

2

Mathematics

Teacher's Guide

Tagalog

This instructional material was collaboratively developed and reviewed by educators from public and private schools, colleges, and/or universities. We encourage teachers and other education stakeholders to email their feedback, comments, and recommendations to the Department of Education at action@deped.gov.ph.

We value your feedback and recommendations.

**Department of Education
Republic of the Philippines**

Mathematics-Grade 2
Teacher's Guide
First Edition, 2013
ISBN: _____

Republic Act 8293, section 176 states that: No copyright shall subsist in any work of the Government of the Philippines. However, prior approval of the government agency or office wherein the work is created shall be necessary for exploitation of such work for profit. Such agency or office may, among other things, impose as a condition the payment of royalties.

Borrowed materials (i.e., songs, stories, poems, pictures, photos, brand names, trademarks, etc.) included in this book are owned by their respective copyright holders. Every effort has been exerted to locate and seek permission to use these materials from their respective copyright owners. The publisher and authors do not represent nor claim ownership over them.

Published by the Department of Education
Secretary: Br. Armin A. Luistro FSC
Undersecretary: Yolanda S. Quijano, Ph.D.

Mga Bumuo ng Kagamitan ng Mag-aaral at Gabay sa Pagtuturo

Consultant:	Edita M. Ballesteros
Writers:	Herminio Jose C. Catud – Geometry, Adv. Alg. & Stat Shierley F. Ferera – Measurements Danilo Padilla – Number & Number Sense (1st Q) Rogelio Candido – Number & Number Sense (2 nd Q)
Reviewer:	Laurenta A. Samala
Illustrator:	Christopher Arellano
Layout Artist:	Herminio Jose C. Catud Ma. Theresa M. Castro

Printed in the Philippines by _____

Department of Education-Instructional Materials Council Secretariat (DepEd-IMCS)

Office Address: 2nd Floor Dorm G, Philsports Complex
Meralco Avenue, Pasig City
Philippines 1600

Telefax: (02) 634-1054, 634-1072

E-mail Address: imcsetd@yahoo.com

Table of Contents

Lesson 1 - Visualizes and identifies numbers from 101 through 500	1
Lesson 2 - Visualizes and identifies numbers from 501 through 1000	5
Lesson 3 - Associates numbers with sets having 101 up to 500 objects and gives the number of objects	9
Lesson 4 - Associates numbers with sets having 501 up to 1000 objects and gives the number of objects	13
Lesson 5 - Counts and Groups Objects in Ones, Tens and Hundreds	20
Lesson 6 - Reads and writes numbers from 101 through 1000 in symbols and in words	26
Lesson 7 - Counts numbers by 10s, 50s, and 100s	30
Lesson 8 - Reads and writes numbers from 101 through 1000 in symbols and in words	32
Lesson 9 - Give the place value of each digit in a 3- digit numbers	36
Lesson 10 - Write three-digit numbers in expanded form	39
Lesson 11 – Comparing numbers using $>$, $<$, and $=$	42
Lesson 12 - Orders numbers up to 1000 from least to greatest and vice versa	46
Lesson 13 - Visualizes and identifies the 1 st through the 20 th object of a given set from a given point of reference	48
Lesson 14 - Reads and writes ordinal numbers from 1st through 20th	53
Lesson 15 - Identifies and uses the pattern of naming ordinal numbers from 1 st to the 20 th	57
Lesson 16 - To add numbers 3-digit by 2-digit numbers with sums up to 1000 without regrouping	61
Lesson 17 - To add numbers with sums up to 1000 with regrouping	67
Lesson 18 - To add 3- digit by 3- digit numbers with sums up to 1000 without and with regrouping	71
Lesson 19 - To use the zero/identity property of addition in computing for sums up	74
Lesson 20 - Use the commutative property of addition in computing the sums up to 1000	78
Lesson 21 - Use the associative property of addition in computing the sum of up to 1000	81
Lesson 22 - To mentally add 1 to 2 digit numbers with sums up to 50	85

Lesson 23 - Mentally add 3-digit numbers by ones (up to 9)	88
Lesson 24 - To mentally add 3-digit numbers by tens (multiples of 100 up to 900)	91
Lesson 25 - Mentally add 3-digit numbers by hundreds (multiples of 100 to 900)	95
Lesson 26 - Analyzes and solves word problems involving addition of whole numbers including money with sums up to 1000 without and with regrouping. (What is/are given?)	98
Lesson 27 - Analyzes and solves word problems involving addition of whole numbers including money with sums up to 1000 without and with regrouping. (Word clues and Operations to be used).	101
Lesson 28 - Analyzes and solves word problems involving addition of whole number including money with sums up to 1000 with and without regrouping (Transforming Word Problems into Number Sentences and Stating Complete Answer)	104
Lesson 29 - Subtracting 2- to 3-digit numbers with minuends up to 999 with regrouping in the hundreds place	108
Lesson 30 - Subtract 2- to-3 digit numbers with minuends up to 999 without regrouping	1121
Lesson 31 - Mentally subtract 1-digit number from 1 to 2 digit numbers with minuends up to 50	116
Lesson 32 - To mentally subtract 3-digit numbers by ones without regrouping	119
Lesson 33 - Mentally subtracts 3-digit by tens without regrouping	123
Lesson 34 - Mentally subtract 3-digit by hundreds without regrouping	126
Lesson 35 - Analyzes and solves one-step word problems involving Subtraction of whole numbers including money with minuends up to 1000 with and without regrouping	129
Lesson 36 - Perform order of operations involving addition and subtraction of small numbers	134
Lesson 37 - Solves two-step word problems involving addition and subtraction of 2to 3 digit numbers including money using appropriate procedures (What is ask/What is/are given)	138
Lesson 38 - Solve two-step word problems involving addition and subtraction of 2 -to 3 digit numbers including money using appropriate procedures	143

Lesson 39 - Solves two-step word problems involving addition and subtraction of 2-to 3- digit numbers including money using appropriate procedures	148
Lesson 40 - Illustrate multiplication as repeated addition	151
Lesson 41 - Illustrate multiplication as counting by multiples	154
Lesson 42 - Illustrate multiplication as equal jumps in a number line	156
Lesson 43 - Write a related equation for multiplication as repeated addition	158
Lesson 44 - Write a related equation for multiplication as counting by multiples	160
Lesson 45 - Write a related equation for multiplication as equal jumps in the number line	163
Lesson 46 - Illustrate the property of multiplication that any number multiplied by one (1) is the same number	166
Lesson 47 - Illustrate the property of multiplication that zero multiplied by any number is zero	168
Lesson 48 - Illustrate commutative property of multiplication	170
Lesson 49 - Construct and fill up the multiplication table of 2, 3 and 4	172
Lesson 50 - Construct and fill up the multiplication tables of 5 and 10	174
Lesson 51- Multiply mentally to fill up the multiplication tables of 2, 3, 4, 5 and 10	176
Lesson 52 - Analyze and solve one-step word problems involving multiplication of whole numbers including money	178
Lesson 53 - Analyze and solve two-step word problems involving multiplication of whole numbers as well as addition and subtraction including money	181
Lesson 54 - Model and describe division situations in which sets are separated into equal parts	183
Lesson 55 - Represent division as equal sharing	186
Lesson 56 - Represent division as repeated subtraction	188
Lesson 57 - Represent division as equal jumps on a number line	190
Lesson 58 - Represent division as formation of equal groups of objects	192
Lesson 59 - Write related equation in equal sharing	195
Lesson 60 - Write related equation in repeated subtraction	197
Lesson 61 - Write related equation for equal jumps on a number line	199

Lesson 62 - Write related equation as formation of equal objects	202
Lesson 63 - Divide numbers found in the multiplication tables of 2, 3, 4, 5 and 10	206
Lesson 64 - Mentally divides numbers found in the multiplication tables of 2, 3, 4, 5 and 10	208
Lesson 65 - Analyze one-step word problems involving division of numbers found in the multiplication tables of 2, 3, 4, 5, and 10	211
Lesson 66 - Solve one-step word problems involving division of numbers found in the multiplication tables of 2, 3, 4, 5, and 10	213
Lesson 67 - Visualize and identify unit fractions with denominators 10 and below	216
Lesson 68 - Read and write unit fractions	218
Lesson 69 - Compare unit fractions using relation symbols	220
Lesson 70 - Order unit fractions	223
Lesson 71 - Visualize and identify other fractions less than one with denominators 10 and below	225
Lesson 72 - Visualize and identify similar fractions (using group of objects and number line)	228
Lesson 73 - Read and write similar fractions	230
Lesson 74 - Compare similar fractions using relation symbols	232
Lesson 75 - Order similar fractions	235
Lesson 76 - Read and write money with value through 100	237
Lesson 77 - Count and tell the value of a set of coins through 100 in peso	240
Lesson 78 - Count and tell the value of a set of bills through 100 in peso	243
Lesson 79 - Count and tell the value of a set of bills and coins in peso	245
Lesson 80 - Count and tell the value of a set of coins through 100 in centavo	247
Lesson 81 - Count and tell the value of a set of bills or a set of coins through 100 in combinations of pesos and centavos (Peso and Centavo Coins Only)	251
Lesson 82 - Counting and Telling the Value of a Set of Bills or a Set of Coins through 100 in Combinations of Pesos and Centavos (Bills and Centavo Coins Only)	254
Lesson 83 - Read and write money in symbol and in words through 100	258

Lesson 84 - Compare values of different denominations of coins and paper bills through 100 using relation symbols $<$, $>$ and $=$	260
Lesson 85 - Distinguish between half and quarter circles. Classify fractions of circles into half and quarter circles. Visualizing, Identifying, Classifying and Describing Half and Quarter Circles	263
Lesson 86 - Representing Squares, Rectangles, Triangles, Circles, Half Circles and Quarter Circles Using Cut-Outs and Square Grids	272
Lesson 87 - Shapes and Figures That Show Symmetry in a Line Mirror Symmetry	284
Lesson 88 - Shapes and Figures That Show Symmetry in a Line Creating Symmetry in a Line	291
Lesson 89 - Square and Triangle Tessellations	298
Lesson 90 - Straight Lines and Curved Lines	303
Lesson 91 - Flat and Curved Surfaces	308
Lesson 92 - Identify Simple Repeating Patterns	311
Lesson 93 - Extending and Completing the Patterns	322
Lesson 94 - Tell and write time in minutes including a.m. and p.m. using analog clock	327
Lesson 95 - Tell and write the time in hours and minutes including a.m. and p.m. using digital clock	331
Lesson 96 - Finds the duration of time elapsed using analog and digital clocks	335
Lesson 97 - Solving word problem involving time	339
Lesson 98 - Find the duration of time elapsed using calendar	342
Lesson 99 - Word problems involving time using calendar	347
Lesson 100 - Identify the appropriate unit of length to measure a particular object and their abbreviations (cm and m)	351
Lesson 101 - Measure objects using appropriate measuring tools in centimeter (cm) or meter (m)	354
Lesson 102 - Compare lengths in meters (m) or centimeters (cm)	357
Lesson 103 - Estimate length using meter (m) or centimeter (cm).	359
Lesson 104 - Solve simple word problems involving length.	363
Identify and use appropriate unit of mass (in gram or kilogram and their abbreviations g or kg) in measuring a particular object	
Lesson 105 - Compare mass in grams or kilograms	366

Lesson 106 - Estimate mass using gram or kilogram	369
Lesson 108 - Solve simple problems involving mass	374
Lesson 109 - Illustrate area as a measure of how much surface is covered or occupied by plane figure	377
Lesson 110 - Show the area of a given figure using square tile units. (i.e. number of square tiles needed)	380
Lesson 111 - Find the area of a square and a rectangle using square tile units.	384
Lesson 112 - Estimate the area of a given figure using any shape	388
Lesson 113 - Identify appropriate unit of measure in finding the capacity	392
Lesson 114 - Collect and organize data using tables and pictures	396
Lesson 115 - Read and Make Pictograph	401
Lesson 116 - Make a Guess	407

Teaching Guides for Mathematics Grade 2
Concept of Whole Numbers
Lesson No. 1

TOPIC: Visualization and Identification of Numbers from 101 - 500

OBJECTIVE:

Visualizes and identifies numbers from 101 through 500.

PREREQUISITE CONCEPTS AND SKILLS

1. Recognizes cardinal numbers from 0-100
2. Counts numbers from 0-100
3. Intuitive Concept of 101 – 1000
4. Matches numbers to a set of objects 1 to 100

MATERIALS

1. Counters- such as drinking straws, sticks, seeds, pebbles, coins
2. Cutouts of mangoes
3. Drawings/illustration of a tree

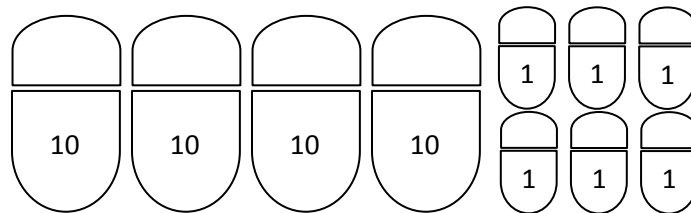
INSTRUCTIONAL PROCEDURES

A. Preparatory Activities

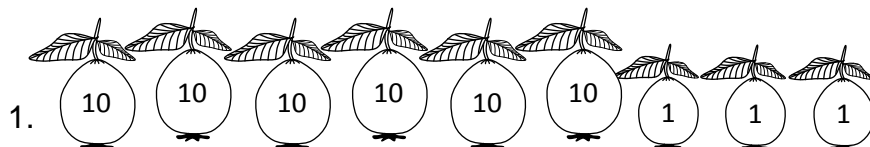
1. DRILL

A. Using flash cards complete each item. Write your answer on your Show Me Board

Example:



4 tens and 6 ones
40 and 6 is 46



Answer _____



Answer: _____

B. Let the pupils give the correct number.

1. 5 tens + 7 ones = _____
2. 9 tens + 4 ones = _____
3. 7 tens + 3 ones = _____
4. 9 tens + 9 ones = _____
5. 8 tens + 6 ones = _____

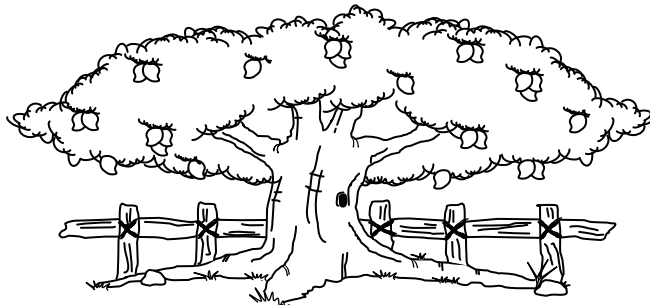
C. Give the correct answer. Write your answer on your Show Me Board

1. 6 tens and 3 ones
_____ and _____ ones is _____
2. 5 tens and 8 ones
_____ and _____ ones is _____
3. 9 tens and 9 ones
_____ and _____ ones is _____
4. 7 tens and 5 ones
_____ and _____ ones is _____
5. 8 tens and 8 ones
_____ and _____ one is _____

B. Developmental Activity

1. Motivation”

Show a mango tree with numbered fruits in it. Call the pupils to pick the fruit from the mango tree and read the number written on it.



Ask:

1. Can you eat the number of fruits shown at the back?
2. Is it too many? Or is it few?
3. Can you explain how many is the number you are holding?

2. Presentation

A. Concrete

Group the pupils by five depending on the number of pupils in a class. Make sure that each pupil has objects bundled or grouped into 100s in trays or bags. Using the straws, the teacher will show groupings by 1s, 10s, and 100s. Let the pupils count the number of straws they have.

B. Pictorial

Using the play money- ask the pupils to count the value of the following:



Example:

P _____

Ask: How many hundreds are there?

How many tens? How many ones?

What is the total value of the money?

C. Abstract

- Let the pupils write the number symbols that represent the value of money.
- Ask- What if P 5 added to P100?
- How will you describe the value?
- What is the number?
- Ask them to write the number symbols.
- Give another illustrative example such as 145, 356, 275 and 452.
- Ask the pupils to describe and write the number symbols.

3. Reinforcement Activity

Refer to LM Gawain 1-3

4. Application

Refer to the LM

5. Generalization

Ask the following questions

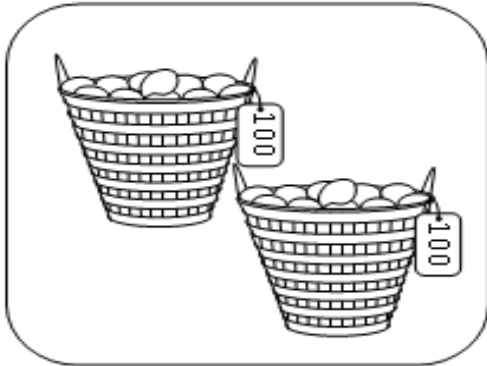
- What have you learned today?
- How do you identify the number of each set of objects from 101 to 500?

- How do drawings of objects in bundles or packs help you count numbers from 101- 500?

EVALUATION

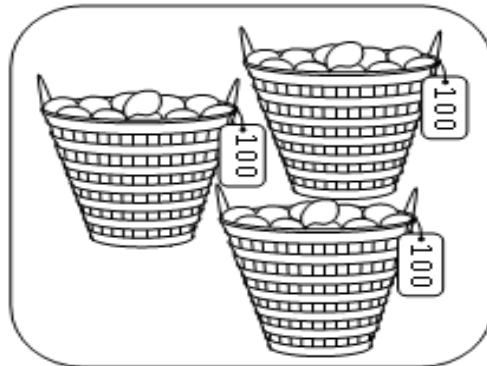
Directions: Give the correct number for each set.

1.



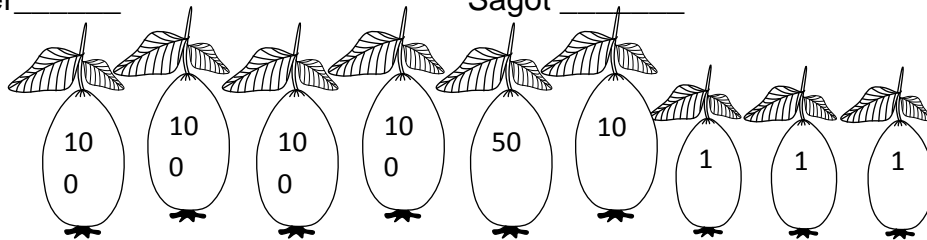
Answer _____

2.



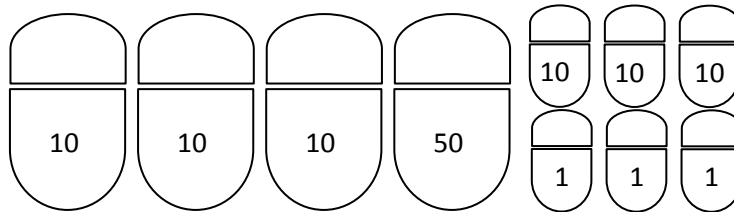
Sagot _____

3.



Answer _____

4.



Answer _____

B. Let the pupils give the correct number.

1. 2 hundreds + 7 tens + 8 ones = _____
2. 3 hundreds + 4 tens + 9 Ones = _____
3. 1 hundreds + 3 tens + 0 ones = _____
4. 4 hundreds + 0 tens + 7 ones = _____
5. 1 hundreds + 9 tens + 9 ones = _____

D. Fill in the blanks with the correct number.

1. 452 = _____ hundreds _____ tens _____ ones
2. 276 = _____ hundreds _____ tens _____ ones

3. 398 = _____ hundreds _____ tens _____ ones
4. 307 = _____ hundreds _____ tens _____ ones
5. 250 = _____ hundreds _____ tens _____ ones

HOME ACTIVITY

Refer to LM 1- Gawain-bahay

Teaching Guide for Mathematics Grade 2
Concept of Whole Numbers
Lesson 2

TOPIC: Visualization and Identification of Numbers from 501 - 1000

OBJECTIVE

Visualizes and identifies numbers from 501 through 1000.

PREREQUISITE CONCEPTS AND SKILLS

1. Visualizes and identifies numbers from 0 - 500
2. Count numbers from 0 – 500

MATERIAL

1. Pictures
2. Counters (bottle caps, pebbles, sticks, drinking straws, shells, seeds,
3. Flats, longs, ones
4. Cut-outs of objects
5. Number Cards

INSTRUCTIONAL PROCEDURE

A. Preparatory Activities

1. Drill

A. Ask the pupils to orally count numbers from 100 to 500, 222 to 293, 467 to 500

B. Give the next number.

Ask the pupils to “give the number before” each given number written in the flash card.

