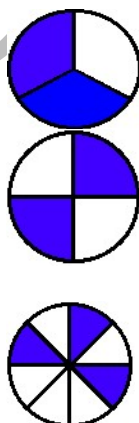
1. Presenting the Lesson

Ask each group to post their work on the board.

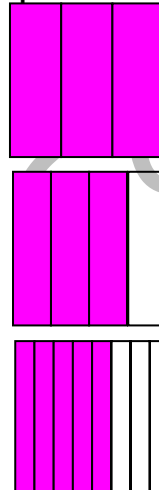
Rectangle Group



Circle Group



Square Group

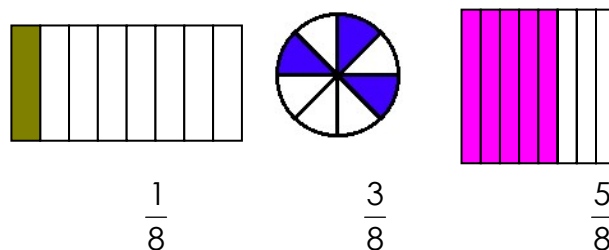


(Note: The folding style may vary for rectangle and square)

2. Performing the Activities

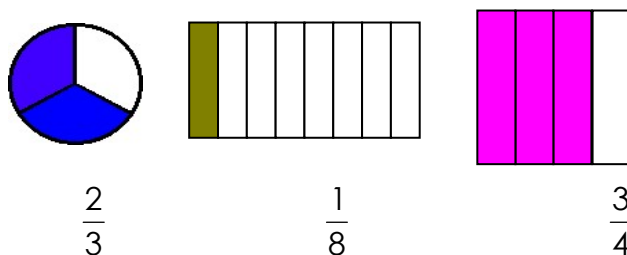
Ask one pupil to get the picture of $\frac{1}{8}$, $\frac{3}{8}$ and $\frac{5}{8}$ and name the shaded part.

Set A



Ask another pupil to get the picture of $\frac{2}{3}$, $\frac{1}{8}$ and $\frac{3}{4}$.

Set B



Ask: Into how many equal parts were the shapes in Set A divided?

What part of the fraction does it represent? (denominator)

What have you noticed with the denominators?

How about set B? What are the denominators?

Are they all the same?

Do you know the name of fractions with the same denominators?

(Tell the pupils that the fractions with the same denominators are called **similar fractions**.)

How about the fractions in Set B? Do they have the same denominators? What do you call these fractions that have different denominators?

(Tell the pupils that the fractions with the different denominators are called **dissimilar fractions**.)

Have them give other examples of dissimilar fractions and draw their representations.

3. Processing the Activities

Ask:

When are fractions called dissimilar?

What part of the fractions are you going to compare?

If you are given shapes to represent dissimilar fractions, how are you going to do it?

What characteristic did you find with dissimilar fractions?

What can you say with their denominators?

4. Reinforcing the Concept

a. Class Activity

Have the 5 sets of fractions below be written on 1/2 of cartolina.

Divide the class in 5 groups and give each group one set of fractions.

Say: Here is an activity in Ms. Ann's class. Can you help her pupils do this?

Which fraction will be crossed out to make each set dissimilar fractions a better one. Give your reason for crossing it out.

1) $\frac{4}{5}, \frac{2}{4}, \frac{1}{5}, \frac{5}{8}, \frac{1}{6}$

4) $\frac{6}{8}, \frac{5}{7}, \frac{3}{5}, \frac{2}{8}, \frac{5}{5}$

2) $\frac{2}{4}, \frac{7}{8}, \frac{8}{8}, \frac{5}{6}, \frac{3}{9}$

5) $\frac{4}{8}, \frac{9}{10}, \frac{5}{6}, \frac{4}{6}, \frac{1}{3}$

3) $\frac{5}{4}, \frac{6}{8}, \frac{5}{6}, \frac{1}{3}, \frac{3}{4}$

(Note: Any of the fractions to be crossed out is correct. But to make it a better set of dissimilar fractions **no denominators should be the same in each set.**)

b. Pair Activity

Refer to Activity 1 in the LM. Let the pupils do the activity by pair.

Answer Key: 1) x 2) ✓ 3) x 4) x 5) ✓

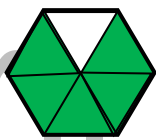
c. Individual Activity

Refer to Activity 2 in the LM. Let the pupils write their answer in their notebook.

Answer Key:



$$\frac{1}{2}$$



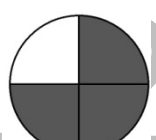
$$\frac{5}{6}$$



$$\frac{3}{5}$$



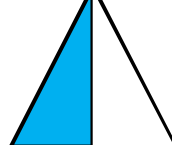
$$\frac{2}{3}$$



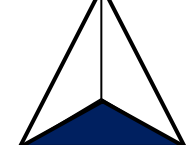
$$\frac{3}{4}$$



$$\frac{1}{6}$$



$$\frac{1}{2}$$



$$\frac{1}{3}$$

5. Summarizing the Lesson

When do we say that fractions are dissimilar?

Fractions are dissimilar if they have different denominators.

6. Applying to New and Other Situations

a. Group Activity



Have the pairs of fractions below be written in 5 strips of cartolina. Divide the class into 5 groups. Give each group a strip of cartolina. Let them write their answer on 1/4 sheet of manila paper to be posted later on the board.

Direction : Illustrate the pair of fractions. Then write **dissimilar**, if the set is dissimilar fractions and **similar**, if these are not dissimilar.

- 1) $\frac{5}{8}$, $\frac{3}{6}$
- 2) $\frac{2}{4}$, $\frac{6}{8}$
- 3) $\frac{3}{4}$, $\frac{2}{4}$
- 4) $\frac{4}{5}$, $\frac{4}{6}$
- 5) $\frac{2}{3}$, $\frac{3}{8}$

b. Pair Activity

Refer to Activity 3 in the LM. Let the pupils do the activity by pair.

Answer Key: 1) dissimilar fractions 2)  $\frac{3}{4}$; example of another fraction is $\frac{1}{2}$ 

3) No, because $\frac{3}{4}$ and $\frac{3}{8}$ are dissimilar fractions

C. Evaluation

Refer to Activity 4 in the LM.

Pupils are to write **D** on their paper if the given sets of fraction are dissimilar

Answer Key: 1) D 2) D 4) D

D. Home Activity

Refer to Activity 5 in the LM. Pupils are to put a check mark on the blank if the fractions are dissimilar.

Answer Key: 1) x 2) \checkmark 3) \checkmark 4) \checkmark 5) \checkmark 6) x 7) x 8) \checkmark 9) x 10) \checkmark

Lesson 60 Comparing Dissimilar Fractions

Week 4

Objective

Compare dissimilar fractions

Pre-requisite Concepts and Skills

1. Fraction and dissimilar fractions

2. Fraction more than and less than one
3. Meaning of relation symbols

Value Focus

Equality

Materials

Cut-outs, activity sheets, real objects, flash cards, pocket chart, diagrams

Instructional Procedures

A. Preliminary Activities

1. Drill

Use flash cards. Engage pupils in a race by telling whether the fractions are similar or dissimilar. Two pupils stand on the aisle. Teacher flashes cards. Each will take one step every time s/he gets the answer correctly. The first pupil to reach the finish line wins.

Example of flash cards:

$\frac{2}{3}, \frac{4}{7}$	$\frac{1}{2}, \frac{5}{8}$	$\frac{3}{5}, \frac{4}{5}$	$\frac{1}{8}, \frac{4}{8}$	$\frac{4}{9}, \frac{4}{5}$	$\frac{5}{3}, \frac{4}{3}$	$\frac{3}{9}, \frac{4}{3}$	$\frac{2}{7}, \frac{4}{7}$	$\frac{1}{3}, \frac{2}{5}$
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2. Review

Recall the meaning of relation symbols. Review the concept of comparing numbers.

Write >, < or = in the box.

- 1) $234 \square 546$ 2) $563 \square 301$ 3) $543 \square 500+40+3$ 4) 81 tens \square 810
 5) $102 \square 431$ 6) $626 \square 616$ 7) $600+12 \square 642$ 8) 539 ones \square 58 tens

3. Motivation

Tell this story.

Yesterday, these children had these snacks:

Angela = $\frac{1}{8}$ of pie

Angelu = $\frac{1}{4}$ of pie

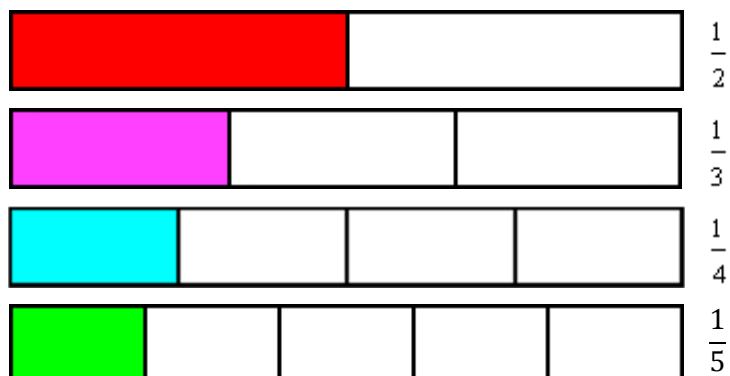
Renz = $\frac{1}{5}$ of pie

Guess. Who do you think ate the biggest piece?

B. Developmental Activities

1. Presenting of Lesson

Present these strips of paper. Ask what kind of fractions these are.



Let them take a look at the rectangles.

Ask what they observe.

Let them note that the fractions have the same numerators but different denominators.

Ask: What do you call this kind of fractions? (Dissimilar fractions)

How will you classify these fractions in comparison with one whole? (They are fractions less than one.)

What do you notice with the fractions as their denominator gets bigger?

2. Performing the Activities

How will you compare $\frac{1}{2}$ and $\frac{1}{5}$?

Look at their value part in the illustration.

Which one is bigger or lesser?

How will you write the comparison using relational symbol?

$$\frac{1}{2} > \frac{1}{5} \text{ or } \frac{1}{5} < \frac{1}{2}$$

Compare $\frac{1}{4}$ and $\frac{1}{3}$. ($\frac{1}{4} < \frac{1}{3}$)

Compare $\frac{1}{3}$ and $\frac{1}{5}$. ($\frac{1}{3} > \frac{1}{5}$)

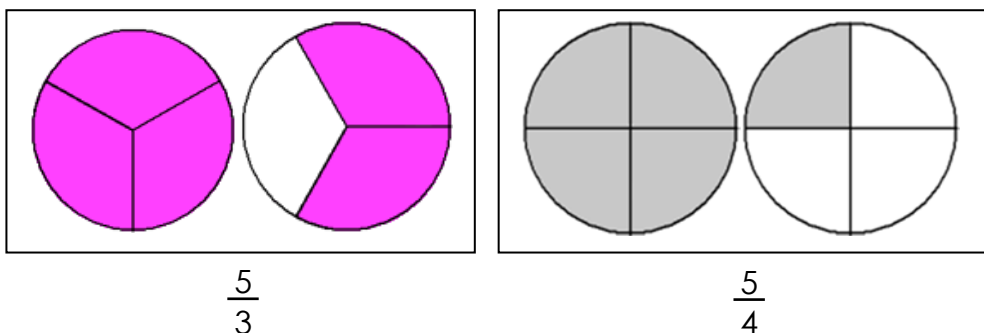
Let the pupils write the correct comparison sentence on the board.

Ask: When you have the same numerators but different denominators, how will you know which one is bigger? lesser?

(If the numerators are the same but the denominators are different, the lesser the denominator, the bigger is the value.)

Let us have another pair of fractions.

Compare $\frac{5}{3}$ and $\frac{5}{4}$.



$$\frac{5}{3} > \frac{5}{4}$$

Observe the above examples.

Ask:

What do you notice with their numerators? denominators?

What kind of fractions are these? (Dissimilar Fractions)

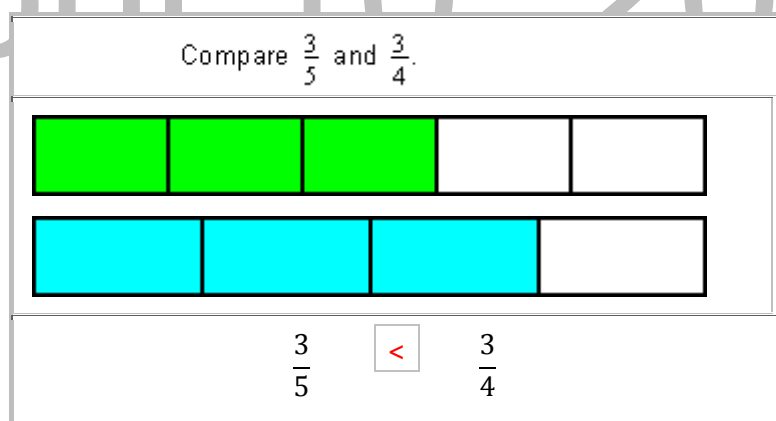
How will you classify these fractions in comparison to one whole? (They are fractions with more or less than 1.)

How do you compare these sets of fractions?

What do you notice with the fractions as their denominator gets bigger?

Now, let us have another set of fractions

Present these other set of fractions.



What do you notice with their numerators? denominators?

Ask: What do you call this kind of fractions? (Dissimilar fractions)

How will you classify these fractions in comparison with one whole? (They are fractions less than one.)

How do you compare these sets of fractions?

Have an easier way to compare fractions without illustrating them.

Have them see this short way of comparing fractions.

Example: Compare $\frac{3}{4}$ and $\frac{2}{5}$

Let us do the Cross Product Method

Step 1: Multiply the numerator of the first fraction with denominator of the second fraction. Place the product on top of the first fraction.

$$3 \times 5 = 15$$

Step 2: Multiply the denominator of the first fraction with numerator of the second fraction. Place the product on the top of the second fraction.

$$2 \times 4 = 8$$

Step 3: The fraction with the greater/bigger product on top has the greater/bigger value.

$$\begin{array}{ccc} 15 & > & 8 \\ \frac{3}{4} & \text{and} & \frac{2}{5} \end{array}$$

So, $\frac{3}{4}$ is greater than $\frac{2}{5}$.

Let's have another example,

$$\begin{array}{ccc} 3 & < & 4 \\ \frac{1}{2} & \text{and} & \frac{2}{3} \end{array}$$

So, $\frac{1}{2}$ is less than $\frac{2}{3}$.

Have the pupil compare again the pairs of fractions they have compared earlier using the cross product method.

Ask: Did you come up with the same answers?

3. Processing the Activities

How do we compare:

a.) dissimilar fractions which are less than one having the same numerators?

b.) dissimilar fractions which are more than one having also the same numerators?

c.) dissimilar fractions which have different numerator and denominator with illustrations? without illustrations?
Which do you think is the most convenient way to compare fractions? Why?

If you compare pair of fractions using the illustration and cross product method, did you find the same answers?

4. Reinforcing the Concept

a. Group Activity

Have one group of pupils fold the rectangular cut-outs (same in sizes) to show $\frac{2}{4}$, $\frac{2}{3}$; $\frac{1}{3}$, $\frac{2}{4}$; and $\frac{1}{6}$, $\frac{3}{5}$. Have them compare the fractions in each set.

Have another group compare the numbers using the short way.

b. Individual Activity

Have the pupils do Activity 1 in their LM individually.

Answer Key: 1) $<$ 2) $>$ 3) $>$ 4) $>$

c. Pair Activity

Have the pupils do Activity 2 in their LM by pair.

Answer Key: 1) $\frac{4}{8} = \frac{2}{4}$ 2) $\frac{1}{2} > \frac{2}{6}$ 3) $\frac{1}{4} < \frac{2}{5}$ 4) $\frac{3}{5} > \frac{1}{3}$

5. Summarizing the Lesson

What symbols of relation do we use in comparing fractions?

To compare fractions, we use the symbols of relation such as:

$>$ read as "is greater than"

$<$ read as "is less than"

$=$ read as "is equal to" or "equals"

How do you compare dissimilar fractions?

For fractions with the same numerators, look at the denominators, the fraction with the smaller denominator is the larger fraction.

For fractions with unlike denominators, cross multiplication may be used.

For fractions with the same denominators, look at the numerators, the larger fraction is the one with the greater numerator.

6. Applying to New and Other Situations

a. Class Activity

Go back to the question in the motivation, who do you think ate biggest the piece? Explain your answer.

What method of comparison did you use? Give reason why you use that method.

b. Pair Activity

Tell the pupils to find a partner. One pupil will write a pair of fractions and the other will compare it. If the comparison is correct then it will be his/her turn to make a pair of fractions to be compared by his/her partner. This will take several rounds. The pupil who gives the most number of correct answers wins.

c. Pair Activity

Refer to Activity 3 in the LM. Have the pupils do it by pair.

Answer Key: Fractions $> 2/3$ – $4/5$, $7/8$, $5/6$, and $6/7$

Fractions $< 2/3$ – $1/4$, $3/8$, $3/7$, and $6/10$

C. Evaluation

Refer to Activity 4 in the LM. Have them write their answers in their notebooks.

Answer Key: A. 1) $<$ 2) $>$ 3) $=$ 4) $=$ 5) $<$

B. 1) False 2) False 3) True 4) False 5) True

D. Home Activity

Refer to Activity 5 in the LM. Have them write their answers in their notebooks.

Answer Key: 1) $>$ 2) $<$ 3) $<$ 4) $<$ 5) $<$ 6) $>$ 7) $<$ 8) $<$ 9) $>$ 10) $>$

Lesson 61 Arranging Dissimilar Fractions

Week 4

Objective

Arrange dissimilar fractions in increasing or decreasing order

Value Focus

Helpfulness, Industriousness

Prerequisite Concepts and Skills

1. Reading and writing fractions
2. Fractions less than one, more than one and equal to one
3. Similar and dissimilar fractions
4. Equivalent fractions
5. Changing dissimilar fractions to similar

Materials

Flash cards, pocket chart, diagrams, fraction chart, show-me-board

Instructional Procedures

A. Preliminary Activities

1. Drill

"Find your Partner"

Make 2 sets of flash cards. In one set are fractions written in symbol while in the other set are fractions written in words.

Distribute the cards to the pupils. Tell them to find their partner. Give them ample time to do the activity. The first pair to find his/her partner and post their fractions on the board will be the winner.

Example of flash cards:

and post their decisions on the board will be the winner.

Example of flash cards:

four-fourths	five-fourths	seven-sixths	four-thirds	$\frac{4}{7}$					
one-third	$\frac{1}{3}$	$\frac{7}{10}$	$\frac{4}{4}$	$\frac{5}{4}$	$\frac{7}{6}$	$\frac{4}{3}$	$\frac{8}{8}$	$\frac{2}{7}$	$\frac{3}{5}$
eight-eighths	four-sevenths	two-sevenths	three-fifths						
	seven-tenths								

2. Review

The teacher will use the set of fractions in symbols that were used in the drill part. The teacher will write on the board "Fractions less than One," "Fractions more than One," and "Fractions Equal to One"

Say: Place the fractions in their appropriate column.

Ask a pupil to get a pair of fractions, e.g. $\frac{1}{3}$ and $\frac{2}{7}$ and compare them. Call about 3 more pupils to compare a pair of fractions.

3. Motivation

Have you experienced going to the market?

What products do you usually buy in the market?

Flash some strips of paper with names of commodities sold in the market and hardware.

Instruct the pupils to check (✓) on their show-me-board if the item is sold in the market and cross (x) if the item is sold in the hardware.



B. Developmental Activities

1. Presenting the Lesson

Kathleen and her mother went to the market. She helped her in buying the following ingredients:

$\frac{3}{4}$ kilogram of chicken	$\frac{1}{2}$ kilogram of sayote
$\frac{1}{8}$ kilogram of ginger	$\frac{1}{4}$ kilogram of onions

What recipe do you think Kathleen's mother plans to cook?

Do you also help your mother at home? How?

What household chores do you do to help your mother?

If we are going to arrange the ingredients from lightest to heaviest, which should come first? second? third? fourth? Why?

2. Performing the Activities

a. Drawing Method



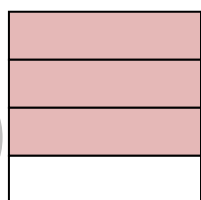
$\frac{3}{4}$ kilogram
of chicken

$\frac{1}{2}$ kilogram
of sayote

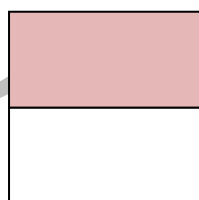
$\frac{1}{8}$ kilogram
of ginger

$\frac{1}{4}$ kilogram
of onions

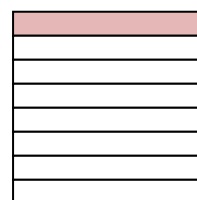
Let us use some drawings to represent the weight of each ingredient.



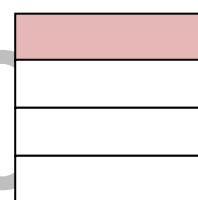
$\frac{3}{4}$ kilogram
of chicken



$\frac{1}{2}$ kilogram
of sayote



$\frac{1}{8}$ kilogram
of ginger



$\frac{1}{4}$ kilogram
of onions

Ask: From the drawing, which one is the lightest? heaviest?

How will you arrange the fractions from lightest to heaviest? heaviest to lightest?

Answer: lightest to heaviest – $\frac{1}{8}$, $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$

heaviest to lightest – $\frac{3}{4}$, $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$

Emphasize to the pupils that when using diagrams in comparing the value of fractions, see to it that wholes are always of the same shape and size.

Aside from using drawing, how else can we determine the value of dissimilar fractions so that we can arrange them in increasing order. (By changing them to similar fractions)

b. Least Common Denominator (LCD) Method

How do we change dissimilar to similar fractions?

Step 1: Find the LCD of the denominators. The LCD is the least common multiple of the denominators.

2: 2, 4, 6, 8, ..

4: 4, 8, 12, 16, ...

8: 8, 16, 24, 32, ...

What is the LCD of 2, 4, & 8? (8)

Step 2: Change the fractions with 8 as their common denominators.

Divide the LCD by the denominator, then, multiply the quotient by the numerator. The product becomes the new numerator.

$$\begin{array}{r} \frac{3}{4} = \frac{6}{8} \\ \times \quad \div \\ 2 \end{array}$$

$$8 \div 4 = 2; 2 \times 3 = 6$$

$$\text{So, } \frac{3}{4} = \frac{6}{8}$$

$$\begin{array}{r} \frac{1}{2} = \frac{4}{8} \\ \times \quad \div \\ 4 \end{array}$$

$$8 \div 2 = 4; 4 \times 1 = 4$$

$$\text{So, } \frac{1}{2} = \frac{4}{8}$$

$$\begin{array}{r} \frac{1}{8} = \frac{1}{8} \\ \times \quad \div \\ 1 \end{array}$$

$$8 \div 8 = 1; 1 \times 1 = 1$$

$$\text{So, } \frac{1}{8} = \frac{1}{8}$$

$$\begin{array}{r} \frac{1}{4} = \frac{2}{8} \\ \times \quad \div \\ 2 \end{array}$$

$$8 \div 4 = 2; 2 \times 1 = 2$$

$$\text{So, } \frac{1}{4} = \frac{2}{8}$$

Ask: So, what are the fractions equivalent to $\frac{3}{4}$, $\frac{1}{2}$, $\frac{1}{8}$ and $\frac{1}{4}$ so that their denominators are the same?

$$\frac{3}{4} = \frac{6}{8}$$

$$\frac{1}{2} = \frac{4}{8}$$

$$\frac{1}{8} = \frac{1}{8}$$

$$\frac{1}{4} = \frac{2}{8}$$

For similar fractions, the bigger the numerator, the greater the fraction. So the fraction with the biggest numerator is $\frac{6}{8}$. Followed by $\frac{4}{8}$, then, $\frac{2}{8}$, and lastly $\frac{1}{8}$.

If we arrange the dissimilar fractions changed to similar fractions, the arrangement in increasing order will be $\frac{1}{8}$, $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$.

Did we get the same answer using the drawing method?

There is another way to find the similar fractions of dissimilar if the LCD is already found.

$$\frac{3}{4} \times \frac{2}{2} = \frac{\square}{8} \rightarrow \frac{6}{8}$$

What will you multiply to 4 to get 8?
Multiply the number you used in the denominator to the numerator.
What did you get?

$$\frac{1}{2} \times \frac{4}{4} = \frac{\square}{8} \rightarrow \frac{4}{8}$$

What will you multiply to 2 to get 8?
Multiply the number you used in the denominator to the numerator.
What did you get?

$$\frac{1}{8} \times \frac{1}{1} = \frac{\square}{8} \rightarrow \frac{1}{8}$$

$\frac{1}{8}$ is already in eighths, so it will be the same.

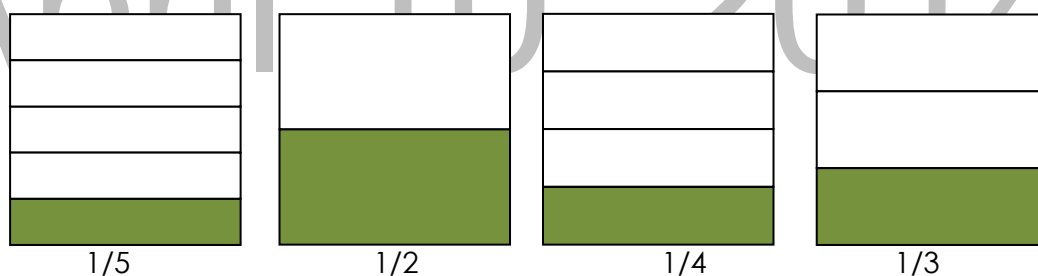
$$\frac{1}{4} \times \frac{2}{2} = \frac{\square}{8} \rightarrow \frac{2}{8}$$

What will you multiply to 4 to get 8?
Multiply the number you used in the denominator to the numerator.
What did you get?

Did we get the same answer?

Present to pupils the following set of fractions.

$\frac{1}{5}$, $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{3}$



Looking at the shaded parts, we can arrange the fractions in descending order (from greatest to least).

Which will be the first one, second, third and last?

$\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{5}$

What have you noticed with the set of fractions?

What can you say about the numerators? denominators?

What happens to the fraction as the denominator increases?

Can we arrange the fractions even without illustrations?
How will you do it?

How will you arrange the fractions in ascending order(least to greatest)?

Which fraction will be the first? second? third? last?

What have you noticed as you arrange them in ascending order?
Which fraction became first? last?

To order fractions with the same numerators (unit fractions), compare their denominators, the *greater* the denominator of the fraction, the *lesser* the fraction.

3. Processing the Activities

How do we arrange/order fractions?

How are fractions arranged in ascending order? descending order?

How do you arrange fractions with the same numerator but different denominators?

How will you know if fraction has the greatest or least value?

How about in dissimilar fractions? How will you know which is the greatest or least?

How did you change dissimilar fractions to similar?

Why do we need to reduce fractions to lowest terms?

Is there another way that can help us easily arrange a set of dissimilar fractions in increasing/decreasing order? How?

4. Reinforcing the Concept

a. Group Activity

Group the class into 4. Instruct each group to choose a leader and a secretary. Give each group a set of fractions to be arranged in increasing order. Have them post their finished work on the board and report to their classmates.

- A.

$\frac{5}{6}$, $\frac{4}{8}$, $\frac{3}{4}$, $\frac{1}{5}$

- B.

$\frac{2}{8}$, $\frac{3}{10}$, $\frac{1}{2}$, $\frac{3}{5}$
--
- C.

$\frac{1}{5}$, $\frac{1}{10}$, $\frac{1}{2}$, $\frac{1}{7}$
--
- D.

$\frac{3}{11}$, $\frac{15}{11}$, $\frac{9}{11}$, $\frac{5}{11}$
--

b. Pair Activity

Have the pupils answer Activity 1 in their LM by pair. See to it that they work cooperatively.

Answer Key:

- 1) $\frac{1}{6}, \frac{1}{5}, \frac{1}{3}, \frac{1}{2}$ 2) $\frac{1}{2}, \frac{2}{3}, \frac{3}{4}, \frac{4}{5}$
3) $\frac{7}{5}, \frac{7}{4}, \frac{7}{3}, \frac{7}{2}$ 4) $\frac{1}{2}, \frac{5}{8}, \frac{2}{3}, \frac{3}{4}$
5) $\frac{1}{6}, \frac{1}{4}, \frac{2}{3}, \frac{7}{8}$

c. Individual Activity

Have the pupils individually answer Activity 2 in their LM.

Answer Key:

- 1) $\frac{1}{2}, \frac{2}{5}, \frac{1}{8}$ 2) $\frac{5}{6}, \frac{3}{4}, \frac{4}{8}$
3) $\frac{5}{3}, \frac{5}{6}, \frac{5}{12}$ 4) $\frac{7}{9}, \frac{2}{3}, \frac{1}{2}$
5) $\frac{7}{2}, \frac{7}{3}, \frac{7}{4}$

5. Summarizing the Lesson

How do we arrange a set of fractions in increasing or decreasing order?

a. Unit Fractions

To order/arrange fractions with the same numerators but different denominators, compare their denominators. The *greater* the denominator of the fraction, the *lesser* the fraction.

b. Dissimilar Fractions

To order/arrange fractions with the different numerators and denominators, we change them first to similar fractions by finding the LCD of the denominators. Then, rename the fractions to its equivalent using the LCD.

When all fractions are already renamed with the same denominators, the numerators can be now compared:

- the greater the numerator, the greater the value of the fraction.
- the lesser the numerator, the lesser the value of the fraction.

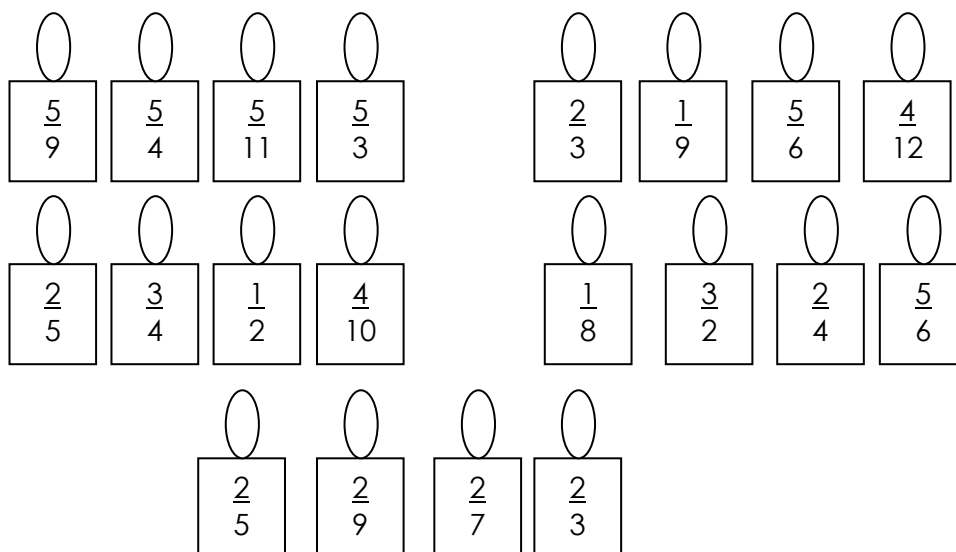
6. Applying to New and Other Situations

a. Group Activity

Have 5 groups of 4 members each. Let them choose their leader. Give them set of fractions to be arranged. Let each member wear the assigned fractions. Tell the groups to arrange themselves in decreasing order. The first group who arranged themselves correctly wins. Pose a challenge: What about arranging yourselves in decreasing order?

(Note: fractions should be written in a card with string/yarn so that they can wear it like an ID.)

Examples of sets of fractions:



b. Pair/Individual Activity

Have the pupils answer Activity 3 in their LM either by pair or individually.

Answers Vary, possible answers: 1) $5/6$ 2) $3/4$ 3) $1/2$ 4) $5/10$ 5) $1/2$

C. Evaluation

Refer to Activity 4 in the LM.

Answer Key:

1) a) $1/6$ b) $3/4$ 2) a) $3/4$ b) $3/9$ 3) a) $1/6$, $3/9$, $2/5$, $3/4$
b) $3/4$, $2/5$, $3/9$, $1/6$

D. Home Activity

Refer to Activity 5 in the LM.

Answer Key:

1) $1/4$ kg, $1/2$ kg, $4/5$ kg 2) $2/3$ kg, $2/5$ kg, $1/8$ kg
3) tomato is the heaviest $3/4$ kg; garlic is the lightest $1/3$ kg
4) onion is the lightest; tomato is the heaviest
5) $1/2$ kg

Lesson 62 Equivalent Fractions

Week 5

Objective

Visualize and generate equivalent fractions.

Value Focus

Being helpful and responsible

Prerequisite Concepts and Skills

1. Basic multiplication and division facts
2. Reading and writing fractions
3. Comparing dissimilar fractions

Materials

Fraction chart, fraction cards/strips, cut outs, activity sheets, multiplication chart

Instructional Procedures

A. Preliminary Activities

1. Drill

Give the pupils a snappy drill on basic multiplication and division facts
Use flash cards like:

$\begin{array}{r} 8 \\ \times 6 \\ \hline \end{array}$	$\begin{array}{r} 5 \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} 12 \\ \times 6 \\ \hline \end{array}$	$\begin{array}{r} 9 \\ \times 8 \\ \hline \end{array}$	$\begin{array}{r} 12 \\ \times 4 \\ \hline \end{array}$	$6\sqrt{42}$	$12\sqrt{24}$	$8\sqrt{64}$
					$7\sqrt{56}$	$9\sqrt{54}$	

2. Review

Recall comparing fractions. Make flashcards like the ones below.
As the teacher flashes the cards, the pupils will compare the fractions.
They will write $>$, $<$ or $=$ on their show-me-board.

$\frac{2}{3} [] \frac{4}{7}$	$\frac{1}{2} [] \frac{5}{8}$	$\frac{3}{5} [] \frac{4}{5}$	$\frac{1}{8} [] \frac{4}{8}$	$\frac{2}{9} [] \frac{2}{5}$	$\frac{5}{3} [] \frac{4}{3}$	$\frac{3}{9} [] \frac{4}{3}$
$\frac{2}{7} [] \frac{4}{7}$	$\frac{1}{3} [] \frac{2}{5}$	$\frac{4}{5} [] \frac{4}{3}$				

3. Motivation

Present a problem opener.

Carol and Tess are working together on their art project. Carol colored $\frac{1}{2}$ of the square, while Tess colored $\frac{4}{8}$ of another square of the same size. Tess told Carol that she colored more parts and has a bigger fraction. Carol said that they just have equal parts. Who is right?

Ask:

Why are Carol and Tess busy? What are they doing?

What kind of pupils are they? Do you also do your projects? Why is it better if you do a project together with a classmate?

How many parts were colored by Carol? What about Tess?

Who do you think is right? Carol or Tess?

Today, we are going to find it out.

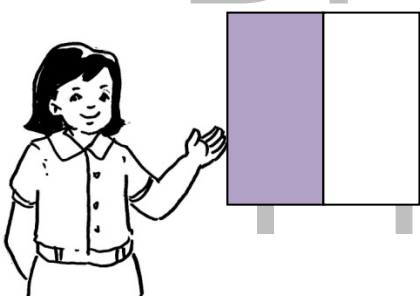
B. Developmental Activities

1. Presenting the Lesson

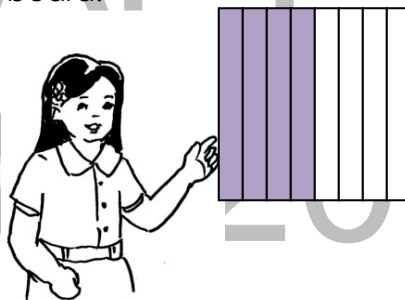
Have the pupils represent the art project of Carol and Tess.

Group the class into 2 groups. One group will do the project of Carol while the other will do the project of Tess.

Ask them to post their work on the board.



Carol's project



Tess' project

Ask: How many parts were colored by Carol? What do you call the shaded part? What about Tess colored part? What do you call the shaded part?

Do the squares have the same size of shaded parts?

How will you be sure that the two shaded parts are equal?

Ask one pupil to fold the squares where only the shaded parts can be seen. Let the pupil match the two shaded parts by putting one over the other (Superimposing). Ask the pupil what he/she can say. They must realize that one is exactly the same as the other.

Is $\frac{1}{2}$ equal to $\frac{4}{8}$?

How can we check if 2 fractions are equivalent fractions?

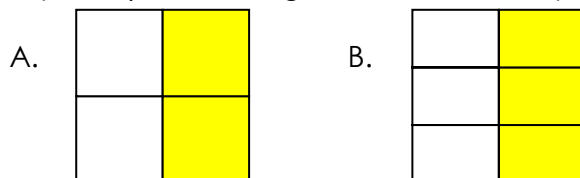
What kind of fractions are $\frac{1}{2}$ and $\frac{4}{8}$? **Equivalent Fractions**

Now, who got the correct answer?

2. Performing the Activities

Can you think of another fractions equivalent to $\frac{1}{2}$ and $\frac{4}{8}$?

Study this: (The two regions must be of equal size.)



What part of the whole is shaded in Square A? $\frac{2}{4}$

What about in Square B? $\frac{3}{6}$

Are the two fractions equal?

Are they also equal to $\frac{1}{2}$?

Are the products of the fractions equal?

Ask one pupil to show his/her solution on the board

$$\begin{array}{r} 2 \\ \hline 4 \end{array} \quad \begin{array}{r} 3 \\ \hline 6 \end{array} \quad \begin{array}{l} 2 \times 6 = 12 \\ 4 \times 3 = 12 \end{array}$$

If the product of 2 and 6 is the same with the product of 4 and 3 then the 2 fractions are equivalent.

Are the fractions $\frac{2}{4}$, $\frac{3}{6}$ and $\frac{3}{6}$ equals to $\frac{1}{2}$?

How can we generate fractions equivalent to a given fraction?

Study the fractions we have formed earlier.

$$\frac{1}{2} = \frac{2}{4}, \frac{3}{6}, \frac{4}{8}$$

What have you noticed with the series of fractions?

How can we get $\frac{2}{4}$ from $\frac{1}{2}$?

What will you do to the numerator and denominator of $\frac{1}{2}$ to get $\frac{2}{4}$? $\frac{3}{6}$? $\frac{4}{8}$?

Look at these examples.

$$\frac{6}{18} = \frac{3}{9}, \frac{2}{6}, \frac{1}{3}$$

How can we get $\frac{3}{9}$ as equivalent fraction to $\frac{6}{18}$?

What will you do to the numerator and denominator of the fraction?

To generate fractions equivalent to a given fraction, we can either multiply or divide both the numerator and denominator of the given fraction by the same whole number.

Let us try to check the equivalent fractions we have formed.

$$\frac{1}{2} \rightarrow \frac{1 \times 2}{2 \times 2} = \frac{2}{4}, \quad \frac{1 \times 3}{2 \times 3} = \frac{3}{6}, \quad \frac{1 \times 4}{2 \times 4} = \frac{4}{8}$$

Give more examples for the pupils to study and analyze.

$$\frac{2}{3} \rightarrow \frac{2}{3} \times 2 = \frac{4}{6}, \quad \frac{2}{3} \times 3 = \frac{6}{9}, \quad \frac{2}{3} \times 4 = \frac{8}{12} \rightarrow \frac{2}{3} = \frac{4}{6}, \frac{6}{9}, \frac{8}{12}$$

$$\frac{12}{24} \rightarrow \frac{12}{24} \div 2 = \frac{6}{12}, \quad \frac{12}{24} \div 3 = \frac{4}{8}, \quad \frac{12}{24} \div 4 = \frac{3}{6}, \quad \frac{12}{24} = \frac{6}{12}, \frac{4}{8}, \frac{3}{6}$$

Is there another way to find equivalent fractions of a given fraction?

Fraction Chart

1 whole											
						1/2					
1/2				1/3				1/3			
1/4			1/4			1/4			1/4		
1/5		1/5		1/5		1/5		1/5		1/5	
1/6		1/6		1/6		1/6		1/6		1/6	
1/8		1/8		1/8		1/8		1/8		1/8	
1/10	1/10	1/10	1/10	1/10	1/10	1/10	1/10	1/10	1/10	1/10	1/10
1/12	1/12	1/12	1/12	1/12	1/12	1/12	1/12	1/12	1/12	1/12	1/12

Can you form equivalent fractions for 1/4?

Look at the fraction chart. Point 1/4

What fractions are as big as 1/4?

So 2/8 and 3/12 is equivalent to 1/4.

Can you see other equivalent fractions from the chart?

Multiple Chart

There is another way of getting the equivalent of a fraction.

Study the number chart.

1	2	3	4	5	6	7	8	9	10
2	4	6	8	10	12	14	16	18	20
3	6	9	12	15	18	21	24	27	30
4	8	12	16	20	24	28	32	36	40
5	10	15	20	25	30	35	40	45	50
6	12	18	24	30	36	42	48	54	60

7	14	21	28	35	42	49	56	63	70
8	16	24	32	40	48	56	64	72	80
9	18	27	36	45	54	63	72	81	90
10	20	30	40	50	60	70	80	90	100

Look at the shaded part in the number chart.

Based on the number chart consider the numbers above as the numerators and the numbers below are the denominators.

See if all the fractions following $\frac{1}{2}$ are its equivalent. Are they?

1	2	3	4	5	6	7	8	9	10
2	4	6	8	10	12	14	16	18	20

What about $\frac{3}{4}$? Can you see its equivalent fractions?

3. Processing the Activities

How do you know that 2 fractions are equivalent/equal?

What can you say about the parts or values of equivalent fractions?

How will you form equivalent fractions?

4. Reinforcing the Concept

a. Group Activity

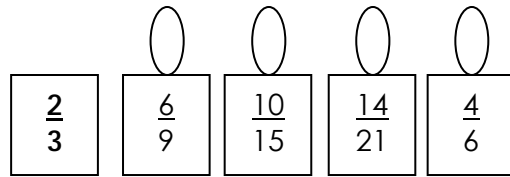
"Where is my Family?"

Choose 5 pupils to be leaders. Give to each leader the father or mother fraction. Distribute to the class equivalent fractions. Let the pupils wear the assigned fractions. Ask the father/mother fraction to stand in front and hold the fraction given to them. Tell the pupils who wear their equivalent fractions to go to their respective father/mother fraction. The first family who complete his/her family correctly wins.

(Note: fractions should be written in a card with string so that they can wear it like an ID.)

Examples of sets of fractions:

$\frac{5}{6}$	$\frac{10}{12}$	$\frac{15}{18}$	$\frac{20}{24}$	$\frac{25}{30}$	$\frac{3}{4}$	$\frac{6}{8}$	$\frac{9}{12}$	$\frac{12}{16}$	$\frac{15}{20}$
$\frac{1}{2}$	$\frac{7}{14}$	$\frac{5}{10}$	$\frac{3}{6}$	$\frac{10}{12}$	$\frac{2}{5}$	$\frac{6}{15}$	$\frac{10}{25}$	$\frac{4}{10}$	$\frac{12}{30}$



b. Pair Activity

Have the pupils answer Activity 1 in their LM by pair. See to it they work cooperatively.

Answer Key: 1) $\frac{1}{4}$ 2) $\frac{6}{10}$ 3) $\frac{3}{6}$ 4) $\frac{2}{6}$ 5) $\frac{2}{2}$ 6) $\frac{8}{16}$

c. Individual Activity

Have the pupils answer Activity 2 in their LM individually.

Answer Key: 1) 9 2) 18 3) 9 4) 10 5) 8 6) 1

5. Summarizing the Lesson

How do you define equivalent fractions?

- Equivalent fractions are fractions that name or describe the same part of a region or set. They have the same value but different numerators and denominators

How will you determine if two fractions are equivalent fractions?

- Use the cross product method. If their cross products are the same, then the 2 fractions are equivalent.

How can we generate equivalent fractions?

- To get the equivalent of a given fraction, we can either multiply or divide the numerator and the denominator by the same number.

6. Applying to New and Other Situations

a. Group Activity

Divide the class into 5 groups. Let them choose their leader. Give to the leader a card with fraction written on it. Tell them to form 3 or 4 fractions equivalent to the given fraction to the group leader. Let them write their answer on $\frac{1}{2}$ sheet of cartolina and post their work on the board. The leader will report to the class about their work.

b. Individual Activity

Have the pupils answer Activity 3 in their LM individually.

Answer Key:

Possible answers: 1) $\frac{10}{12}$, $\frac{15}{18}$, $\frac{20}{24}$ 2) $\frac{1}{2}$, $\frac{2}{4}$, $\frac{3}{6}$
 3) $\frac{4}{22}$, $\frac{6}{33}$, $\frac{8}{44}$ 4) $\frac{10}{8}$, $\frac{15}{12}$, $\frac{20}{16}$ 5) $\frac{6}{8}$, $\frac{3}{4}$, $\frac{9}{12}$

C. Evaluation

Refer to Activity 4 of LM.

Answer Key: 2) $\frac{3}{5}$, $\frac{6}{10}$ 3) $\frac{15}{20}$, $\frac{3}{4}$ 4) $\frac{1}{5}$, $\frac{5}{25}$

D. Home Activity

Refer to Activity 5 of LM.

Answer Key:

A. 1) $\frac{4}{5}$, $\frac{8}{10}$ 2) $\frac{6}{14}$, $\frac{3}{7}$ 3) $\frac{1}{3}$, $\frac{3}{9}$

4) $\frac{5}{6}$, $\frac{15}{18}$ 5) $\frac{6}{27}$, $\frac{8}{36}$ 6) $\frac{2}{3}$, $\frac{6}{9}$

B. 1) $\frac{4}{8}$, $\frac{5}{10}$, $\frac{6}{12}$ 2) $\frac{4}{12}$, $\frac{5}{15}$, $\frac{6}{18}$ 3) $\frac{4}{16}$, $\frac{5}{20}$, $\frac{6}{30}$

4) $\frac{4}{20}$, $\frac{5}{25}$, $\frac{6}{30}$ 5) $\frac{4}{40}$, $\frac{5}{50}$, $\frac{6}{60}$

Lesson 63 Point, Line, Line Segment and Ray

Week 5

Objective

Recognize and draw a point, line, line segment and ray.

Value Focus

Creativity

Prerequisite Concepts and Skills

Basic shapes and plane figures

Materials

Blackboard/whiteboard/bond paper, marker or pentel pen, chart, flashcards with the different figures (point, line, line segment, and ray)

Instructional Procedures

A. Preliminary Activities

1. Drill

Ask the pupils to get objects from the room. Let them identify the objects and describe the shape of the object

2. Review

Have pupils do the puzzle in Activity 1 in the LM.

Answer Key: 1) rectangle 2) circles 3) triangle 4) square

3. Motivation

Let the pupils recite the given poem.

Points and lines
Points and lines
That's how it starts
That's how it starts
Making all the figures
Making all the figures
Using points and lines
Points and lines.

Ask: What does it tell?

Where do figures come from as described in the poem?

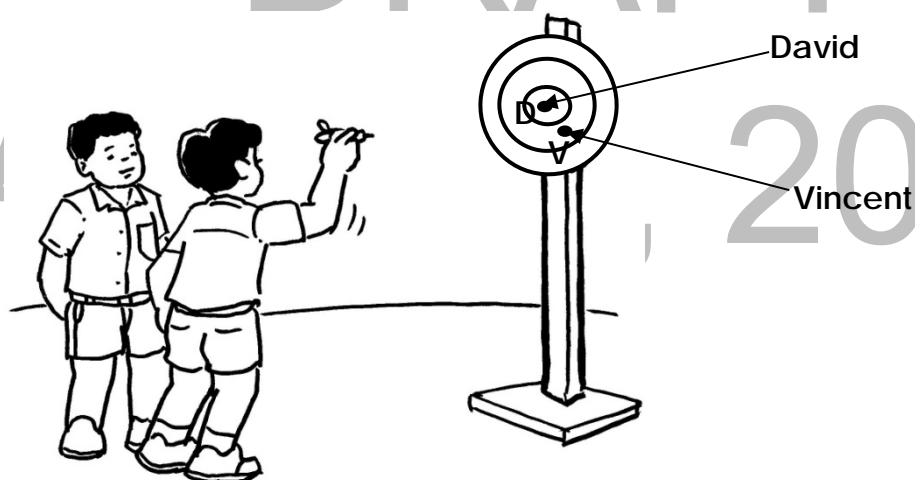
Say: Today, you are going to study about points and lines.

B. Developmental Activities

1. Presenting the Lesson

Present the illustration.

David and Vince are playing darts. Look at where their darts landed.



Ask: What did David and Vince name the space/place where their darts landed?

How will you describe the figure where the darts landed?

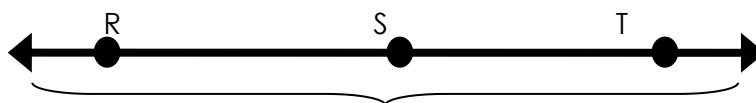
How many points are marked?

If you play darts, what would you like to name your point?

How are points named?

Say: A dot represents a point. It can be named with letters.

Say: Look at the picture.



Ask: What have you noticed from point R to point T?

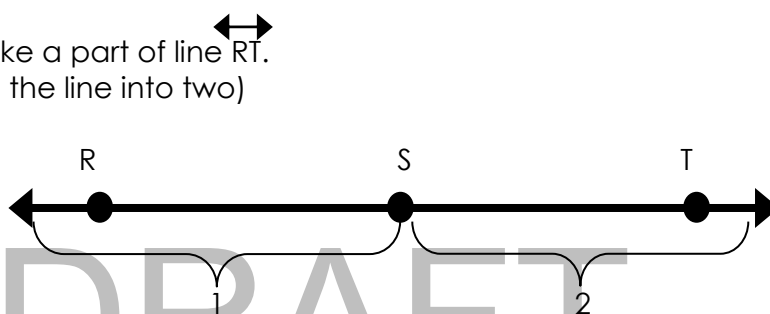
What can you see at both ends?

What do you call this figure?

Say: This figure with two arrow heads is called a line. It can extend indefinitely in both directions.

Look at the example below.

Say: Take a part of line RT.
(Divide the line into two)



Ask: What do you call the figure below?

How will you describe this figure?



Say: This figure is called a ray.

It has one end point and an arrow head which extends indefinitely to one direction. Start naming the ray from the endpoint.

Ask: How many rays are there in line RT?

Say: Look at the picture. Tell something about it.



Say: Look at the part of the line from point B to point C.

Ask: What can you say about this part?

Can you call this part as ray? Why?



C This figure is called a line segment. It has two end points.
It can never extend indefinitely to any direction.

Say: Look around the classroom and find examples of each geometric figure discussed.

2. Performing the Activity

Have pupils answer Activity 2 in the LM.

Answer Key:

1) GH, GI, GJ 2) RE, EY, MY, RM 3) NO, PQ

3. Processing the Activities

Ask: What do we call each figure below?

How do you describe these figures?

a. b. c. d.

4. Reinforcing the Concept.

Lead pupils answer the Activity 3 in LM in pairs.

Answer Key: 1) line 2) ray 3) line segment 4) point

5. Summarizing the Lesson

Ask: What is a point? line? line segment? ray?

A dot represents a **point**. It can be named with letters.

A figure with two arrow heads is called a **line**. It can extend indefinitely in both directions.

A **line segment** has two end points. It can never extend indefinitely to any direction.

A **ray** has one end point and an arrow head which extends indefinitely to one direction.

6. Applying to New and Other Situations

Have pupils answer the Activity 4 in LM in groups.

Answer Key: 1) Points M, N, O and P 2) MP

3) MN, MO, MP, NO, NP, OP 4) MP, NP, OP, PM, OM, NM

C. Evaluation

Have pupils answer the Activity 5 in the LM individually.

Answer Key: 1) c 2) b 3) a 4) b 5) c

D. Home Activity

Let the pupils answer Activity 6 in the LM in their notebook.

Let them name the points, line, and rays with letters.

Answer Key: Name of points, lines, and rays vary depending upon the letters the pupils will use.

Lesson 64 Congruent Line Segments

Week 6

Objective

Visualize, identify and draw congruent line segment

Value Focus

Accuracy in measurement

Prerequisite Concepts and Skills

Concepts of points, lines, line segments and rays

Materials

Blackboard/whiteboard/bond paper, marker or pentel pen, chart, flashcards with the different parts of various figures (point, line, line segment, and ray endpoints)

Instructional Procedures

A. Preliminary Activities

1. Drill

Let pupils Identify the term represented by the jumbled letters.

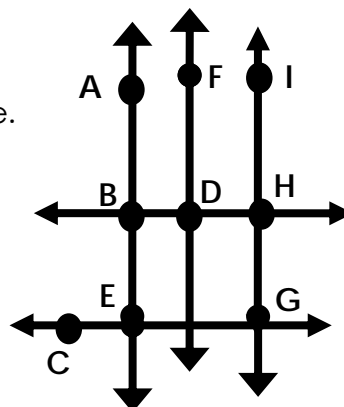
"What's in a name?"

- | | | |
|-----------------|-------|----------------|
| 1. ysra | _____ | (rays) |
| 2. nedipston | _____ | (endpoints) |
| 3. hdeaowarr | _____ | (arrow head) |
| 4. eiln | _____ | (line) |
| 5. inel mentseg | _____ | (line segment) |
| 6. isoptn | _____ | (points) |

2. Review

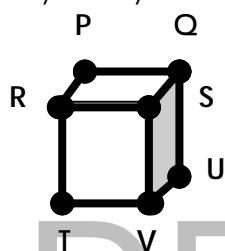
Identify the terms using the given figure.

- a. Points
- b. Lines
- c. Line Segment
- d. Rays



3. Motivation

Ask: What can you say about the picture?



Where can you find line segments?
How many line segments are there?

B. Developmental Activities

1. Presenting the Lesson

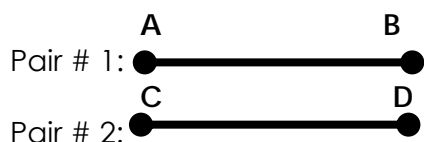
Have pupils work in pairs.

Say: Let one partner draw a line segment. The other partner will measure the line segment made by his/her partner. Then he/she draws another line segment with the same length. Write the measurement on the sides for the others to see.

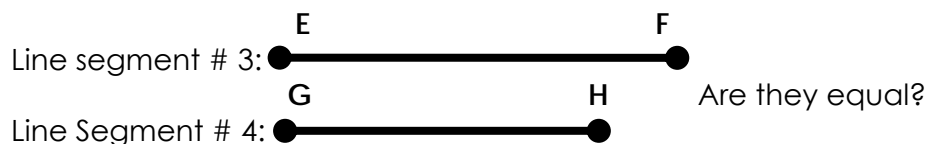
Ask: What have you noticed?

How do you know that the line segments are equal?

Say: Illustrate the line segments that you produced.



Are the line segments equal?



Ask: When can you determine that the line segments are equal?
 If line segments are equal they are congruent. So, they are called **congruent line segments**.

2. Performing the Activities

Have pupils answer the Activity 1 in LM.

Answer Key: 1) \overline{TU} and \overline{VW} 3) \overline{KL} and \overline{NM} 4) \overline{AB} and \overline{CD}

3. Processing the Activities

Ask: What is line segment?

How will you determine if the line segments are equal?

What do you call line segments with the same length?

4. Reinforcing the Concept

Lead the pupils to answer the Activity 2 in LM in groups.

Say: Look at the two rectangles. Ask the pupils if the rectangles are the same.

Ask: What are the line segments that are congruent in the first rectangle? second rectangle?