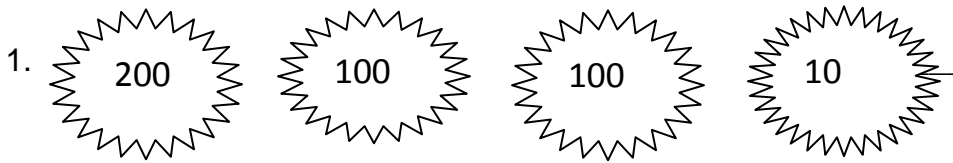
Example: 245 \longrightarrow 246



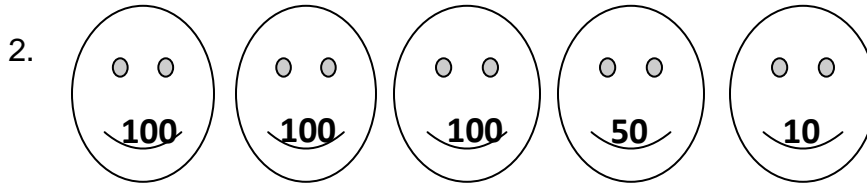
C. Ask the pupils to count backwards numbers 299 to 290, 412 to 400 and 500 to 489

2. Review

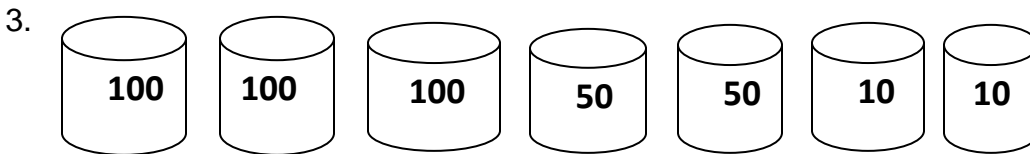
Count and write the correct numeral for each illustration.



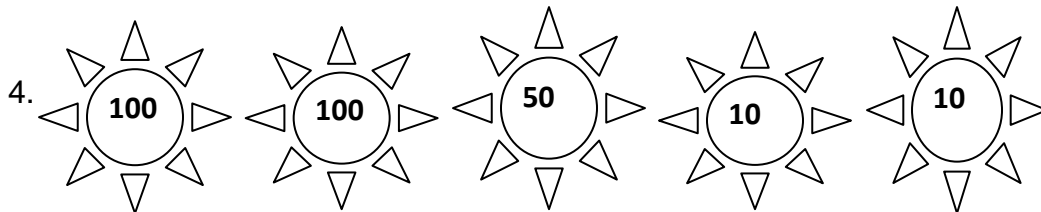
Answer: _____



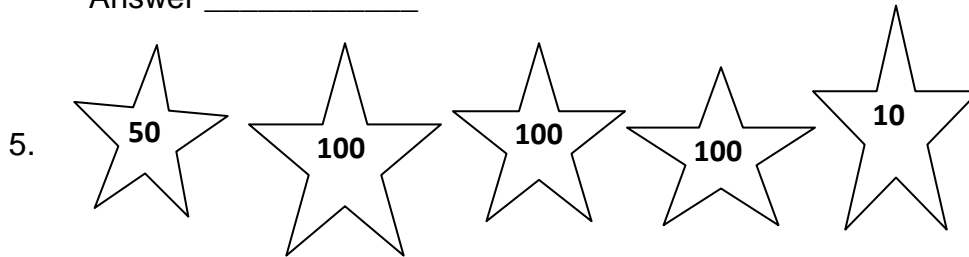
Answer: _____



Answer: _____



Answer _____



Answer: _____

B. Developmental Activity

1. Motivation

Using number cards the teacher will show numbers 2, 7 and 5. Then ask the pupils to form three digit numbers using these numbers. Then ask- what is the biggest and smallest numbers formed?

2. Presentation

- Divide the class into groups. Provide each group with counters such as popsicle sticks or drinking straws.
- Let the pupils bundle 5 sets of 100 popsicle sticks.
- Ask: How many popsicle sticks do you have? If you add another one bundle of 100, how many are there?
- Let the pupils write the number symbols on their Show Me Board.
- Do these lines of questioning until the pupil reach 1000?
- At these points, the teacher will use the flats, longs and ones.
- Show a chart as shown below, ask the pupils to complete the table numbers up to 1000.

501				505					560
									1000

3. Reinforcement Activity

Refer to LM No. 2 –Gawain 1 and 2

- The teacher will call for pupils to share their answers to the questions in LM Gawain 2. Call at least 3 pupils for every item. The variation in answers will deepen students' concepts.

4. Application

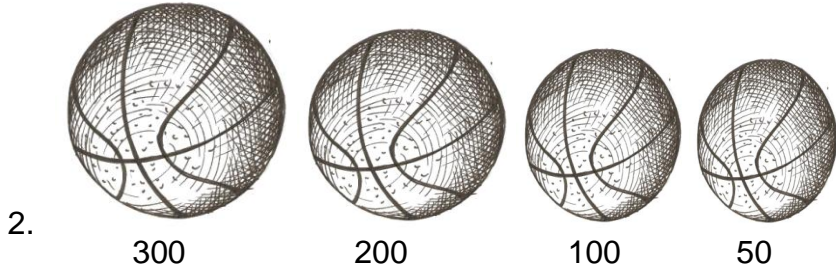
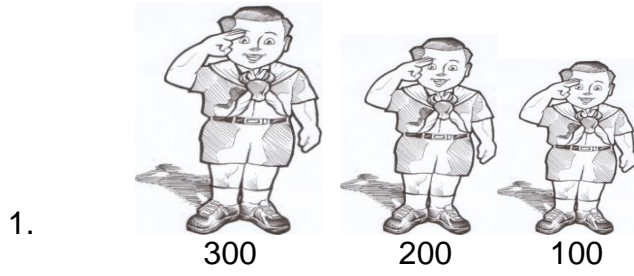
Refer to LM No. 2- Gawain 3 and 4

6. Generalization

How do you visualize numbers from 501 through 1000?
How do you identify the number of each set of objects from 501 to 1000?

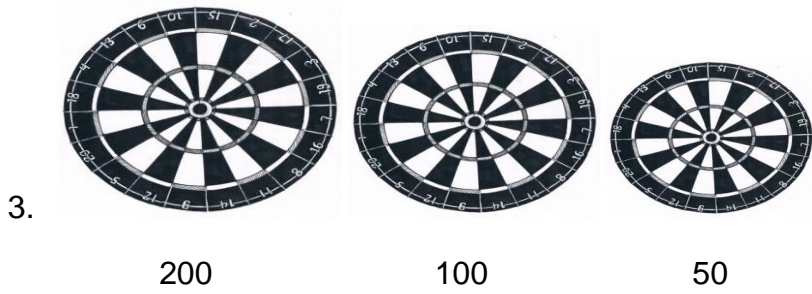
Evaluation

Directions: Count and write the correct numeral for each illustration.

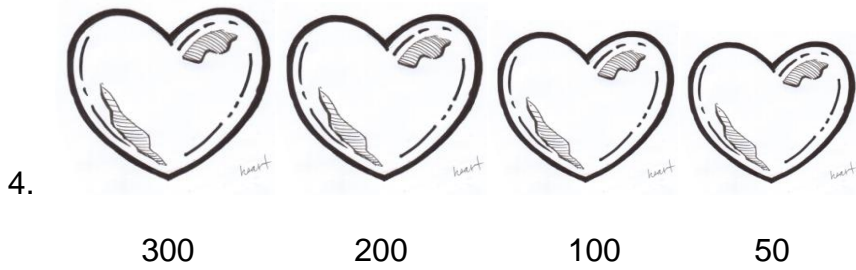


Answer: _____

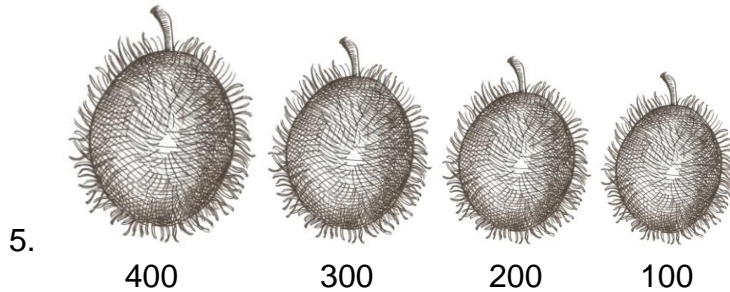
Answer: _____



Answer: _____



Answer: _____



Answer _____

HOME ACTIVITY

Refer to LM 2 - Gawaing Bahay

Teaching Guide for Mathematics Grade 2 Concept of Whole Numbers Lesson 3

TOPIC: Associating Numbers with Sets having 101 up to 500 objects

OBJECTIVE

Associates numbers with sets having 101 up to 500 objects and gives the number of objects.

PREREQUISITE CONCEPTS AND SKILLS

1. Visualizes numbers with sets having 101 up to 500 objects
2. Identifies the number of objects having 101 – 500 objects

MATERIALS

1. Picture,
2. Bottle caps, sticks, drinking straws, flashcards, other counters
3. Cut-outs

INSTRUCTIONAL PROCEDURES

A. Preparatory Activities

1. Drill

The teacher will start number pattern, then the pupils should recite continuously until the teacher stops then

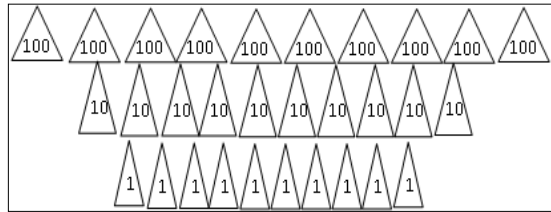
- a. 100, 200, 300 pupils, 900
- b. 210, 220, 230, pupils 290
- c. 405, 406, 407, 408, pupils, 433
- d. 695, 696, 697, 698, pupils, 710

2. Review

Shade the objects that give the number in the box.

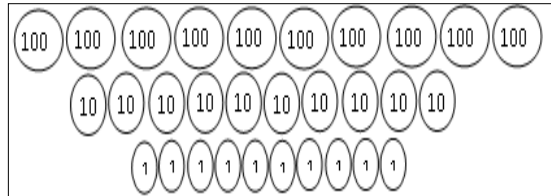
a.

456



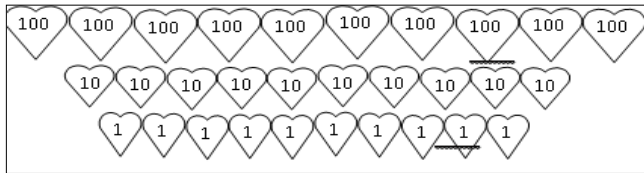
b.

425



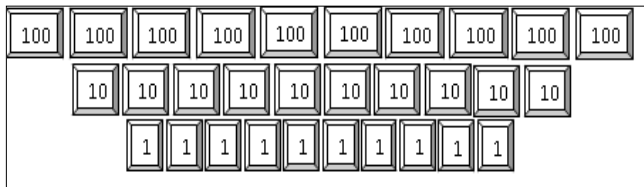
c.

356



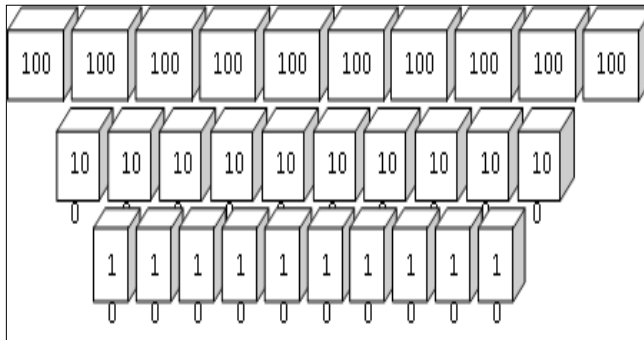
d.

248



e.

500



B. Developmental Activities

1. Motivation

Sing a Song (Tune: Are you sleeping)

There are 10 tens (2x)

In 100 in 100

Let us add 1 to it, let us add 1 to it

It's 101, it's 101.

Ask.

How many tens are there in 100?

What if we add 100 to 100, what number will be formed?

What if we add 20 to 100, what number will be formed?

Is it important to know how to count numbers?

2. Presentation

Ask the pupils to bring out their counters.

Activity:

Divide the class into five. Give each group bundles/sets of counters of 100s, 10s and 1s.

Ask each group to complete the series given below.

Group 1 120, 121, 122, 123, 124, 125 _____, _____, _____, _____, _____

Group 2 210, 211, 212, 213, 214, 215 _____, _____, _____, _____, _____

Group 3 325, _____, _____, 328, _____, 330, _____, _____, _____, _____

Group 4 500, 450, 400, 350, _____, _____, _____, _____, _____

Ask each group record the process of completing the series.

Processing:

What did you do to discover the next five number using sets of objects?

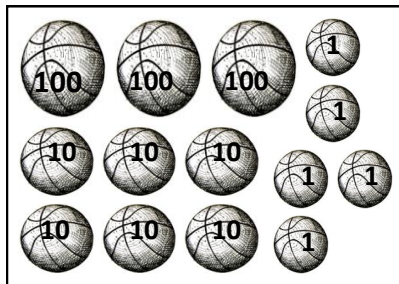
How many objects are there in bigger and smaller bundles?

3. Reinforcing Activity – Refer to LM 3- Gawain

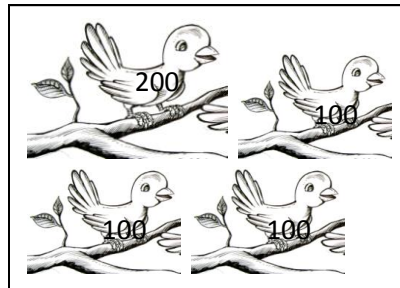
4. Application

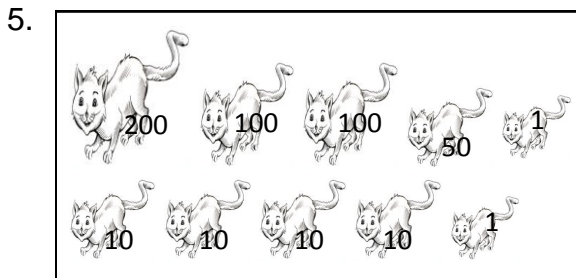
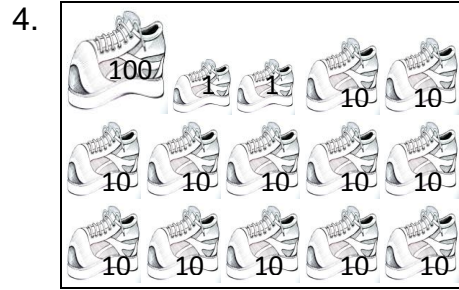
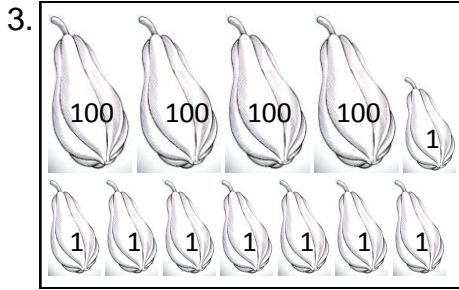
Let the pupils identify the number for each sets of objects.

1.



2.



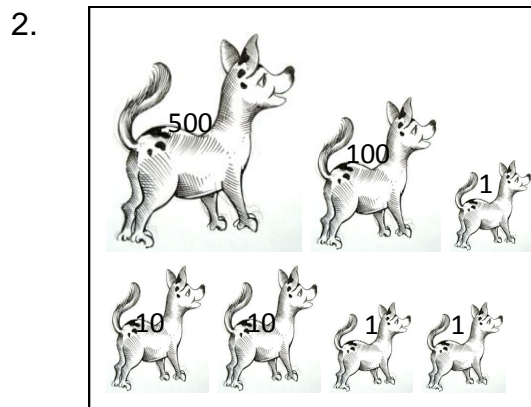
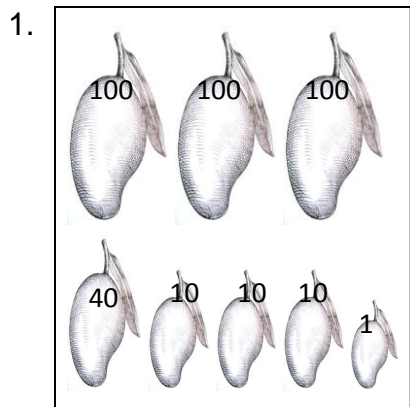


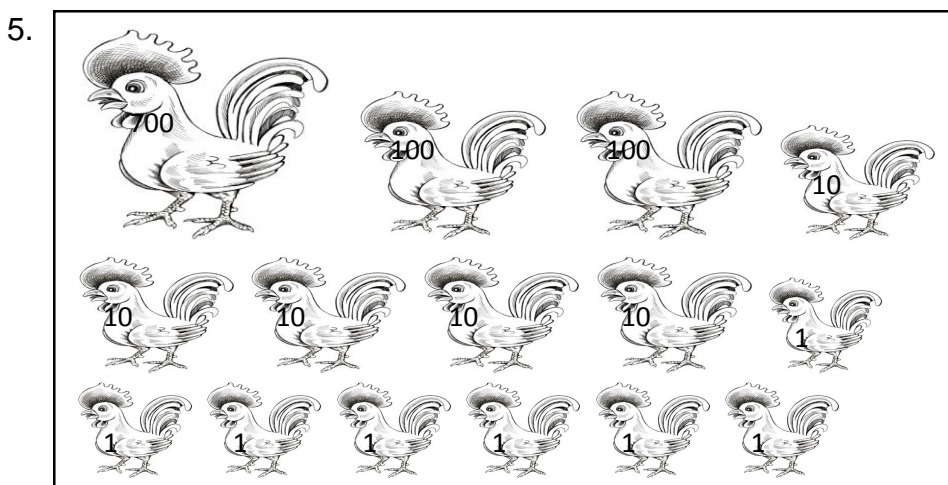
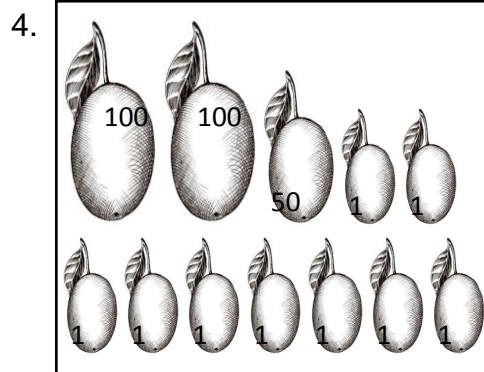
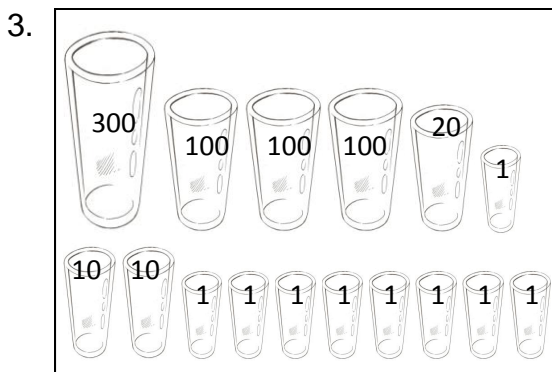
5. Generalization

How do we associate numbers using sets of objects from 101 – 500?
 What should you do to identify the number from 101 to 500 in a given sets of objects or things?

EVALUATION

Give the number for each set of objects.





HOME ACTIVITY

Refer to LM 3 – Gawaing Bahay

**Teaching Guide for Mathematics Grade 2
Concept of Whole Numbers
Lesson 4**

TOPIC: Numbers with sets having 501 up to 1000 objects.

OBJECTIVE

Associates numbers with sets having 501 up to 1000 objects and gives the number of objects.