Possible answers: $\overline{XY} \cong \overline{TU}$; $\overline{ZW} \cong \overline{SR}$; $\overline{XZ} \cong \overline{TS}$; $\overline{YW} \cong \overline{UR}$

5. Summarizing the Lesson

Ask: When are line segments congruent?

Line segments are congruent if they have the same length. To identify if line segments are congruent, you can use a ruler to measure their lengths and compare. Or you can put one line segment on top of the other to check if the line segments have the same length.

The symbol for congruency is \cong .









We write: $\overline{AB} \cong \overline{CD}$

We say: Line segment AB is congruent to line segment CD.

6. Applying to the New and Other Situations









Lead pupils to answer the Activity 3 in LM in pairs.

Say: Which pairs of segments are congruent? Measure and compare.

Answer Key:  \cong ;  \cong ;  \cong ;  \cong 

C. Evaluation

Have pupils do the Activity 4 in LM individually.

Possible answers:  \cong ;  \cong ;  \cong ;  \cong 

D. Home Activity

Refer to Activity 5 in LM.

Let pupils list down objects that they see in their house or community which show congruent line segments.

Lesson 65 Perpendicular, Parallel and Intersecting Lines

Week 6

Objective

Recognize and draw perpendicular lines, parallel lines and intersecting lines.

Value Focus

Industry

Prerequisite Concepts and Skills

Concepts of points, lines, line segments and rays and basic shapes

Materials

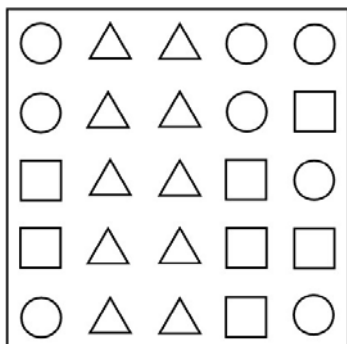
Blackboard/whiteboard/bond paper, marker or pentel pen, chart, flashcards with the different figures (point, line, line segment, and ray)

Instructional Procedures

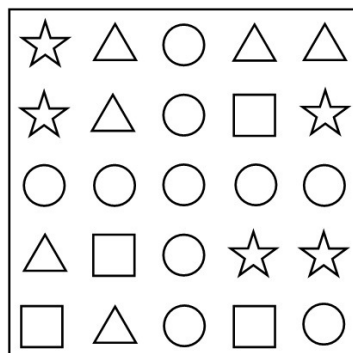
A. Preliminary Activities

1. Drill

Color all the squares blue



Cross all the circles

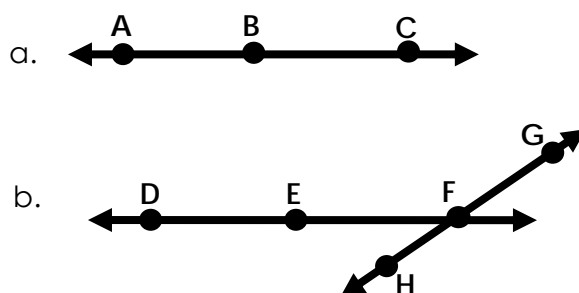


Connect all the letter Bs diagonally. What lines are formed?

B	C	D	E	F	Q	R	S	B
W	B	C	X	Y	M	F	B	N
S	M	B	R	T	L	B	O	P
O	T	O	B	L	B	M	N	S
M	R	C	S	B	M	M	P	Q
M	P	R	B	Q	B	L	O	S
P	R	B	L	L	M	B	T	O
M	B	Q	R	S	Y	T	B	A
B	X	Y	Z	Z	R	D	C	B

2. Review

Let the pupils identify the lines in the given figure below.



3. Motivation

Present the illustration.

Look at the illustration below

Ask: What can you see in the picture?

How do you describe the fence?

What can you say about the arrangement of the fence?



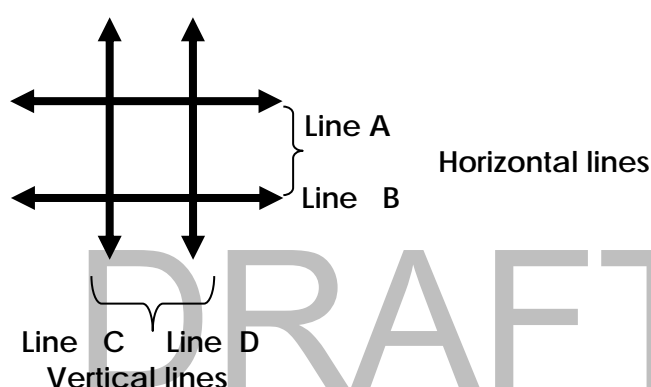
B. Developmental Activities

1. Presenting the Lesson

Say: Look at the fence.

It is composed of horizontal and vertical lines. Can you identify them?

This is how we can represent the fence. Show the figure below.

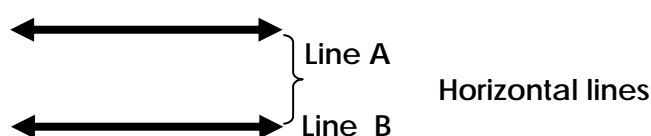


What is formed when the horizontal and vertical lines meet? (*Square corner*)

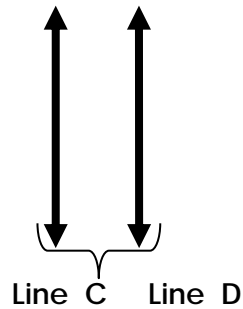
What kind of line is represented, when horizontal and vertical lines meet and form a square? (*Perpendicular lines*)

Say: Perpendicular lines form square corner

Say: Look at Line A and Line B. What do we call these lines? Compare them. How do you describe the horizontal lines?



Now, look at Line C and Line D. How do we call these lines? Compare them. How do you describe the vertical lines?



Vertical lines

Ask: How will you describe the gap/space between the horizontal lines? vertical lines?

If we are going to extend the horizontal lines, do you think they will meet at a certain point? Why? (*No, because parallel lines are lines that do not meet*).

Let's have other examples:



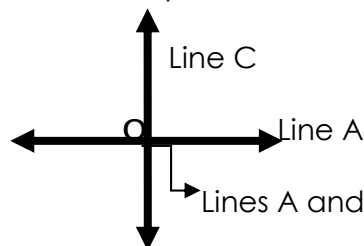
Ask: How will you describe gap/space between the two lines in set A? in set B?

If we are going to extend the two lines in each set, do you think they will meet at a certain point? Why?

- Parallel lines are lines that do not meet.
- Parallel lines composed of two lines are not necessarily of the same length.
- The symbol // indicates parallel lines.

Say: Now study the two lines below. What can you say about Lines A and C?

Where did they meet?

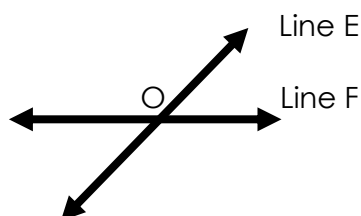


Lines A and C intersect at point O and form a corner.

What have you noticed at the intersecting point of the two lines?
What does it form?

- These lines are called perpendicular lines.
- Perpendicular lines intersect and form four right angles

Ask: What if the lines are formed as illustrated below?



What have you noticed?

Do the lines form perpendicular lines? Why?

Say: These lines are called intersecting lines. Why do you think are they called intersecting lines?

- Intersecting lines meet at a common point but they do not necessarily form 90 degrees.

2. Performing the Activity

Pair Activity:

Have the pupils use their ruler (or card board) to draw:

- The upper and lower lines of their pad paper. Identify and describe the figure they had just drawn.
- Vertical and horizontal lines that meet at the common point that will form a square corner. Discuss these lines.
- Two diagonal lines that meet at the common point. Describe them.

3. Processing the Activity

Ask:

How did you form or construct parallel, perpendicular and intersecting lines?

How do you identify and describe them?







4. Reinforcing the Concept

Have pupils answer Activity 1 in LM. Discuss their answers and clarify misconceptions.

Answer Key:

1) Parallel Lines – $\overleftrightarrow{CD} \parallel \overleftrightarrow{IJ} \parallel \overleftrightarrow{GH}$

2) Perpendicular Lines – \overleftrightarrow{CD} and \overleftrightarrow{EF} , \overleftrightarrow{IJ} and \overleftrightarrow{EF} , \overleftrightarrow{GH} and \overleftrightarrow{EF} , \overleftrightarrow{AB} and \overleftrightarrow{KL}

3) Intersecting Lines –  GH and KL,  AH and GH,  AB and CD,  LK and CD,
 HG and  AB

5. Summarizing the Lesson

Ask: What are parallel lines? perpendicular lines? intersecting lines?

- Parallel lines are lines that do not meet. The symbol // indicates parallel.
- Perpendicular lines are lines that meet at a common point. They intersect and form square corners.
- Intersecting lines meet at a common point but they do not form a corner or 90 degrees.

6. Applying to New and Other Situations

Individual Activity: Let pupils answer Activity 2 in LM. Let them identify the lines in the given objects.

Group Activity: Each group will list down objects or part of an object that represents parallel lines, intersecting lines and perpendicular lines. Let them present and discuss their answers.

C. Evaluation

Lead the pupils to answer Activity 3 in LM.

Answer Key: 1) intersecting 2) parallel 3) perpendicular
 4) intersecting 5) parallel 3) perpendicular

D. Home Activity

Refer to the Activity 4 in LM.

Lesson 66 Symmetry in the Environment and in Design

Week 7

Objective

Identify and visualize symmetry in the environment and in design.

Value Focus

Creativity

Prerequisite Concepts and Skills

1. Concept of symmetry
2. Construction of basic shapes such as squares, rectangles, triangles, circles

Materials

Cut-out pictures from magazines like butterfly, trees, etc., chart, scissors, bond paper, drawing materials, manila paper, masking tape

Instructional Procedures

A. Preliminary Activities

1. Drill

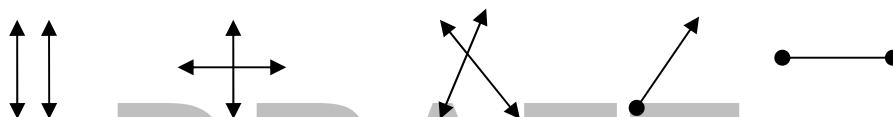
Mental Math

Show flashcards. Let pupils name or give the number. Let them explain their answer.

12 hundreds	12 tens	4 ones	(Answer: 1 324)
21 hundreds	20 tens	20 ones	(2 320)
47 hundreds	8 tens		(4 780)

2. Review

Show the drawing. Let pupils describe each.



3. Motivation

Teach the pupils the song about a butterfly (Tune: Sitsiritsit)

Fly, fly, the butterfly
In the morning, it's flying high
In the meadow, it's flying low
Fly, fly, fly, the butterfly.

Generate ideas about the song with the children.

B. Developmental Activities

1. Presentation

Present a picture or a butterfly (large enough for the class to see). Ask pupils to describe the butterfly. Fold the butterfly into two. Ask pupils what they see. Ask pupils if the butterfly is equally divided into two. Introduce the word "*symmetry*."



Explain that symmetry is when a figure has two sides that are mirror images of one another. Tell them that you can draw a line through a picture of the object and along either side the image would look exactly the same. Explain that this line would be called **line of symmetry**. Present other pictures or objects. Have the pupils visualize and identify if the given design of the picture or object is symmetrical or not. Have the class give other examples of things that look symmetrical that they find in nature, in school, at home, and outside.

2. Performing the Activity

a. Group Activity

Divide the class into 5 groups. Provide each group with 8-10 pictures or real objects that are either symmetrical or symmetrical. e.g.



Let each group observe the pictures or objects. Let them discuss if the objects or pictures are symmetrical or not symmetrical.

Let them complete the table.

Direction: Write **Symmetrical** or **Not Symmetrical** after each object and explain your answer.

Name of Object	Symmetrical or Not Symmetrical	Explain
1. clothespin		
2. scissors		
3. clock		
4. bug		

3. Processing the Activity

Ask:

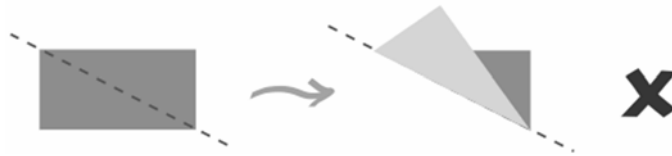
What are the objects or pictures that are symmetrical? Why?

Tell the pupils that they can check if a shape has a line of symmetry by folding it. When the folded parts match perfectly with one another, then the fold line is a **line of symmetry**.

Say: Here I have folded a rectangle in this way , what have you observed?

Does the folded part match perfectly with one another?

What does it mean?



So, this one does not show a line of symmetry.
But if I fold it in another way, what have you noticed?



Does the folded part match perfectly with one another?
How do you call the folded line?
So this is a line of symmetry.

Show another figure or picture to the class. Cut a half figure of a tree or a human figure on the folded part. Open the cut figure and show it to the pupils.

Have them think of something and create stories about the figure. Let them talk about the figure.

4. Reinforcing the Concept

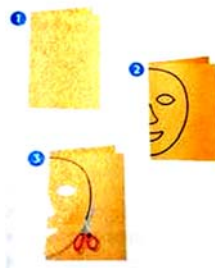
a. Pair Activity

Let each pair list down 5 objects found in their classroom that are symmetrical.

b. Tell the pupils that they will be doing a fun activity called "Name Creatures."

Ask the pupils to do Activity 1 & 2 in the LM.

The Mask:



Emphasize that everything they add to it should be added on both sides so that it stays a symmetrical design. Tell them they will have about 15 minutes to complete their creatures.

Pass the paper out and have the pupils do the activity while you walk

around observing their work. Encourage them to be creative when making their creature!

Once they are finished, have them share their creatures with their classmates.

Collect the creatures for assessment.

Note: Others who cannot draw can think of letters that can be symmetrical and draw it in on the bond paper (e.g. W, A, M, O) or it can also be done using basic shapes.

5. Summarizing the Lesson

What is symmetry? How do we know that a figure or object or shape is symmetrical? What other examples in the environment can we find that show symmetry?

Answer:

Symmetry is when a figure has two parts that are mirror images of one another. A figure is symmetrical if you can draw a line through a picture of the object and along either side the image would look exactly the same.

A figure or shape or object is symmetrical if it can be folded and one half is identical to the other half as the other half.

6. Applying to New and Other Situations

- a. Divide the class into 4 groups. Have pupils look through the magazines and cut out objects that they think are symmetrical. Challenge them to find unusual ones. Have them tape the pictures up on their Manila paper. When there are quite a few pictures on the board, talk about any that may not be obviously symmetrical and ask the student to explain why they chose them.

Have them fold the pictures into two and check whether it is truly symmetrical. Separate those that are and those that are not in the Manila paper.

- b. Individual Activity- Ask the pupils to do Activity 3 in the LM.

Have the pupils draw a symmetrical Christmas tree. Have them draw the line of symmetry on their sketch with a red pen.

7. Evaluation

Ask the pupils to answer Activity 4 in the LM.

Answer Key: cat and duck

8. Home Activity

Ask the pupils to answer Activity 5 and 6 in the LM.

Lesson 67 Line of Symmetry in a Given Symmetrical Figure

Week 7

Objective

Identify and draw the line of symmetry in a given symmetrical figure

Value Focus

Equality

Prerequisite Concepts and Skills

1. Concept of circles including half-circles and quarter circles
2. Constructing basic shapes such as squares, rectangles and triangles
3. Concept of symmetry

Materials

Cut-out pictures from magazines, chart, scissors, magazines, pieces graphing paper, bond paper, drawing materials, mirrors, activity folder, Manila paper, masking tape

Instructional Procedures

A. Preliminary Activities

1. Review

Divide the class into pairs. Have another game. Ask pupils to take turns to be the leader.

Let the leader ask for the different kinds of lines previously learned using arm and body movement.

2. Motivation

Ask the pupils: What do you see in the mirror? Do you see yourself in the mirror? Is it exactly your reflection?

Ask: How about the letters of the alphabet, what letters would look the same if viewed in a mirror. (Answer: **A, H, I, M, O, T, U, V, Y**)

Again, using a mirror what are the words in this sentence?

I LOVE GEOMETRY

B. Developmental Activities

1. Presenting the Lesson

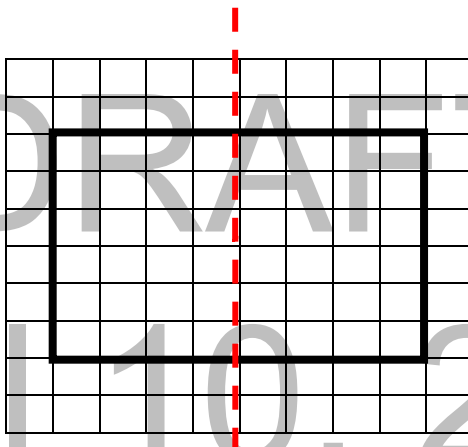
Draw a triangle, a square and a rectangle on a graphing paper.
Cut out the shapes.

Call pupils to fold the shapes so that the two sides lie exactly on top of each other. Ask them what they observe on the right and left sides of the folded line or on the top or bottom of the folded line.

Ask: What do you call this folded line? (*line of symmetry*)

What does the line of symmetry represent? (*When a figure or object is folded along a line of symmetry, the two sides lie exactly on top of each other or one side is exactly the mirror of the other.*)

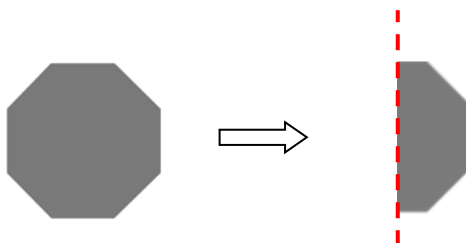
Example:



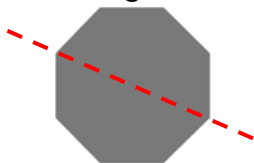
2. Performing the Activities

Ask: If you will fold this cut-out this way, do we have a line of symmetry? Let us try and see.

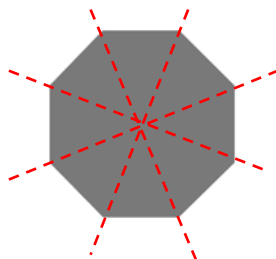
Call a pupil to fold the cut-out, then let him describe what happens.



Say: This time, let us draw a line anywhere as long as it passes thru the center and the two opposite angles.



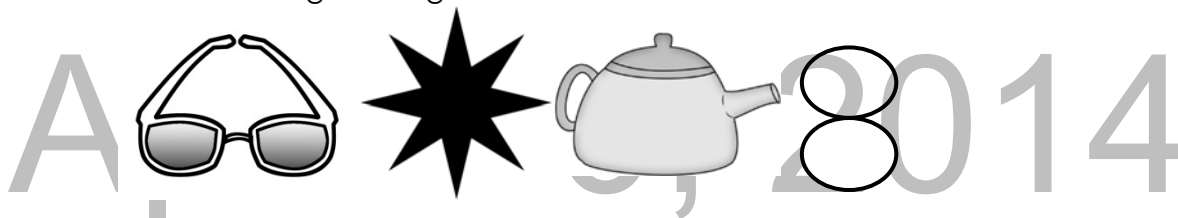
Ask: Can figures have more than one line of symmetry? If yes, draw more lines of symmetry in the figure.



Let pupils give symmetrical objects found in the room. Let them show the line symmetry. If the given object has more than one line of symmetry, ask if they could still see other lines of symmetry and show them to the class.

(Possible answers: balls, chalkboards, writing paper, blocks, etc.)

Present other figures. e.g.



Ask: Can you draw a line of symmetry in this figure, e.g. sunglass? Why? How many lines of symmetry can you draw in this figure?

3. Processing the Activities

Ask: How did you get the line of symmetry in each object/figure? What does line of symmetry mean?

Bring out the idea that the fold line works like a mirror- the two parts are reflections of each other.

4. Reinforcing the Concept

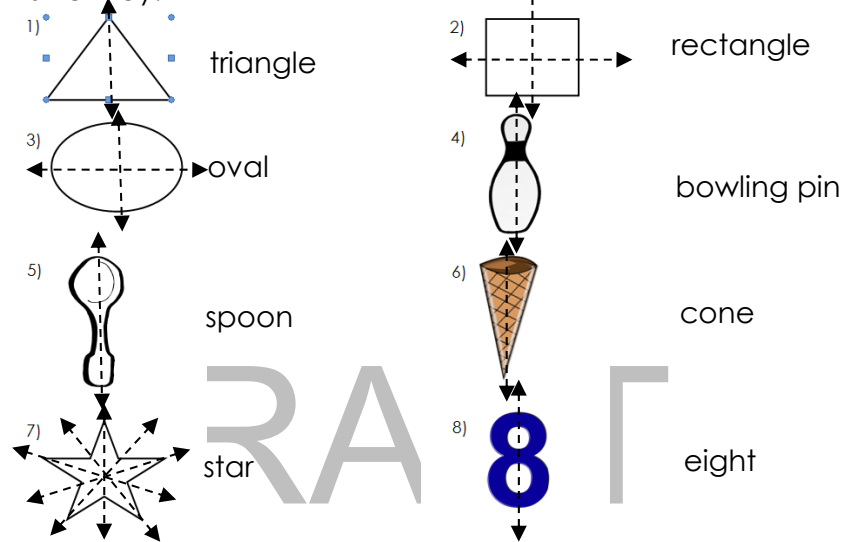
- a. Group Work. Divide the class into 4 groups.
Each group must have a paper, water color, and brushes.

1. Fold the paper in half, then paint a design on the side facing up.
2. Before the paint dries, bring up the other half of the paper and fold it over the painted design and press down on it.
3. Open the paper, and describe the resulting design.
4. Draw the line of symmetry.

Let each group share their design to the class and show the line of symmetry.

- b. Individual Work: Let pupils do Activity 1 in the LM. Discuss their answers afterwards.

Answer Key:



5. Summarizing the Lesson

When does a figure have a line of symmetry? Where is the line of symmetry in a design or figure?

A figure has a line of symmetry if you can fold the figure so both parts match exactly. The line of symmetry passes thru the center of the figure.

6. Applying to New and Other Situations

Individual Work: Ask the pupils to answer Activity 2 in the LM. Discuss their answers afterwards.

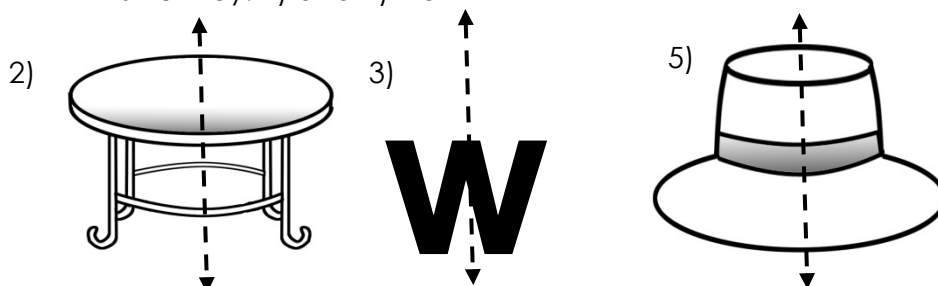
Answer Key: 1) Yes 2) Yes 3) No 4) No

Pair Activity: Let pupils work by pairs. Ask them to draw 1 or 2 basic figures or designs that have more than one line of symmetry. Let them draw the lines of symmetry. Call pairs to share their designs to the class.

C. Evaluation

Ask the pupils to answer the questions posed in the LM, Activity 3.

Answer Key: 1) and 4) No



D. Home Activity

Ask the pupils do Activity 4.

Answer Key: Numbers 1, 2, 3, 4, 5, 6, 7, and 9

Lesson 68 Completing a Symmetric Figure

Week 8

Objective

Complete a symmetric figure with respect to a given line of symmetry

Value Focus

Creativity

Prerequisite Skills

1. Concept of symmetry
2. Constructing squares, rectangles, triangles, circles, half-circles, and quarter circles

Materials

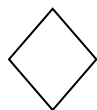
Cut-out pictures, chart, scissors, magazines, pieces of graphing paper, bond paper, drawing materials, mirrors, activity folder, Manila paper, masking tape

Instructional Procedures

A. Preliminary Activities

1. Review

Write the letter of the objects that can be divided equally.



A



B



C



D



E

2. Motivation

Name pairs of hours of analog clock through which a line could be drawn to divide the clock into two equal parts.

(Answer: 12 and 6, 1 and 7, 2 and 8, 3 and 9, 4 and 10, 5 and 11)

B. Developmental Activities

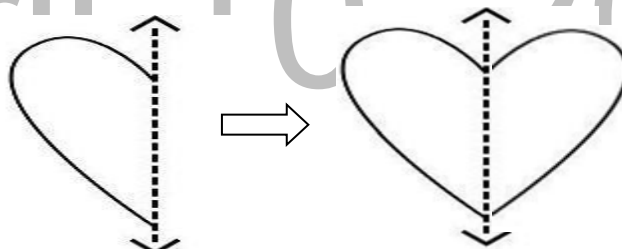
1. Presenting the Lesson

Say: It's Valentine's Day and you like to show your love to your parents by making a heart. You were taught how to make a perfect heart by folding the red paper before cutting it.



Show a folded image of a heart.

Model to the pupils how an incomplete figure can be completed using its symmetrical design.



Cut the folded image, then you will have a perfect heart.

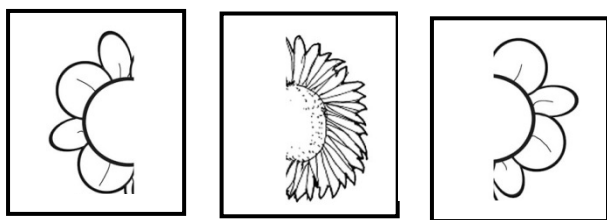
Show another folded or cut image and complete the image by drawing the other half.

Generate a discussion regarding the concept presented.

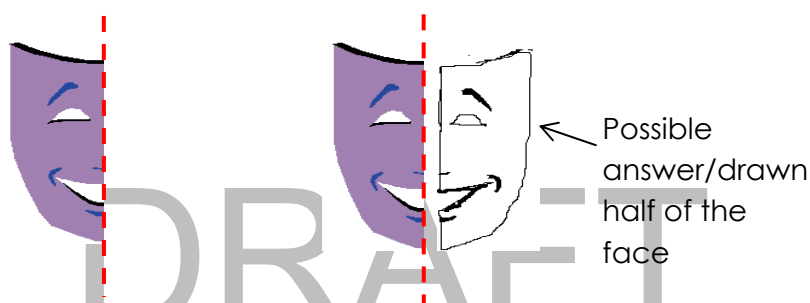
Ask: What can you say about the drawn part? Did it match with the other half?

2. Performing the Activity

Group Activity: Divide the class into 4 groups. Provide each group picture cards such as shown below. Let them match the cards so that they will make a symmetrical figure. e.g



Pair Activity: Provide each pair with a worksheet with half of the mask with its line of symmetry drawn. Let them draw the remaining half of the mask. Let them color their mask. e.g.



Let pupils share their drawn masks.

3. Processing the Activity

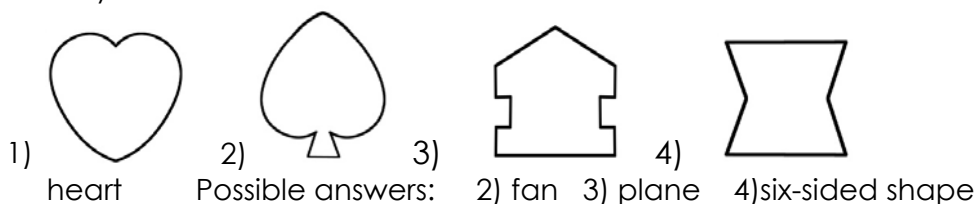
Ask: In the first activity, what did you do to complete the figures?
How about in the second activity?
How do you know that you are able to draw or make a symmetrical figure?