PREREQUISITE CONCEPTS AND SKILLS

1. Visualizes numbers with sets having 101 up to 500 objects
2. Identifies the number of objects having 101 – 500 objects

MATERIALS

1. Rubber bands
2. Bottle caps
3. Sticks
4. Drinking straws
5. Flashcards

INSTRUCTIONAL PROCEDURES

A. Preparatory Activities

1. Drill

Counting numbers using the number chart 0-100

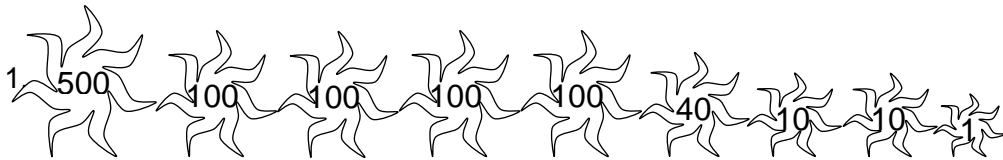
1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Ask:

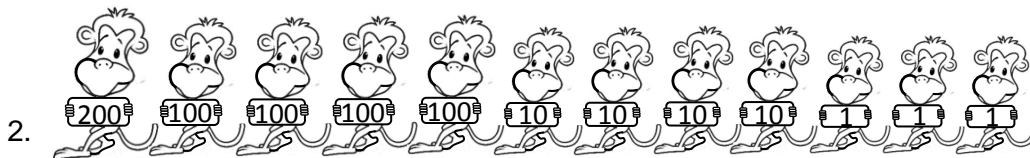
2. What two one digit numbers when you add give an answer of 16?
What are the numbers? How did you get the correct answers?
3. What two digit numbers when you add give an answer of 100? What are the numbers? How did you get the correct answer? Explain your answer.

Review

Give the correct answer.

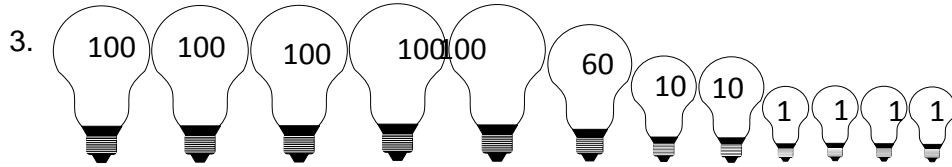


Answer: _____

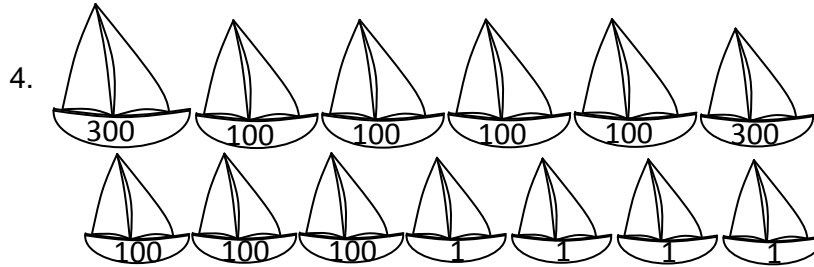


2.

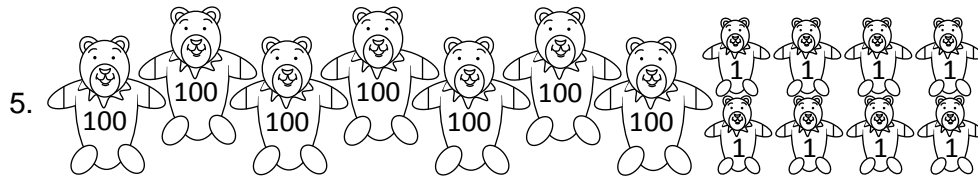
Answer: _____



Answer: _____



Answer: _____



Answer: _____

6. How many hundreds are there in 400?

Answer: _____

7. How many tens are there in 50?

Answer: _____

8. How many hundreds, tens and ones are there in 452?

Answer: _____

DEVELOPMENTAL ACTIVITIES

1. Motivation

STRATEGY: Game –“BRING ME”

Instructions:

Group the pupils into five.

Give each group 3 sets of cutout objects with 100s, 10s and 1s in three colors, red, yellow and green.

The teacher will say, “Bring me 3 red hundreds, 2 yellow tens and 4 green ones”

The first group who can bring the objects to the teacher wins.

Ask:

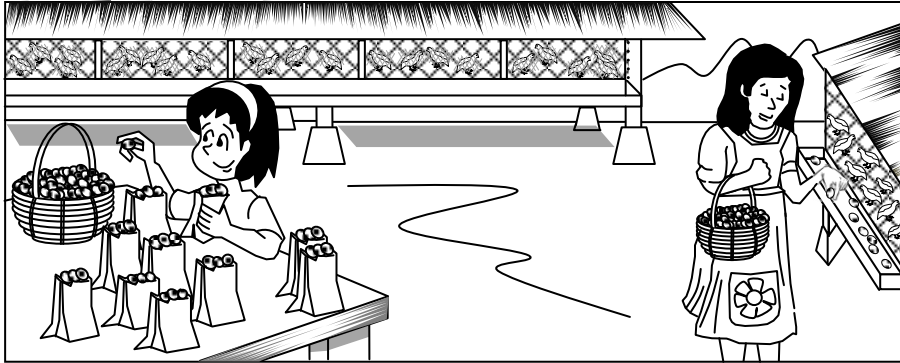
Why is it important to follow directions?

What will happen if you do not follow directions?

2. PRESENTATION:

The teacher will post the picture as illustrated below.

Call 2 or 3 pupils to read the short story.



Aling Lorna sells quail eggs. She asks her daughter Karen to place 100 quail eggs in each basket and 10 eggs in small paper bags. She also tells her to deliver 5 baskets of eggs to Aling Marie's store and 7 paper bags to her friends. She does all these correctly. Aling Lorna praises Karen for following all what she wants her to do. She also asks her to find the total number of quail eggs sold. If you were Karen, can you give the total number of quail eggs delivered in all?

Who sells quail eggs?

Who helps Aling Lorna to deliver quail eggs?

What kind of daughter is Karen?

What did her mother do when she did all her instructions correctly?

Why did she do all what her mother told her to do?

Did she know how to follow directions?

How many hundreds are there?

How many are tens?

Use the illustration example below

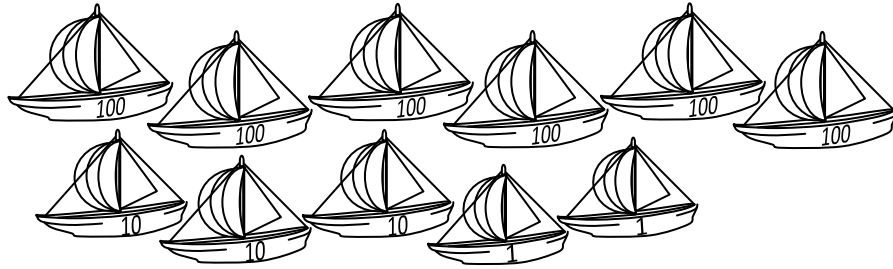
$$\begin{array}{r} 5 \text{ hundreds} + 7 \text{ tens} = 570 \\ 500 \quad + 70 \quad = 570 \end{array}$$

Example

Call a pupil to give the number of 100s, 10s and 1s in the illustration.

Call another pupil to give the number of hundreds, tens and ones.

Call a pupil to give the final number.

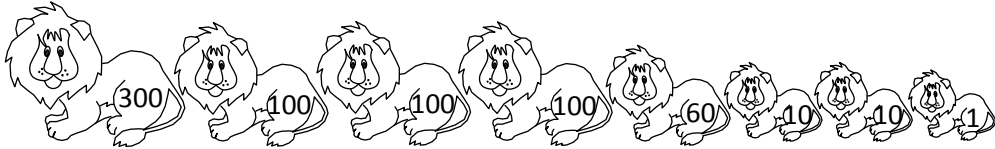


_____ Hundreds + _____ tens + _____ ones

_____ + _____ + _____ = _____

Example 2

Divide the class into five. Distribute bundles or packs of objects in 100s, 10s and 1s. Let them give the number following the example below.



_____ Hundreds + _____ tens + _____ ones = _____

Processing:

What did you do to get the number of hundreds, tens and ones?
Did you count the objects carefully?

3. REINFORCING THE CONCEPTS AND SKILLS

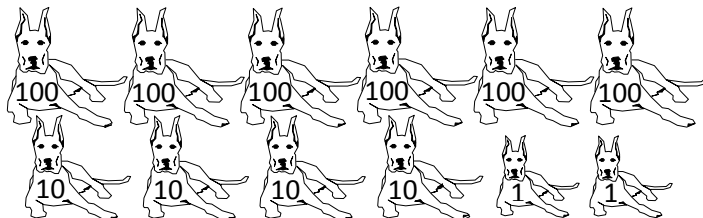
Refer to the Learning Material

4. APPLICATION

Let the pupils identify the number for each sets of objects.

Write the number of hundreds, tens and ones. Then, write the number on your paper.

Example:



6 hundreds + 4 tens + 2 ones
600 + 40 + 2 = 642

1. 7 hundreds + 7 tens + 8 ones

_____ + _____ + _____ = _____

2. 9 hundreds + 0 tens + 8 ones

_____ + _____ + _____ = _____

3. 5 hundreds + 6 tens + 0 ones

_____ + _____ + _____ = _____

4. 6 hundreds + 9 tens + 9 ones

_____ + _____ + _____ = _____

5. 3 hundreds + 6 tens + 4 ones

_____ + _____ + _____ = _____

5. SUMMARY

What should you do to associate numbers with objects or things?
 We can associate numbers with objects or things by identifying and counting them.

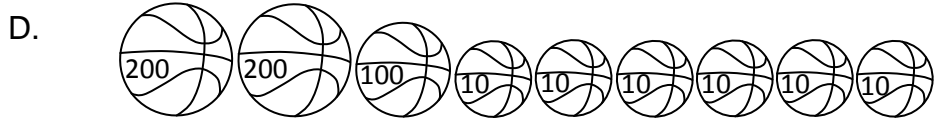
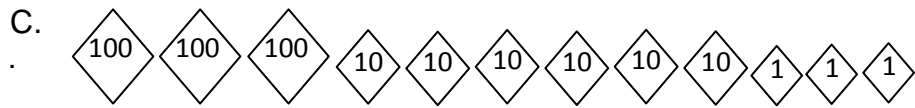
EVALUATION

Write the letter of the correct answer.

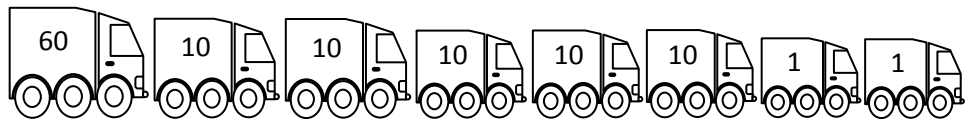
1. Which is equal to 784?

A

B

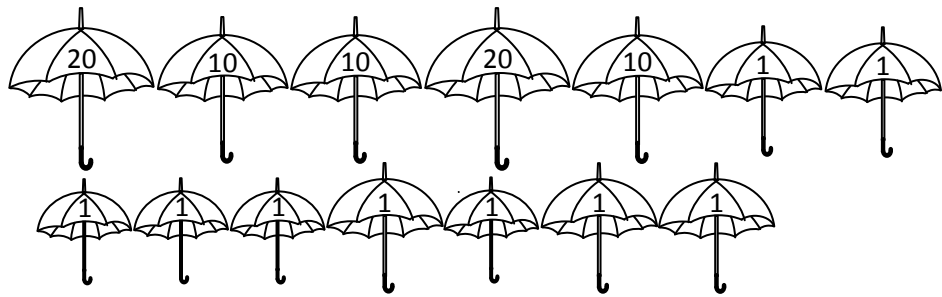


2. Which number is equal to the illustration below?



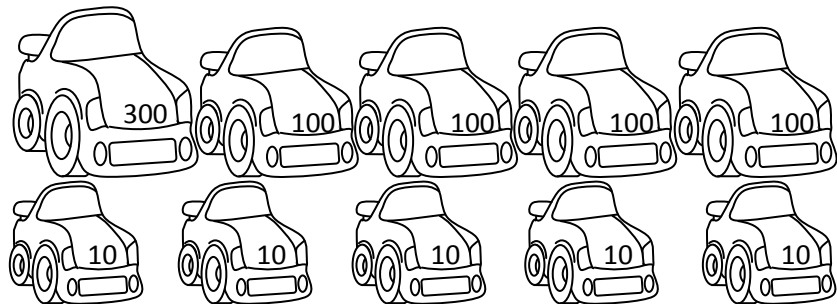
- A. 832 B. 733 C. 752 D. 632

3. How many objects are in the box?



- A. 565 B. 654 C. 645 D. 754

4. How many objects are in the box?



- A. 789 B. 741 C. 714 D. 361

Teaching Guide for Mathematics Grade 2
Concept of Whole Numbers
Lesson No. 5

TOPIC: Counting and Grouping Objects in Ones, Tens and Hundreds

OBJECTIVE

Counts and groups objects in ones, tens, and hundreds

PREREQUISITE CONCEPTS AND SKILLS

1. Counts numbers from 1-1000
2. Identifies numbers from 1 – 1000

MATERIAL

1. popsicle sticks, bottle caps, sticks, drinking straws, flashcards, flats, longs, ones, picture, pebbles, other concrete counters
2. Picture
3. Cut-outs

INSTRUCTIONAL PROCEDURE

A. Preparatory Activities

1. Drill

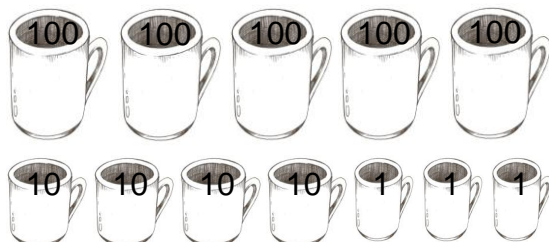
Mental addition using flash cards

- | | |
|--------------|--------------|
| 1. 100 + 100 | 6. 800 + 10 |
| 2. 10 + 10 | 7. 200 + 100 |
| 3. 100 + 20 | 8. 900 + 2 |
| 4. 200+80 | 9. 600 + 40 |
| 5. 500+100 | 10. 700 + 12 |

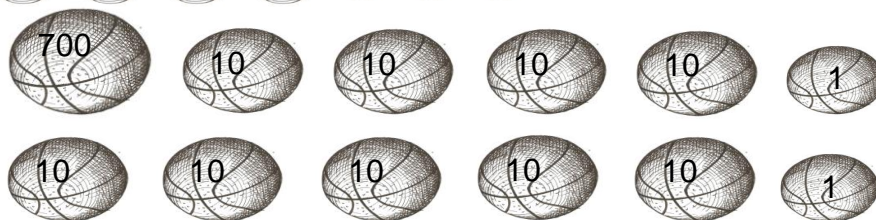
2. Pre-assessment

Give the number for each set of objects.

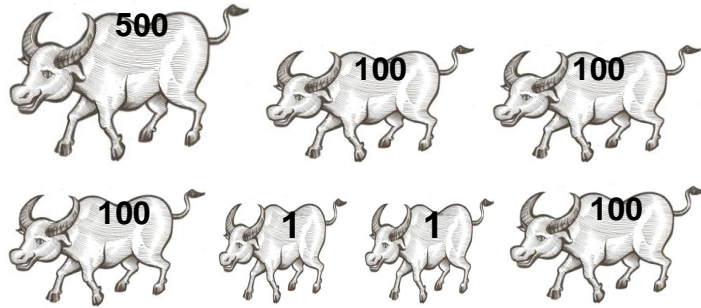
1.



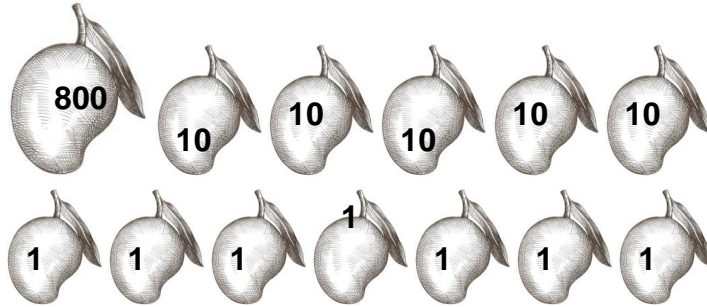
2.



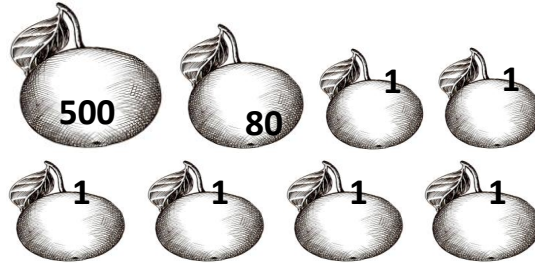
3.



4.



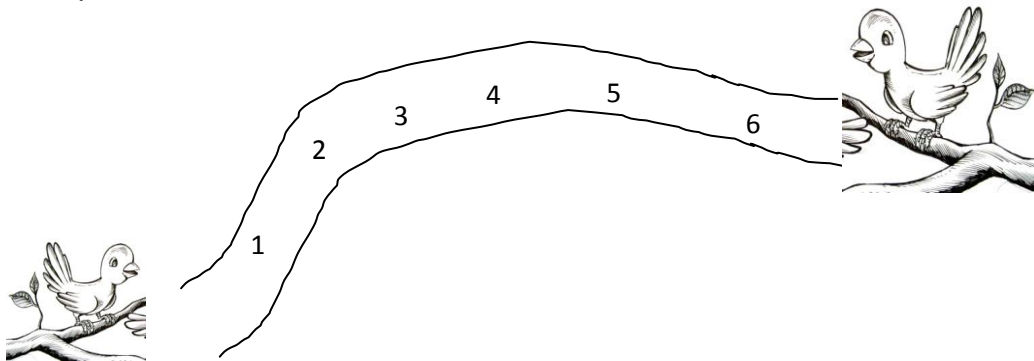
5.



B. Developmental Activities

1. Motivation:

Help the birdie find its way to her mother by counting from the starting point to the mother bird



Ask: What do you do when you see birds in your surroundings?
Why is it bad to hurt or kill animals?

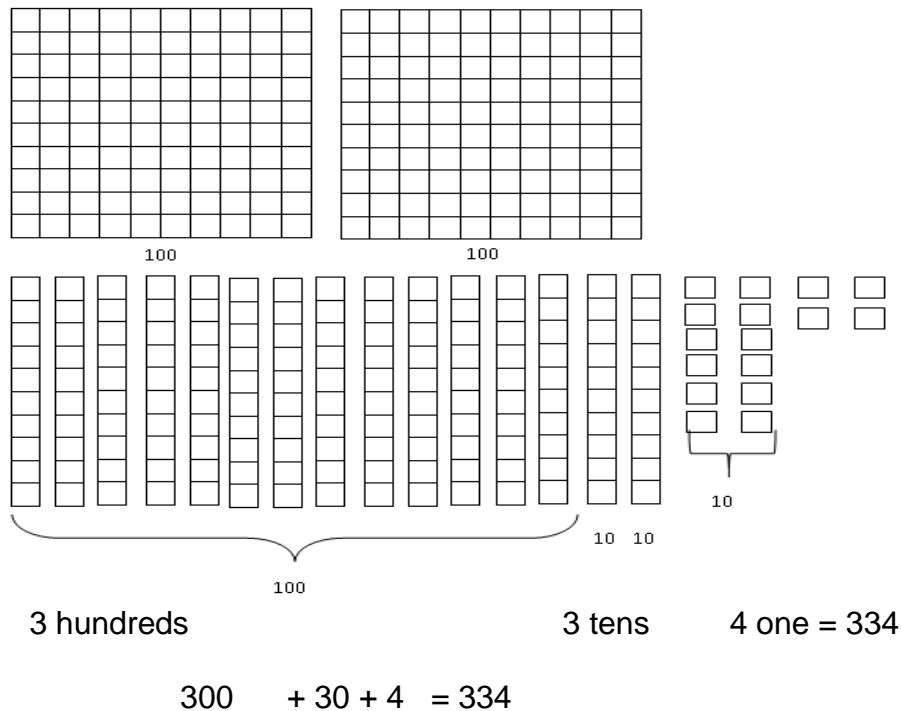
Unlocking of difficult words

(One-act play) Act out a mother feeding her son/daughter. Then have this sentence on the board.