4. Reinforcing the Concept

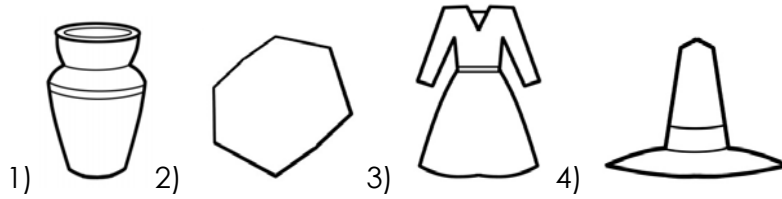
Ask the pupils to answer the activities in the LM, Activity 1 & 2. Discuss their answers afterwards,

Answer Key:

Activity 1



Activity 2



5. Summarizing the Lesson

How do we complete a symmetrical figure?

To complete a symmetrical figure, draw the other half exactly the same, a mirror- image of the other half with respect to its line of symmetry.

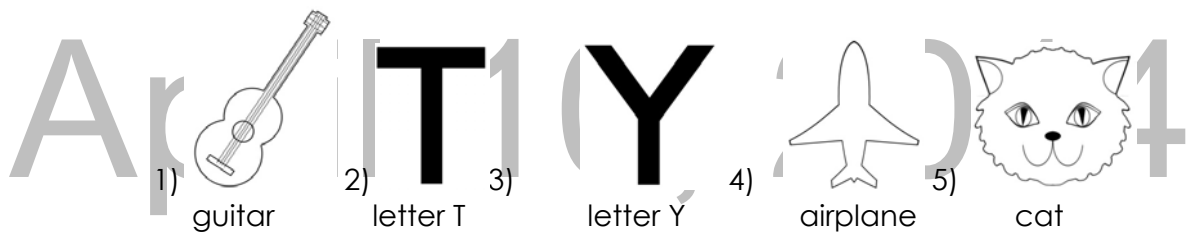
6. Applying to New and Other Situations

Pair Activity: Let each pupil draw or cut from magazines or newspapers one symmetrical figure. Let them cut it into two along its line of symmetry. Exchange their drawing or cut picture with their partners. The partners will complete the figure. Call some pairs to share their drawing or figure to the class.

C. Evaluation

Ask the pupils to answer the activities in the LM, Activity 4.

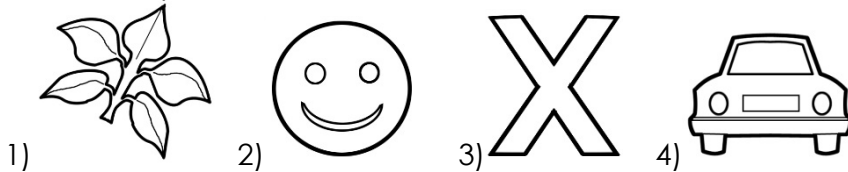
Answer Key:



D. Home Activity

Ask the pupils to answer the activities in the LM, Activity 3.

Answer Key:



Lesson 69 Tessellating a Plane Figure

Week 8

Objective

Tessellate the plane using triangles, squares and other shapes that can tessellate

Value Focus

Cooperation

Prerequisite Concepts and Skills

1. Describing shapes according to number of sides and corners
2. Tessellating a surface using triangles and squares
3. Counting the number of triangles and squares used to cover a certain surface

Materials

Box, cut-outs of small square/rectangle/triangle shapes, pieces of bond paper, cartolina, paste/glue, scissors, pencil, eraser, ruler, shape patterns, or sketch pad, pictures of tiles in the house

Instructional Procedures

A. Preliminary Activities

1. Drill

Identify the following:

- a. I am a figure without sides. What am I?
- b. I am a figure with three sides. What am I?
- c. I am a four-sided figure. What am I?

2. Review

Answer the following:

How many sides has a triangle?

How about a square? a rectangle?

How many corners has a triangle?

How about a square? a rectangle?

Compare the triangle, rectangle, and square according to the number of sides and corners.

Square and rectangle

Square and triangle

Triangle and rectangle

3. Motivation

Give the pupils strips of art paper. Tell the pupils to form a figure out of the given strips.

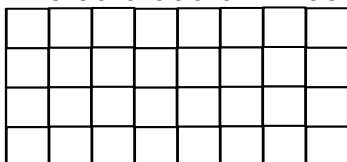
Ask: What figure did you form?

B. Developmental Activities

1. Presenting the Lesson

Provide 1/8 cartolina and cut-outs of small squares of the same size but with different colors. Call a pupil to paste or glue the cut-outs of squares on the card board without gaps.

e.g.

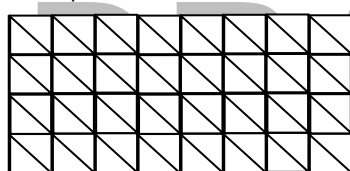


Ask: How many squares did you use?

Let them look at the arrangement of the squares. How are they put together? (*They are put together side by side without gaps.*)

Provide another cardboard or 1/8 cartolina and cut-outs of small squares and triangles of the same size but with different colors. Call a pupil to paste or glue the cut-out triangles and do the same with the cut-out squares.

e.g.



Ask: How many triangles did you use? Let them look at the arrangement of the triangles. How are they put together? (*e.g. The longest side and the shortest side of the triangles are joined together without gaps.*)

What did we do with the cardboard or cartolina? (*We covered the cartolina or cardboard with cut-out squares or triangles of the same size*) What did we form? (*Possible answers: We are able to form a design like a tiled floor. We formed a pattern of shapes.*)

What do you call this kind of designs or pattern? *Tessellations*

Say: We tessellate the surface or plane using triangles and squares of the same size.

2. Performing the Activity

Group Activity: Divide the class into 4 groups and let them work on the following activities.

Give each group a short bond paper, one small cut-out square or triangle, pencil and crayons.

Groups 1 and 2: Ask the pupils to draw and cover the whole bond paper with squares using the cut-out squares. Make sure that there will

be no gaps between squares. Let them color the design they have made.

Groups 3 and 4: Ask the pupils to draw and cover the whole bond paper with triangles using the cut-out triangles. Make sure that there will be no gaps between triangles. Let them color the design they have made.

Each group will talk about their design.

3. Processing the Activity

Ask:

Which shape can be placed side by side on the bond paper without overlap or gap in between? What does it look like as a whole? (*tiled wall or floor*)

How many small squares did you use?

How many small triangles fitted your bond paper?

What shape did you repeatedly use to make a pattern or design?

What do you call this repeated pattern? (This repeated pattern is called **tessellation**.)

Which shapes can be used in tessellation? (We tessellate by using shapes like triangles, rectangles, squares, etc. of the same sizes.)

4. Reinforcing the Concept

Group Activity

Divide the class into 4 groups. Provide each group with pieces of colored paper. Tell them to cut small shapes of a chosen shape. (e.g. square, rectangle, triangle). (The teacher may have a pre-cut pattern of a triangle, a square, a rectangle and other tessellating shapes.) Tell them that the chosen shape must be of the same size to form identical tiles.

Have the group paste the shapes of the same size that they have chosen on the bond paper. Emphasize that there should be no gaps or overlaps.

Let them talk about their designs. Display pupils' work.

5. Summarizing the Lesson

What have you observed about the pattern made? Does it have any gap or overlap? Why or why not? What do we call this kind of pattern?

How do you tessellate a given surface?

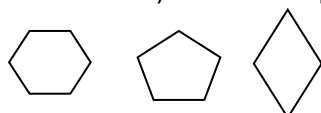
Tessellations are repeated patterns. Tessellations are a very specific kind of pattern. They do not have gaps or overlaps.

We tessellate using shapes like triangles and squares of the same sizes.

6. Applying to New and Other Situations

Pair Activity: Provide a bond paper to each pair. Let them choose one cut-out shape. Let them tessellate the bond paper using only the shape they have chosen. Color their designs.

(Prepare cut-out shapes as shown below. Make sure that each pair will have one of any of the shapes.)



Let them present their designs to the class.

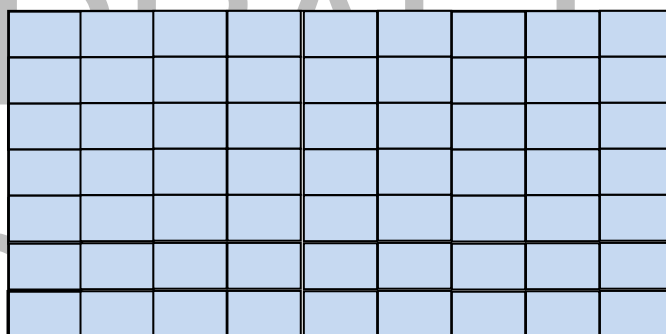
C. Evaluation

Ask the pupils to answer Activities 1 and 2 in the LM.

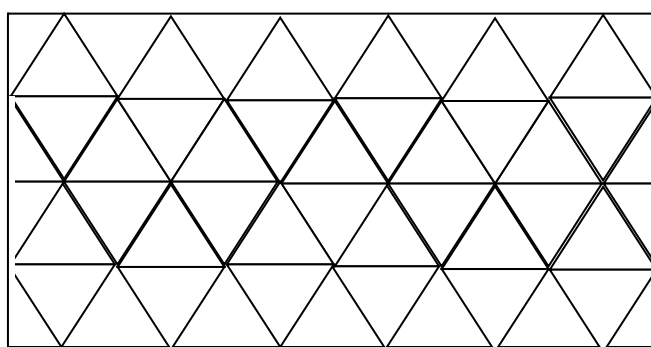
Answer Key:

Activity 1

1)



2)



Activity 2: 1) 14 2) 13 3) 12 4) 32 5) 14

D. Home Activity

Ask the pupils to answer Activities 3 and 4 in the LM.

Answer Key: 1) No 2) Yes 3) Yes 4) No

Lesson 70 Determining the Missing Term in a Pattern

Week 9

Objective

Determine the missing term/s in a given combination of continuous and repeating pattern

Value Focus

Cooperation

Prerequisite Concepts and Skills

Concepts on patterns and finding the missing terms

Materials

Illustrations of the different patterns, worksheets

Instructional Procedures

A. Preliminary Activities

1. Drill

Have pupils skip count by 2s, 3s, 5s, and 10s

2. Review

Lead pupils to answer the activity.

Write the missing number.

e. g.

1) $1 + 2 = \underline{\quad}$

2) $\underline{\quad} - 3 = 8$

3) $4 \times \underline{\quad} = 10$

4) $24 \div 6 = \underline{\quad}$

3. Motivation

Present the illustration on the board.



Ask: What did the children do with the stars?
What can you say about the arrangement of the stars?

B. Developmental Activities

1. Presenting the Lesson

Have pupils study the given patterns.

Say: Look at the given set of shapes. How are the shapes arranged?
What do they form? What shape should be put on the line? Why?



Say: Now look at the next set of figures or objects. How are they arranged? What pattern was created? What shape should be put on the line? Why?



Ask: What kind of pattern is given?

Say: These are examples of repeating patterns. Repeating patterns are sequences of shapes or numbers that repeat constantly and regularly. One can predict the next term or missing term by looking at the regularity of the shapes or figures or numbers repeated.

Say: Now, look at these numbers. How are the numbers arranged?
What is the next number in the pattern? Why?

3 5 7 9 ____

Ask: How about in this set of numbers? What number should be put on the blanks? Why?

1Z, 2Y, 3X, ____, ____, 6U

2. Performing the Activity

Group the class by fours. Provide a worksheet for each group. Let them identify and write the missing term/s in the given pattern.

- a. Look at the pattern, then draw the next shape.



Explain your answer: _____

- b. What are the next three shapes in this pattern? Draw them.



Explain your answer: _____

- c. What figures should be put on the blanks? Draw them.



Explain your answer: _____

- d. Write the missing numbers.

____ 75 70 65 60 ____

Explain your answer: _____

3. Processing the Activity

Discuss the answers of the groups.

Ask: In letter a, what is the next shape? Why?



How about in letter b, what are the missing shapes?



In letter c, what figures should be on the blanks?



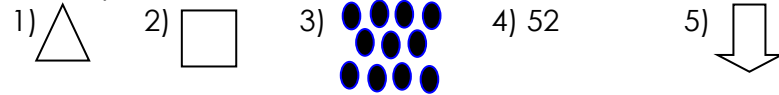
In letter d, what are the missing numbers? Why? (*80 and 55, the numbers are arranged in decreasing order and the difference between numbers is 5*)

4. Reinforcing the Concept

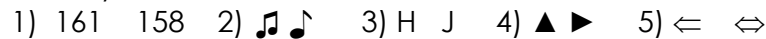
Have pupils answer Activity 1 and 2 individually in the LM.

Answer Key:

Activity 1



Activity 2



5. Summarizing the Lesson

How can you identify the missing term/s in a given pattern of shapes, figures or numbers?

- Look how the figures or shapes are arranged and identify which shape/s repeat over and over.
- Identify the order of the repeated figures.

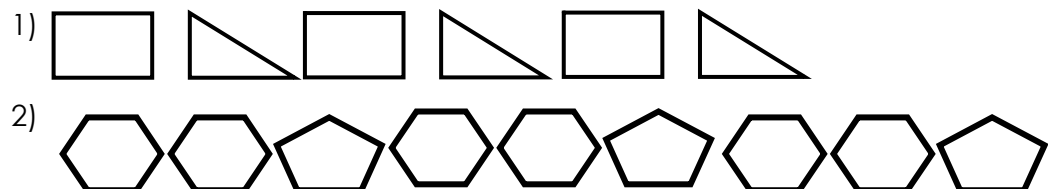
How can you find the missing number/s in a given pattern or sequence?

- Determine if the numbers are arranged in increasing or decreasing order
- Explore the relationship between the numbers by finding the difference between numbers that are next to each other
- Use the difference between numbers to find the missing number

6. Applying to New and Other Situations

Let pupils answer Activity 3 in pairs. Each pair will make a repeating pattern from the given shapes or figures or numbers. Then let them remove one or two shapes or figures or numbers from their created pattern. Exchange their patterns with another pair. Let them identify the missing shapes or figures or numbers.

Possible Answers:





4) **M M N N P M M N N P M M N N P**

5) **7 8 8 9 7 8 8 9 7 8 8 9**

C. Evaluation

Let pupils answer Activity 4 in the LM.

Answer Key:

- 1) **16, 19, 22, 25, 28, 31, 34**
- 2) **24, 29, 34, 39, 44, 49, 54**
- 3) **36, 33, 30, 27, 24, 21, 18**
- 4) **525, 500, 475, 450, 425, 400, 375**

D. Home Activity

Let pupils answer Activity 5 in the LM.

Answer Key: Friday-PhP17.00, Saturday-PhP20.00, and Sunday-PhP23.00;
one week- PhP98.00

Lesson 71 Finding the Missing Value in a Number Sentence

Week 10

Objective

Find the missing value in a number sentence involving multiplication or division of whole numbers

Value Focus

Accuracy, Cooperation

Prerequisite Concepts and Skills

Multiplication and division of whole numbers

Materials

Cut-outs, pictures, drawing, charts

Instructional Procedures

A. Preliminary Activities

1. Drill

Let pupils skip -count by 2s, 3s, 5s, and 10s

Give the missing numbers in the pattern.

1. 2, 7, __, 17, 22, __, 27.
2. 2, 4, __, 8, 10, __.
3. 4, 8, __, 16, __, 24.
4. 3, 6, __, 12, __, 18.
5. 5, __, 15, __, 25, 30.

2. Review

Let the pupils find the missing answer. Write the missing number on the blank.

1. If 3 and 7 is 10, what is $10 - 3$? _____
2. If you subtract 4 from 8 and then add 3 to the difference, what is the answer? _____
3. If you multiply 2 by 3 and then subtract 1, what would be the answer? _____

3. Motivation

Starfish live in the ocean. Most starfish have 5" arms" that make them look like stars. Suppose 3 starfish are on the beach. You want to know the number of arms the 3 starfish have.

How can we get the answer? (Possible answers: To find how many in all, we can count, add, or multiply.)

- a. How many arms do the starfish have altogether?
- b. How would you find the number of arms of 17 starfish?

Suppose one of the arms of the starfish is cut, do you think it can still move as fast as it did before?

B. Developmental Activities

1. Presenting the Lesson

Post the problem on the board.

Paul, Sam, and James each borrowed a paintbrush, a jar of paint, a sheet of paper, and a pencil from the art room.



Ask:

How many pupils are there?

How many items did they borrow?

Guide pupils to multiply to find the total number of items that were borrowed.

$$\begin{array}{ccccccc} 3 & \times & 4 & = & 12 \\ \text{pupils} & & \text{items borrowed by each boy} & & \text{items in all} \end{array}$$

So, the pupils borrowed 12 items.

How many items did each pupil borrow?

Divide to find how many items each pupil borrowed.

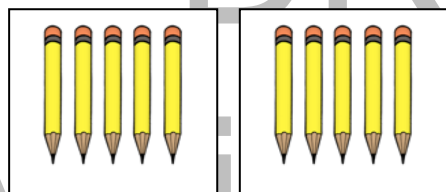
$$\begin{array}{ccccccc} 12 & \div & 3 & = & 4 \\ \text{Total number of items} & & \text{pupils} & & \text{number of items borrowed by each pupil} \end{array}$$

So, each student borrowed 4 items.

Ask: How are multiplication and division related?

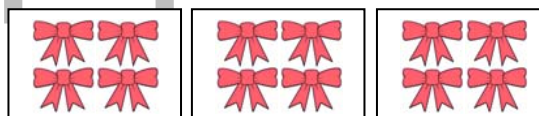
Examples: Use the picture to solve.

a.



$$2 \times 5 = \underline{n}, 10 \div 5 = \underline{n}$$

b.



$$3 \times 4 = \underline{n}, 12 \div 4 = \underline{n}$$

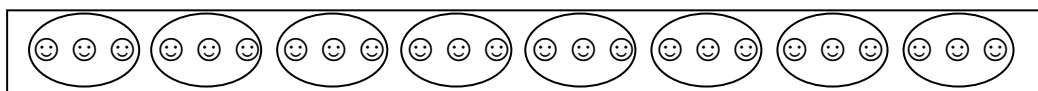
Since division is the opposite of multiplication, a multiplication fact can help you find the quotient.

2. Performing the Activity

Let pupils work in pairs. Let them do Activity 1.

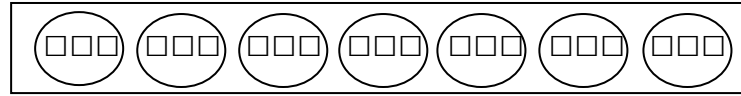
Ask the pupils to illustrate the number sentence and show their solutions and answers.

- 1) The 24 pupils in Ms. Tan's class work in groups of 3. How many groups of 3 are in Ms. Tan's class?



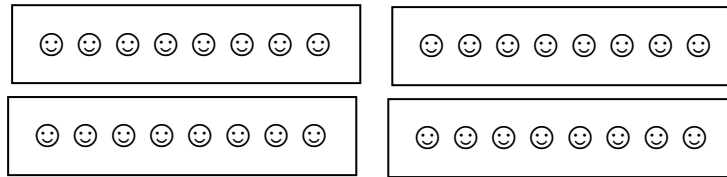
$$24 \div 3 = 8$$

- 2) Harry puts 3 tapes in each box. How many boxes does he need for 21 tapes?



$$21 \div 3 = 7$$

- 3) A fire truck carries 8 fire fighters. How many fire fighters will there be in 4 trucks?



$$8 \times 4 = 32$$

3. Processing the Activity

How did you find the activity?
 How did you get your answer?
 Did you use multiplication facts to get the correct answer?
 Can you use a multiplication table to find a quotient in a division problem? How?

4. Reinforcing the Concept

Let pupils do Activity 2 in LM. Find the value of the missing number. Emphasize the concept of equality. Let them work by pairs then discuss their solutions and answers.

Answer Key:

A. 1) 6 2) 3 3) 5 4) 2

Possible answers for 5) $\underline{8} \div 4 = \underline{20} \div 10$ 6) $8 \div 2 = \underline{32} \div \underline{8}$

B. 1) 28 2) 18 3) 9 4) 15 5) 4 6) 6

5. Summarizing the Lesson

How can you find the missing value in a number sentence involving multiplication and division?

Analyze the number sentence and find what term in the multiplication sentence or division sentence is/are missing.

Remember that multiplication and division are opposite/inverse operations.

Knowing multiplication facts can help you find the missing division facts and vice versa.

You can use division to check multiplication and multiplication to check division.

6. Applying to New and Other Situations

Let pupils do Activity 3 in LM. Discuss and answer nos. 1 and 2 first then they work individually. Discuss their answers and solutions afterwards.

Answer Key:

A. 1) 45 Possible answers for: 2) 4×3 3) 54×2 4) $200 \div 2$

5) $64 \div 8$

B. 1) $18 \times 12 = 216$ roses 2) $108 \div 12 = 9$ sets

C. Evaluation

Let pupils do Activity 4 in LM.

Answer Key:

A. 1) 14 2) 12 3) 35 4) 12 Possible Answers for : 5) $13 \times 8 = \underline{26} \times \underline{4}$

6) $72 \div \underline{8} = \underline{18} \div 2$

B. 1) $25 \times 12 = 300$ cupcakes 2) $2\ 400 \div 20 = 120$ shelves

D. Home Activity

Let pupils do Activity 5 in LM.

Answer Key:

A. 1) 13 2) 18 Possible Answers for: 3) $36 \div 6 = \underline{12} \div \underline{2}$

4) $5 \times \underline{6} = \underline{90} \div 3$

B. 1) $54 \div 3 = 18$ 2) $34 \div 4 = 8 \text{ r } 2$; 8 teams and 2 pupils did not join

3) $64 \div 4 = 16$; each of Gigi's sisters get 16 seashells

April 10, 2014

Lesson 72 Converting Time Measure involving Seconds, Minutes, Hours and Day

Week 1

Objective

Convert time measure from seconds to minutes, minutes to hours, and hours to a day and vice versa

Value Focus

Accuracy, Wise use of time

Prerequisite Concepts and Skills

Four fundamental operations on whole numbers

Materials

Models of a standard clock, toy clock with movable hands, flashcards with clocks and time in standard form, show-me-board

Instructional Procedures

A. Preliminary Activities

1. Drill

Ladder game

Divide the class into 4 rows. Each row will have 3 representatives.

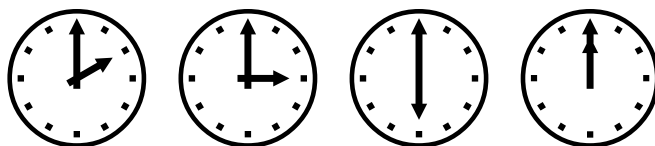
As the teacher flashes the cards, the representative will read the time shown in the model clock. The first to answer will take a step forward.

The first to reach the front will be the winner.

(Use the same procedure for the rest of the participants.)

2. Review

Show clock models. Ask pupils to tell the time shown. e.g.



3. Motivation

Ask: How do you prepare yourself before going to school in the morning?

Why is it important to take good care of our body?

Look at the pictures. Pick one and tell your classmate how long it takes you to do this every morning.



Why is it important to be aware of time?
Why do we have to use time wisely?

B. Developmental Activities

1. Presenting the Lesson

Show a real and functioning clock with second hand.

Let pupils read the time.

Ask: What time does it tell us? e.g. 7 o'clock

- How many hands does a clock have?

Let them identify the names of the different hands of a clock.

Ask: Which is the hour hand? minute hand? second hand?

What does each hand tell us?

Let pupils observe how the second and the minute hands move. (As

much as possible, each group of 4 members should have a real

clock.) Ask: Which hand moves faster, second hand or minute hand?

Guide the pupils in counting the number of ticks the second hand moves before the minute hand moves. Ask: How many seconds are there in one minute? If three minutes have passed, how many seconds is that?

Let pupils observe the minute and hour hands move. But since it will take time to show 60 minutes which is equal to 1 hour, manipulate the clock to show the pupils the number of ticks the minute hand moves which is equivalent to 1 hour. Ask: How many minutes are there in 1 hour? in 2 hours?

Just show also, using the clock, that 24 hours is equal to 1 day. Ask:

How many hours are there in one day? in two days?

Pupils should be able to say these:



When a second hand moves in 1 complete revolution, it is equal to 60 seconds.
60 seconds is equal to one minute
60 minutes is equal to one hour
24 hours is equal to one day

2. Performing the Activity

Divide the class into 6 groups. Let each group answer the problems given to them and show their solutions.

Group 1: Nena finished her homework in 360 seconds. How many minutes did it take her to do her homework?

Group 2: Elena finished her homework in 9 minutes. How many seconds did it take her to do her homework?

Group 3: Edgar travelled to their province in 4 hours. How many minutes did he travel?

Group 4: Ronnie travelled to their province in 180 minutes. How many hours did he travel?

Group 5: Juna stayed in her aunt's house for 5 days. How many hours did she stay?

Group 5: Benny stayed in his aunt's house for 144 hours. How many days did he stay?

Let each group present their solutions and answers.

3. Processing of the Activity

Ask each group the following:

How did you get your answer? What operation did you use? Why?

What time measure did you convert? Is it from smaller to bigger time measure?

If you are converting from smaller to bigger time measure, what operation will be used? How about from bigger to smaller time measure, which operation will be used?

What number should we divide if we convert seconds to minutes?

What number should we multiply if we convert minutes to seconds?

What number should we divide if we convert minutes to hours?

What number should we multiply if we convert hours to minutes?

What number should we divide if we convert hours to day?

What number should we multiply if we convert days to hours?

4. Reinforcing the Concept

Call one pupil at a time and answer Activity 1. Let pupils show their solutions and answers. Let them explain how they got their answers.

Answer Key:

- | | | |
|-------------------|----------------|------------------|
| A. 1) 10 minutes | 2) 300 seconds | 3) 6 hours |
| 4) 20 minutes | 5) 300 minutes | 6) 7 200 seconds |
| B. 1) 540 seconds | 2) 4 minutes | 3) 168 hours |
| 4) 4 days | 5) 48 hours | 6) 2 days |

Let pupils do Activity 2 in pairs. Let them discuss their solutions and answers.

Answer Key:

- A. 1) 14 minutes 2) 16 hours 3) 1 140 seconds 4) 300 minutes 5) 21 hours
B. 1) 1 080 seconds 2) 12 minutes 3) 3 days 4) 120 hours 5) 288 hours
C. 1) 15 minutes 2) 180 seconds

5. Summarizing the Lesson

Ask:

How do you convert the following:

- seconds to minutes?
- minutes to seconds?
- minutes to hours?
- hours to minutes?
- days to hours?
- hours to days?

To convert seconds to minutes, divide the number of seconds by 60.
To convert minutes to seconds, multiply the minutes by 60.
To convert minutes to hours, divide the number of minutes by 60.
To convert hours to minutes, multiply the number of hours by 60.
To get the number of days, divide the number of hours by 24.
To get the number of hours, multiply the number of days by 24.

6. Applying to New and Other Situations

Let pupils do Activity 3 individually. Afterwards, discuss their solutions and answers.

Answer Key:

- 1) a. Jimmy works at a later time. b. 4 ½ hours c. 270 minutes
2) 8 hours

C. Evaluation

Answer Activity 4 individually.

Answer Key:

- A. 1) 540 minutes 2) 72 hours 3) 13 minutes 4) 9 hours 5) 11 days
6) 168 hours 7) 14 days 8) 16 hours 9) 18 minutes 10) 12 days
B. 1) 480 seconds 2) 2 days 3) 2 100 seconds 4) 240 minutes

D. Home Activity

For their assignment, refer to Activity 5.

Answer Key:

- 1) 7 minutes 2) 11 hours 3) 20 minutes 4) 3 600 seconds 5) 10 days
6) 660 seconds 7) 7 minutes 8) 408 hours 9) 9 days 10) 8 hours

Lesson 73 Converting Time Measure involving Days, Weeks, Months and Years

Week 1

Objective

Convert time measure from days to weeks, months and years and vice versa, weeks to months and years and vice versa, months to years and vice versa.