Mother feeds her daughter with delicious food.

2. Presentation

The teacher will show the pupils how to create ones, longs and flats. Together, the pupils and the teacher will create a long using 10 ones. The teacher will emphasize that 10 ones create a 10. The pupils will create 10 longs. Then, the teacher will show with an illustration on the board that 10 longs create one flat with 100 ones. The pupils will also create a flat. There will be 10 tens in one hundred.



Distribute 25 objects/things to each pair of pupils. Let them group the counters by tens and ones, as instructed by the teacher.

Example:

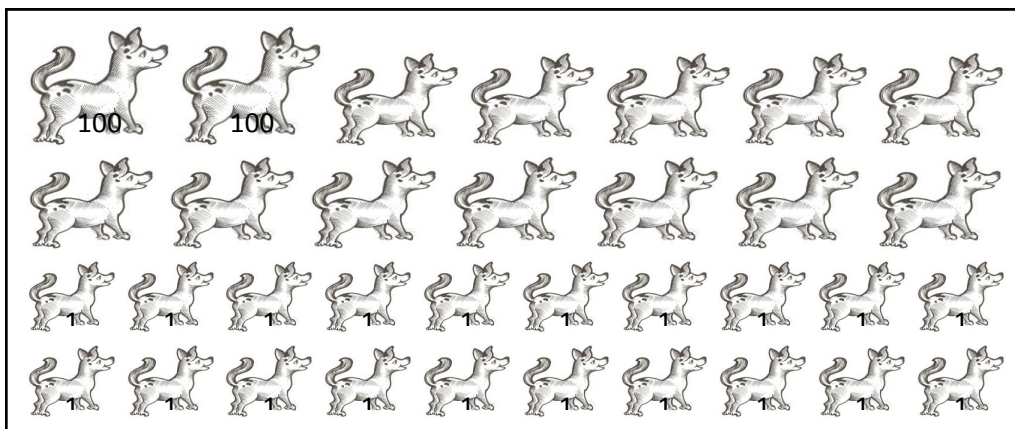
Form a group of ten objects.

Form another group of ten objects until only ones are left.

How many ones are left?

How many tens did you form from 25?

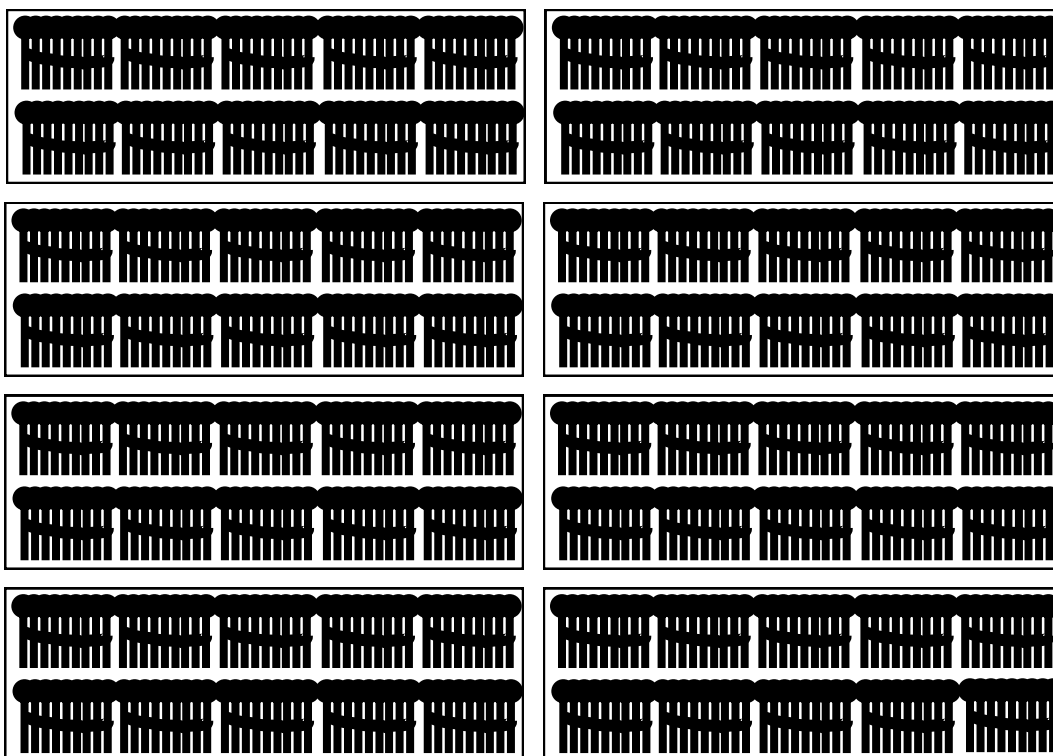
Show this on the board.
 $25 = 2 \text{ tens} + 5 \text{ ones}$

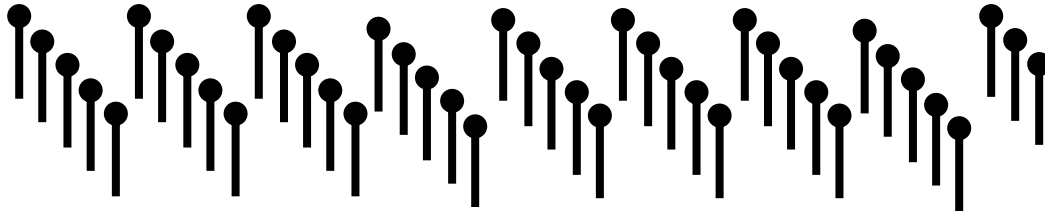


3. Reinforcing Activity

Group the class into four. Give them sets of objects in bundles of 10s, 100s and some ones (drinking straws, bottle caps, seeds, pebbles, popsicle sticks, any other concrete counters).

Directions: Count the objects and group them by hundreds, tens and ones. Then, write the number on the blank. Follow the format below.



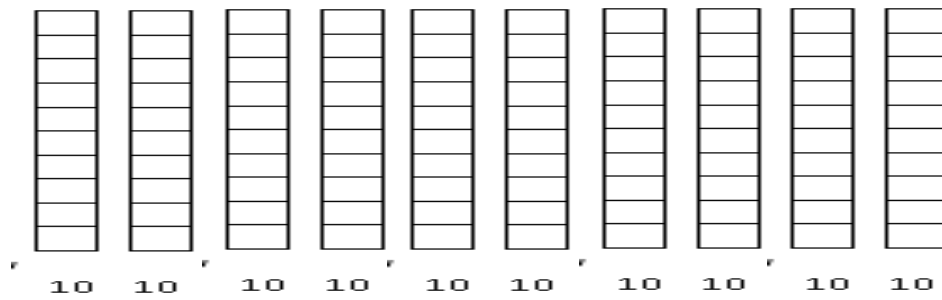


_____ Hundreds + _____ tens + _____ ones = _____

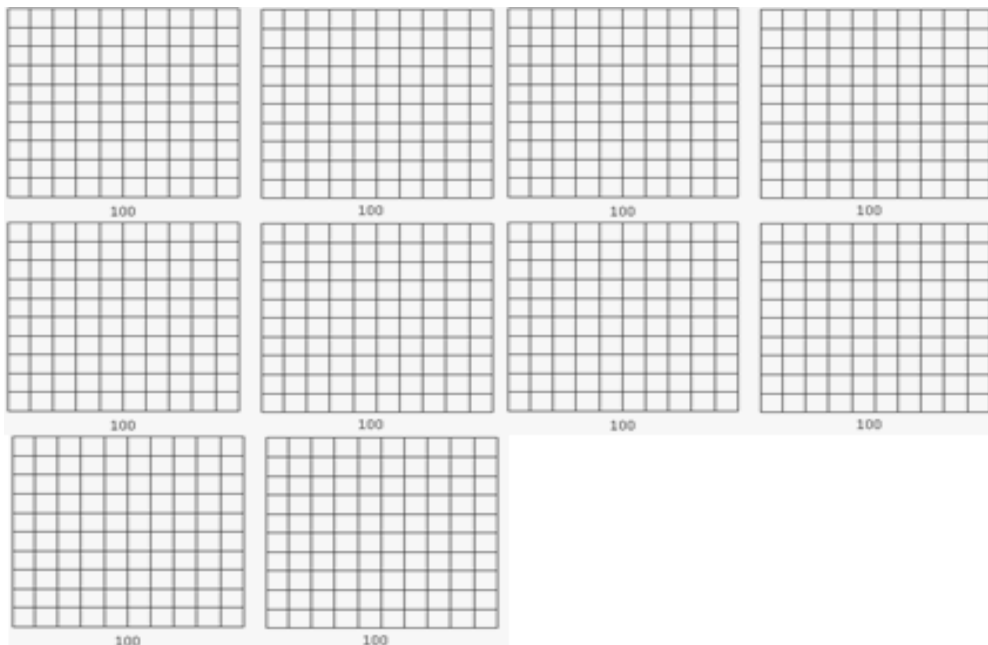
What did you do to get the number of hundreds, tens and ones from the given set of objects or things?

Show this illustration:

How many tens in 100?



How many hundreds in 1000?



4. Application

Let the pupils identify the number for each sets of objects.

Write the number of hundreds, tens and ones. Then, write the number on your paper.

Example:

$$589 = 5 \text{ hundreds} + 8 \text{ tens} + 9 \text{ ones}$$

1. $896 = \underline{\hspace{2cm}}$ hundreds + $\underline{\hspace{2cm}}$ tens + $\underline{\hspace{2cm}}$ ones
2. $465 = \underline{\hspace{2cm}}$ hundreds + $\underline{\hspace{2cm}}$ tens + $\underline{\hspace{2cm}}$ ones
3. $926 = \underline{\hspace{2cm}}$ hundreds + $\underline{\hspace{2cm}}$ tens + $\underline{\hspace{2cm}}$ ones
4. $168 = \underline{\hspace{2cm}}$ hundreds + $\underline{\hspace{2cm}}$ tens + $\underline{\hspace{2cm}}$ ones
5. $386 = \underline{\hspace{2cm}}$ hundreds + $\underline{\hspace{2cm}}$ tens + $\underline{\hspace{2cm}}$ ones

5. Generalization

How do you group objects?

How do you group tens and hundreds?

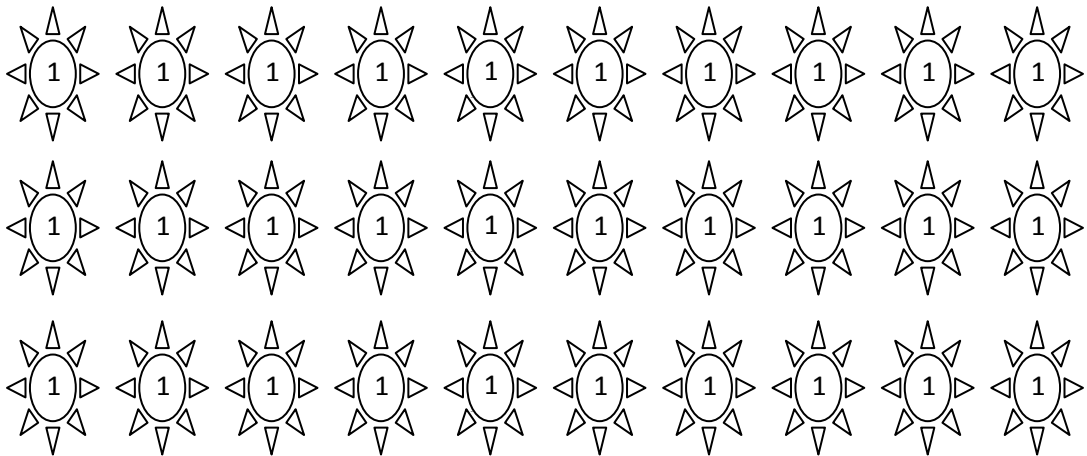
How many tens are in 100?

How many ones are in tens?

EVALUATION

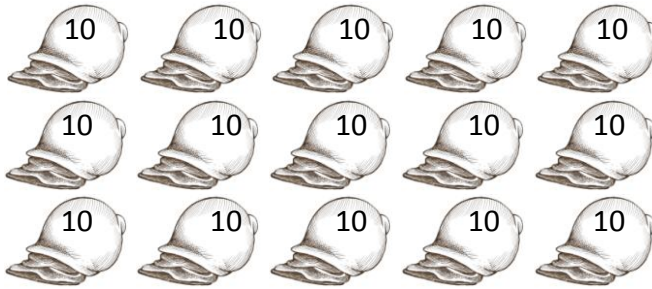
Write the letter of the correct answer.

1. How many tens are there in



- A. 10 B. 5 C. 3 D. 2

2. How many hundreds are there in



- A. 1 B. 2 C. 3 D. 4

3. Which is equal to 8 hundreds + 7 tens + 2 ones?

- A. 827 B. 872 C. 862 D. 802

4. Which is equal to 25 tens?

- A. 25 B. 205 C. 215 D. 250

5. How many hundreds are there in 896?

- A. 8 B. 9 C. 6 D. 4

HOME ACTIVITY

Refer to LM 5 – Gawaing Bahay

Teaching Guide for Mathematics Grade 2 Concept of Whole Numbers Lesson No. 6

TOPIC: Reading and writing Numbers

OBJECTIVE

Reads and writes numbers from 101 through 1000 in symbols and in words

PREREQUISITE CONCEPTS AND SKILLS

1. Counts and groups objects in ones, tens and hundreds
2. Associates numbers with sets having 501 up to 1000 objects and give the Number of objects.
3. Place Value of three-digit numbers
4. Intuitive Concepts of 101- 1 000
5. Reading and writing 1-100

MATERIALS

1. Number Cards
2. Show Me Board
3. Mystery Box of Knowledge
4. Numbers Chart

INSTRUCTIONAL PROCEDURE

A. Preparatory Activity

1. Drill

Strategy: Game- "Guess and Check"

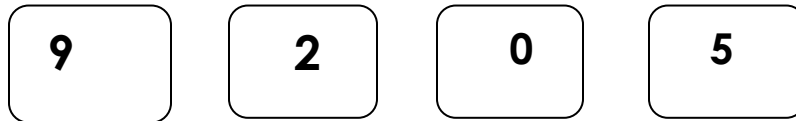
Mechanics:

Draw 5 number cards inside the Mystery Box of Knowledge

Post it on the board

Ask the pupils to use the numerals in the number cards to form three-digit numbers.

Examples of Number Cards:



Ask:

Form three-digit numbers as many as they can.

Let the pupils write their answers on the board.

Ask other pupils to arrange the numbers written on the board from least to greatest and vice-versa

3. Review

Give the place value of the following:

In 987; what is the place value of 8?

What is the value of 9 in 987?

What is the place value of 7 in 987?

What is the value of 7 in 987?

Fill in the table:

Number	Hundreds	Tens	Ones
1. 787			
2. 901			
3. 765			
4. 902			
5. 978			
6. 761			
7. 107			
8. 653			
9. 765			
10. 675		27	

How many digits are there in a number?
In what direction will you start looking for the ones place in a three-digit number?
Which place is in the middle?
What place is the first number from the left?

B. Developmental Activities

1. Motivation

Strategy: "Story Telling"

2012 COASTAL CLEAN UP

Every September we celebrate Coastal Clean-Up Month to conserve our beaches and to minimize global warming. In Odiongan North Central Elementary School (ONCES), there were 578 pupils who participated in the activity. While there were 892 pupils who participated in Odiongan South Central Elementary School (OSCES). After the Clean-Up, a forum was conducted by the Young Scientists Club of Romblon.

Why do we need to clean our beaches?

If you were the pupils of ONCES and OSCES, are you willing to join the coastal clean-up? Why?

What are the numbers found in the story?

Tell the pupils that numbers can be written either in words or in symbols.

2. Presentation

Ask the pupils to identify the numbers mentioned in the story. Using the counters (straws), let the pupils make bundles of the numbers identified and paired with the number cards.

Ask the pupils to write the number symbols in their Show Me Board.

Numbers can be written either in words or in symbols (figures). Ask the pupils why we need to write the numbers in words and not in symbols only.

Give illustrative examples of writing numbers in words and in symbols.

1. We read 892 in words as "Eight hundred ninety-two"

2. In symbols we read 572 and in words we read as "Five hundred seventy-two"

3. In figure seven hundred-twelve is = 712

4. In words, 497 is Four hundred ninety-seven

5. In words, 698 is Six hundred Ninety-eight.

3. Reinforcing Activity – Refer to LM 6 - Gawain 1 and 2

4. Application – Refer to LM No. 6 No. Gawain 3 and 4

5. Summary

How do you read and write numbers?

a. A number can be written in symbols and in words.

b. The first digit from the right is the ones, the second is tens and the third is the hundreds

c. Zero is used as placeholder.

d. Every digit has its own value according to its position in the number.

EVALUATION

1. Read the paragraph below. Then write all numbers included in the paragraph.

"Polit had nine hundred seventy-nine pages of a book to read. He reads two hundred sixty-seven pages on Monday and 79 pages on Tuesday. And he reads the remaining six hundred thirty-six last Friday"

Write the numbers in words:

Write the numbers in symbols or figures:

B. Write the correct number symbols of the following.

1. Nine hundred seven

2. Six hundred twenty-four
3. Six hundred eighty
4. Eight hundred eighty-nine
5. Seven hundred seventy-four

HOME ACTIVITY

Refer to the LM 6 – Gawaing Bahay

Teaching Guide for Mathematics Grade 2 Concept of Whole Numbers Lesson No. 7

TOPIC: Skip Counting by 10's

OBJECTIVE

Counts numbers by 10s, 50s, and 100s

PREREQUISITE CONCEPTS AND SKILLS

1. Counting
2. Reading and writing numbers
3. Intuitive concept of addition
4. Concept of skip counting
5. Counts by 2s, 5s, and 10s

MATERIAL

1. Counters (Popsicle sticks, straws, etc.),
2. Hundred chart Set of card with the 3- Digit numbers
3. Pictures

INSTRUCTIONAL PROCEDURE

A. Preparatory Activities

1. Drill: Skip count by 2s

Post a hundred chart on the board. Ask the pupils to count 1 to 100 using the number chart.

Skip count by 2 starts from 2 then encircle the next numbers up 100.

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
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

2. Review

Directions: Using their *Show Me* boards, tell the pupils to write down the missing numbers to complete the table. Ask them to show, one at a time, what they have written.

5			20		30
35				55	
65			80		
	100		115		
130		140			150

B. Developmental Activities

1. Motivation: Game – “Count Me In, Count Me Out”

Directions:

Divide the class in two groups

Group 1 (Pupils will skip count by 2s)

Group 2 (Pupils will skip count by 5s)

Let the pupils stand and form a straight line. Let them count by 1s.

Pupils whose number falls on the multiple of 2 or 5 will say “Count Me In”, “Count Me Out.” respectively. Failure to do so will exclude the pupil from the group.

2. Presentation

Posing the Task

Strategy: Learning Stations and Cooperative learning.

Group the class into three (3) groups and assigned them by Learning Stations. A group leader shall be identified by each group members.

Performing the Task-

Activity No. 1

Distribute a bundle of 100 pieces of Popsicle sticks to each group. Instruct the pupils to group the Popsicle sticks by 5s, 10s, and 50s. Let them write their answer on the table presented below.

	1	2	3	4	5
5					
10					
50					

Ask a leader or any of the members to report their output.

Then ask:

How many 5s are there in 100?

How many 10s are there in 100?

How many 50s are there in 100?

How did you find the activity?

Did every member of the group do his part?

What made your group finish the activity ahead of time?

3. Reinforcing Activity – Refer to LM 7 - Gawain 1-3

4. Application – Refer to LM No. 7- Gawain 4 and 5

5. Generalization

Let the pupils skip count by 10's from 10 through 100.

Ask: How many groups of 10 are there in 100

How many numbers are there in each group?

How do we skip count by 10?

What do you call the sequence or pattern of counting that we used?

What skip counting was used?

EVALUATION

Count by 10s, 50s and 100s. Write the missing number.