Value Focus

Accuracy, Wise use of time

Prerequisite Concepts and Skills

Days of the week, months of a year

Materials

Calendars, "Show Me" board, chart, flashcards

Instructional Procedures

A. Preliminary Activities

1. Drill

Let pupils complete the missing equivalent time measure.

- 1) 3 minutes = ____ seconds
- 2) 3 days = ____ hours
- 3) 2 hours = ____ minutes
- 4) 48 hours = ____ days
- 5) 360 seconds = ____ minutes

2. Review

Let pupils change the given time to its equivalent unit.

- 1) 8 days = ____ hours
- 2) 120 hours = ____ days
- 3) 1 260 minutes = ____ hours
- 4) 1 860 seconds = ____ minutes
- 5) 21 minutes = ____ seconds

3. Motivation

Have the pupils sing a song that they know about months in a year.

B. Developmental Activities

1. Presenting the Lesson

Show a calendar from January to December. Let pupils name the months of the year. Ask: How many months do we have in a year?



Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

Let pupils investigate the number of days in each month. Let them complete the table as shown below.

Month	Number of Days
January	
February	
March	
April	
May	
June	
July	
August	
September	
October	
November	
December	

Ask: How many days are there in January? February? and so on. How many months have 30 days? 31 days? 28 or 29 days?

Say: 30 is the average number of days of the month.

February has only 28 days except for the leap year in which February has 29 days. January, March, May, July, August, October and December have 31 days. All the rest of the months except February have 30 days.

Ask: About how many days are there in one month? (*30 days = 1 month*)

What is the total number of days from January to December? How many days are there in 1 year?

Say: Every fourth year is a **leap year**. A leap year has 366 days.

Let them look at the days in a week.

Ask: How many days are there in a week? (*7 days = 1 week*) Let them name the days of a week.

Ask: If there are 7 days in one week, about how many weeks are there in one month? (*4 weeks*)

Let pupils show how they get their answer using the calendar.

Ask: How many weeks are there in one year? (*52 weeks*) Let them count the number of weeks using the calendar.

2. Performing the Activity

Group the pupils by 4s. Let them answer the following.

a. There are 14 days.

How many weeks are there?

How did you get 2 weeks?

($14 \div 7 = 2$ weeks)

b. There are 3 weeks.

How many days are there?

How did you get 21 days?

($3 \text{ weeks} \times 7 = 21$ days)

c. There are 60 days.

How many months are there?

How did you get 2 months?

($60 \div 30 = 2$ months)

d. There are 3 months.

How many days are there?

How did you get 90 days?

($3 \text{ months} \times 30 = 90$ days)

e. There are 2 years.

How many days are there?

How did we get 730 days?

($2 \text{ years} \times 365 = 730$ days)

f. There are 730 days.

How many years are there?

How did we get 2 years?

($730 \text{ days} \div 365 = 2$ years)

Call some groups to share their solutions and answers.

3. Processing the Activity

Ask:

How did you come up with your answer?

Did you find it difficult/easy?

How many days are there:

- in a week?
- in a month?
- in a year?

How many weeks are there:

- in a month?
- in a year

How many months are there in a year?

How do you convert smaller units to larger units? larger to smaller units?

What number should you use to multiply or divide if you are changing:

- days to weeks and vice versa?
- days to months and vice versa?
- days to years and vice versa?
- weeks to months and vice versa?
- weeks to years and vice versa?
- months to years and vice versa?

4. Reinforcing the Concept

Let pupils do Activity 1 by groups. Discuss their solutions and answers.

Answer Key:

- 1) 42 days 2) 6 weeks 3) 20 months 4) 180 days 5) 1 095 days
6) 11 years 7) 30 days 8) 4 weeks 9) 104 days 10) 1 908 days

5. Summarizing the Lesson

Ask the following questions.

How do we convert days to weeks and vice versa?

To convert days to weeks, divide the number of days by 7.

To convert weeks to days, multiply the number of weeks by 7.

How do you convert days to months and vice versa?

To convert days to months, divide the number of days by 30.

To convert months to days, multiply the number of months by 30.

How do you convert days to years and vice versa?

To convert days to years, divide the number of days by 365.

To convert years to days, multiply the number of years by 365.

6. Applying to New and Other Situations

Let pupils answer Activity 2 by pairs. Call pupils to show their solutions and answers.

Answer Key: 1) 6 weeks 2) 4 months 3) about 16 425 days

4) 221 hours 5) 1 week, 4 days and 4 hours

C. Evaluation

Do Activity 3 individually.

Answer Key:

- 1) 56 days 2) 90 days 3) 6 months 4) 34 weeks and 6 days 5) 200 days

D. Home Activity

Let pupils answer Activity 4.

Answer Key:

- 1) 4 weeks 2) 11 months 3) 56 days 4) 420 days 5) 7 weeks
6) 1 460 days 7) 1 year 8) 180 days 9) 2 037 days 10) 4 months

Lesson 74 Problems involving Conversion of Time Measure

Week 2

Objective

Solve problems involving conversion of time measure

Value Focus

Helpfulness, Industry

Prerequisite Concepts and Skills

1. Converting hours to minutes and vice versa
2. Converting days to week, months and years
3. Converting week to months and years
4. Converting months to years

Materials

Calendar, charts, "Show Me" board, flashcards

Instructional Procedures

A. Preliminary Activities

1. Drill

Divide the pupils into four groups then give each group a model clock/improvised clock. Flash a card with time and the pupils will use the model clock to show the time.

- a. 11:30
- b. 2:45
- c. 1:20
- d. 9:35
- e. 7:05

2. Review

Let the pupils answer the following questions mentally.

1. How many days are there in June and July?
2. How many days are there in August?

3. The cold months are December and January. How many days are the cold months?
4. Summer vacation is in April and May. How many days is the summer vacation?

3. Motivation

Let pupils choose the most sensible answers.

- a. Amor slept for 2 (seconds, hours, days).
- b. Allan takes 15 (seconds, hours, minutes) to take a bath.
- c. Miles can wink her eye in a (minute, hour, second).
- d. Abigail can solve a math problem in 2 (minutes, seconds, hours).

B. Developmental Activities

1. Presenting the Lesson

Present this problem.

Last Saturday, Nina helped her mother wash their clothes. They started washing at 7:30 A.M. and finished at 10:30 A.M. How many hours did they wash the clothes? How many minutes is that?

- Understand
 - a. What are given? 7:30 A.M. and 10:30 A.M.
 - b. What is being asked?
 - c. How will we solve the problem?
- Plan

Use a model clock or number line to show the elapsed time.
- Solve

Guide the pupils to convert the numbers of hours to minutes.
- Look back
 - a. Is the answer correct?
 - b. What is the correct label? (3 hours or 72 minutes)

Ask the following questions.

- How did Nina help her mother?
- What can you say about Nina?
- Do you think her mother appreciated what Nina did?
- What do you do to help your mother in her household chores?

Let them solve other problems.

1. Nestor went to the province for 3 weeks. How many days did he stay in the province?

To convert months to year, divide the number of months by 12.

6. Applying to New and Other Situations

Answer Activity 3 in triads. Discuss their solutions and answers afterwards.

Answer Key:

- 1) 9×12 months = 108 months; 9×52 weeks = 468 weeks
- 2) $2\frac{1}{2}$ days 3) $1\frac{1}{4}$ hours (1 hour & 15 minutes); 75 minutes
- 4) 5 400 seconds

C. Evaluation

Let them answer Activity 4 individually to assess pupil's understanding of the lesson.

Answer Key:

- 1) 12 weeks 2) Vince sleeps more by 120 minutes 3) about 11 weeks
- 4) Lena spent 10 minutes more for baking than Malou; 600 seconds

D. Home Activity

Refer to Activity 5 for their homework.

Answer Key: 1) 1 200 seconds 2) 35 days 3) 84 months; 364 weeks

Lesson 75 Converting Common Units of Linear Measure

Week 2

Objective

Convert common units of linear measure from larger unit to smaller unit and vice versa: meter and centimeter

Value Focus

Accuracy in measurement

Prerequisite Concepts and Skills

Multiplying and dividing whole numbers by 100, fractional part of a number, measuring length of an object

Materials

Meter stick/tape measure/ruler with centimeter, realia/objects to be measured, activity sheets, "Show Me" board

Instructional Procedures

A. Preliminary Activities

1. Drill

Conduct the drill below and instruct the pupils to use “show me board” in giving the answer.

a. Find the product.

$$\begin{array}{r} 100 \\ \times 5 \\ \hline \end{array} \quad \begin{array}{r} 100 \\ \times 3 \\ \hline \end{array} \quad \begin{array}{r} 100 \\ \times 6 \\ \hline \end{array} \quad \begin{array}{r} 100 \\ \times 2 \\ \hline \end{array}$$

b. Find the quotient.

$$4 \overline{)400} \quad 7 \overline{)700} \quad 100 \overline{)1000}$$

c. Find the fractional part.

$\frac{1}{2}$ of 10	$\frac{3}{4}$ of 100	$\frac{1}{3}$ of 90
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2. Review

Have an activity on measuring the following using ruler or tape measure or meter stick:

(Length of the notebook, pencil, blackboard, length or width of the classroom)

Ask: How do you know the measure of an object?

What unit of measure is shown in the ruler? meter stick? tape measure?

Is it necessary that one should be able to measure things accurately? Why?

3. Motivation

If you are to measure the length of the teacher's table, how long will that be?

Whose measurement is correct?

Why?

B. Developmental Activities

1. Presenting the Lesson

Present the situation to the class.

Mark and Rizza measured the length of the teacher's table. Mark found it to be 1 meter long, while Rizza claimed that it is 100 cm long. Whose measurement is correct? Why?

Ask: Who measured the length of the teacher's table?
How long is the table according to Mark?
How long is the table according to Rizza?
Whose measurement do you think is correct?

Record pupils' responses.

Verify the answer of pupils using a meter stick or a tape measure. Locate and mark the section where 1 meter is located. Help them to see that 1 meter is equal to 100 centimeters as seen in the meter stick or tape measure.

Lead the pupils to see that 1 meter when converted to centimeter is 100 centimeters.

2. Performing the Activity

Divide the class in 4 groups. Provide the materials and let them do the activity.

DIRECTIONS: In groups, measure the length of the given objects using meter stick. (Teacher should provide the following materials: e.g. 3 m of rope, 1 m curtain rod/stick, 4 m plastic string)

Groups 1 and 2: Measure the length of the objects in centimeters. Fill in the table.

Objects	Measure in Centimeters
Rope Curtain rod Plastic string	

Groups 3 and 4: Measure the length of the objects in meters. Fill in the table.

Objects	Measure in Meters
Rope Curtain rod Plastic string	

3. Processing the Activity

Let the pupils record their measurements on the table as shown below.
Discuss and summarize the results.

Objects	Measure in Centimeters	Measure in Meters
Rope	300	3
Curtain rod/Stick	100	1
Plastic string	400	4

Ask: What are the units of measure that you use in measuring the objects?

Ask the following questions for rope, curtain rod/stick and plastic string.
How long is the **rope** in centimetres? in meters?

What can you say about the measurement of the **rope** in centimeters and in meters? Is the length the same? Why?

Ask:

If 3 meters is already given as the length of the rope, how can we get its length in centimeters? (*multiply 3 by 100; $3 \times 100 = 300 \text{ cm}$*)

How can we change 400 centimeters to meters? (*divide 400 by 100; $400 \div 100 = 4 \text{ meters}$*)

4. Reinforcing the Concept

Provide the following exercises. Let pupils work in pairs. After each exercise discuss their solutions and answers.

1. How many centimeters are there in 2 meters? 10 meters?

Answer:

$$2 \text{ meter} = 2 \times 100 = 200 \text{ centimeters}$$

$$10 \text{ meters} = 10 \times 100 = 1\,000 \text{ centimeters}$$

2. What is $\frac{3}{4}$ of a meter?

Answer:

$$1 \text{ meter} = 100 \text{ centimeters}$$

$$\frac{3}{4} \times 100 \text{ cm} = \frac{300 \text{ cm}}{4} = 75 \text{ cm}$$

3. Which is longer? 600 centimeters or 3 meters? Why?

Answer:

Convert both measurements with the same unit of measure

Method 1

Convert 600 centimeters to meters;

$$600 \div 100 = 6 \text{ m}$$

Method 2

Convert 3 meters to centimeters;

$$3 \times 100 = 300 \text{ centimeters}$$

Thus 600 cm is greater than 3m.

5. Summarizing the Lesson

Ask: "How is meter converted to centimeter? centimeter to meter?"

- To convert meter to centimeter, multiply the number of meters by 100.
- To convert centimeter to meter, divide the number of centimeters by 100.

6. Applying to New and Other Situations

a. Divide the class into 5 groups. Provide about 3 meters long of yarn and meter stick or tape measure or ruler to each group. Ask 1 or 2 groups to cut and show the following measures; e.g. 1 $\frac{1}{2}$ m, 110 cm. Let them convert these measures to m or cm.

b. Let the pupils do Activities 1 and 2 in the LM.

Answer Key:

Activity 1: 1) 500 centimeters 2) 3 meters 3) 50 centimeters
4) 25 centimeters

Activity 2

A. 1) = 2) < 3) < 4) =

B. 1) 500 centimeters 2) 300 centimeters

3) Yes because 2 meters = 200 centimeters and
5 pieces of 25 cm wire = 125 centimeters,
So there will be 75 centimeters left in the 2 m wire

C. Evaluation

Assess learning using Activity 3.

Answer Key: 1) Less than 2) 230 meters 3) 6 meters

4) Suzanne walks farther than Roxy by 10 meters or 1 000 centimeters

5) a. school (600) is farther than the market (500 m) b. 10 000 cm

D. Home Activity

For homework, let pupils do Activity 4.

Let them measure the length of the following objects found in their home: height of the door, length of the living room, and width of the dining table. Let them record their measures in centimeters and in meters. (Answers vary)

Lesson 76 Converting Common Units of Mass Measure

Week 2

Objective

Convert common units of measure from larger unit to smaller unit and vice versa: kilogram to gram

Value Focus

Teamwork

Prerequisite Concepts and Skills

1. Multiplying and dividing whole numbers by 1 000
2. Fractional part of a number
3. Weight measure

Materials

Weighing scale, real objects, pictures, illustrations

Instructional Procedures

A. Preliminary Activities

1. Drill

Let the pupils find the product/quotient of the following using show me board;

d. Find the product.

$$\begin{array}{r} 1000 \\ \times 12 \\ \hline \end{array}$$

$$\begin{array}{r} 1000 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} 1000 \\ \times 13 \\ \hline \end{array}$$

$$\begin{array}{r} 1000 \\ \times 26 \\ \hline \end{array}$$

b. Find the quotient.

$$1000 \overline{)18\,000}$$

$$1000 \overline{)29\,000}$$

$$1000 \overline{)34\,000}$$

2. Review

Show the following pictures and let pupils give the reading shown on the weighing scale.



3. Motivation

Let the pupils sing "Bahay Kubo."

- Ask: What vegetables are mentioned in the song?
Do you eat vegetables?
Which vegetable mentioned in the song do you eat?
Why do we need to eat vegetables?

B. Developmental Activities

1. Presenting the Lesson

Show a kilo of eggplants and a kilo of guavas.

Ask: Which is heavier, a kilo of guavas or 1 000 grams of eggplant?
How do you know? What instrument will you use to determine the mass of an object?

Show a weighing scale (if available use the weighing scale used in the canteen, feeding or science laboratory).

Call the pupils' attention to the lines shown in the weighing scale. Let them identify the smaller lines that represent grams (it can be 10 g, 100 g depending upon the weighing scale used). Let the pupils skip count the smaller lines that represent the gram until they reach 1 kilogram (e.g. 10, 20, and so on or 50, 100, 150, and so on.) Ask: How many grams are there in one kilogram?

Pupils should realize that 1000 grams is equal to 1 kilogram.

Call a pupil to weigh the eggplants and call another pupil to read its mass by grams and then by kilograms. Do the same with the guavas.

Ask: Which is heavier, a kilo of guavas or 1 000 grams of eggplant?
Why?

2. Performing the Activities

Bring out some vegetables and fruits and let the pupils identify each.
e.g. 4 kg of squash, 2 kg of eggplants, 1 kg of chico, 3kg of bananas

Call a pupil to weigh each bag of vegetables and fruits in kilogram and in grams. Let them fill the table as shown.

Fruits/Vegetables	Weight in Kilogram/s	Weight in Grams
Chico		
Banana		
Squash		
Eggplant		

3. Processing the Activities

Pose the following questions.

- What is the mass of chico in kg? What is its mass in grams? What did you observe?

$$\begin{array}{ccc} \text{Kilogram} & \longrightarrow & \text{gram} \\ 1 \text{ kg} = 1 \times 1\,000 = 1\,000 \text{ g} \end{array}$$

- What operation will you use to change gram to kilogram?

$$\begin{array}{ccc} \text{Gram} & \longrightarrow & \text{kilogram} \\ 1,000 \text{ g} = 1,000 \div 1,000 = 1 \text{ kg} \end{array}$$

- Give the weight of (banana, squash and eggplant) in kilograms and in grams.
- What is the total mass of the fruits in kilograms? in grams?
- What is the total mass of the vegetables in kilograms? in grams?

4. Reinforcing the Concept

A. Let the pupils answer the problems by pairs. Discuss their solutions and answers afterwards

1. A pupil weighs 40 kilograms. How much is it in grams?

Use multiplication in converting kg to g
 $40 \times 1\,000 = 40\,000 \text{ g}$

2. Teresa bought 5 dozen sachets of 50 grams of powder juice. What is the total weight in grams? In kilograms?

$5 \times 12 = 60 \text{ pieces}; 60 \times 50 \text{ g} = 3\,000 \text{ g}$
Use division in converting g to kg
 $3\,000 \div 1\,000 = 3 \text{ kg}$

- B. For additional activity, let the pupils do Activities 1 - 3 in the LM. Discuss their solutions and answers afterwards

Answer Key:

Activity 1: 1) 375 2) 460 3) 320 4) 500 5) 482

Activity 2: 1) 5 kg = 5 000 g 2) 3 kg = 3 000 g 3) 4 kg = 4 000

Activity 3

A. 1) 44 000 g 2) 23 000 g 3) 85 000 g

B. 1) 24 kilograms 2) 54 kilograms 3) 8 kilograms

3. Summarizing the Lesson

Ask: How do you convert kilogram to gram? gram to kilogram?

To convert kilogram to gram multiply the number of kilogram by 1 000.

To convert gram to kilogram divide the number of gram by 1 000.

4. Applying to New and Other Situations

Let the pupils do Activity 4 in the LM.

Answer Key:

A. 1) 19 kilograms 2) 32 kilograms 3) 28 000 grams

B. 1) 2 kg 2) about 3 kg 3) 21/2 kg 4) 7 500 g or 7 ½ kg

C. Evaluation

Let the pupils answer Activity 5.

Answer Key:

1) 3 kg 2) 11 000 grams 3) 100 000 grams 4) 2 000 grams

5) 2 500 grams or 2 ½ kilograms

D. Home Activity

Let the pupils answer Activity 6.

Answer Key:

1) 750 grams 2) 8 packages; PhP176.00 3) 1 500 g or 1 ½ kg

Lesson 77 Converting Common Units of Capacity Measure

Week 2

Objective

Convert common units of measure from larger unit to smaller unit and vice versa: liter (L) to milliliter (mL)

Value Focus

Cleanliness, Decisiveness, Thriftiness

Prerequisite Concepts and Skills

1. Multiplication and division of whole numbers by 1 000
2. Fractional part of a number

Materials

Activity cards, empty plastic bottles of different capacities

Instructional Procedures

A. Preliminary Activities

1. Drill

A. Use flash cards. Instruct the pupils to use mental math in finding the product/quotient.

- a. $10 \times 1\,000$
- b. $3\,000 \times 50$
- c. $12 \times 2\,000$
- d. $3\,000 \div 2$
- e. $1\,000 \div 50$

B. Find the fractional part.

- a. $\frac{2}{3}$ of 600
- b. $\frac{3}{4}$ of 1 200
- c. $\frac{1}{8}$ of 1 000

2. Motivation

Show a picture of a flooded place with plastic bottles, cups, cans, etc... floating.

Say: Look at the picture and describe what you see.

Ask: Why do we need to keep our surroundings clean?

How can you maintain cleanliness in your house? in your classroom?

In what ways can we reduce the waste or trash in our surrounding?

What objects in the picture can we reuse or recycle?

B. Developmental Activities

1. Presenting the Lesson

Ask: When you buy bottled mineral water or juice, aside from the brand, what other things do you want to see in its label? (expiry date, ingredients, nutrition facts, serving size, etc.)

Is it necessary to know those facts? Why?

Say: "Today we will reuse empty bottles with different sizes in our lesson."

2. Performing the Activities

Group the pupils and give each group the materials and activity card.

Groups 1 and 2:

Materials: 2 empty bottles that can hold 500 mL of water and 1 liter of water

Directions: Pour the 1 liter of water in the 2 empty bottles

Questions

- How many liters of water is transferred in the 2 empty bottles?
- How many milliliters are there in 1 liter?

$$1 \text{ liter} = 2 \times 500 \text{ mL} = 1\,000 \text{ mL}$$

Groups 3 and 4:

Materials: 4 - 250 mL bottle of water and an empty bottle that can hold 1 liter of water

Direction: Pour the water from the four 250mL bottles to a 1-liter bottle container.

Answer the following questions:

- How many milliliters of water did you pour in the 1 liter bottle container?
- How many liters are there in 1000 milliliters?

$$\text{Therefore, } 1\,000 \text{ mL} = 1\,000 \div 1\,000 = 1 \text{ liter}$$

3. Reinforcing the Concept

Discuss:

- Mother bought four 500 ml tetra packs of milk. How many liters is it?

$$4 \times 500 = 2\,000 \text{ mL}$$

Since $1,000 \text{ mL} = 1 \text{ liter}$

$$2\,000 \div 1\,000 \text{ liters}$$

Therefore, 4- 500 mL of milk is equal to 2 liters

- b. Lira has to transfer 5 liters of cooking oil in bottles of 250 ml. How many bottles will she need?

Since 1 liter = 1 000 mL

$5 \times 1\,000 = 5\,000$ mL: $5\,000 \div 250 = 20$

Therefore, 20 – 250 mL bottles are needed

Let the pupils do Activity 1 in the LM for reinforcement.

Answer Key:

A. 1) 3 000 mL 2) 12 000 mL 3) 2 500 mL 4) 5 000 mL 5) 8 000 mL

B. 1) 3 L 2) 11 L 3) 1 L 4) 10 L 5) 13 L

4. Summarizing the Lesson

Ask: How do you convert liter to milliliter? milliliter to liter?

To convert liter to milliliter multiply the number of liter by 1000.

To convert milliliter to liter divide the number of milliliters by 1000.

5. Applying to New and Other Situations

Let the pupils do Activity 2 in the LM by pairs. Discuss their solutions and answers.

Answer Key: 1) 4 000 mL 2) Container B holds more by 200 mL

3) 105 L, 105 000 mL, PhP525.00 4) 2 L

C. Evaluation

Let the pupils answer Activity 3 in the LM.

Answer Key: 1) 1 liter for PhP150 because for every 500 mL, it costs PhP75 while the three 500-mL, one 500-mL costs PhP80.

2) Buy 6 bottles of 500-mL because it is equivalent to 3 liters

3) PhP480; PhP20 change

D. Home Activity

Let the pupils do Activity 4 in the LM.

Answer Key: 1) 40 2) Better to buy four 3-L which cost PhP264.00 rather than four 750-mL (equal to 3 L) which cost PhP280.00 or twelve 250-mL (equal to 3 L) which cost PhP300.00

Lesson 78 Routine and Non-Routine Problems involving Conversions of Common Units of Measure

Week 3

Objective

Solve routine and non-routine problems involving conversions of common units of measure

Value Focus

Respect

Prerequisite Concepts and Skills

Converting meter to kilometer and vice versa, converting gram to kilogram and vice versa, converting milliliter to liter and vice versa

Materials

Measuring tape, weighing scale

Instructional Procedures

A. Preliminary Activities

1. Drill

Solve and supply the missing number.

- | | |
|--------------------------------|--------------------------------|
| 1) 5 m = _____ cm | 6) $1\frac{1}{4}$ kg = _____ g |
| 2) 300 cm = _____ m | 7) 18 000 mL = _____ L |
| 3) $8\frac{1}{2}$ m = _____ cm | 8) 24 500 mL = _____ L |
| 4) 12 kg = _____ g | 9) $6\frac{1}{2}$ L = _____ mL |
| 5) 7 500 g = _____ kg | 10) 75 L = _____ mL |

2. Review

Choose the best estimate. Encircle the correct answer.

- the length of a hairpin
a. 3 cm b. 3 mm c. 3 m
- a bottle of ketchup
a. 500 L b. 500 mL c. 50 L
- the regular bar of soap
a. 90 mg b. 90 g c. 90 kg
- a full tank of diesel
a. 40 L b. 40 mL c. 40 kg
- The length of a chalk
a. 10 mm b. 10 cm c. 1 m

3. Motivation

Call on two pairs of children with opposite physical qualities. Let the class compare these pairs of pupils in terms of height in meters or centimeters and weight in grams and kilograms.
Stress the value of respecting other people.

B. Developmental Activities

1. Presenting the Lesson

Present this problem

A laboratory room is $18\frac{1}{2}$ meters long. How many centimeters is that?

Understand

What is given? $18\frac{1}{2}$ meters long
What is being asked? The number of centimeters
What operation will solve the problem? Multiplication

Plan

What mathematical sentence will solve the problem?

$$18\frac{1}{2} \times 100 = N$$

Solve

Tell the students to be careful in multiplying $\frac{1}{2}$ by 100.
 $18\frac{1}{2} \times 100 = 1800 + 50 = 1850$

Look back

Is the answer correct?
What is the correct label/ unit?
State the complete answer. There are 1850 meters.

2. Performing the Activities

Let pupils answer the problems with their learning partners. Let them use the following steps to solve the problems.

Understand

What is given? _____
What is being asked? _____

Plan

How will you solve the problem? _____

Solve

Look back

Is the answer correct? _____
What is the correct label/ unit? _____
State the complete answer. _____

- a. A can contains 1.5 liters of water. The teacher asks you to put the water in 250 mL bottles. How many bottles does the teacher need?
Use the 4-step in solving word problem.
- b. The class donates a box of noodles to typhoon victims. The content of a box of noodles weigh 6 kilos. If each packet of noodles weighs 60 g, how many packets are in the box?
Use the 4-step in solving word problem.

3. Processing the Activities

Ask: Did you follow the 4-step plan in problem solving?
Do you have other ways to solve the problems?

Discuss each problem using the steps.

4. Reinforcing the Concept

Let pupils answer Activities 1 and 2 by groups. Present their outputs afterwards and discuss their solutions and answers.

Answer Key:

Activity 1: 1) 6 800 cm 2) 1 ½ m or 1.5 m 3) 1 000 grams
4) 7 250 grams 5) 3 250 mL
Activity 2: 1) 175 cm 2) 15 m 3) 6 m 4) 1 200 cm
5) 57 000 g 6) ½ kg 7) 5 000 g 8) 30 kg
9) 4 000 g 10) 2 500 mL 11) 75 L

5. Summarizing the Lesson

Ask: How did we solve the problems involving conversion of common unit of measure?

To solve a one step word problem involving conversion of common unit of measure, follow the 4-step plan in problem solving.

Ask: What are units of measure for length? *Meter and centimeter*
What are units of measure for mass/ weight? *grams and kilograms*
What are units of measure for capacity? *liter and milliliter*

6. Applying to New and Other Situations

Let pupils do Activity 3 by pairs. Afterwards, discuss their solutions and answers.

Answer Key:

1) 800 m 2) PhP560 3) 4 kg, PhP520 4) 8 km 5) 15 L a day, PhP840.00

C. Evaluation

Let pupils do Activity 4 individually.

Answer Key: 1) 750 g 2) 2 kg or 2 000 g 3) 3 ¼ L 4) 525 mL 5) 4 ½ km

D. Home Activity

Let pupils do Activity 5.

Answer Key:

1) 2 725 g 2) 1 825 g 3) 1 60 000 mL 4) 735 mL 5) 7 500 cm

Lesson 79 Measuring Area using Appropriate Units

Week 3

Objective

Measure area using appropriate units

Value Focus

Accuracy, Diligence

Prerequisite Concepts and Skills

Names and attributes of common shapes, measuring lengths, standard measures of length (cm and m)

Materials

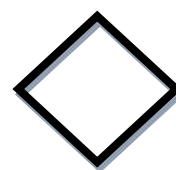
Cutouts of shapes, centimeter ruler, meter stick/tape measure, 1 cm by 1 cm grid paper

Instructional Procedures

A. Preliminary Activities

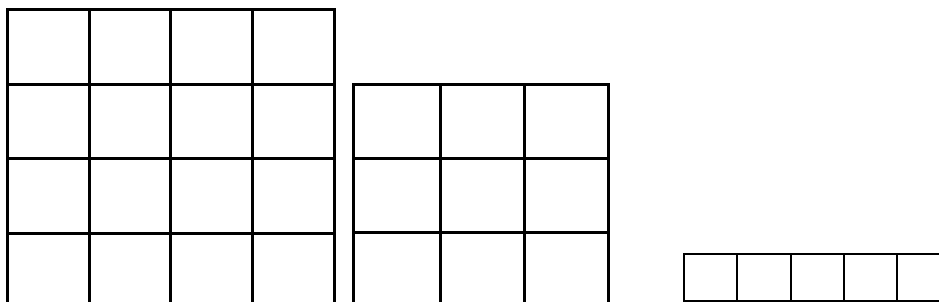
1. Drill

Show the following shapes. Let the pupils name the shapes and tell the number of its sides.



2. Review

Show the following figures and let the pupils count and tell the number of squares in the figure.



3. Motivation

If you are to buy a plastic cover for your notebooks, what is the appropriate unit of area measure to be used? Why?

B. Developmental Activities

1. Presenting the Lesson

Post the problem on the board.

Diana and Jean bought notebooks at the mall. They also bought plastic cover for their notebooks. What is the area of the top of the notebook to be covered? What is the appropriate unit of area measure to be used? Why?

Ask: What do we need to find in the problem? (*area of the notebook and appropriate unit in measuring area*)

Let the pupils bring out one notebook. Let them show the area of the top of the notebook to be covered.

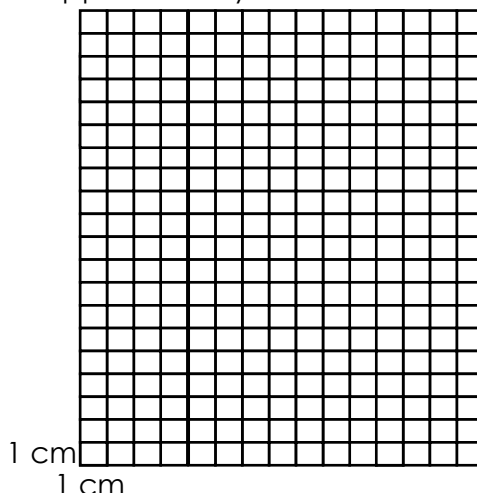
Ask: What measuring tool can we use to get the length of this notebook? (*ruler, tape measure*)

What standard unit of measure can we use to get the length of this notebook? (*centimeter or cm*)

2. Performing the Activity

- a. Using square centimeter (sq. cm)

Divide the class into groups of 4s. Provide each group with a 1 cm by 1 cm grid paper approximately the size of their notebook. e.g.



Ask: What is the area of this paper? (*300 square units*) Let pupils count the small squares.

Then let the pupils measure the length of one small square \square .

Ask: What is the length of the side of one small square? (*1 cm*)

What is the area of one small square? (*1 square centimeter or 1 cm²*)

If one small square is 1 sq. cm, what is area of the paper? (*300 sq. cm*)

Let pupils compare: 300 square units and 300 square centimeters

Ask: What is the difference between the two answers? (The first answer used square units while the second used square centimeters)

Are the two answers correct? Why? (*Yes, because we both find the area of the paper. In the first answer we put square units after we counted the number of small squares while in the second one we put square centimeter because we used a standard unit of measure which is centimeter.*)

What standard unit of area measure did we use to find the area of this paper? (*square centimeter or sq. cm*)

Let them put the grid paper on top of their notebooks.

Ask: What is the estimated area of your notebook? (*about 300 square centimeter or 300 sq. cm*)

What standard unit of area measure can we use to get the area of this notebook? (*square centimeter or sq. cm*)

Can we also use square centimeter or sq. cm to find the area of your pad paper? Why? How about your book?

When can we use square centimeter or sq. cm in measuring an area of an object, space or figure? (*square centimeter or sq. cm is used if the area to be measured is small*)

Let pupils give more examples of area of a space or figure that can be measured by square centimeter or sq. cm.

b. Using square meter (sq. m)

Ask: Can we use square centimeter or sq. cm to measure the area of our room? Why? *(Expected answers: No, because the room is big. Yes, but it will take a long time to get the area.)*

Ask: What appropriate unit of measure can we use in finding the area of this room?

What unit of measure can we use to find the length of this room?

What measuring tool/instrument can we use?

Let one pupil draw a square measuring 1 meter by 1 meter from one corner of the room.

Ask: What is the area of this square? *(1 square meter or 1 sq. m)*

About how many square meters is this room? Let pupils estimate the area of the room using the area of 1 square meter (sq. m).

Can we also use square meter or sq. m to get the area of the playground? covered court?

When is it appropriate to use square meter or sq. m in getting the area of a figure or a space? *(square meter or sq. m is used if the area to be measured is big)*

Let pupils give more examples in which square meter or sq. m is the appropriate unit of area measure.

3. Processing the Activity

How did you find the activity? Is it easy or difficult? If a different person will measure the area of a book and floor of the room, do you think he/she will get the same answer as yours?

What instrument or measuring tool did we use in the activities? *(ruler, meter stick, carpenter's tape measure)*

What did we measure? *(area of the notebook, room)*

What will help you decide the appropriate unit to use in measuring area? *(When the area to be measured is small, for example, book, pad paper, etc., the appropriate unit is **square centimeter**. If the area to be measured is bigger, like the garden, the floor of a room, etc., then the appropriate unit is the **square meter**.)*

4. Reinforcing the Concept

Let pupils do Activity 1 individually. Afterwards, call pupils to share their answers and reasons.

5. Summarizing the Lesson

When do we use square centimeter (sq. cm)? square meter (sq. m)

When measuring smaller area, like a book, greeting card, etc., we use the square centimeter (sq. cm).

When measuring bigger area, like the garden, floor of a room, etc., use the square meter (sq. m).

6. Applying to New and Other Situations

Let pupils do Activity 2 by pairs. Discuss between them why they choose square meter or square centimeter. After 2- 3 minutes, call some pairs to share their answers.

Answer Key: 1) square centimeter 2) square meter 3) square meter 4) square centimeter

C. Evaluation

Let pupils do Activity 3 individually.

D. Home Activity

Look around your house. Give 5 things or figures which can be measured using square centimeters and another 5 things or places which can be measured using square meters.

Lesson 80 Area of a Rectangle and a Square

Week 4

Objectives

1. Derive the formula for the area of a rectangle and a square
2. Find the area of a rectangle and square in square centimeter and square meter

Value Focus

Decisiveness

Prerequisite Concepts and Skills

1. Multiplying whole numbers
2. Measuring length using centimeter and meter
3. Finding the area of a region by counting square units
4. Unit of measure for area

Materials

Square grid, tape measure, crayons, and activity sheets

Instructional Procedures

A. Preliminary Activities

1. Drill

Flash cards and let pupils answer mentally. e.g.

a. 15×50

f. $500 \div 100$

b. 120×20

g. $3\,000 \div 100$

c. 200×10

h. $1\,500 \div 100$

d. 180×100

i. $8\,300 \div 100$

e. 500×20

j. $16\,000 \div 100$

Answer Key: a. 750 b. 2 400 c. 2 000 d. 18 000 e. 10 000
f. 5 g. 30 h. 15 i. 83 j. 160

2. Review

Call pupils to convert the following measurements to the indicated unit of measure:

a. $300\text{ cm} = \underline{\hspace{1cm}}\text{ m}$ (3)

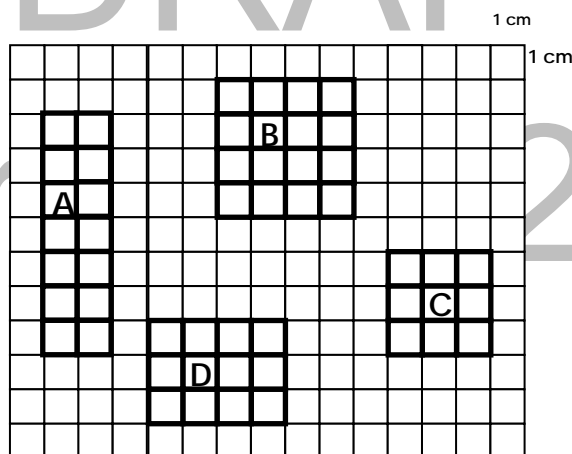
d. $6\,000\text{ cm} = \underline{\hspace{1cm}}\text{ m}$ (60)

b. $10\text{ m} = \underline{\hspace{1cm}}\text{ cm}$ (1000)

e. $\frac{3}{4}$ of $800\text{ cm} = \underline{\hspace{1cm}}\text{ m}$ (6)

c. $5\frac{1}{2}\text{ m} = \underline{\hspace{1cm}}\text{ cm}$ (550)

3. Motivation



What can you say about the illustration?
What does it show?

B. Developmental Activities

1. Presenting the Lesson

Let pupils identify the shapes given in Motivation and let them explain why they say it is a square or a rectangle.

Say:

One small square inside the square/rectangle is equal to 1 square unit. The number of square units that covers the region/surface of the rectangle/square is called its **AREA**.

Ask: What is the area of each figure?

How did you get the area of each figure? (*Expected answer: Count the number of small squares*)

Let them identify the length and width of each figure. Say and show: The column is referred to as length and the row is referred to as width. Ask pupils to write the measures of the length and width of each figure.

Ask:

What is the relationship of the length and width to the area? (*the product of the length and width is equal to the area*)

How can we get the area of a rectangle?

$$\begin{aligned}\text{Area of a rectangle} &= \text{length} \times \text{width} \\ &= l \times w\end{aligned}$$

Say: Look at the measures of the length and width of the square figures, what can you say about them? (*they are equal*)

Say: For squares, length (column) and width (row) are referred to as sides

Ask: How can we get the area of a square?

$$\begin{aligned}\text{Area of a square} &= \text{side} \times \text{side} \\ &= s \times s\end{aligned}$$

Say: If the length of one small square is equal to 1 cm, what is the area of each figure?

Using the figures in Motivation, guide the pupils to complete the table below.

Figure	Length (in cm)	Width (in cm)	Area Formula	Area (in sq. cm)
A	2 cm	7 cm	Area of rectangle = $l \times w$	Area = 2 cm x 7 cm = 14 sq. cm
B				
C				
D				

Answer Key:

B	4 cm	4 cm	Area of square = $s \times s$	Area = 4 cm x 4 cm = 16 sq. cm
C	3 cm	3 cm	Area of square = $s \times s$	Area = 3 cm x 3 cm = 9 sq. cm
D	4 cm	3 cm	Area of rectangle = $l \times w$	Area = 4 cm x 3 cm = 12 sq. cm

2. Performing the Activities

Ask: What are the standard units of area measure that we have already learned?

Let the pupils do the following activities in groups. Provide them with the activity sheet, tape measure or ruler or meter stick and the materials needed. Let them find the area of the given objects by completing the table and answering the questions provided.

Note: You may use other materials available. Draw the square (2 m by 2m) inside the room using masking tape before the start of the lesson or the day before.

Groups 1 and 2

Materials: Activity sheet, tape measure, piece of cloth or Manila paper (1 m by 2 m), notebook (15 cm by 20 cm), ID card (8 cm by 12 cm)

Measure the length and the width of each object then fill in the table.

Object	Shape of object	Length	Width	Formula	Area
cloth					
notebook					
ID card					

Questions:

- What is the length of the cloth in meter?
- What is the width of the cloth in meter?
- Compute for the area in square meter.
- What is the length of the notebook in centimeter?
- What is the width of the notebook in centimeter?
- Compute for the area in square centimeter.
- What is the length of the handkerchief in centimeter?
- What is the width of the handkerchief in centimeter?
- Compute for the area in square centimeter.

Groups 3 and 4

Materials: Activity sheet, tape measure, plastic cover (75 cm by 75 cm), part of the room (2 m by 2 m), handkerchief (42 cm by 42 cm)

Object	Shape of Object	Length	Width	Formula	Area
plastic cover					
handkerchief					
part of the room					

Questions:

- What is the length of the plastic cover in centimeter?
- What is the width of the plastic cover in centimeter?
- Compute for the area in square centimeter.
- What is the length of the handkerchief in centimeter?
- What is the width of the handkerchief in centimeter?
- Compute for the area in square centimeter.
- What is the length of the part of the room in meter?
- What is the width of the part of the room in meter?
- Compute for the area in square meter.

3. Processing the Activities

Let each group present their outputs. Let them discuss how they get the area of each object given.

Ask: How do we get the area of a rectangular figure? How about the area of a square figure?

4. Reinforcing the Concept

Let pupils answer the following problems. Pupils can work with their partners. After the pairs solve one problem, discuss their solution and answers. Do this to the next problem.

- Find the area of a square with side 15 cm. Write the solution or formula and then solve for the area.

Solution. $A = s \times s$

$$A = 15 \text{ cm} \times 15 \text{ cm} = 225 \text{ sq. cm}$$

- A rectangular garden has an area of 24 sq. m. If its length is 6 m, what is its width?

Ask pupils to give the given facts. Then let them write the solution or formula. Let them solve for the missing width.

Given: $A = 24 \text{ sq. m}$ length = 6m width = ?

By substitution,

$$A = l \times w$$

$$24 \text{ sq. m} = 6 \text{ meters} \times \text{width}$$

$$\text{Width} = 24 \text{ sq. m} \div 6 \text{ meters}$$

$$\text{Width} = 4 \text{ meters}$$

For more activities let pupils do Activity 1 in LM. Afterwards, discuss and share their answers and solutions.

Answer Key:

A. 1) 14 sq. m 2) 36 sq. m 3) 1 600 sq. cm 4) 2 500 sq. cm

5) 24 sq. m

B. 1) 3 m 2) 10 cm by 3 cm or 6 cm by 5 cm or 15 cm by 2 cm

3) 256 sq. cm 4) 7 m

5. Summarizing the Lesson

How do we find the area of a rectangle?

In finding the area of a rectangle, use

Area = length \times width or

$$\text{Area} = l \times w$$

How do we find the area of a square?

In finding the area of a square, use

Area = side \times side or

$$\text{Area} = s \times s$$

6. Applying to New and Other Situations

For more exercises let the pupils do Activity 2 and 3 in the LM.

Afterwards, discuss and share their answers and solutions.

Answer Key: Activity 2: 1) 48 sq. cm 2) 12 cm 3) They are equal, their areas are both 144 sq. m 4) 12 sq. m

C. Evaluation

Let pupils do Activity 4 in the LM individually.

Answer Key:

1) 84 sq. cm 2) 9 m 3) 16 sq. cm 4) 12 sq. m

D. Home Activity

Let pupils answer Activity 5 in the LM.

Answer Key:

1) 9 sq. m 2) 6 sq. m 3) 16 sq. m 4) 24 sq. m 5) 4 sq. m 6) 25 sq. m

Lesson 81 Routine and Non-Routine Problems involving Areas of Squares and Rectangles

Week 5

Objectives

1. Solve routine and non-routine problems involving areas of squares and rectangles
2. Create word problems involving area with reasonable answer

Value Focus

Being helpful, Cooperative

Prerequisite Concepts and Skills

Area of squares and rectangles

Materials

Graphing papers, geoboard and rubber bands, "Show Me" board

Instructional Procedures

A. Preliminary Activities

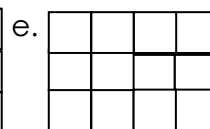
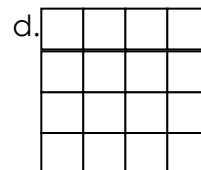
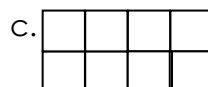
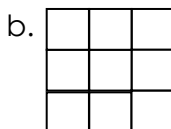
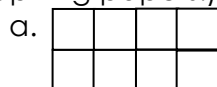
1. Drill

Give the most appropriate unit of measure for the following (cm or m).

- | | |
|--------------------|-----------------------|
| a. paper clip (cm) | f. manila paper (m) |
| b. table (m) | g. cartolina (m) |
| c. book (cm) | h. telephone wire (m) |
| d. flag pole (m) | i. garden plot (m) |
| e. shoe box (cm) | j. floor tile (cm) |

2. Review

Find the area of the given figure. (Ask the pupils to write the formula for the area of a rectangle and square as shown in the geoboard or graphing papers.)



a. $A = l \times w$

b. $A = s \times s$

c. $A = l \times w$

d. $A = s \times s$

e. $A = l \times w$

3. Motivation

Ask 2 – 3 pupils to measure the length and width of your classroom.
Ask: What is the area of our room?

B. Developmental Activities

1. Presenting the Lesson

Post the problem on the board.

A room measures 8 meters long and 7 meters wide. What is the area of the room?

Who among you are like Nica and Carla? Why do we need to be helpful and cooperative?

Guide the pupils to solve the problem.

Ask: What is the shape of the room? (*Rectangle*)

Call a pupil to draw the figure and put the correct dimensions.

Ask: How do we find the area? *Area = length times width*

Let them write the mathematical sentence and solve. $A = l \times w$

$$A = 12 \times 9$$

Ask: What is the unit of measure? *Square meters (sq. m.)*

State the complete answer. *The area is 108 square meters*

Is this the correct answer? Why?

Provide another problem.

Lito's vegetable garden measures 5 meters on each side. What is the area of the garden?

Ask: What is the shape of the vegetable garden? *Square*

Call a pupil to draw the figure and put the correct dimensions.

Ask: How do we find the area? *Area = side times side*

Let them write the mathematical sentence and solve. $A = s \times s$

$$A = 5 \times 5$$

Ask: What is the unit of measure? *Square meters (sq. m.)*

State the complete answer. *The area is 25 square meters*

Is this the correct answer? Why?

2. Performing the Activities

Let the pupils solve the following problems by pairs.

- a. Mr. Reyes bought a square lot with measures 12 meters on one side. What is its area?

Draw the figure to find the answer.

Solve the answer using the formula.

State the complete answer.

- b. The area of a rectangular hall is 180 sq. m. If the length is 15 meters long, what is its width?
Draw the figure to find the answer.
Solve the answer using the formula.
State the complete answer.

3. Processing the Activities

Call some pupils to show their solutions and answers on the board.

Ask:

What is asked in problem a? (*area of the square lot*)

How can we solve the problem? (*Multiply the length of side to itself*)

What is asked in problem b? (*width of the rectangular hall*)

How can we solve the problem? (*divide the area with the length of the width*)

4. Reinforcing the Concept

- a. Form learning partners. They will play "Math Survival."

1. Call two pairs of contestants.
2. They will be asked to listen to the problem.
3. Without using a ballpen and paper they have to give the answer.
4. The first to give the correct answer remains.
5. The pair who remains will choose their next opponent.
6. Repeat the process until one pair is left.

Sample questions:

1. A handkerchief measures 30 cm on all sides. What is its area? (900 sq. cm)
2. The movie theatre is 20 meters long and 15 meters wide. What is its area? (300sq. m)
3. The swimming pool is 12 meters long and 8 meters wide. Find its area. (96 sq. m)
4. A square garden has 10 meters on each side. What is the area? (100sq.m)
5. A park is 35 meters long and 10 meters wide. Find its area. (350 sq. m)
6. The parking lot is 20 meters on each side. What is its area? (400sq. m)
7. Rico made a chopping board which is 20 cm long and 30 cm wide. What is its area? (600 sq cm)
8. The municipal plaza is 40 meters long and 25 meters wide. Find its area. (1000 sq. m)

9. A teacher's table is 50 cm on all sides. What is its area?
(2500 sq. cm)
10. A square mirror is 30 cm on all sides. Find its area.
(900 sq. cm)

b. Group Activity

Let pupils do Activity 1. Call groups to present their work.

Answer Key: 1) 2 500 sq. cm 2) 2 304 sq. cm

3) a. $(16 \times 22) - (11 \times 8) = 264$ sq. m; b. $(26 \times 76) \div 2 = 2\,888$ sq. cm

4) 12 m 5) 20 m

5. Summarizing the Lesson

Ask:

What is area?

The number of square units needed to cover the region inside a figure is called **area**.

How do we find the area of a square and a rectangle?

To find the area of a rectangle, use the formula **Area = length x width**. This formula is often written as **$A = l \times w$** .

To find the area of a square, use the formula **area = side x side**.

This formula is often written as **$A = s \times s$** .

How did we solve the problems involving the area of a rectangle and a square?

To solve a one step word problem involving the concept of area, follow the 4-step plan in problem solving, draw the figure and use the formula in finding the area of a rectangle and a square.

6. Applying to New and Other Situations

a. Working in pairs

Let pupils illustrate and solve the following problems:

1. A table top that is two meters long and one meter wide.
2. A small door that is 30 cm long and 20 cm wide.
3. A window that is 50 cm long and 30 cm wide.
4. What is the area of a handkerchief which has 25 cm. on all sides?
5. A square-shaped lawn is 5 meters on its side. What is the area?

b. For additional activities, let pupils do Activities 2 and 3. After each activity, discuss the problems and the solutions and answers of the pupils.

Some questions to be asked to guide pupils in analyzing and solving the problems:

- How will you solve the problem? What operation will you use to solve for the length/ width?
- How can you find the length/width of a rectangle if the given fact is length/width?
- How can you find the side of a square if the given is the area of a square?

Answer Key:

Activity 2: 1) 32 m 2) 6 m 3) 32 m 4) 50 sq. cm 5) 3 m

Activity 3: 1) 64 sq. cm 2) 32 sq. cm 3) 32 sq. cm 4) 16 sq. cm

5) Figures 1 and 2 or Figures 1 and 3 6) 144 sq. cm

7) No, because the total area of figures 2, 3, and 4 is 80 sq. cm while the area of figure 1 is 64 sq. m.

C. Evaluation

Let pupils do Activity 4 individually.

Answer Key: Possible answers:

- 1) A square garden is 4 meters each on all sides. What is the area of the garden?
- 2) A rectangular plot measures 8 meters long and 4 meters wide. What is the area of the plot?
- 3) What is the area of a floor which is 6 m long and 4 m wide?
- 4) A square lawn has a side of 6 meters. What is the area of the lawn?
- 5) A rectangular lot is 12 m by 4 m. What is its area?

D. Home Activity

Let pupils do Activities 5 and 6 in the LM.

Answer Key:

Activity 5: 1) 1 575 sq. m 2) 64 sq. m 3) 2 550 sq. m 4) 15 cm

Activity 6: 1) 720 sq. m 2) 800 sq. cm 3) 360 sq. m 4) 2 304 sq. cm; if the side is doubled the area is 9 216 sq. cm which is 4 times the original area 5) 96 sq. m

Lesson 82 Capacity of a Container using Milliliter/Liter

Week 5

Objectives

1. Find the capacity of a container using milliliter/liter
2. Convert liter to milliliter and vice versa

Value Focus

Water conservation

Prerequisite Concepts and Skills

Non-standard unit of capacity

Materials

Measuring cup or jug, medicine bottles and medicine dropper, shampoo bottles, glass and cups, different liquid containers, water

Instructional Procedures

A. Preliminary Activities

1. Drill

Have a drill among pupils in listing the liquids they use at home.

Ask: How are these liquids packaged?

2. Review

Give the most appropriate unit of measure for the following (cm or m).

- a. paper b. table c. book d. rope d. match box

3. Motivation

Put two glasses on your table, one glass with water, the other one empty. Pour a small amount of water from one glass to the other.

Ask: What is the exact amount of water poured in the empty glass?

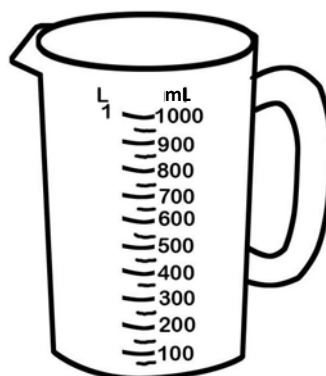
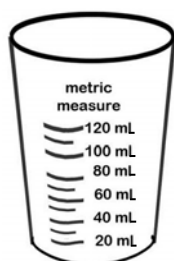
What units of measure should be used to determine the amount of liquid in the glass?

Say: Nowadays we experience water shortage. What can you do to conserve water? Is there a need for us to campaign? How would you do it?

B. Developmental Activities

1. Presenting the Lesson

Present real measuring devices that show L and mL: e.g. measuring cup, jug, medicine dropper or beaker



Let pupils name the measuring devices. Let them identify what they see on the measuring devices.
Ask: What does L stand for? How about mL? What do they measure?

Introduce the term capacity. Say: Capacity means how much liquid a container can hold. Tell them that some of the units of measure for capacity is liter (L) or milliliter (mL).

Ask a pupil to measure 1 mL of water.

Ask:

Which of these devices will you use? Why? Pour the amount in a small glass.

About how many milliliters of water does this glass contain/hold? Let pupils give their estimates.

How about this pail, how many milliliters of water does it contain/hold? Let pupils give their estimates.

Ask another pupil to measure 1 L of water.

Ask:

Which of these devices will you use? Why?

Can you put 1 L of water in the small glass? Why?

How about in the pail? Why? About how many liters of water can it contain/hold?

2. Performing the Activities

Divide the class into 6 groups. Let them do the activities given.

Activity – Groups 1 and 2

Materials: measuring cup/jug that shows mL, water, glass, small medicine bottle

Procedure:

1. Take turns to use the containers.
2. Fill the container up to its brim with water.
3. Pour the water from the container to the measuring cup/jug.
4. Read the scale carefully.
5. Record the amount of liquid the container holds in the table as shown.

Container	Amount of water/liquid it holds in milliliter
Glass	
Small medicine bottle	

Activity – Groups 3 and 4

Materials: measuring cup/jug that shows L, water, jug, pail

Procedure:

1. Take turns to use the containers.
2. Fill the measuring cup/jug up to 1 liter.
3. Pour the 1L water into the container.
4. Fill the container with as many as 1-L water until it is full.
5. Record the amount of liquid the container holds in the table as shown.

Container	Amount of water/liquid it holds in liter
Water jug	
Pail	

Activity – Groups 5 and 6

Materials: plastic cups with labels 250 mL and 100 mL, respectively, 1 L juice drink bottle (see illustration)



Procedures:

1. Fill a 250-mL plastic cup with water.
2. Fill the soft drink bottle with 250 ml water until it reaches 1 liter.
3. Record the number of times the 1 L bottle is filled with 250 mL water.

How many 250 mL cups of water does the 1 L bottle contain?

How many milliliters of water did you put in the 1 liter bottle?

4. Pour water in a plastic cup up to 100 mL.
5. Fill the bottle with 100 mL water until it reaches 1 liter.
6. Record the number of times the 1 L bottle is filled with 100 mL water.

How many 100 mL cups of water does the 1 L bottle contain?

How many milliliters of water did you put in the 1 liter bottle?