1. 70, 80 _____, 100, _____, _____, _____
2. _____ 150, 160, _____, _____, _____
3. _____ 800 _____ 1100
4. 65 , 115 _____, _____, _____, _____
5. 25, 75 _____, _____ 225, _____, _____

HOME ACTIVITY

Refer to LM 7 – Gawaing Bahay

Teaching Guide for Mathematics Grade 2 Concept of Whole Numbers Lesson No. 8

TOPIC: Reading and writing Numbers

OBJECTIVE

Reads and writes numbers from through 1000 in symbols and in words

PREREQUISITE CONCEPTS AND SKILLS

1. Counts and groups objects in ones, tens and hundreds
2. Associates numbers with sets having 501 up to 1000 objects and give the Number of objects.
3. Place Value of three-digit numbers
4. Intuitive Concepts of 101- 1 000
5. Reading and writing 1-100

MATERIALS

1. Number Cards
2. Show Me Board
3. Mystery Box of Knowledge
4. Numbers Chart

INSTRUCTIONAL PROCEDURE

A. Preparatory Activity

1. Drill

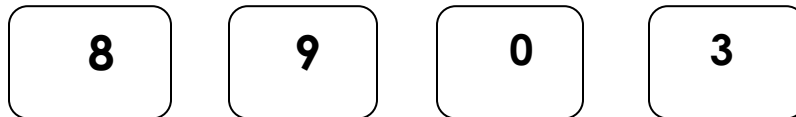
Strategy: Game- “Guess and Check”

Mechanics:

Divide the class into 5 working groups. Let any members of the group to draw 5 number cards inside the Mystery Box of Knowledge..

Ask the pupils to use the numerals in the number cards to form three-digit numbers as many as they can.

Examples of Number Cards:



Tell the pupils to write their answers on their Show Me Board.
Ask other pupils to arrange the numbers written on the board from least to greatest and vice-versa

2. Review

Give the place value of the following:

In 987; what is the place value of 8?

What is the value of 9 in 987?

What is the place value of 7 in 987?

What is the value of 7 in 987?

Fill in the table:

Number	Hundreds	Tens	Ones
1. 598			
2. 998			
3. 895			
4. 902			
5. 978			
6. 809			
7. 907			
8. 790			
9. 895			
10. 985			

How many digits are there in a number?

In what direction will you start looking for the ones place in a three-digit number?

Which place is in the middle?

What place is the first number from the left?

B. Developmental Activities

1. Motivation

Strategy: "Story Telling"

2012 COASTAL CLEAN UP

Every September we celebrate Coastal Clean-Up Month to conserve our beaches and to minimize global warming. In Odiongan North Central Elementary School (ONCS), there were 578 pupils who participated in the activity. While there were 892 pupils who participated in Odiongan South Central Elementary School (OSCES)

After the Clean-Up, a forum was conducted by the Young Scientists Club of Romblon.

Comprehension question:

Why do we need to clean our beaches?

If you were the pupils of ONCES and OSCES, are you willing to join the coastal clean-up? Why?

What are the numbers found in the story?

2. Presentation

Distribute copies of the activity card (2012 Coastal Clean Up)
Tell the pupils to underline all numbers mentioned in a story. Then
Ask them to fill-up the table presented below.

Numbers in symbols	Numbers in words

Tell the pupils to write the numbers in symbols into words and vice versa.

3. Reinforcing Activity – Refer to LM 8 Gawain 1 and 2

4. Application- Refer to LM- Gawain 3

5. Summary

- How do you read and write numbers?
- a. A number can be written in symbols and in words.
 - b. The first digit from the right is the ones, the second is tens and the third is the hundreds
 - c. Zero is used as placeholder.
 - d. Every digit has its own value according to its position in the number.

EVALUATION

Read the paragraph below. Then write all numbers included in the paragraph.

“Polit had nine hundred seventy-nine pages of a book to read. He reads two hundred sixty-seven pages on Monday and 79 pages on Tuesday. And he reads the remaining six hundred thirty-six last Friday”

Write the numbers in words:

Write the numbers in symbols or figures:

HOME ACTIVITY

Refer to the LM 8 – Gawaing Bahay

Teaching Guide for Mathematics Grade 2 Concept of Whole Numbers Lesson No. 9

TOPIC: Place Value of a 3- digit Numbers

OBJECTIVE

Give the place value of each digit in a 3- digit numbers

PREREQUISITE CONCEPTS AND SKILLS

Reads and writes numbers through 1000 in symbols and words

MATERIAL

1. Place value Chart
2. Activity card
3. Counters
4. Abacus
5. Number cards with 3-digit numbers
6. Drill or show cards for each pupil

INSTRUCTIONAL PROCEDURE

A. Preparatory activities:

1. Drill

Counting numbers by 10s, 50s and 100s

Give the next three numbers starting from 10, 20, _____, _____, _____, _____

What is the next three numbers starting from _____, 100, 150, _____

What is the next three numbers starting from 100 _____ 300, _____,

What is the next three numbers starting from 40, 50 _____ 70 _____, _____

2. Review

Reading and writing numerals in words and in symbols

Strategy: Game- “SHOW ME PARTNER”

Instructions:

Ask the pupils to count off.

Ask a pupil to draw one at the time the number cards inside the Mystery Box of Knowledge

Then, she/he will ask somebody by calling his/her number to answer the question printed in the number card.

Examples of number cards:

Card No. 1 -

What is 978 in words?

Card No.2 – What is “Five hundred twenty- seven in symbols?

Card No. 3 – What is 407 in words?

Card No. 4 – What is “Eight hundred five in symbols?

3. Pre-Assessment

Choose the letter of the correct answer.

1. What is the place value of 7 in 897?
a. Ones b. Tens c. Hundreds
2. In 946 what number is in the hundreds place?
a. 4 b. 6 c.. 9
3. What is the place value of 2 in 325?
a. Ones b. Tens d. Hundreds
4. In 946 what number is in the tens place?
a. 9 b.6 d. 4

Fill in the blanks.

1. 7 59 is a 3-digit number. It is made up of _____ hundreds _____tens and _____Ones
2. In 479, the digit 4 stands for _____
3. In 275, the digit _____ is in the tens place. The value of the digit is _____
4. In 456, the digit _____ is in the hundreds place. The value of the digit is _____

B. Developmental Activities

1. Motivation:

Post on the board this word problem.

“I am a four-digit number. My ones digit is 1. My tens digit is three digit larger than my ones digit. My hundreds and thousands digits are both larger than my ones digit. What number am I?

Ask the possible questions.

What does ones, tens, hundreds and thousands digit mean?

What is the correct answer?

Explain why and how the answer was achieved?

What are the other possible solutions?

2. Presentation

Divide the class into 5 small learning groups.

Distribute the Place Value pocket Chart and number cards.

Ask each group to place the numbers on the place value chart.

Example

What do 759 mean?

Hundreds	Tens	Ones
7	5	9

Ask:

Possible questions

1. What is the value of 7? How about the 5? and the 9?
2. In 759, is it possible that the numeral 9 will be placed in the hundreds place? Yes or no. Why? Explain your answer.

Explain: The digit 7 means 7 hundreds, or 700

The digit 5 means 5 tens or 50

The digit 9 means 9 ones or 9

- Point out that numbers may be written in different ways: In symbols, in words and in expanded form. Still the place value of each digit in the numeral is being considered.
- Give examples:
 1. $758 = 700 + 50 + 8$
 2. $985 = 900 + 80 + 5$
 3. $476 = 400 + 70 + 6$

3. Reinforcing Activities - Refer to the Learning Material Gawain 1-2

4. Application- Refer to LM- Gawain 3

5. Generalization

How many digits have the numbers we studied today?

What are the different place values in a 3-digit number?

What did we use to identify or give the place value of each digit easily?

EVALUATION

Supply the correct answer applying the place value

1. Sa 897, _____ ay nasa ones place
2. _____ ay nasa hundreds place
3. _____ ay nasa tens place
4. Ano ang place value ng 8 sa 284? _____

5. Sa 693 anong numero ang nasa thousands place? _____
6. Ilang tens ang mayron sa 760? _____
7. Ilang hundreds mayron sa 965? _____
8. May ilang tens mayron sa isang daan? _____
9. Sa 679, ang bilang na ___ ay nasa hundreds place. Ang kabuuang value halaga ay _____
10. Ang 498 ay isang 3-digit number. Ito ay binubuo ng _____ hundreds _____ tens at _____ Ones.

HOME ACTIVITY

Refer to the LM 9 – Gawaing Bahay

Teaching Guide for Mathematics Grade 2 Concept of Whole Numbers Lesson No. 10

TOPIC: Writing 3 digit numbers in expanded form

OBJECTIVE

Write three-digit numbers in expanded form

PREREQUISITES CONCEPTS AND SKILLS

1. Place Value of each digit in a three-digit number
2. Reading and writing numbers in words and in symbols

MATERIALS

- | | |
|----------------------|-----------------------------|
| 1. Place Value Chart | 3. Flashcards |
| 2. Show Me Board | 4. Mystery Box of Knowledge |

INSTRUCTIONAL PROCEDURE

A. Preparatory Activities

1. Drill - Game: RELAY

Mechanics:

Ask the pupils to position at the back part of the room.

Place all number cards inside the Mystery Box of Knowledge.

The teacher will draw one at a time the number cards. Then she/he will show it to the class.

Ask the pupils to raise their right hand as fast as they can, if they know the answer.

The pupil who got the correct answer will make step forward

The first pupil to reach the finish line wins the game.

Examples of Number Cards:

How many hundreds are there in 987? _____

How many tens are there in 507? _____
In 627= _____ hundreds, _____ tens, _____ ones
What is Five hundred sixty in symbols? _____
What is 819 in words? _____
How many ones are there in 379? _____
In 351 = _____ hundreds, _____ tens, _____ ones
What is Two hundred twenty nine in symbol? _____

2. Review

Give the place value of each given digit.

What is the place of 8 in 389? _____

In 895, what is the value of 8? _____

What is the value of 5 in 589? _____

What is place value of 2 in 629? _____

In 146, what digit has a value of 40? _____

What digit has a place value of hundreds in 569? _____

B. Developmental Activities

1. Motivation

Strategy: GUESS and CHECK

Present a mathematical problem in the form of a riddle. Post this on the board.

"I am a four-digit number. My hundreds digit is 8. My ones digit is six less than my hundreds digit. My other digits are both twice as large as my ones digit. What number am I?"

Ask: Underline the question asked in the problem?

Restate the question into answer statement form.

Solve the problem showing the complete solutions of the equation.

2. Presentation

Distribute a word problem written in the strip of manila paper.

Tell the pupils to underline the questions asked in the problem. Let them rewrite the problem into answer-statement form.

Distribute popsicle sticks. Tell the pupils to use the popsicle sticks to represent given in the problem.

Let the pupils solve the equation.

Other possible questions

1. What digit is in the hundreds place of a four-digit number in a Mathematical problem?

- How about in the ones place?
- What are the operations to be used to form an equation?
- What is the mathematical equation?
- What is the correct answer?
- Is your answer correct? Why? Explain your answer.

Post the Place Value Chart

Present an example

Say: The numeral 896 can be expressed in expanded form:

Thousands	Hundreds	Tens	Ones
	8	9	6

Elaborate that; 8 hundreds = 800
 9 tens = 90
 6 ones = 6

Numbers can be written in different ways. These can be done in words, symbols and expanded form.

Draw the pupils' attention to the place value chart.

Illustrate how 896 be expressed in expanded form:

The expanded form of 896 is $800 + 90 + 6$

Explain:

Number	Place Value	Value
896	Ones	6
	Tens	90
	Hundreds	800

Ask: How many hundreds, tens and ones are there in 896?

Give additional illustrative examples:

275 = _____ Hundreds _____ Tens _____ Ones

702 = _____ Hundreds _____ Tens _____ Ones

_____ Hundreds _____ Tens _____ Ones

3. Reinforcing Activity – Refer to LM 10 Gawain 1 and 2

Group the class into three small learning stations. Each group will be given an activity worksheet containing the activity and directions

4. Application –Refer to LM- Gawain 3 and 4

5. Generalization

How do you write numbers in expanded form?
Writing number in expanded form is expressing the number as the sum of the values of its digits. The expanded form gives the value of each in the number

EVALUATION

1. Using the digits 2, 8, 9, 4 and 6 only once, what is the greatest three-digit numbers can be formed? Then express it in expanded form. _____
2. Teacher Danny draws number cards: 2, 0, 9, 8 and 7. Using the digits only once, form the smallest three-digit numbers and express it in expanded form. _____
3. Write 708 in expanded form. _____
4. Express in expanded form: Three hundred fifteen” _____
5. What is 897 in expanded form? _____

HOME ACTIVITY

Refer to the LM 10 – Gawaing Bahay

Teaching Guide for Mathematics Grade 2 Concept of Whole Numbers Lesson No. 11

TOPIC: Comparing Numbers

OBJECTIVE

Compare numbers using $>$, $<$, and $=$

PREREQUISITE CONCEPTS AND SKILLS

1. Intuitive Concepts of 101- 1 000
2. Place Value of each digit in a three-digit number
3. Three-digit number in expanded form
4. Write numbers after, before and between the given numbers

MATERIAL

1. Number cards
2. Cut-outs
5. Counters
6. Flash Cards

- 3. Pocket chart
- 4. Show Me Board

7. Mystery Box of Knowledge

INSTRUCTIONAL PROCEDURE

A. Preparatory Activities

1. Drill

Oral: Reading 3-digit numbers					
348	159	895	987	679	987

2. Review

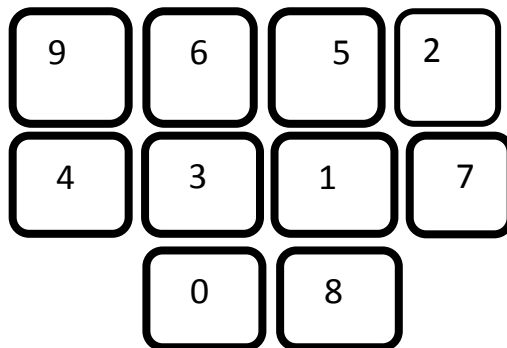
Strategy: Group Activity

Directions:

Divide the class into four small learning stations. One pupil will act as a leader.

Distribute the Mystery Box of Knowledge with number cards from 0-9
Explain that for every set of cards consists of three-digit numbers.
Pupils rearrange the cards in each set to form as many three-digit numbers as they can.

Group with more three-digit numbers formed, wins the game.



B. Developmental Activities

1. Motivation

Strategy: Story Telling

Post the story. Ask volunteer from the pupils to read the story.

Every morning Lolo Enting is in his vegetables garden. One morning his grandchildren come to visit him. Roger gives him 5 pieces of papaya, Arlette gives him 10 pieces of ripe mangoes and Rosemarie gives him 5 pieces of sweet banana. "Oh thank you very much, he said. Thank you my dear grandchildren. God bless you all.

Comprehension questions leading to the development of the concept:
 Who came to visit Lolo Enting?
 Who gave him 5 pieces of papaya?
 What did Arlette give him?
 How many ripe mangoes did Rosemarie give him?
 Do you also give something to your Lolo and Lola? Why? Or why not?
 Who gave him lesser fruits?
 Who gave him more fruits?
 Who gave him equal or the same number of fruits?
 Arrange the number from highest to lowest or vice versa.
 Ask how many hundreds, tens and ones are there in each set of numbers

2. Presentation

Present another set of word problem.

Tatay Jomar is a farmer. He harvested 780 mangoes while Tatay Junray harvested 890 mangoes. Who harvested more mangoes?

Processing:

Ask: Underline the question in the problem and rewrite the question in answer statement.

Who are the two farmers?

Who between the two farmers harvested more mangoes?

Compare the numbers.

How did you compare the number?

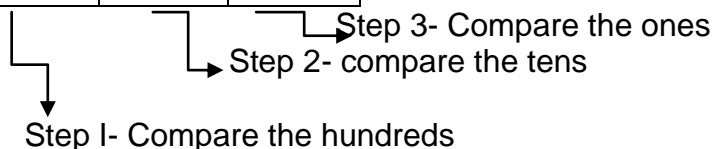
Arrange the number from highest to lowest or vice versa.

Ask how many hundreds, tens and ones are there in each set of numbers.

Let us represent the total number of mangoes harvested by Tatay Jomar and Tatay Junray in the Place Value Chart.

Then, compare the number using relation symbols such as $<$, $>$, and $=$.

Hundred	Tens	Ones
8	9	0
7	8	0



Let us compare the hundreds digits. Which numbers has more hundreds?

We say 800 is greater than 700 or 700 is less than 800

We write: $800 > 700$ or $700 < 800$

Say: Let us have another set of example.

Compare 356 and 346

H	T	O
3	5	6
3	4	6

What have you noticed about the digit in the hundreds place?

Say: Now let us compare the digit in the hundreds place:

Next, let us compare the digits in the tens place.

Which is bigger? (5 is bigger than 4)

Therefore: We write: $356 > 346$ or $346 < 356$.

We say: 356 is greater than 346 or 346 is less than 356.

3. Reinforcing Activity - Refer to the LM 11 Gawain 1-2

4. Application- Refer to LM- Gawain 3 and 4

5. Generalization

In comparing 3 digit numbers, compare the hundreds first then the tens and the ones. We use the symbol $>$, $<$, and $=$.
To show the relationship between numbers being compared, one of the following symbols is placed between them:
 $<$ means less than
 $>$ means greater than
 $=$ means equal to

EVALUATION

Compare the pair of numbers by writing $<$, $>$, and $=$

1. 150 ○ 145 2. 872 ○ 872 3. 785 ○ 678

Compare the numbers in column A from column B. Use the relation symbols $>$, $<$, and $=$.

Column A Column B

346	_____	450
450	_____	336
565	_____	656
765	_____	767

HOME ACTIVITY

Refer to the LM 11 – Gawaing Bahay

Teaching Guide for Mathematics Grade 2 Concept of Whole Numbers Lesson No. 12

TOPIC: Comparing and Ordering Numbers

OBJECTIVE

Orders numbers up to 1000 from least to greatest and vice versa.

PREREQUISITE CONCEPTS AND SKILLS

1. Compares numbers using $>$, $<$, and $=$
2. Skip-counting

MATERIALS

1. Number Cards
2. Show Me Board
3. Number line

INSTRUCTIONAL PROCEDURE

A. Preliminary Activities

1. Drill- Comparing Numbers using relation symbols

Contest: SINO ANG MATIBAY?

Mechanics:

Ask the pupils to stand and form two lines.

One line for the boys (Team 1) and another line for the girls (Team 2)

Two pupils will be called, one from each team.

The teacher will flash the number card and the contestants will answer the question as fast as they can.

The first one to answer the question correctly will take a seat.

The team with less number of members standing wins the game.

SAMPLE OF NUMBER CARDS:

900 _____ 890

567 _____ 678

599 _____ 590

975 _____ 895

2. Review

Comparing numbers using relation symbols $<$, $=$, $>$

1. 975 _____ 957 2. 490 _____ 490 3. 213 _____ 315

B. Developmental Activities

1. Motivation: "MY RULE IN LIFE"

Post on the board.

Ask: Children are you familiar with these patterns? Ask the pupils to tell something about it. Call at least 5 pupils. Then, ask them to complete the patterns.

- 20, 22, 24, 26, 28, 30, _____, _____, _____, _____, _____, _____
- 50, 55, 60, 65, 70, 75 _____, _____, _____, _____, _____
- 70, 80, 90, _____, _____, _____, _____, _____, _____
- _____, _____, _____, _____, _____, _____, 60, 58, 56, 54, 52, 50, 48
- 40, 45, 50, _____, _____, 65, 70, _____, _____, 85, 90, _____, _____

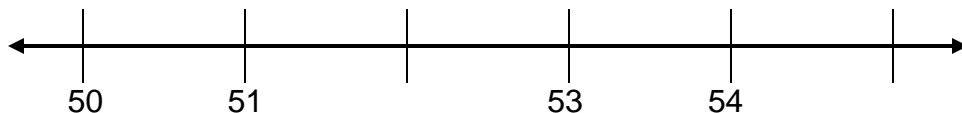
5. Presentation

Distribute the number cards. (See to it that all pupils have number cards). Then let them post the number cards on the board.

Then, post your prepared number line on the board. Ask the pupils something about the number line. Ask them to describe it.

Call 3 or 4 pupils to arrange the number cards in the number line.

The number line looks like this:



Processing:

What number comes after 51?

What number comes before 54?

What numbers are between 51 and 54?

Look at the numbers 50, 51, 53 and 54. What number is the least?

What number is the greatest?

Can you arrange the numbers from least to greatest? Or from greatest to least.

3. Reinforcing Activity - Refer to the LM 12 Gawain 1-3

Divide the class into three small learning stations. Each small learning station will be given an activity card.

Ask each group to write their answers on the manila paper and post it on the board. Assign a leader in each group and ask them to explain how they answered the activity.

4. Application – Refer to LM No 12 Gawain 3 and 4

5. Generalization

How do we arrange numbers from least to greatest or vice versa.

Numbers can be arranged from least to greatest or from greatest to least depending on their place value positions.

EVALUATION

Arrange the numbers from least to greatest.

- | | | | | |
|--------|-----|-----|-----|-------|
| 1. 897 | 675 | 995 | 453 | _____ |
| 2. 124 | 987 | 907 | 234 | _____ |
| 3. 481 | 745 | 999 | 761 | _____ |

Arrange the numbers from greatest to least.

- | | | | | |
|--------|-----|-----|-----|-------|
| 4. 987 | 456 | 340 | 675 | _____ |
| 5. 310 | 289 | 980 | 129 | _____ |
| 6. 567 | 321 | 896 | 459 | _____ |

HOME ACTIVITY

Refer to the LM 12 – Gawaing Bahay

TEACHING GUIDE FOR MATHEMATICS GRADE 2

Reading and Writing Numbers

Lesson 13

TOPIC: Ordinal numbers

OBJECTIVES:

Visualizes and identifies the 1st through the 20th object of a given set from a given point of reference.

PREREQUISITE CONCEPTS AND SKILLS

Orders numbers up to 1000 from least to greatest & vice versa

MATERIALS

1. Number cards, charts, pieces of rolled papers, activity sheets,

INSTRUCTIONAL PROCEDURES

Preparatory Activities

I. Drill

Game: "Do You Know Me"

Instructions

Divide the class into 3 small learning stations

Designate a leader to every learning station.

Place all number cards inside the Mystery Box of Knowledge

Draw one at a time the number cards. (As illustrated below)

Each group should have a representative to answer every question.

Ask pupils to identify the value of the underlined digit.

The group with more number of correct answers will be declared winner.



2. REVIEW

Directions: Order the numbers from greatest to least by supplying the missing numbers.

1. 459, 464, 469, _____, _____, _____, _____

2. 891, 892, 893, _____, _____, _____, _____

3. _____, _____, _____, _____, 597, 600, 603

4. 187, 191, _____, _____, 203, _____, _____, _____

5. 296, _____, 210, _____, 224, _____, _____, _____

DEVELOPMENT OF THE LESSON

1. Motivation

Strategy: **Story Telling- Playing Jumping Rope**

During recess time, the Grade II pupils of Looc Central School played Jumping Rope. Danny as a leader, he prepared a list of the 7 top scorers in the game written on a chart. e posted on the bulletin board. The results of the game are shown below.

Jumping Rope

Players	Points
Danny	986
Elen	974
Rogelio	803
Chris	872
Gloria	937
Shie	793
Men	832

Who got the highest score? _____

Who got the lowest score? _____

Arrange the names of pupils based on their scores from least to greatest and vice versa

2. Presentation

- Divide the class into five small working groups. Assign a group leader to each group. Distribute the different objects such as stones, shells, fruits, vegetables, plastic cups, seeds, and etc.
- Ask the groups to arrange the objects according to its sizes. Then ask them to count and identify their position from 1 to 20.
- Ask the following questions:
 - What is the first object? Then write on the board the correct way of writing ordinal number.
 - What is the number three object? Then illustrate how to write three in an ordinal number.
 - What is the number 20 object? Again write 20 expressed in an ordinal number.
 - What is the number 10 object? Illustrate how to write 10 in an ordinal number.
 - Then ask the pupils to give patterns on how to write ordinal numbers in symbols.
- Then post on the board the chart. Ask the pupils to fill-up the column of ordinal numbers in symbols and in words.

The Mathematics Coordinator of Romblon West Central School administered the qualifying test to the Special mathematics Class. The next day, she published the top ten scorers on the bulletin board.

CONGRATULATIONS TO TOP SCORERS
MATHEMATICS WIZARDS OF RWCS

Number in figure	Pupils	Score	Ordinal Number in symbols	Ordinal Number in word
1	Danny	98		
2	Shirley	97		
3	Men	96		
4	Gloria	95		
5	Larry	94		
6	Edith	93		
7	Mila	92		
8	Poring	91		
9	Rogelio	90		
10	Cris	89		

Reinforcing activities

Refer to the LM 13- Gawain 1 and 2

Group the class into 3 learning stations. Each group will be given an activity worksheet containing the activity and the directions of what to do.

Ask each group to write their answers on the manila paper. Make them explain how they answered the activity.

3. Application

Refer to LM 13-Gawain 3 and 4

5. Generalization

What is ordinal Number?

Ordinal Number tells the position of objects or persons arranged in order.

Words	Symbols
First	1st
Second	2nd
Third	3rd
Fourth	4th
Fifth	5th
Sixth	6th
seventh	7th
Eighth	8th
Ninth	9th
Tenth	10th
Eleventh	11th
Twelfth	12th
Thirteenth	13th
Fourteenth	14th
Fifteenth	15th
Sixteenth	16th
Seventeenth	17th
Eighteenth	18th
Nineteenth	19th
Twentieth	20th

EVALUATION



Write the ordinal number of the following toys. Count from left to right.

1. How many toys are there in all? _____
2. The car is in what position from the right? _____
3. What toy is in the 9th position from the left? _____
4. What is the position of the ball? _____
5. What is the position of the guitar? _____

HOME ACTIVITY

Refer to the LM 13 – Gawaing Bahay

Teaching Guide for Mathematics Grade 2
Concept of Whole Numbers
Lesson No. 14

TOPIC: Ordinal Numbers

OBJECTIVE

Reads and writes ordinal numbers from 1st through 20th.

PREREQUISITE CONCEPTS AND SKILLS

1. Visualizes and identifies the 1st through 20th object of a given set from a given point of reference
2. Intuitive concepts of order
3. Ordinal Numbers from 1st up to 10th
4. Place Value

MATERIALS

- | | |
|---------------------------------------|-----------------------------|
| 1. Number Cards | 4. Mystery Box of Knowledge |
| 2. manila paper | 5. calendar |
| 3. charts, activity sheets/worksheets | 6. List of Pupils |

INSTRUCTIONAL PROCEDURE

A. Preparatory Activities

1. Drill

Identify the place value of the given digit.

567	978	451	761
------------	------------	------------	------------

Questions:

In 567, what is the place value of 6? _____

In card number 2, what is the value of 9? _____

In 978, what is the place value of 8? _____

In card number 3, what is the value of 5? _____

What is the place value of 1, in card number 3? _____

In card number 4, what is the place value of 7? _____

2. Review

Post on the board the sentence in the box below.

Read the sentence in the box and then ask questions.

I LOVE MATHEMATICS VERY MUCH

What is the fifth letter?

What is the tenth letter?

In the word MATHEMATICS, what is the second letter? The 9th, sixth?
2nd?, 5th?

What is the position of the third letter e?

What is the position of first letter m?

What is the position of letter c?

3. Pre-assessment

Present the list of Honor Pupils in Grade II for the First Grading. The list must be written in Manila Paper and be posted on the board.

Welcome and Congratulations to the Cream of the class

- | | |
|---------------------------|----------------------|
| 1. Danny Padilla | |
| 2. Rogelio B. Candido Jr. | 7. Arlena de la Vega |
| 3. Shirly F. Ferrera | 8. Dals Lim |
| 4. Herminio Catud | 9. Rogelio Falcutila |
| 5. Edith Macaya-on | 10. Robert Aquino |
| 6. Larry Samala | |

Questions:

How many pupils are there in the Cream of the Class? _____

How many are boys? _____

How many are girls? _____

Who was the first pupil on the list? _____

Who was the second on the list? _____

Who was the tenth place on the list? _____

How many boys are included in the Cream of the Class? _____

How many girls are included in the Cream of the Class? _____

B. Developmental Activities

1. Motivation

Strategy- Recognition Day

Instructions:

Have the pupils get the rolled paper in the Mystery Box of Knowledge to know who will be included in the top 20th. Let them stand before the class and pin the ribbon (Ordinal Number) on their left chest. Assign other pupils to serve as parents.

Then ask some questions:

Why do some pupils get honors?

How do they study?

Are you diligent pupils? Why do you have to be diligent with your studies?

2. Presentation

Divide the class into 5 working groups. Distribute the pocket charts and 20 cut-outs of objects. Be sure all groups have complete materials.

Ask the pupils to put the cut-outs in the pocket chart. Then, ask them to put numbers on the object.

Using cartolina strips, ask the pupils to write the ordinal numbers in symbols and words. Instruct them to place it opposite the number of the object.

Processing questions

What do you observe about what are written before the names of pupils?

What do you observe about what are written next to the names of pupils? In the third column?

Ask the pupils to continue writing the ordinal numbers in symbols and in word to complete the chart.

Sample of Pocket Chart

Name of object	Number symbols	Ordinal Number in symbols
Cup	1	1st
Hat	2	2nd
Book	3	3rd
Ballpen	4	4th

Ask: What do you observe in the chart particularly on column 2 and 3?

Say: After the names of the thing/object are number symbols and in the next column are ordinal numbers in symbol such as 1st, 2nd, 3rd, 4th, 5th, 6th and so on. These numbers are the symbols that tell the order of persons, objects or things that are arranged.

The numbers that tell the order of persons/objects/things are called ordinal numbers.

3. Reinforcing Activity - Refer to the Learning Material
Gawain 1 -3

4. Application
Refer to LM- Gawain 4 at 5

Post the calendar like the one presented below. Then ask the pupils to answer the following questions

5. Generalization

Ordinal numbers tell the position of objects/things or people in a definite order.
 To write ordinal numbers in words, write the counting numbers and the last two letters of the word form of the ordinal number.
 Except the following:

One- first	Eight - eighth
Two – second	Nine - ninth
Three – third	Twelve -Twelfth
Five – fifth	Twenty – Twentieth

To write ordinal numbers in figures, write the number and affix the last two letters of the written word.

First – 1st Second 2nd Third 3rd Fourth 4th

EVALUATION

Supply the missing ordinal numbers.

1

1st			4th
	6th		
9th		12th	
	15th		
		20th	

2. Write the following ordinal numbers in words.

1. First _____
2. Fourth _____
3. Fifth _____
4. Twentieth _____
5. Nineteenth _____

HOME ACTIVITY

Please refer to the LM 14 – Gawaing Bahay

TEACHING GUIDE IN MATHEMATICS GRADE 2
Reading and Writing Numbers
Lesson No. 15

TOPIC: Patterns of Naming Ordinal Numbers

OBJECTIVES

1. Identifies and uses the pattern of naming ordinal numbers from 1st to the 20th.

PREREQUISITE CONCEPTS AND SKILLS

1. Reads and writes ordinal numbers from 1st through the 20th
2. Visualizes and identifies the 1st through the 20th object of a given set from a given point of reference.

MATERIALS

1. Number Cards
2. Pocket chart
3. Show Me Board
4. Mystery Box of Knowledge

INSTRUCTIONAL PROCEDURES

A. Preparatory Activities

1. DRILL

Game- **“SHOW ME”**

Direction:

Divide the class into 3 small learning stations.

Designate a leader to every learning station.

Each group should have a representative to answer every question.

Place all number cards inside the Mystery Box of Knowledge.

Draw number cards one at a time.

Ask the pupils to identify the correct ordinal number written in the number card.

Let them write their answer on the Show Me Board.

The group with more number of correct answers will be declared winner

2. REVIEW- Tell the position of a given set of objects
Present this illustration.

A	B	C	D	E	F	G	H	I	J
Fir st	Secon d	Thir d	Fourt h	Fift h	Sixt h	Sevent h	Eight h	Nint h	Tent h
1st	2 nd	3rd	4th	5 th	6th	7th	8th	9th	10th

What is the 4th letter in the chart?

What is the 2nd letter in the chart?

What is the tenth letter in the chart?
 What is the seventh letter in the chart?

3. Pre-assessment
 Supply the missing ordinal numbers.

1 st				5th			8th		
	12th				16th			19th	

DEVELOPMENTAL ACTIVITIES

1. Motivation

Story Telling- Bicycle Race

Ask: Do you have any experience to ride on a bike?
 How do you feel it?

Last summer vacation, the Barangay Agnipa had a bicycle race to celebrate their barangay fiesta. There were 120 cyclists who joined the contest. The fiesta coordinator ranked the following cyclists:
 (The teacher will post the manila paper where the list of winners was written.)

Ask: Who wants to join the race next fiesta?
 Why do you want to join?
 What benefit can you get from joining this kind of contest?

2. Presentation

Divide the class into 5 small working groups. (Groupings depend on the number of pupils in a group.)
 Distribute the different geometric figures. Be sure all groups have the same number, kind and size of geometric figures.

Then post on the board the chart of geometric patterns.
 Ask the pupils to complete the patterns. They can use the concrete geometric figures to visualize completing the patterns.



Ask the pupils to complete the pattern and let them explain their answer.

Then- post on the board the picture story and the result of the contest in the motivation phase.

Results of the contest

Name of the Cyclist	Rank
1. Danny	1 st
2. Jomar	2 nd
3. Cris	3 rd
4. Wellie	4 th
5. Jonathan	5 th
6. Rogelio	6 th
7. Carlos	7 th
8. Melchor	8 th
9. Noel	9 th
10. Dodoy	10 th
11. Robert	11 st
12. Mhen	12 nd
13. Larry	13 rd
14. Reagan	14 th
15. Salcing	15 th
16. Roger	16 th
17. Albert	17 th
18. Polit	18 th
19. Dino	19 th
20. Joseph	20 th

Ask:

What is Reagan's rank?

What letters do you see after 1 and 11?

What letters do you see after 2 and 12?

What letters do you see after 3, and 13th

What letters do you see after the other numbers?

Is there any pattern/s in naming the ordinal numbers?

3. Reinforcing activities

Refer to the LM 15, Gawain 1-2

Divide the class into 2 small learning stations. Give each group a copy of the worksheet of activity to do. Assign a leader who will report the answer of the activity assigned to their group.

4. Application – Refer to LM- Gawain 3-4

Answer the following questions:

1. Danny is fifty-third. Jomar is fifty-fifth. Name the position of the person between them.

2. There are 120 cyclists. Jun is next to last. Name the position of the person in front of Jun.

5. Generalization

How do you use the pattern of naming ordinal numbers beyond 20? The numbers beyond 20 are written with the name of the tens followed by first, second, third, ninth and etc.

EVALUATION

From the given quotation as “The” as the point of reference, give the word corresponding to the given position.

THE ABILITY TO FOCUS ATTENTION ON IMPORTANT THINGS IS THE DEFINING CHARACTERISTIC OF INTELLIGENCE

-Robert Schiller-

5th _____

14th _____

11th _____

6th _____

4th _____

12th _____

4th _____

8th _____

10th _____

9th _____

HOME ACTIVITY

Refer to the LM 15 – Gawaing Bahay

Teaching Guide for Mathematics Grade 2
Addition and Problem Solving
Lesson 16

TITLE: ADDING NUMBERS WITHOUT REGROUPING

OBJECTIVE:

To add 3-digit by 2-digit numbers with sums up to 1000 without regrouping

PREREQUISITE CONCEPTS AND SKILLS

1. Concept of Addition,
2. Adding 2-3 digit numbers without regrouping,
3. Place Value
4. Intuitive knowledge of adding 2-3 digit numbers add first the ones, the tens and the hundreds.,
5. Intuitive knowledge of knowing the parts of an addition sentence, the addends, plus sign, equal sign and the sum

MATERIALS

- | | |
|------------------|------------------|
| 1. Real Objects | 4. Window Cards |
| 2. Cut-outs, | 5. Show Me Board |
| 3. Number cards, | |

INSTRUCTIONAL PROCEDURES:

A. Preparatory Activities (Presenting the Lesson)

1. DRILL - Basic Addition Facts using the Window cards A₁.

Examples:

1. $8 + 8 =$ _____ 2. $9 + 7 =$ _____ 3. $8 + 7 =$ _____

4. $7 + 7 =$ _____ 5. $6 + 5 =$ _____ 6. $3 + 9 =$ _____

7. $6 + 8 =$ _____ 8. $8 + 4 =$ _____ 9. $4 + 7 =$ _____

10. $4 + 9 =$ _____ 11. $6 + 4 =$ _____ 12. $7 + 6 =$ _____

2. REVIEW

STRATEGY: PUZZLE GAME- "THE MAGIC OF ADDITION SQUARE"

INSTRUCTIONS:

Group the class into four small learning groups.
Instruct each group to position in their respective learning station.

Post the activity sheets to each learning station.

Explain to each group that they need to go through the four learning stations to complete the activity.

Each group is only given 35 seconds to do the activity.

Learning Station 1

Worksheet No. 1

Directions: Add each row and each column. Find the missing numbers.

10	5	
8	3	

Learning Station 2

Worksheet 2

Directions: Add each row and each column. Find the missing numbers

14	2	
5	2	

Learning Station 3

Worksheet 3

Directions: Add each row and each column. Find the missing numbers.

13	12	
6	7	

Learning Station 4

Worksheet 4

Directions: Add each row and each column. Find the missing numbers.

18	11	
10	7	

3. Pre-assessment

Find the answer.

- 172 more than 25 is what number? _____
- 250 increased by the sum of 2 and 3 is equal to _____
- Combine 145 and 34. _____

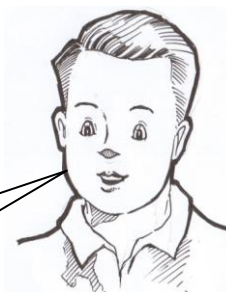
Arrange the numbers in column. Find the sum using the short form.

- $213 + 54 =$ _____
- $213 + 76 =$ _____
- $417 + 61 =$ _____

DEVELOPMENTAL ACTIVITIES

- MOTIVATION: Story Problem**
Posing a Task

This is Mark. He collected 23 4 empty bottles on Saturday and 23 on Sunday. Can you tell the number of bottles he collected for two days?



Ask the following questions:

1. Who collected empty bottles
2. What did Mark collect?
3. When did he collect empty bottles?
4. How many empty bottles did Mark collect on Saturday?
5. How many empty bottles did he collect on Sunday?
6. Can you tell the total number of empty bottles Mark collected for two days?

2. Presentation of the lesson

PERFORMING THE TASK

Present cut-outs of bottles.

Let the pupil's show the number of empty bottles Mark collected on Saturday and on Sunday.

Present that each big bottle is represented by 100 bottles and each small bottle is represented by 10

Then, let the pupils write the numbers on the board.

Present to the class the place value chart.

Example 1-Short Method of adding numbers

	Hundreds	Tens	Ones
234	2	3	4
23		2	3
257	2	5	7

PROCESSING THE SOLUTIONS AND ANSWER

Ask: What will you do to find the total number of bottles which Mark had collected?

Ask: In 234 what is the value of 4?

What is the value of 3?

What is the value of 2?

In 257 what is the value of 7?

What is the value of 5?

What is the value of 2?

What are the numbers in the tens place?

What are the numbers in the hundreds place?

Example 2- Using Expanded Form Method

$$\begin{array}{r} 235 = 200 + 30 + 5 \\ + 43 = \quad \quad 40 + 3 \\ \hline 278 = 200 + 70 + 8 \\ \quad \quad 278 \end{array}$$

Example 3- Problem Solving

Pamela has 317 Philippine stamps. Her brother Robert has 82 pieces of stamps from the United States of America. How many stamps do they have altogether?

The teacher will ask the pupils the following:

- Let the pupils underline the question asked in the problem.
- Let them rewrite the question in answer statement
- Ask the pupils to show their complete solution in solving the problem.
- Then, ask them also to explain their answer as well as the processes used to find the correct answer.

The teacher may give additional practice exercises. Present samples of addition combinations in vertical and in horizontal forms.

Additional exercises. Use short method and Expanded Form

1. $333 + 46 = \underline{\hspace{2cm}}$

2. $465 + 14 = \underline{\hspace{2cm}}$

3. $146 + 23 = \underline{\hspace{2cm}}$

4.
$$\begin{array}{r} 673 \\ + 26 \\ \hline \end{array}$$

5.
$$\begin{array}{r} 437 \\ + 62 \\ \hline \end{array}$$

3. REINFORCING ACTIVITIES
Refer to the LM 16 Gawain 1-2
4. APPLICATION
Refer to LM 16- Gawain 3-4
5. GENERALIZATION

Ask: How do you add 2-3 digit numbers without regrouping?