Let the groups present their answers.

3. Processing the Activities

Ask:

How much liquid/water does each of the containers that were given to you hold?

Do groups 1 and 2 have the same answer? Why?
 How about groups 3 and 4, do they have the same answer? Why?
 What unit of measure did you use to find the capacity of the given container?
 Which containers can hold milliliters of liquid? liters of liquid? Why?
 Do groups 5 and 6 have the same answer? Why?
 How many milliliters are there in 1 liter?
 How many liter is 1000 ml?
 If you have 2 liters, how many ml is that? How did you get your answer?

4. Reinforcing the Concept

a. Show some empty liquid containers. (Make sure the labels are still intact.) e.g.



1. medicine bottle (50 mL)
2. shampoo bottle
3. medicine bottle (10 mL)
4. soft drink bottle (1.5 L)
5. canned juice
6. perfume bottle

Ask pupils what is the appropriate unit of capacity measure to be used, mL or L for each container. Write their answers on the "Show Me" board.

Call some pupils to show and read the amount of liquid the container holds based on its label.

b. Group Activity

How do you measure capacity with metric units?

Make a table like the one shown below. Select five empty containers with various capacities. Estimate the capacity of each. Then use the metric measuring cup and water to measure the amount of liquid/water it holds to the nearest milliliter. If the capacity is more than a liter, give the measure in liters and in milliliters.

Object	Estimated Capacity	Capacity to the nearest Milliliter/Liter
e.g. vinegar bottle		
1.5 L soft drink bottle		
cup or mug		
large pitcher		

Ask: Which of the containers you measured had the least capacity? largest capacity? Why?

- c. Let pupils work in pairs. Let them answer Activity 1 and 2. Share their ideas why they choose such estimate.

Answer Key

Activity 1: 1) 50 mL 2) 200 mL 3) 200 mL 4) 5 L 5) 1 L
6) 5 mL 7) 500 mL 8) 50 mL 9) 4 L 10) 50 mL

Activity 2: 1) bowl 2) bottle 3) drum 4) bowl 5) bottle

5. Summarizing the Lesson

How do we find the capacity using standard unit of measure?

When do we use milliliter? Liter?

Milliliter (mL) is a metric unit used to measure the capacity of small containers.

Liter (L) is used to measure the capacities of the large containers.

How do we convert milliliter to liter?

To change to liter, divide the amount in milliliter by 1 000.

How do we convert liter to milliliter?

To change to milliliter, multiply the amount in liter by 1 000.

6. Applying to New and Other Situations

Present the problem.

A recipe calls for $\frac{1}{2}$ L of vinegar, $\frac{1}{4}$ L of soy sauce and $\frac{3}{4}$ L of water.

How many milliliters will each liquid contain? How many liters of liquid are there in the recipe? milliliters of liquid?

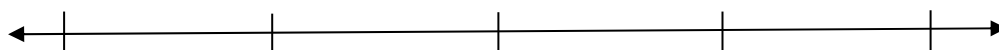
Discussion on the problem

Let the pupils list down the given.

$\frac{1}{2}$ L of vinegar, $\frac{1}{4}$ L of soy sauce and $\frac{3}{4}$ L of water

What are we asked to find in the problem?

Guide the pupils to draw a number line to show $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$ and 1 whole.



Ask: Where are we going to put $\frac{1}{2}$ L, $\frac{1}{4}$ L, $\frac{3}{4}$ L and 1 L? Why?

Let pupils put $\frac{1}{2}$ L, $\frac{1}{4}$ L, $\frac{3}{4}$ L and 1 L in the number line.

Ask: How many milliliters are there in 1 liter?

Where are we going to put 1 000 ml in the number line?

So, how many milliliters are there in $\frac{1}{2}$ L, $\frac{1}{4}$ L and $\frac{3}{4}$ L?

$$\frac{1}{2} \text{ L} = \underline{\hspace{2cm}} \text{ mL}$$

$$\frac{1}{4} \text{ L} = \underline{\hspace{2cm}} \text{ mL}$$

$$\frac{3}{4} \text{ L} = \underline{\hspace{2cm}} \text{ mL}$$

How many liters of liquid are there in the recipe? milliliters of liquid?

For additional activities, let pupils do Activities 3 and 4. Discuss the activities afterwards.

Answer Key:

Activity 3: 1) 525 mL 2) 1 050 mL 3) 1 350 mL 4) 850 mL 5) 750 mL
6) 1250 mL 7) 1050 mL 8) 1650mL 9) 1 000 L 10) 1200 mL

Activity 4: 1) mL 2) mL 3) mL 4) L 5) L
6) L 7) mL 8) mL 9) mL 10) mL

C. Evaluation

Let pupils do Activity 5 individually.

Answer Key:

A. 1) mL 2) L 3) mL 4) mL 5) mL 6) L 7) mL 8) mL 9) L 10) mL
B. 1) 2 2) 5 000 3) 43 4) 3500 5) $8\frac{3}{4}$ L

3. Home Activity

Let pupils do Activity 6.

Answer Key:

A. 1) 4 L 2) 250 mL 3) 10 L 4) 200 mL 5) 200 mL

B. (possible answers)

1) Name containers that holds about 1 liter.

1 liter bottle of softdrinks; 1 liter can of juice; 1 liter buko juice

2) Name containers that hold more than 1 L.

can of oil; pitcher of water; large container of milk

3) Name containers that hold more than 1 mL.

teaspoon of syrup; drop of medicine; paste in a bottle

Lesson 83 Routine and Non-routine Problems Involving Capacity Measure

Week 6

Objective

Solve routine and non-routine problems involving capacity measure

Value Focus

Practice drinking right amount of water

Prerequisite Concepts and Skills

Concept of capacity measure, converting liter to milliliters and vice versa

Materials

Cutouts, pictures, drawing, charts

Instructional Procedures

A. Preliminary Activities

1. Drill

Choose the appropriate measurement. Write your answer on the board.

1. A drinking glass holds about _____ of milk.
a. 250 milliliters b. 250 liters
2. A teaspoon holds about _____ of liquid.
a. 5 mL b. 5 L
3. A sprinkler can hold about _____ water.
a. 5 mL b. 5 L
4. A small mineral water bottle can hold _____ liquid.
a. 250 mL b. 250 L
5. A drum can hold about _____ of crude oil.
a. 400 mL b. 40 L

2. Review

Use $<$, $>$ or $=$ to compare the two liquid containers. Write your answer inside the box.

- | | | |
|------------------------|----------------------|-----------------------|
| 1. 8000 mL gasoline | <input type="text"/> | 10 L diesel |
| 2. 3000 mL mango juice | <input type="text"/> | 2 L <i>buko</i> juice |
| 3. 4000 mL fish sauce | <input type="text"/> | 4 L soy sauce |
| 4. 1000 mL iced tea | <input type="text"/> | 1.5 L softdrinks |
| 5. 750 mL oil | <input type="text"/> | 1 L water |

3. Motivation

Let's read the short story.

Jake together with Chris love to jog around the lake every morning. One morning, Jake and Chris woke up early, they went to the lake and jogged. They made six rounds of jogging then went home. When they arrived Jake and Chris drank 10 glasses of water for they were really thirsty, then took a bath, ate their breakfast and went to their school.

Ask:

1. Who jogged one morning?
2. What did they do when they arrived home, after jogging?
3. How many glasses of water did they drink?
4. Why do we need to drink such amount of water?
5. What will happen to us if we don't drink the right amount of water?

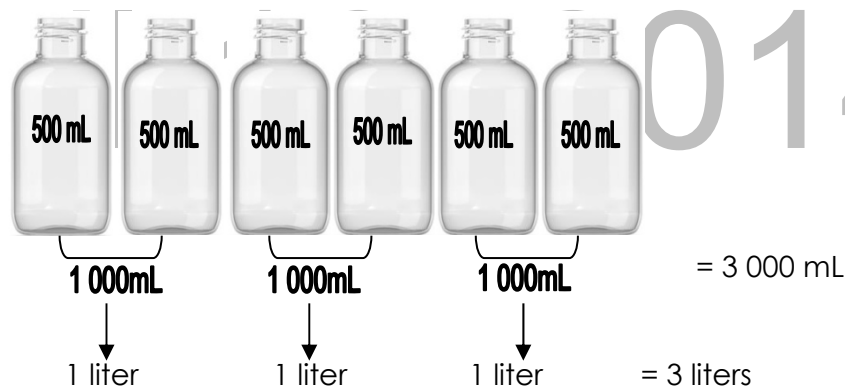
B. Developmental Activities

1. Presenting the Lesson

Present the story problems.

1. Jake drinks 3 liters of water a day. How many milliliters does he drink in a day?
Let's illustrate.

We will need 6 empty bottles (500 mL each).



What is the answer? (*3 000 mL*)

2. Chris bought 2 liters of mineral water. The mineral water comes in 250-ml bottle. How many bottles did Chris get for the 2 liters?

What is asked?

Let's act out the problem. We need 2 actors, one a storekeeper and the other a buyer. The storekeeper gave the bottle in fours.



2. Performing the Activities

Let pupils work in triads. Provide one problem for each group. (Note: 2 or more groups may work on 1 problem.)

Read the problem carefully and draw pictures to solve them.

1. A water container can hold 4000 ml of liquid. How many liters can the water contain?
2. Carlo fetched 4 liters of water, Aldrin 5000 ml and Lester 6 L. Who fetched the greatest amount of water? the least?
3. Ms. Megan needs 250 milliliters of liquid wax to shine the floor each week. How many liters of liquid wax does she need in 2 months?
4. Melay, a fish vendor, uses 2000 ml water in cleaning 1 1/2 kilos of fish. How many liters of water does Melay use?
5. Kristine put 20 liters of water in a pail. How many milliliters of water did she put in the pail?

3. Processing the Activities

Call some groups to share their answers on each problem.

Ask:

How did your group solve the problem given you, e.g. problem number 1? Did the other groups who solved the same problem have the same answer? Why or why not? Which is the best solution? Why?

4. Reinforcing the Concept

- a. Divide the class into four groups. Let them read and solve the problems in Activity 1. Have them write their answers on a Manila paper provided for them.

Answer Key:

1) 4 L 2) 2 000 mL 3) 10 000 mL 4) 6 L 5) 6 000 mL

- b. Let pupils do Activity 2 by learning partners. Let them study the table given and answer the questions that follow.

Answer Key

- 1) a. 5 L b. 2 000 mL c. 7 000 mL
2) 1 L 3) 5 750 mL 4) 14 L 5) 3 L 6) bucket, large plastic
bottle and glass (8 L) > water jug and pitcher (7 L)

5. Summarizing the Lesson

How do we solve problems involving capacity measure?

Use the 4-step procedure.

We sometimes draw and make a pattern.

We add, subtract, multiply or divide depending on the problems.

6. Applying to New and Other Situations

Let pupils do Activities 3 and 4. Discuss their answers afterwards.

Answer Key:

Activity 3

- 1) 14 600 mL 2) 14 500 mL 3) 12 700 mL 4) 10 500 mL
5) 27 700 mL; 52 300 mL

Activity 4: Possible answers

1. Mother used 1 liter of water , 500 ml of iced tea and 250 mL honey syrup in preparing juice for the family.
2. Lorna has a laundry shop. She used 750 mL of soap detergent, 1 L of bleach and 500 ml fabric conditioner.

C. Evaluation

To assess pupils' understanding of the lesson, let them answer Activity 5 individually.

Answer Key:

- 1) 27 L 2) 6 L 3) 5 000 mL 4) 7 L 5) 3 L

D. Home Activity

For assignment, let them do Activity 6.

Answer Key:

- 1) 20 000 mL 2) 3 L 3) 875 mL 4) 650 000 mL 5) 8.5 L

Lesson 84 Collecting Data on One Variable

Week 7

Objectives

1. Collect data on one variable using existing records
2. Collect and organize data in a table

Value Focus

Fairness, Honesty, Sportsmanship

Prerequisite Concept and Skills

Factors of a given number

Materials

Card, chart

Instructional Procedures

A. Preliminary Activities

1. Drill

"Around the World Game" using division and multiplication facts

Create a set of question and answer cards that include a variety of multiplication and division tasks. See sample cards below.

Distribute cards to the pupils. The pupils with the start 'card' begins and he/she reads aloud, "I have the start card", and the first question. Each pupil then looks at his/her card to see if he/she has the matching answer. Then, the pupil with the "matching answer" reads the answer and then poses his/her question.

All learners then look for the match and the game continues until they get to the learners with the end card.

Note:

You may call 16 or 10 pupils only to shorten the drill.

1. You will need all cards to play the game.
2. Pupils can work together if you do not have enough cards for every student. If there are too many cards, then some students can have 2 cards each.

Multiplication and Division Tasks for up to 5×5 (15 cards)

I have the START card Who has the quotient of $25 \div 5$?	I have 7 Who has the product of 0×3 ?
I have 5. Who has $12 \div 3$?	I have 0 Who has the repeated addition sentence for 4×5 ?
I have 4. Who has 5 multiplied by 2?	I have $5 + 5 + 5 + 5 = 20$ Who has the repeated addition sentence for 5×3 ?
I have 10. Who has $6 \div 3$?	I have $3 + 3 + 3 + 3 + 3 = 15$ Who has the repeated subtraction sentence for $10 \div 5$?
I have 2. Who has the product of 5×5 ?	I have $10 - 5 - 5 = 0$ Who has the repeated subtraction sentence for $16 \div 4$?
I have 25. Who has 2 equal groups of 4?	I have $16 - 4 - 4 - 4 - 4 = 0$ Who has 9 shared equally among 3 groups?
I have 8. Who has 3×2 ?	I have 3. I have the END card.
I have 6 Who has 14 divided by 2?	

2. Review

Give the factors of the following:

- 12
- 18
- 24
- 36
- 42

3. Motivation

Let pupils do a "Pinoy Henyo" game.

- Ask pairs of volunteers from the class to guess the magic words, one word at a time.
- The words/pictures to be guessed are common sports known by elementary pupils.

e.g. basketball, baseball, volleyball, swimming, soccer, badminton, tennis

- Prepare the 3 pictures/words to be guessed in a minute.
- The pair with the fastest time to give the correct answer wins the game.

Which among the sports given would you like to play? Why?
Why is it important to engage in sports?

What does it give to our body?
 What do you feel when you lose a game?
 As a player, how can you show fairness and being a good sport in playing any sport?

B. Developmental Activities

1. Presenting the Lesson

Present a word problem.

Mrs. Soriano administered a summative test in mathematics in her Grade 3 class. The scores are shown below

Scores in Achievement Test in Mathematics

15	17	20	16	19
18	17	15	17	20
17	18	18	18	20
18	20	19	19	19

Look at the scores in the box

Can you easily tell how many pupils got a score of 15? 16? Why?

What do numbers inside the box represent? (*score/number/information*)

Do you have an idea how to organize the given information?

Guide the pupils in organizing the given information in a table.

Ask: What is the information about? (*Scores in the Achievement test in Mathematics*)

What is the highest score? the next score? the lowest score? Let pupils write and arrange the scores from highest to lowest as shown in the table below.

Let them look at the scores, tally the number of pupils who get the following scores e.g. 20, 19, etc. in the table by marking (I) in the tally column. Do this till the last score has been tallied.

Count the number of pupils who got 20;19;18; and so on and write the total in the total column.

Scores in Achievement Test in Mathematics

Score	Tally	Total
20	IIII	
19	IIII	
18	IIII	
17	IIII	
16	I	
15	II	
Total		

Now, looking at the table can you easily see the number of pupils who got 20?

We can get the data from the tally chart and present it in a table.

Score	Number of pupils who got the score
20	4
19	4
18	5
17	4
16	1
15	2
Total	20

Ask: Which score has the most number of pupils who got it?
How many pupils took the test?

Provide another example:

Complete the table then use the information to answer the questions:

Favorite Sports of Grade III Pupils		
Sports	Tally	Total
Basketball		15
Baseball		5
Soccer		8
Badminton		10
Table Tennis		3
Swimming		9
Total		40

1. How many pupils like to play basketball? _____
2. How many more pupils like to play badminton than soccer?
3. Which sports is liked most by the pupil?
4. How many pupils like swimming?
5. Which sport is the least liked by the pupil?

2. Performing the Activity

A. Divide the class into 4 groups.

Provide activity sheet and Manila paper for each group.

Task: Present in the table the favourite places in the Philippines or province of all the members of the group.

Procedures:

1. The leader asks the members of the group about their favorite places in the Philippines/province.
2. The secretary will record their answers.

3. Organize the information in a table.
4. Present and explain the output of the group.

3. Processing the Activity

How did you find the activity?
 What type of data/records did you have in the activity?
 What kind of information did you organize?
 How did you organize the information?
 Why do we need to organize the information in a table?

4. Reinforcing the Concept

Divide the class into 6 groups. Provide an activity for each group.
 Groups 1, 2 and 3 will do the same activity as well as Groups 4, 5 and 6. They will conduct a survey and make a tally table.

Groups 1, 2 and 3

Task: Conduct a survey among group members on what they would like to buy for snacks from the list given. Record their answers in the table. Then answer the questions that follow.

Menu	Tally	Total
Banana cue		
<i>Turon</i>		
French fries		
Sandwich		
Hotcake		

1. How many pupils bought banana cue? turon?
2. Which snack has the most orders?
3. Which snacks has the least orders?

Groups 4, 5 and 6

Task: Conduct a survey among group members about their favourite books to read from the list given. Record their answers in the table. Then answer the questions that follow.

Kinds of Books	Tally	Total
History		
Science Books		
Sports		
Fantasy		

Answer the following questions:

1. How many pupils enjoy reading history and geography?
2. Do the pupils prefer sports or fantasy book?
3. Which type of book is the most popular?

Post the outputs of each group and discuss their tables and answers. Then groups 1, 2, and 3 and groups 4, 5 and 6 will form 2 big groups. The two groups will organize a table containing all their surveys as their final output.

5. Summarizing the Concept

Ask:

How do we organize the information given?

We organize the information or data using table.

Why is there a need to organize the information in a table?

So that it will be easier to see, analyze and interpret.

6. Applying to New and Other Situations

Group the class into 4. Let them do Activity 1 and 2. Let them create 3 – 5 questions based on the table. Afterwards, call each group to share 1 or 2 questions they created. Let other groups answer their questions.

Answer Key: Activity 2

Animals	Tally	Total
Cow	I	1
Carabao	II	2
Pig	III	3
Goat	IIII	4
Horse	II	2
Chicken	IIII - II	7
Duck	III	3
Total		22

C. Evaluation

Let the pupils do Activity 3 in the LM.

Answer Key:

Color	Tally	Total
Blue	IIII - IIII	9
Red	IIII - III	8
Pink	IIII - I	6
Yellow	IIII	4
White	III	3
Total		30

B. Questions (Possible answers)

1. What is the favorite color of Grade 3 - Ilang-Ilang?

2. What is the least liked color?

D. Home Activity

Let pupils conduct an interview among their family members about their favorite food. Ask them to organize their data using a table. Create two problems based on their table.

Lesson 85 Organizing and Presenting Data in Tables and Bar Graphs

Week 7

Objectives

1. Organize data in tabular form and present this into a vertical and horizontal and vertical graph.
2. Construct a bar graph

Value Focus

Fairness and sportsmanship

Prerequisite Skills

Organizing data using tabular form, addition, subtraction and skip counting

Materials

Chart, flash cards

Instructional Procedures

A. Preliminary Activities

1. Drill

Flash cards, one at a time. Let the pupils give the answer orally.

1. What is 134 increased by 35?
2. What is 98 more than 122?
3. Deduct 93 from 380.
4. One number is 10 more than the other. The sum is 45. What are the numbers?
5. What is 435 decreased by 85?

2. Review

Look at the given table and answer the questions.

A monkey in the forest loves to eat bananas.

How many bananas did the monkey eat each week?

Week	Bananas eaten by the monkey
1	6
2	11
3	15
4	7
5	5

How many bananas were eaten by the monkey in 5 weeks?
 Which week did the monkey eat the least numbers of bananas?
 Which week did the monkey eat the most numbers of bananas?

3. Motivation

Ask the pupil to get a piece of paper from the box. The pupil will act out a specific movement of the sports written in that piece of paper.

Then another pupil will be called to identify the sports being demonstrated.

(Soccer, basketball, volleyball, gymnastics, table tennis)

Ask: If you will be asked to participate in the school sports festival, which among the list of sports would you like to play? Why?

As a member of any team, what should you do to win?

Can you give the characteristics of a good player?

B. Developmental Activities

1. Presenting the Lesson

Story Telling

Mrs. Gonzales conducted an interview among her grade 3 pupils about their favorite sports. She asked her pupils to write their favorite sports.

Ask: Do you have any idea about the sports listed by her pupils?
 Let us find out.

Present the table of data.

Sports	Number of Pupils
Basketball	15
Badminton	10
Volleyball	6
Baseball	5
Table tennis	4
Total	40

Ask:

Which sport is most preferred by the pupils to play?

Which sport is least preferred by the pupils?

How many pupils were interviewed?

How is the data presented?

(The data was organized in a table making it easier to read and interpret.)

Say: There is another way of presenting the data given. We can present the data using a bar graph.

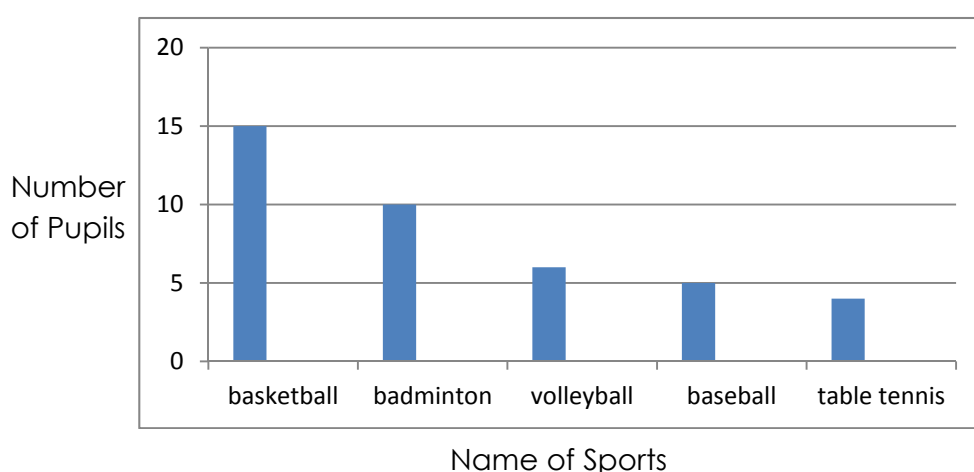
Ask: Do you know how to make a bar graph? Elicit pupils' answer.

Guide the pupils to present the data /information in a bar graph by following the steps.

1. Make the horizontal and vertical lines/axis. Show how to draw each line.
2. Write the appropriate labels in the horizontal and vertical axis. Show where to write the labels and how to write them.
3. Make the appropriate scale in the vertical axis. Write the different categories in the horizontal axis. Show how to make the intervals, when to use by 1s, by 2s, by 5s and by 10s.
4. Draw the bar for each category based on the given data. Show where to start and where it should end.
5. Write a good title for the bar graph. Ask: What is a good title for the bar graph? Let them write the title in its proper place.

The pupils should be able to construct a bar graph similar to the one below.

Favorite Sports of Grade 3 Pupils



Let them study the bar graph they have constructed.

Ask:

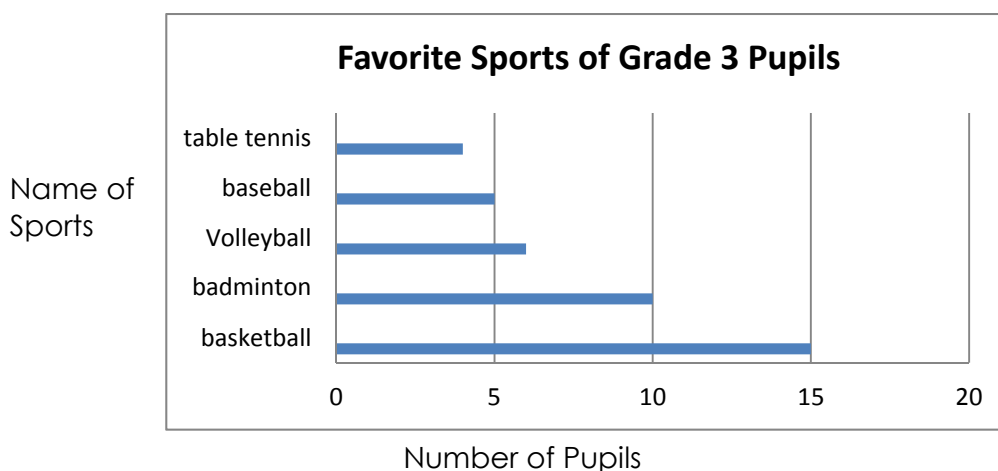
- What is the graph about? (*favorite sports of Grade 3 pupils*)
- How many categories are in this graph?
- What are the categories? How are they labelled?
- What are written on the left side of the graph? (*numerical values or descriptions of things being compared*)
- What is the range of values on the vertical scale? (*0-20*)
- What intervals are used?
- What can you say about the number scale used? Is it exact or just an estimate?

Explain your answer

Ask

- What do you call this kind of bar graph? (*vertical bar graph*)
- In vertical graph, what facts are listed in vertical axis? horizontal axis?
- What kind of information does the bar graph provide us? (*The bar graph provides a visual display for comparing quantities*)
- What does this graph show? (*The bar graph shows that 15 pupils like basketball, 10 badminton, 6 volley ball, 5 baseball and 4 table tennis*)

Say: There is another way in presenting the data. It can also be presented using horizontal bar graph. Look at the graph.



Ask:

- Along what side or axis is the number scale? (below / horizontal)
- What is labeled at left side? (name of sports)
- Each space represents what? (Each space /interval represents 5 pupils)
- How many pupils choose basketball?
- How many pupils choose in each listed sport?

Can you see now the differences between horizontal and vertical bar graph? What are their differences?

Did you observe changes in the given information?

Show another example:

The school principal conducted a survey of pupils' activity after school hours. The table below shows the result.

Pupils' Activity after School Hours

Activities	Number of Pupils
Play sports	25
Play computer/ cell phone games	33
Do house chores	39
Watch TV	42
Read books	23

Can you present the information using a bar graph?
Guide the pupils in using the steps below.

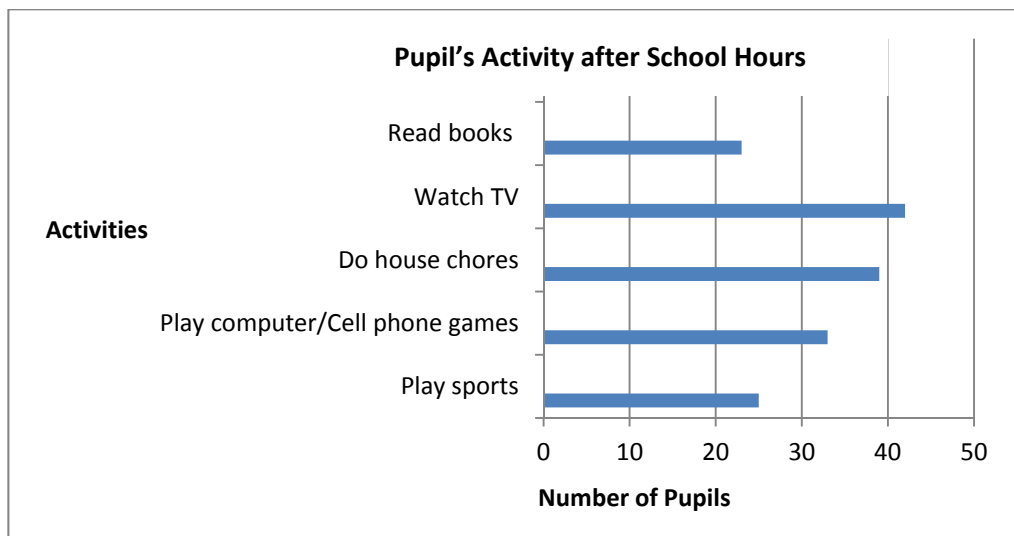
Steps in making a bar graph:

1. Draw horizontal and vertical axis
2. Identify the greatest number.
What is the greatest number from the given data?
Then ask the pupil to draw a scale from 0 to 45?