We add first the ones, tens and hundreds. We can add numbers using expanded form or short method.

EVALUATION

Find the sum. Use expanded form and short method.

1. $527 + 60 = \underline{\hspace{2cm}}$

2. $429 + 70 = \underline{\hspace{2cm}}$

3.
$$\begin{array}{r} 312 \\ + 67 \\ \hline \end{array}$$

4. What is the sum of 342 and 56? $\underline{\hspace{2cm}}$

5. 231 more than 65 is what number? $\underline{\hspace{2cm}}$

6.
$$\begin{array}{r} 121 \\ + 78 \\ \hline \end{array}$$

7. What is 56 added to 33? $\underline{\hspace{2cm}}$

8. Add 567 and 20. $\underline{\hspace{2cm}}$

9. $365 + 34 = \underline{\hspace{2cm}}$

10. Combine: 564 and 24. $\underline{\hspace{2cm}}$

HOME ACTIVITY

Refer to the LM 16 – Gawaing Bahay

Teaching Guide for Mathematics Grade 2
Addition
Lesson 17

TOPIC: Adding Numbers with Regrouping

OBJECTIVE

To add numbers with sums up to 1000 with regrouping

PREREQUISITE CONCEPTS AND SKILLS

1. Concept of Addition
2. Place Value,
3. Adding 2-3 digit with regrouping,
4. Intuitive knowledge of adding 2-3 digit numbers add first, the ones, the tens and the hundreds
5. Intuitive knowledge of knowing the parts of an addition sentence, the addends, plus sign, equal sign and the sum

MATERIALS

1. Real Objects
2. Cut-outs,
3. Show Me Board
4. Number cards

INSTRUCTIONAL PROCEDURES

A. Preparatory Activity (Presenting the lesson)

1. Drill - Number Factory

Tell the pupils to think of other combinations with the sum of 25

Example: $25 = 12 + 13$;

$10 + 15$;

$11 + 14$; so on and so forth.

Tell the pupils to write on their Show Me Board their answer.

1. 30
2. 36
3. 48
4. 25
5. 16

2. Review - Game: Riding the Carousel

Divide the class into four learning stations. Choose a leader for each learning station.

Toss a coin to determine the first learning station member to play first. The first player will pick two cutouts of horses hanging from the carousel and will solve mentally the number combinations at the back. (2 to 3 digits without regrouping)

The group answers the combination incorrectly will return the horse in the carousel.

The group with the most number of horses wins.

$245 + 10$

$90 + 15$

$176 + 13$

$562 + 224$

3. Pre-assessment

Add the following.

1. $156 + 78 =$ _____
2. $678 + 46 =$ _____
3. $876 + 98 =$ _____
4. $657 + 76 =$ _____
5. What is the sum of 762 and 89? _____
6. Combine: $896 + 54 =$ _____
7. What is the sum of 785 and 35 _____
8. If 79 is added to 875, the sum is equal to _____
9. $278 + 89$ _____
10. $799 + 67$ _____

B. Developmental Activities

1. Motivation

Present a poster about "Save the Mother Earth Movement"

Ask: What can you do to help save the earth?

The teacher will post the comics strip. Say: let us read the dialogue on how to save the earth.



2. Presentation

Posing a Task

- Divide the class into 5 working groups.
- Distribute the counters (Popsicle sticks)
- Post the story problem.
- Then, call a pupil to read the problem
- Tell the pupils to use the counters to represent the given in the problem.
- Ask the pupils to underline the question in the problem
- Then, let them rewrite/restate the problem
- Ask them to solve the problem and
- Tell them show the complete solution of the problem.

**Peter and Paul went to the backyard.
 They picked mangoes.
 Peter picked 137 mangoes.
 Paul picked 126 mangoes.
 They put the mangoes in the basket.
 How many mangoes were there in the basket?**

Processing

Ask the following questions:

Who went to the backyard?

What did they do in the backyard?

How many mangoes did Peter pick?

How many mangoes did Paul pick?

Where did they put the mangoes?

How many mangoes were in the basket?

Performing the Task

Solution 1”Act it Out.”

Call two boys to act as Peter and Paul. They act out the situation. Count the mangoes and put them in the basket. Peter and Paul say: There are 263 mangoes in all.

Ask: What did the two boys do to find the total number of mangoes?

Solution 2.The teacher may present the place value chart

Ask the pupils to write the number in the correct place value.

Say: There is another way to add numbers.

First add the ones, tens and hundreds.

Look at this example.

A.	$\begin{array}{r} 137 \\ 26 \\ \hline 163 \end{array}$	<p>SOLUTIONS:</p> <p>Step 1 - Add the ones (7 and 6) $7 + 6 = 13$ (1 tens and 3 ones)</p> <p>Step 2 – Add the tens (3 and 2) $3 + 2 + 1 = 5$</p> <p>Step 3 – Bring down the hundreds place</p>
----	--	---

B. Expanded Form Method

$$\begin{array}{r} 137 = 100 + 30 + 7 \\ + 26 = \quad + 20 + 6 \\ \hline 163 = 100 + 50 + 13 \text{ (Regroup the ones place)} \\ \quad \quad \quad \quad \quad \quad (10 + 3) \\ = \quad + 10 + 3 \\ \hline 100 + 60 + 3 = 163 \end{array}$$

Solution 3- Use the counters in finding the total number of mangoes picked together by the two boys.

3. Reinforcing Activity - Refer to the LM- Gawain 1 and 2
4. Application- Refer to the LM- Gawain 3
5. Generalization

To add 3-2 digit numbers with regrouping:

Write the numbers in vertical column
Add the numbers in the ones place.
Regroup the sum of tens and ones.
Then add all the numbers in the tens place.
Add the numbers in the hundreds place.

EVALUATION

Add the following:

1. $456 + 678 =$ _____
2. $789 + 23 =$ _____
3. $324 + 34 =$ _____
4. $789 + 121 =$ _____
5. $547 + 89 =$ _____
6. What is 98 more than 378? _____
7. If you add 456 and 365, the sum is equal to? _____
8. What is 789 increased by 128? _____
9. What is the total of 498 and 357? _____
10. If the addends are 456 and 45, what is the answer? _____

HOME ACTIVITY

Refer to the LM 17 – Gawaing Bahay

Teaching Guide for Mathematics Grade 2
Addition and Problem Solving
Lesson 18

TOPIC: Adding Numbers Without and With Regrouping

OBJECTIVE

To add 3- digit by 3- digit numbers with sums up to 1000 without and with regrouping.

PREREQUISITE CONCEPTS AND SKILLS

1. Concept of Addition
2. Place Value
3. Adding numbers with the sum of 1000 without and with regrouping

MATERIAL

1. Real Objects
2. Cut-outs
3. Number cards
4. Pocket Chart
5. Show Me Board

INSTRUCTIONAL PROCEDURES

A. Preparatory Activities

1. Drill: Game-“Tell Me My Sum”

Material: Number Cards with addition facts printed

Divide the class into 5 learning groups.

Instruct each group to position on their own learning station

Each group shall designate a leader.

Call one member in each group to come in front.

The teacher flashes the number cards. The first one to give the correct answer makes one step forward.

Call another set of pupils and do the same. Continue the game until all pupils have had a turn.

The first group reaches the finish line, wins the game.

Example of Number cards

$340 + 24$	$150 + 49$	$750 + 45$	$235 + 63$
------------	------------	------------	------------

2. Review

Adding 2-3 digit numbers without and with regrouping

Prepare number cards with 2 to 3 digit numbers

Put a pocket chart on the board. Have the pupils ready their Show Me Board.

The teacher will flash the card, and the pupils will give two addition facts with the sum equal to the number printed in the card flashed by the teacher.

Example:

	450	$225 + 225 = 450$	
		$350 + 100 = 450$	
		$250 + 200 = 450$	
430	500	640	350

B. Developmental Activities

1. Motivation

When do you celebrate your birthday?

Present the situation.

It was a fine morning of January 2. Josie celebrated her birthday. Mother and Father prepared foods for the visitors. There were many visitors attended the party. There were 123 boys and 257 girls. How many visitors attended the birthday party?

Ask the following questions:

When was Josie's birthday?

Who prepared foods for the party?

How many boys attended the party?

How many girls attended the party?

Do you think the visitors enjoyed the party?

Can you tell the total number of visitors attended the party?

How will you get the total number of visitors?

2. Presentation (Performing the Task.)

Say: We learned about adding 2-3 digit numbers without and with regrouping.

Present this to the class.

Josie's Birthday
↓
Visitors

Boys	Girls
123	257

Say: These were the number of visitors who attended the party. Can you give the total number of visitors who attended the birthday party? Ask anybody to volunteer to solve the problem on the board.

$$\begin{array}{r} 1 \\ 123 \\ +257 \\ \hline 380 \end{array}$$

So, there were 380 visitors who attended the party.

Processing the solutions and answers

Ask the following questions:

- To underline the question asked in the problem?
- To restate the problem
- Solve the problem showing the complete solutions

How many digit numbers are given?

What did you do first?

After writing the numbers what was next?

Did you regroup?) Why?

After adding the ones, what is the next step?

What is the last step?

Present another illustrative example:

During the Teachers Day celebration, the Romblon West Central School ordered 568 yellow t-shirts and 459 blue t-shirts. How many t-shirts were ordered in all?

$$\begin{array}{r} 1 \\ 568 \\ +459 \\ \hline \end{array}$$

STEP 1- Add the digits in the ones place (8 and 8 + 9 = 17; regroup (1 tens and 7 ones)

STEP 2- Add the digits in the tens place (6 and 5) and the One ten being regrouped in ones place. (6 + 5 + 1)

$$\begin{array}{r} 11 \\ 568 \\ +459 \\ \hline 1027 \end{array}$$

STEP 3 - Add the digits in the hundreds place (5 and 4) and then the one ten being regrouped in the tens place (6 + 5 + 1)

The total number of t-shirts ordered is 1 027 in all

3. Reinforcing Activity - Refer to LM 18 Gawain 1

4. Application- Refer to LM 18- Gawain 2

5. Generalization

What have you noticed about the given numbers?

What can you say?

To solve 3 digit and 3 digit numbers without and with regrouping what are the things to be remembered?

EVALUATION

Find the sum:

1. What is the sum of 357 and 258? _____
2. If 256 is added to 278, the sum is equal to _____
3. $762 + 125 =$ _____
4. Combine: 365 and 289 is equal to _____
5. What is the sum of 278 and 128? _____
6. $235 + 543 =$ _____
7. Add: $765 + 123 =$ _____
8. $562 + 142 =$ _____
9. Find the sum of 861 and 109? _____
10. If 167 is added to 276, the sum is equal to _____

HOME ACTIVITY

Refer to the LM 18 – Gawaing Bahay

Teaching Guide for Mathematics Grade 2 Addition Lesson 19

TOPIC: Zero/Identity Property of Addition

OBJECTIVE

To use the zero/identity property of addition in computing for sums up to 1000

PREREQUISITE CONCEPTS AND SKILLS

1. Concept of Addition
2. Intuitive knowledge that when zero is added to any number the sum is the number

MATERIALS

1. Real Objects
2. Cut outs
3. Number cards
4. Calendar

INSTRUCTIONAL PROCEDURE

A. Preparatory Activities

1. Drill

Basic Addition Facts (Addition of 1 to 2 digit Numbers)

Strategy: "It's My Birthday Today"

Material: Calendar

November

SUN	MON	TUE	WED	THUR	FRI	SAT
						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						

Instructions: (This shall be done as a contest)

Display the calendar (Big calendar if possible)

Divide the class into 4 small learning groups

Assign a leader to each small learning group

Call a member of each group to answer the addition combinations

Example: $25 + 12 =$

The pupils will add the dates mentioned by the teacher

The small learning group which earned more points wins the game

2. Review - Commutative Property of Addition

The teacher will flash the cards and the pupils will write their answer on

Show Me Board.

Examples:

$$1. 8 + 4 = \text{☹️} + 8$$

$$2. 12 + \text{😊} = 10 + 12$$

$$3. 15 + 4 = \text{😊} + 4$$

The pupils will give the missing number and find the sum.

B. Developmental Activities

1. Motivation

Strategy: Game- HELLO PARTNER

Instructions:

1. Pupils get a partner
2. Each pair stands on tip toe on a rectangle, the size of a yellow pad
3. Partner change position when they hear the teacher say "Hello Partner"
4. Pairs of partners who step out of the rectangle are out of the game
5. The pair who survives wins

2. Presentation of the lesson

Posing a Task

This is Diego. He won the contest. His father gave him 9 pens.
His mother has nothing to give because she had no money at that time. Mother asked sorry.

Who won the contest?

What did father give?

What did Mother give?

If you were Diego how would you feel when your mother has nothing to give?

Let the pupils react on the situation.

Performing the Task

Present the real pens to the class.

How many pens did father give?

Let the pupils put the number card 9 in the pocket chart under Father.

Processing

How many pens did Mother give?

What does it mean when mother said nothing?

Call another pupil to put 0 under mother.

If we're going to add the two numbers what will be the answer?

Teachers may give more examples.

Processing the solutions and answers

What number did you add to nine?

What did you discover?

Do we need counters for us to find the sum?

Why?

Tell to the class that this property is called zero/identity property of addition. That when zero is added to any number the sum is the number.

3. Reinforcing Activity - Refer to the LM 19 Gawain 1 and 2
4. Application- Refer to the LM 19- Gawain 3
5. Generalization


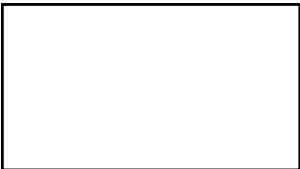
The sum of a number and zero is the number itself. This is called the Zero/identity property of addition.

EVALUATION

Use the identity property to complete the following addition sentences.

1. _____ + 5 = 5
2. 20 _____ = 20
3. 0 + _____ = 15
4. _____ + 0 = 32
5. 5 + _____ = 5

Using the illustrations below, write mathematical sentence and find the sum.

8.  +  =

Mathematical Sentence _____

Answer _____

7.  +  =

Mathematical Sentence _____

Answer: _____

HOME ACTIVITY

Refer to the LM 19 - Gawaing Bahay

Teaching Guide for Mathematics Grade 2
Addition and Problem Solving
Lesson 20

TOPIC: Commutative Property of Addition

OBJECTIVE

Use the commutative property of addition in computing the sums up to 1000

PREREQUISITE CONCEPTS AND SKILLS

1. Concept of Addition
2. Intuitive knowledge of changing the order of the addends does not affect the sum.

MATERIALS

1. Real objects
2. Cut outs
3. Number cards
4. Tape recorder
5. Cut-out of heart-shaped paper

INSTRUCTIONAL PROCEDURES

A. Preparatory Activity

1. Drill: Game – “My Family Members”

The teacher prepares cards with mathematical problems such as:

Think of two numbers whose sum is 36
Think of two addends whose sum is 24
What is the sum of 12 and 13
Combine 15 and 13
What number is 5 more than 10
What is the total of 20 and 12
If you add 16 and 15, what is your total?

This activity shall be done in a contest form.

The teacher calls one pupil in each group to answer the question while she flashes the card.

Pupils should answer the problems mentally.

A group with the highest number of questions answered correctly wins the game.

B. Developmental Activities

1. Motivation: Game- “Let’s Go Physical”

This will be done by pairs.

Each pair stands on tip toe on a cut-out of heart - shaped paper.

Partners change position when they hear the music "Let's Go Physical"
Pairs of partners who step out of the heart - shaped paper are out of the game.

The pair who survives wins

2. Presentation

Posing a Task

Present a poster/drawing of a tree. Then, paste the cut-outs of birds in the different branches of a tree.

Post a story problem.

There are birds flying on the tree.
Two of them are big and five are small.
How many birds are there altogether?



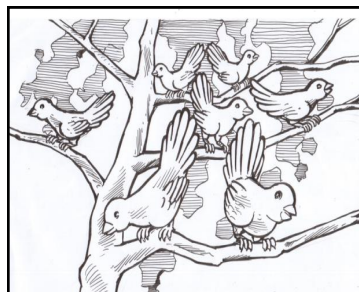
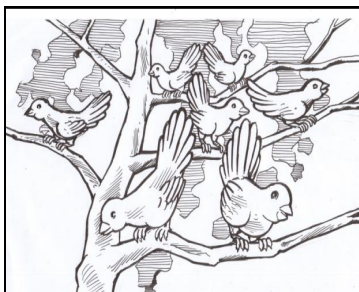
Ask the following questions:

- Where are the birds flying?
 - What are flying on the tree?
 - How many are big birds?
 - How many are small?
 - How many birds are there on the tree?
-
- Restate the problem in your own words
 - Rewrite the problem in answer statement
 - Solve the problem showing complete solutions

Performing a Task

Distribute cut outs of birds and ask pupils to form an addition sentence.

Example: 1



Example 2

$10 + 7 = 17$; this time, rearrange the position of the addends such as:

$7 + 10 = 17$

Let other pupils form addition sentence out of the cut outs.

Ask them to write their answers on the chart.

Addends	Addends	Sum

3. Reinforcing Activity - Refer to the LM 20 Gawain 1-2

4. Application- Refer to LM 20-Gawain 3

Use the illustrations below to form mathematical sentence using commutative property of addition

5. Generalization

What have you found out?

Discuss the other addition sentences they wrote on the chart.

Tell the pupils that changing the order of the addends does not affect the sum. This property is called Commutative Property of

EVALUATION

Using the Commutative Property of Addition, reverse the addends and find the sum.

1. $20 + 28 = \underline{\hspace{2cm}} + \underline{\hspace{2cm}}$
 $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

2. $67 + 58 = \underline{\quad\quad} + \underline{\quad\quad}$
 $\underline{\quad\quad\quad} = \underline{\quad\quad\quad}$

3. $89 + 56 = \underline{\quad\quad\quad} + \underline{\quad\quad\quad}$
 $\underline{\quad\quad\quad} = \underline{\quad\quad\quad}$

4. $25 + 15 = \underline{\quad\quad\quad} + \underline{\quad\quad\quad}$
 $\underline{\quad\quad\quad} + \underline{\quad\quad\quad}$

5. $13 + 17 = \underline{\quad\quad\quad} + \underline{\quad\quad\quad}$
 $\underline{\quad\quad\quad} = \underline{\quad\quad\quad}$

HOME ACTIVITY

Refer to the LM 20 – Gawaing Bahay

Teaching Guide for Mathematics Grade 2 Addition and Problem Solving Lesson No. 21

TOPIC: Associative Property of Addition

OBJECTIVE

Use the associative property of addition in computing the sum of up to 1000

PREREQUISITE SKILLS AND CONCEPT

1. Concept of Addition
2. Intuitive knowledge of using/placing the parenthesis properly in grouping numbers with three addends to show associative property of addition

MATERIALS

1. Real Objects
2. Cut outs
3. Chart

INSTRUCTIONAL PROCEDURE

A. Preparatory Activity

1. Drill- Basic Addition Facts (One digit Number)

1. $8 + 9 = \underline{\quad\quad\quad}$

6. $7 + 8 = \underline{\quad\quad\quad}$

2. $6 + 5 = \underline{\quad\quad\quad}$

7. $4 + 9 = \underline{\quad\quad\quad}$

3. $8 + 5 = \underline{\quad\quad\quad}$

8. $9 + 4 = \underline{\quad\quad\quad}$

4. $8 + 4 = \underline{\quad\quad\quad}$

9. $9 + 9 = \underline{\quad\quad\quad}$

5. $8 + 8 = \underline{\quad\quad\quad}$

10. $7 + 7 = \underline{\quad\quad\quad}$

2. Review

Commutative Property of Addition

Game: "I Have My Partner"

Materials: Sets of Number Cards

Distribute two sets of cards to the pupils.

Example: Card 1

$$10 + 12 = \underline{\quad} + 10$$

Card 2

$$10 + 12 = 22$$

As the music plays (Ten Little Indian), the pupils will roam around and look for his/her partners.

The first partner with matching commutative property of addition sentences will say; "I Have My Partner" wins the game.