Ask them to think of the space/interval in between. Relate interval using skip counting.

Guide them that the space /interval should be 10 so that it would be easy for them to plot the graph

3. Estimate the length of the bar to be drawn for the number of pupils.
4. Label the axis and write a title of the graph.



What kind of bar graph do we have now?

What are the things to remember in constructing a bar graph?

2. Performing the Activity

Discuss and brainstorm the favorite fruits of pupils.

- a. List the fruits on the board as pupils suggest them. For example:
 - banana
 - santol
 - guava
 - mango
 - guyabano
- b. After listing many favorite fruits, choose five of the most popular.
- c. Tell students to vote on these to determine the class favorites. If there are 30 or more pupils in the class, they should vote only

once otherwise they could vote twice. Make a tally for each fruit and total them.

Fruits	Tally	Total Number of Pupils
banana		
santol		
guava		
mango		
guyabano		

d. Group the class into 5. Let 2 groups construct a vertical bar graph and 3 groups to make a horizontal bar graph. Let them be guided by the following questions:

- What information should be included on the graph?
- What is a possible title for the graph?
- Where should the types of fruits be placed on the graph?
- Where should the number of pupils be placed?
- What intervals could be used for the graph? Why?

Let pupils answer some questions based on the constructed graph.

Possible Questions:

How many categories are in the graph?

Which fruit had the most votes?

Which fruit had the least votes?

How many pupils voted for bananas?

How many pupils voted for grapes?

Which two fruits had the same number of votes?

Let them also create 1 – 2 questions.

Call the groups to present their output.

3. Processing the Activity

What are the things that should be included in constructing a bar graph?

What kinds of bar graph did we construct?

What is the difference between the two graphs?

Why is it important to label the graph properly?

What information does a bar graph provide us?

4. Reinforcing the Concept

A. Pair Activity

Ask the pupils to work with partners. Let them do Activity 1 in the LM. Let them construct a horizontal and vertical bar graph and create three questions using the given data.

Questions:

1. What is the least number of books borrowed?
2. How many cartoon books were read that day?
3. What is the total number of books borrowed on Tuesday?

Have the partners compare their graph to that of another pair. Let them exchange their questions and let them answer the questions created by the other pair.

Circulate to observe and help pupils form questions as necessary. Afterwards, call a pair to share their output and ask the class a question about their work. The pair/pupil who answered correctly, reads one of his/her group's questions and calls on another pair. Continue this questioning and answering procedure for 4-5 times.

B. Group Activity

Group the class into 4 groups. Distribute Activity Card for each group.

Groups 1 and 2

Conduct a survey among your group members about their favorite colors.

Groups 3 and 4

Conduct a survey among your group members about their favorite subject.

Each group should organize the data into table and bar graph. Create also 3 questions about the graph.

Groups 1 and 3 will make a vertical bar graph and groups 2 and 4 will make a horizontal bar graph.

The group leader /representative will present their work. Answer also some of the questions they made.

5. Summarizing the Concept

Ask:

How can we organize the available data/information?

We can organize data using tables and bar graphs.

What are the different bar graphs that we organized?

Horizontal and vertical bar graphs

What is the difference between the two graphs?

What are the things that should be observed in making a bar graph?

Draw the horizontal and vertical axis.

Write the appropriate labels in the horizontal and vertical axis.

Make the appropriate scale/interval in the vertical axis.

Write the different categories.

Draw the bar for each category based on the given data.

Write a good title for the bar graph.

6. Applying to New and Other Situations

Do Activity 2 in the LM. Let them construct a horizontal or vertical bar graph using the data. Remind them of the steps in constructing a bar graph.

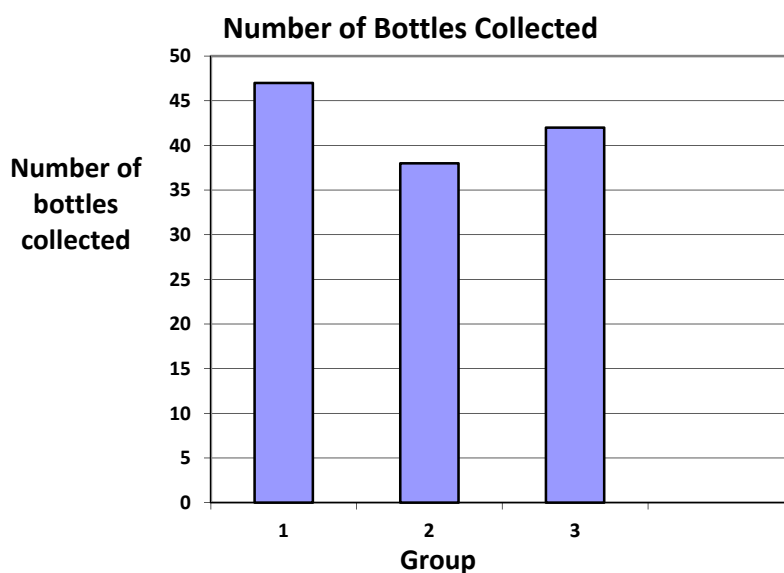
(Answers vary)

C. Evaluation

Do Activity 3 in the LM individually.

Answer Key:

Group	Total Number of Bottles Collected
1	47
2	38
3	42

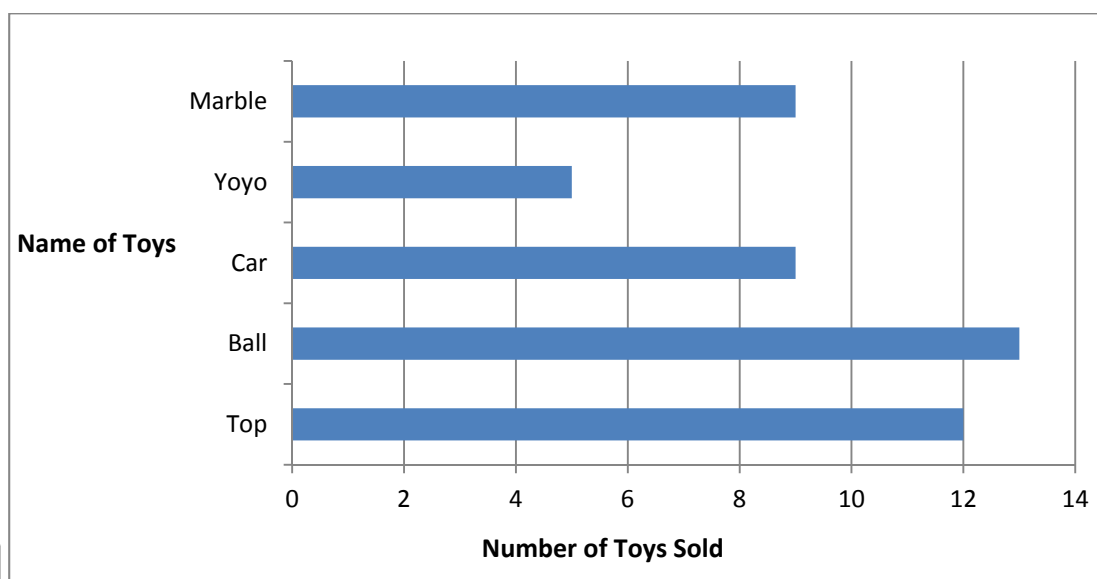


D. Home Activity

Do Activity 4 in the LM.

Answer Key:

Name of Toys	Tally	Total Number of Toys Sold
Top	III - III - II	12
Ball	III - III - III	13
Car	III - III	9
Yoyo	III	5
Marble	III - III	9
Total		48



Lesson 86 Interpreting Data in a Bar Graph

Weeks 8 & 9

Objectives

1. Interpret data presented in different kinds of bar graph
2. Solve routine and non-routine problems using data presented in a single bar graph
3. Draw inferences based on data presented in a single bar graph

Prerequisite Skills

Organizing data in tabular form, addition and subtraction, skip counting, interval and number line

Materials

Charts, flash cards

Instructional Procedures

A. Preliminary Activities

1. Drill

The teacher will flash cards, one at a time. Pupils give the answer mentally.

1. Find twice the sum of 10 and 5?
2. What is 240 more than 22?
3. Deduct 150 from 380.
4. What is the product of 12 and 50?
5. What is 335 decreased by 135?

2. Review

Present a number line on the board.

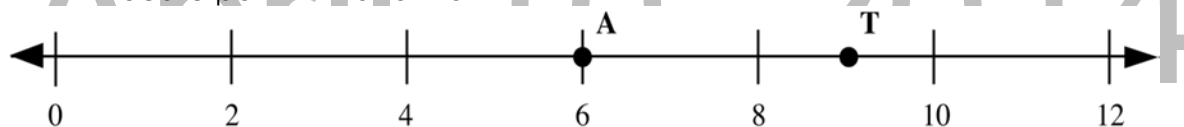
Call a pupil one at a time to answer the activity below

Give the values of each point.

Do the following:

Locate point 3 and mark it M.

Locate point 11 and mark it H



Point A = ____ Point T = ____

How did you get the answer?

What is the interval between numbers?

3. Motivation

Ask: How do you go to school? How long does it take you to reach the school if you walk? If you take a tricycle, bus or jeepney?

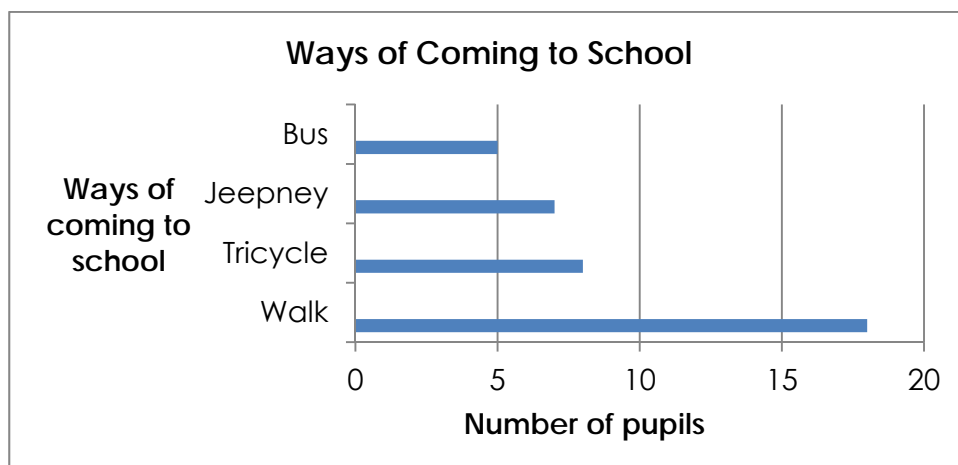
Write the pupils' responses on the board.

Write down the common means of transportation on the board.

B. Developmental Activities

1. Presenting the Lesson

A. Present a bar graph. Let pupils study the bar graph.



Ask some questions about the graph:

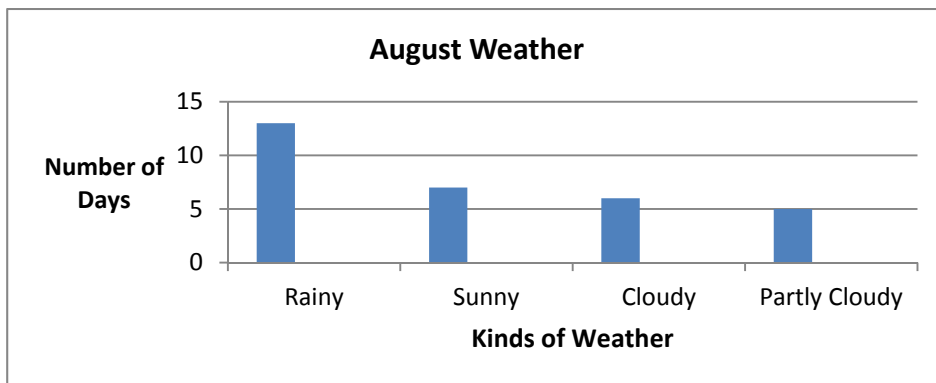
- 1) What does this bar graph show? _____
- 2) What information is in the horizontal axis? vertical axis? _____
- 3) Which way /means of coming to school is used the most?

- 4) Which way/ means of coming to school is the least used?

- 5) How many pupils ride a bus to school? _____
- 6) How many pupils walk to school? _____
- 7) How many bus riders and jeep riders are there? _____?
- 8) How many more pupils come to school by walking than by tricycle? _____
- 9) How many fewer pupils come to school by bus than by jeep?

- 10) How many pupils are in this class? _____
- 11) Why do most of you come to school by walking instead of by tricycle?
(Possible answer: to save money)
- 12) What did you do with the money that you save?
- 13) How would changes in the weather possibly change the data in the graph?
- 14) What other factors might change your means of coming to school?
Would it affect the data on the graph?

- B. Present another bar graph. Say: Let's have another example. Look at the bar graph.



Ask some questions about the graph:

- 1) What does this bar graph show? _____
- 2) Which type of weather occurred most often? _____
- 3) Which type of weather occurred the least? _____
- 4) How many partly cloudy days were there in August?

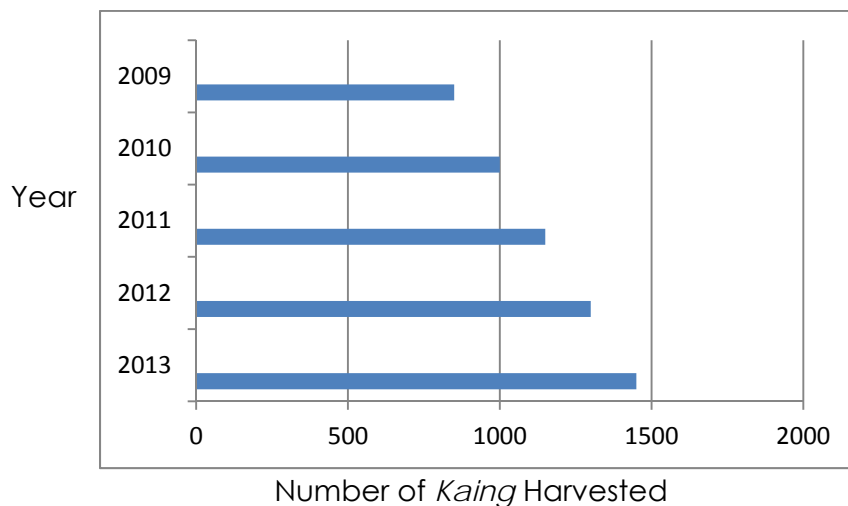
- 5) How many sunny days were there? _____
- 6) How many days were there with no rains?
- 7) How many more rainy days than sunny days were there?
- 8) How many days were partly cloudy than the cloudy days ?
- 9) How many days are in August ? _____
- 10) Does this graph show the same number of days? _____
- 11) How do you know? _____
- 12) Why do you think the month of August has more rainy days than sunny days?
- 13) Would the information be useful to the farmers? Why?

Ask: What do you do to interpret the data and information in the graph?

Does the graph provide us meaningful information?

2. Performing the Activity

- A. Show the graph below to the pupils. Ask questions to help pupils analyze and interpret the graph.



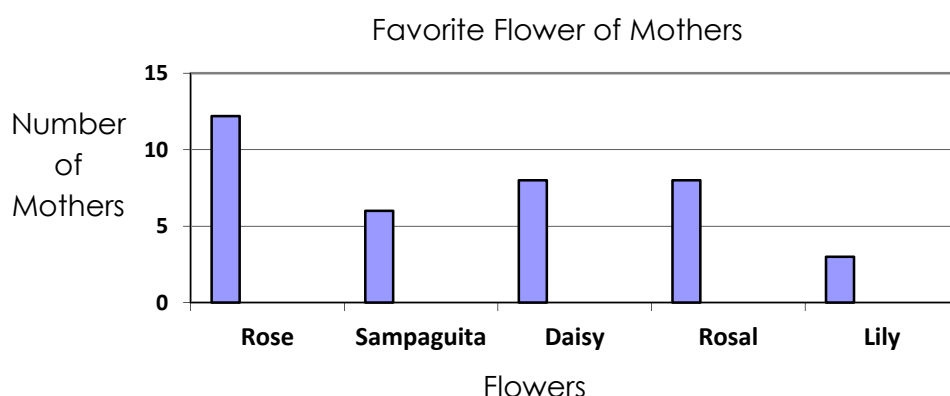
- 1) How many *kaing* of *lanzones* were harvested in 2011?
- 2) How many more *kaing* of *lanzones* were harvested in 2010 than 2011?
- 3) In which year was the greatest harvest?
- 4) What was the difference between the harvest in 2009- 2013?
- 5) In 2016, do you think the harvest of Mang Jose will be increasing or decreasing? Why?
- 6) If it is increasing, by how many will be the increase? If decreasing, it will decrease by how many?
- 7) What do you think are the factors that might affect the increase or decrease of the harvest? Explain your answer.

B. Group Activity

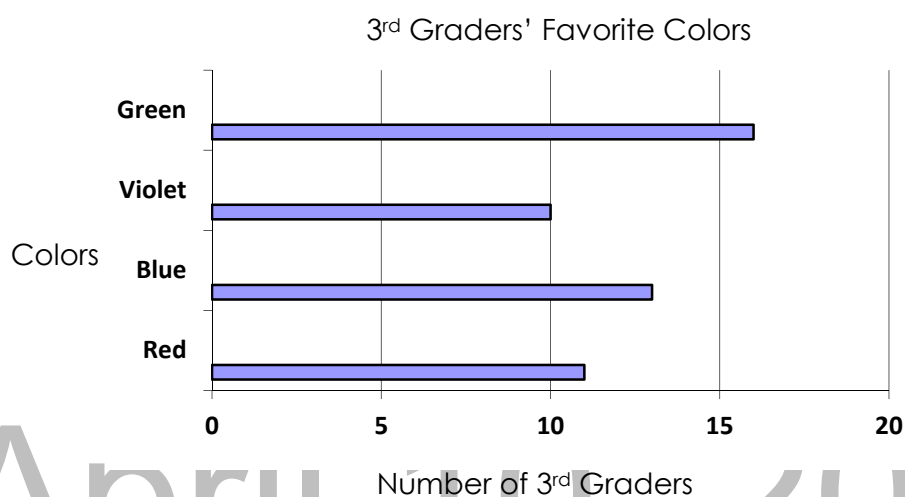
Group the class into 4 groups. Provide each group with activity sheet.

Direction: Study the graph. Create 5 questions from the given graph.

Groups 1 and 2



Groups 3 and 4



3. Processing the Activity

How did you find the activity?

What did you do to interpret the data in the graph?

How did you construct your questions?

What strategies did you do to construct questions? Is it easy to construct questions about the graph? Why?

4. Reinforcing the Concept

Do Activities 1 - 3 in the LM.

Answer Key:

Activity 1: 1) Rabbits 2) Dogs 3) 15 4) 9 5) 5 6) dog 7) 45

8) the interval is 2 9) A dog is a good guard and is considered man's best friend 10) Depends on the answers of the pupils

- Activity 2: 1) Favorite subject of Grade 3 Pupils 2) Araling Panlipunan
 3) 10 4) MAPEH 5) 7 6) 2
 7) equally popular; the same number of pupils : 10
 8) 5 9) 54 10) Depends on the answers
- Activity 3: 1) 55 2) corn 3) chocolate 4) 40 5) nuts
 6) 15 7) Yes 8) 20 9) 95 10) nuts and ube

15) Summarizing the Concept

How do we read and interpret a bar graph?

Identify the title of the bar graph. Read and analyze the information given in the horizontal and vertical axis.

16) Applying to New and Other Situations

Let the pupils answer Activity 4 and 5 in LM. Discuss pupils' answers afterwards.

Answer Key:

Activity 4 (possible answers)

- 1) Ana spends 1 hour watching TV.
- 2) Ana spends 6 hours in school.
- 3) Ana spends 1 hour playing.
- 4) Ana spends 1 hour and 30 minutes in doing her homework.
- 5) Ana has more time doing her homework than watching TV.

Activity 5: 1) No 2) Yes 3) No 4) Yes 5) No 6) No 7) No 8) No
 9) No 10) No 11) Yes 12) Yes 13) Yes 14) Yes 15) No
 16) Depends on the pupils' answers

C. Evaluation

Do Activity 6 in LM. Let them write their answers on the paper.

Answer Key: 1) 55 2) Kristala 3) 35 4) 20 5) Juan dela Cruz
 6) Juan dela Cruz 7) 15 8) Pedro Penduko and Panday
 9) Juan dela Cruz 10) 2

D. Home Activity

Create and display a birthday month graph to show all friends' month birthdays. Construct 5 questions about the graph.

Lesson 87 Likelihood of an Event

Week 9 and 10

Objectives

1. Tell whether an event is sure, likely, equally likely, unlikely, and impossible to happen
2. Describe events in real-life situations using the phrases "sure to happen," "likely to happen", "equally likely to happen", "unlikely to happen", and "impossible to happen"

Value Focus

Industry in doing work

Prerequisite Concepts and Skills

Telling whether an event is likely, equally likely or unlikely to happen.

Materials

Worksheet, red and blue marbles, coins, pictures, red and black counters

Instructional Procedures

A. Preliminary Activities

1. Drill

Let the pupils play "Who am I?" game.

Example:

What is the smallest odd number nearest to but less than 20?

What is a two-digit even number for which the sum of the 2 digits is 5 and the difference is 3?

2. Review:

Make a bar graph using the data.

Santan	Rose	Daisy	Sampaguita	Orchid
10	25	20	5	15

3. Motivation

Say: Let's toss a coin. Raise your right hand if you are for the tail and left if you are for head.

Ask: If you choose a tail or a head, will you be sure that your choices will come true? Why?

B. Developmental Activities

1. Presenting the Lesson

Show a box with 6 blue marbles inside it. Let them count the number of marbles.

Ask: What object will I pick from the box? Will I be sure that every time I pick an object it will be a marble? Why? (*Marble will be picked. This is **certain** or **sure** because all the objects inside the box are marbles.*)

Put one pingpong ball on the box. Let them count the number of marbles and pingpong balls.

Ask: Do you think I will always pick a marble now? Will I be sure that every time I pick it will be a marble? Why? What do you think will be my chance of getting a marble, will it be **most likely** or **sure** to happen? Why? (***Most likely to be picked** because there are 6 marbles and only one pingpong ball.*)

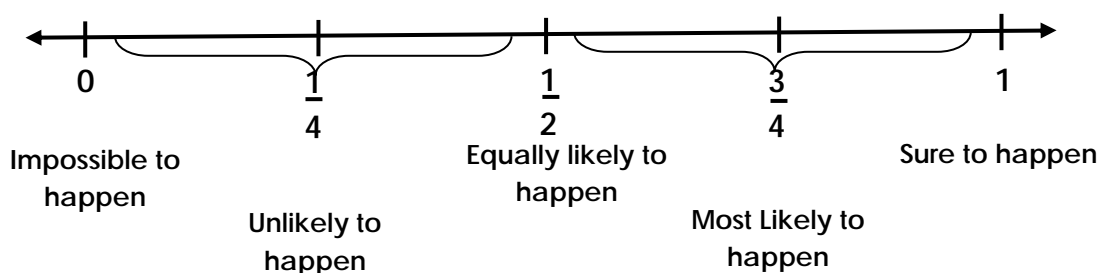
Ask: What do you think is my chance of getting a jackstone ball? Why? (***Impossible to happen** because there is no jackstone in the box*)

What about my chance of getting a pingpong ball, will it be **impossible**, **unlikely**, **most likely** or **sure** to happen? Why? (***Unlikely to be picked** because there is only one pingpong ball and 6 marbles*).

Put 5 more pingpong balls in the box. Ask the pupils to count the pingpong balls and the marbles inside the box.

Ask: Now, what is the likelihood that I will get a pingpong ball? Marble? Why? (***Equally likely to be picked** because there are the same number of pingpong balls and marbles inside the box*).

Say: Let us make a number line to show the different chances of an event to happen.



Ask: What do you think does zero represents?
How about 1?
How about $\frac{1}{2}$?
How about greater than zero but less than $\frac{1}{2}$?

How about greater than $\frac{1}{2}$ but less than 1?

2. Performing the Activities

- a. Show some pictures. Ask: What event/s is/are certain to happen to you today? Why?



Some additional questions to be asked for each illustration:
What do you usually do during recess time?
Do you always do your homework? Why?
What time do you usually sleep at night? Why do you need to have enough sleep and rest?

b. Group Activity

Divide the class into groups of fives. Provide each group with the following events/situations written in strips of cartolina or card board. Say: What do you think is the chances of the following event or situation to happen the next day, will it be impossible, unlikely, equally likely, most likely or sure to happen? Why? Let them write their answers on their answer sheet or paper.

1. Tomorrow will be a sunny day.
2. You will all eat sandwich during lunchtime.
3. You will have a periodic test.
4. It will rain.
5. Everyone of you will play badminton.
6. All of you will go to the market.

3. Processing the Activities

Ask:

What events or situations in our activities are:

- sure to happen? Why?
- impossible to happen? Why?
- unlikely to happen? Why?
- equally likely to happen? Why?
- most likely to happen? Why?

When do we say that an event is:

- sure to happen?

- impossible to happen?
- unlikely to happen?
- equally likely to happen?
- most likely to happen?

4. Reinforcing the Concept

- a. Group Activity: Milling Around. Say: Answer Activity 1 in your LM by going around the room for 5 minutes and let your classmates answer the given event.

Answer Key:

Possible answers: Impossible – Climbing Mt. Pinatubo; Flying to the moon

Other chances depends on the pupils answer.

- b. Working in Triads

Ask pupils to complete the table.

List down events that are sure, most likely, equally likely, unlikely and impossible to happen to them.

Impossible to happen (Not a chance this will happen)	Unlikely (Could happen, Probably won't)	Equally likely (Even Chance)	Most Likely (Could happen)	Sure (Certain/ Absolutely will happen)

- c. For additional activity, let pupils answer Activity 2 individually. Discuss their answers afterwards.

Answer Key: 1) most likely 2) equally likely 3) equally likely
4) most likely 5) impossible 6) most likely
7) unlikely 8) unlikely 9) impossible 10) most likely

5. Summarizing the Lesson

Say: The chance that something will happen - how likely it is that some event will happen is called probability.

Ask: What are the different chances that an event will happen? When can you tell whether an event will happen?

You can tell whether the event is most likely to happen, equally to happen or unlikely to happen based on given facts.

6. Applying to New and Other Situations

Let pupils work in pairs. Let them answer Activities 3 – 5. Discuss one activity at a time.

Answer Key:

Activity 3

- | | |
|-------------------|-------------------|
| 1) most likely | 6) equally likely |
| 2) equally likely | 7) impossible |
| 3) unlikely | 8) most likely |
| 4) impossible | 9) unlikely |
| 5) sure | 10) most likely |

Activity 4

- A. 1) equally likely 4) impossible 7) impossible 8) impossible

The rest of the numbers depends on the pupils answer.

- B. 1) B, all counters are red

- 2) D, almost all counters are red

- 3) A, there are as many red as black counters

- 4) C or E, because the black counters outnumber the red counters

- 5) F, all the counters are black

Activity 5

- | | |
|-------------------|--------------------|
| 1) equally likely | 6) unlikely |
| 2) equally likely | 7) equally likely |
| 3) equally likely | 8) impossible |
| 4) equally likely | 9) unlikely |
| 5) impossible | 10) equally likely |

3. Evaluation

Let pupils answer Activity 6 individually.

Activity 6-A Depends on the pupils answer

4. Home Activity

Let pupils answer Activity 7 in their notebook.