B. Developmental Activities

1. Motivation

Game – "Mystery Box of Knowledge"

Prepare a box and labelled "My Mystery Box of Knowledge"

Fill the box with number cards from 1 to 9

Call one member of each learning stations to draw one card each from the Mystery Box of Knowledge

The members of each learning station will roam around the room holding their number cards as the music plays (any song can be).

When the song stops, they stand in front of the class in a row and get a partner. (At least 3 pupils/partner)

Ask:

Who has a partner?

What numbers are they holding?

Who has no partner?

What number is he/she holding?

Let the pupils add to find the sum:

Pupil A

Pupil B

Pupil C

8

9

5

Using Associative Property of Addition:

$$(8 + 9) + 5 = 22$$

The other way of illustrating associative property of addition

$$8 + (9 + 5) = N$$

$$8 + 14 = 22$$

Then get the number cards from the pupils and post it on the board. These number cards shall be used in the presentation of the lesson.

Let us have another illustrative example.

This time utilize the number cards of the pupils.

$$(2 + 5) + 6 = N$$

$$7 + 6 = 13$$

$$13 = 13$$

This can be done in this manner:

$$2 + 5 + 6 = N$$

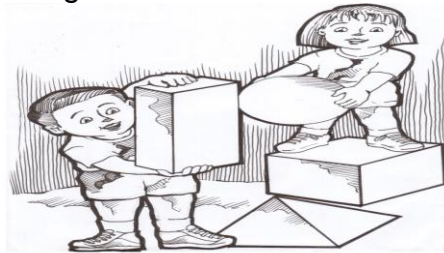
$$2 + (5 + 6) = N$$

$$2 + 11 = 13$$

$$13 = 13$$

2. Presentation

Posing a Task:



These are Ralph and Angelic counting their geometric toys.

Let us help them.

Ralph and Angelic have geometric toys. Ralph has 5 balls, 3 toy airplanes and Angelic has 8 marbles. How many toys do Ralph and Angelic have in all?

Divide the class into 5 learning groups.

Distribute drinking straws in the absence of geometric figures

Tell the pupils to use the said straws in counting the number of geometric figures mentioned in the problem.

Comprehension questions:

Answer the following questions:

1. What is the name of the boy?
2. What is name of the girl?
3. How many balls does he have?
4. How many airplane toys does he have?
5. How many marbles does Angelic have?
6. Can you give the total number of toys Ralph and Angelic have?

Let us find out how to solve the problem.

Performing the Task

Ask the pupils the number of balls, airplanes toys and marbles that Ralph and Angelic have.

Write the given numbers on the board.

Ask one pupil to write the addition sentence on the board.

$$5 + 3 + 8 =$$

Ask: Can you add easily the three addends at the same time?

What should you do?

Tell the pupils to use the straws in representing the number of toys

Which addends will be added first?

Demonstrate how to find the sum

Look at this. Let's find the sum.

$$\begin{array}{r} (5 + 3) + 8 = 5 + (3 + 8) \\ 8 \quad + 8 = 5 + 11 \\ 16 \quad = \quad 16 \end{array}$$

What have you noticed?

How many toys do Ralph and Angelic have in all?

Give more examples.

$$(3 + 4) + 1 = 8$$

$$7 + 1 = 8$$

$$8 = 8$$

$$3 + (4 + 1) = 8$$

$$3 + 5 = 8$$

$$8 = 8$$

Based on the illustrative examples presented, guide the pupils in formulating generalization.

Let the pupils say:

The grouping of addends does not change the sum. This is called the associative property of addition.

3. Reinforcing Activity - Refer to the LM 21 – Gawain 1 and 2
4. Application- Refer to the LM 21-Gawain 3

4. Generalization

Ask: To add three addends easily what should you do? What should you remember?
Group the addends using the parenthesis

EVALUATION

Write the missing numbers

1. $(80 + 60) + 73 = 80 + (60 + 73)$
_____ + 73 = 80 + _____

2. $(23 + 27) + 64 = 23 + (27 + 64)$
_____ + 64 = 23 + _____

3. $(97 + 90) + 34 = 97 + (90 + 34)$
_____ + 34 = 97 + _____

HOME ACTIVITY

Please refer to the LM 21 – Gawaing Bahay

Teaching Guide for Mathematics Grade 2 Mentally Add 1 to 2 Digit Numbers Lesson 22

TITLE: Adding Mentally 1 to 2 digit numbers

OBJECTIVE

To mentally add 1 to 2 digit numbers with sums up to 50

PREREQUISITE CONCEPTS AND SKILLS

Intuitive knowledge of applying the different properties of addition

MATERIALS

Flash cards of numbers
Show Me Board
Mystery Box of Knowledge

INSTRUCTIONAL PROCEDURE

. Preparatory Activity

Drill – Adding one to two digit numbers
Game: “You Are My Partner”

Materials:

Flash Card of numbers (0-9)

Directions:

Divide the class into small learning stations.

Let the pupils draw out one flash card from the Mystery Box of Knowledge.

Be sure that all pupils are holding flash card.

Show to them a basic addition combination such as

$2 + 3$, $4 + 5$, $7 + 5$ so forth and so on. Do this one at a time.

The one holding the sum of the basic addition combination will say "You Are My Partner."

Each team gets some point for each correct response.

The team with more points wins the game.

A.2. REVIEW

Game- "You Got It"

Instructions:

Divide the class into 4 small learning groups

Distribute the Show Me Board to each group.

Ask the pupils to listen very well as the teacher reads a word problem or addition facts

Member of the group will work cooperatively to come up with the correct answer.

The group with most correct answers wins and will be declared Math Wizard of the day.

Possible word problems to be asked:

What number is 125 more than 45?

How much is 432 added to 247?

Danny found 25 shells. He found 12 more shells.

How many shells does he have now?

Thirty five pupils are eating guavas at the playground. Ten other boys are eating corn. How many boys are eating something in the playground?

B. DEVELOPMENTAL ACTIVITY

B.1. Motivation- Song

Let the class sing the song to the tune of Magtanim Ay Di-Biro.

B.2. PRESENTATION

I

One plus one will give us two
Two plus two will give us four
Three plus three will give us six
Four plus four will give us eight

II

Let us look
All around
Things that we can all add up
One, two, three
Four, five, six
Seven and Eight, Nine and Ten.

Say: Think of the operation/s in the song as we sing.

Posing a Task

Anita went to the party. She saw many balloons. The balloons have different colors. There were big and small balloons. When her mother asked how many are red and yellow balloons? She quickly answered 12. When her father asked, how many are pink and yellow? She answered 12.

Every time anyone asks Anita she can answer as fast as she can.

Ask the following:

Who is mentioned in the paragraph?

What did she see?

How did Anita answer her Mother and Father?

How do you describe Anita?

Performing the Task

Distribute number cards to the class.

Let them work in pair.

Let them look at the number cards they are holding. As fast as they can, let them give the sum of the given numbers. Let them change partners and do the same activity.

The teacher may use flashcards.

Add mentally.

Processing the solutions and answers
How did you find the activity?
How did you answer each problem?
How do you answer mentally?
What is the best way to answer mentally?

Reinforcing Activity- Refer to the LM 22- Gawain 1 and 2
Answer the following mentally.

Application- Refer to the LM 22- Gawain 3
Generalization

To add mentally what should you do?
Master the basic facts
Master the different properties of addition

EVALUATION

Direction: Solve the problem mentally. (Dictate the problem)

1. Veronica bought 12 Donald duck stickers and 7 Mickey Mouse stickers. How many stickers did she buy?
2. What is 21 more than 15?
3. A necklace has 17 blue beads and 12 red beads. How many beads are there in all?
4. Jomar bought 14 slices of banana cakes and 13 apple cakes. How many slices of cakes did he buy in all?
5. What is 37 increased by 4?

HOME ACTIVITY- Refer to the LM 22

Teaching Guide for Mathematics Grade 2 Addition and Problem Solving Lesson 23

TOPIC: Adding Mentally 3- Digit Numbers by Ones

OBJECTIVE

Mentally add 3-digit numbers by ones (up to 9)

PREREQUISITE SKILLS AND CONCEPTS

1. Concept of Addition

MATERIALS

1. Number cards
2. Flashcards

INSTRUCTIONAL PROCEDURES

A. Preparatory Activities

1. Drill - Game: Pair-Shared

Bingo Game

Group the pupils by two (Dyad)

Distribute Bingo Cards to each pair

Pupils will add mentally the number printed on the number cards as the teacher flashes the cards

Pupils will mark the number in the card equal to the sum of the number combinations flashed by the teacher.

Pupils will give the pattern that appeared in the Bingo card to win the game.

B	I	N	G	O
18	25	30	45	49
17	20	36	43	58
12	23	FREE	45	48
19	47	37	56	36
29	49	43	41	46

2. Review - Adding mentally 1 to 2 digit Numbers without regrouping

Group the class into 4 small learning groups.

Each group shall designate a representative to answer the questions.

The teacher flashes the cards with addition combinations printed on it.

$$12 + 7$$

$$36 + 3$$

$$1 + 15$$

$$24 + 5$$

B. Developmental Activities

1. Motivation

Say: Does anybody here know how to play dart? Are you familiar with this kind of game? Have you seen already a dart board? Today, we will play dart.



2. Presentation - Game

Group the class into three. (Depending on the size of the class)

Each group has 5 members.

The teacher will flash the card. The first to answer correctly gets one point. Continue until the last player has finished.

The group with the highest score wins.

$\begin{array}{r} 122 \\ + 2 \\ \hline \end{array}$	$\begin{array}{r} 200 \\ + 9 \\ \hline \end{array}$	$\begin{array}{r} 345 \\ + 2 \\ \hline \end{array}$	$\begin{array}{r} 321 \\ + 4 \\ \hline \end{array}$	$\begin{array}{r} 201 \\ + 5 \\ \hline \end{array}$	$\begin{array}{r} 314 \\ + 3 \\ \hline \end{array}$
---	---	---	---	---	---

Performing the Task

Let the class do the following:

Add mentally.

$$238 + 1 = \quad 342 + 5 = \quad 654 + 5 = \quad 320 + 8 = \quad 321 + 7$$

What can you say about the first addends?

How about the second addends?

How did you find adding numbers mentally?

Present additional examples.

Processing the solutions and answers

How did you answer the problem?

How did you add the numbers? What did you do to get the answer?

Let the attention of the pupils focus in this illustration.

$$\begin{array}{r} 324 \\ + \quad 5 \\ \hline 329 \end{array}$$

} addends
 } adds the ones ($4 + 5 = 9$)
 } Bring down the tens
 } Bring down the hundreds

3. Reinforcing Activity - Refer to LM 23 Gawain 1

4. Application- Refer to LM 23- Gawain 2

6. Generalization

To add mentally 3- digit numbers by 1- digit number simply add the ones, bring down the numbers in the tens and hundreds place respectively.

EVALUATION

Add mentally the following:

- | | |
|----------------|-----------------|
| 1. $290 + 8 =$ | 6. $872 + 7 =$ |
| 2. $175 + 4 =$ | 7. $453 + 6 =$ |
| 3. $152 + 5 =$ | 8. $153 + 4 =$ |
| 4. $265 + 4 =$ | 9. $242 + 7 =$ |
| 5. $961 + 8 =$ | 10. $164 + 5 =$ |

HOME ACTIVITY

Refer to the LM 23 – Gawaing Bahay

Teaching Guide for Mathematics Grade 2 Addition Lesson 24

TOPIC: Adding Mentally 3- Digit Numbers by Tens

OBJECTIVE

To mentally add 3-digit numbers by tens (multiples of 100 up to 900)

PREREQUISITE CONCEPT AND SKILLS

1. Concept of Addition
2. Adding mentally 3-digit Numbers by ones

MATERIALS

- | | |
|-----------------------------|--|
| 1. Number cards | 4. Cut out of number pieces |
| 2. Flashcards | 5. Game Board made of illustration board |
| 3. Mystery Box of Knowledge | |

INSTRUCTIONAL PROCEDURE

A. Preparatory Activities

1. Drill - Counting numbers by 5s

Instructions

Let the pupils form two straight lines, one line for the boys and another line for the girls. Let the pupils draw a number card in a Mystery Box of Knowledge.

At the count of three, let the pupils organize themselves by forming another line. This time the sequence of forming the line is based on the number printed on their number cards. This can be done in ascending or descending order.

2. Review

Adding mentally 1- 2 digit numbers by ones

Game: Add and Search

Strategy: Pair-shared

Materials: Number Chart

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
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50

Directions:

Distribute the Number chart

Let the pupils shade 2-digit and 1-digit numbers with the sum equal to the number mentioned by the teacher.

For example:

Say: 53; the pupils will shade 50 and 3

The first one to have more correct answer wins the game.

B. Developmental Activities

1. Motivation - The Magic of Square

Distribute the card:

1	2	3
3	4	7
4	6	10

Steps:

Add the two numbers in each row

Add the two numbers in each column

Add the two numbers in the last row, and add the two numbers in the last column. The sums should be the same.

4		9
		6
7		

4	4	
3	3	

2	6	
6	2	

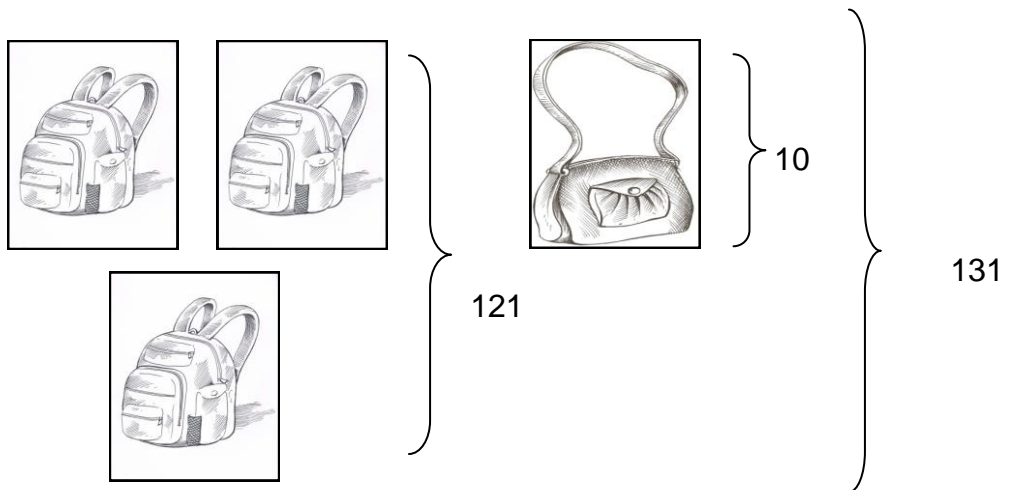
7	2	
1	3	

2. Presentation
Posing a Task

Fatima collected different bags.
Last year she collected 121 bags.
At present she has 10 bags.

Performing the Task

Tell how many bags she has in all.
(Just presume that the first set of bags is 121 and the other set is 10.)



Ask:
Who collected bags?
How many bags did she collect last year?
At present how many bags she has?
Can you give the sum without counting or using your pencil to solve the answer?

What will you do?
Discuss the situation presented.

Fatima collected how many bags last year?
How many bags does she have at present?

Call pupils to write the answers on the board.

Who can give the answer mentally?
So, how many bags did Fatima collect in all?

Present more examples.
Add mentally.

1. $450 + 30 = \underline{\hspace{2cm}}$ 2. $560 + 20 = \underline{\hspace{2cm}}$ 3. $130 + 50 = \underline{\hspace{2cm}}$

Let the pupils answer with their own solution.

Processing the solutions and answers
What have you noticed about one of the addends?
Do they have similarities?
Is it easier to add mentally with multiples of ten?
Show to the class.

To add, these are the things to remember.

Example

$\begin{array}{r} 450 \\ + 30 \\ \hline 480 \end{array}$	Steps
	Add the ones ($0 + 0 = 0$)
	Add the tens ($5 + 3 = 8$)
	Bring down the number in the hundreds place

3. Reinforcing Activity - Refer to the LM 24 Gawain 1

4. Application- Refer to LM 24- Gawain 2

Add mentally:

1. $280 + 10 = \underline{\hspace{2cm}}$ 4. $140 + 50 = \underline{\hspace{2cm}}$
2. $780 + 10 = \underline{\hspace{2cm}}$ 5. $140 + 30 = \underline{\hspace{2cm}}$
3. $110 + 70 = \underline{\hspace{2cm}}$

5. Generalization

To add mentally 3 digit numbers by tens with multiples of 10 to 90 just add the ones, add the tens and bring down the digit in the hundreds place.

EVALUATION

Add mentally the following.

1. $120 + 30 = \underline{\quad}$

2. $260 + 30 = \underline{\quad}$

3. $510 + 80 = \underline{\quad}$

4. $150 + 40 = \underline{\quad}$

5. $340 + 30 = \underline{\quad}$

HOME ACTIVITY

Refer to the LM 24 – Gawaing Bahay

Teaching Guide for Mathematics Grade 2 Addition and Problem Solving Lesson 25

TOPIC: Adding Mentally 3-Digit Numbers by Hundreds

OBJECTIVE

Mentally add 3-digit numbers by hundreds (multiples of 100 to 900)

PREREQUISITE CONCEPTS AND SKILLS

1. Concept of Addition
2. Intuitive knowledge in the mastery of basic addition facts
3. Intuitive knowledge of using the zero/identity in adding numbers

MATERIALS

1. Numbers cards
2. Flashcards

INSTRUCTIONAL PROCEDURE

A. Preparatory Activities

1. Drill- Basic Facts in Addition

Adding numbers with the sum up to 1000 with and without regrouping

Contest: Game of Facts

Instruct all pupils to form a circle. One circle for the boys and another circle for the girls

The teacher will draw number cards from the Mystery Box of Knowledge and show it to the pupils.

The pupils will add mentally to find the answer.

The first one to answer will take a seat.

Do these for at least ten rounds.

2. Review

Adding mentally 3-digit numbers by ten (Multiples of 10 up to 900).

Game: “TELL ME MY SUM”

Instruct all pupils to count off by 3s. All number one will be group one, all numbers 2 will be group 2 and all number 3 will be group 3.

The teacher will draw number cards from the Mystery Box of Knowledge and show it to the pupils.

Group members will cooperatively solve mentally the sum and write it on their Show Me Board.

For every correct answer, one point will be given to a group.

Do these for at least five rounds.

Group with more points, wins the game

B. Developmental Activities

1. Motivation- Story Problem

It's planting time. The teacher told her class to bring seeds for tomorrow. The group that will bring the most number of seeds will receive a gift," says the teacher.

Luckily, group 3 received the gift because they were able to bring 135 ampalaya seeds and 100 okra seeds. How many seeds did Group 3 bring altogether?

2. Presentation

*Use the motivation activity as springboard in the presentation and development of the lesson.

* Ask the pupils to bring out their counters. This time they will be using pebbles. Tell the pupils to substitute the seeds with pebbles.

*Then bring out the sample of the chart where the pupils supposed to record the data. Ask the pupils to construct the said chart of their own.

Processing:

Ask: What did the teacher tell her class to bring?

What group brought the most number of seeds?

What can you say about group 3?

Performing the Task

How many ampalaya seeds did they bring?

How many okra seeds did they bring?

Ask the pupils to underline the question in the problem and also let them rewrite the question in answer statement.

Call pupils to write the numbers on the chart.

Then, call another pupil to add the numbers.

	Hundreds	Tens	Ones
No. of Ampalaya seeds	1	3	5
No. of okra seeds	1	0	0
Total number of seeds	2	3	5

Ask: How many seeds did Group 3 bring altogether?

Processing the solutions and answers

Ask: In the first addend, how many digit numbers are there?

What is our second addend?

Let the pupils focus on the other examples.

What is common in one of the addends?

How do you add numbers mentally with multiples of 100-900?

Apply the zero/identity property of addition that any number added to zero the answer is the number.

$\begin{array}{r} \text{H} \quad \text{T} \quad \text{O} \\ 4 \quad 7 \quad 3 \\ + 3 \quad 0 \quad 0 \\ \hline 7 \quad 7 \quad 3 \end{array}$	<p>First, add the ones</p> <p>Second, add the tens</p> <p>Last, add the hundred</p>
---	---

Tell the class that to add mentally each one should master the basic addition facts.

3. Reinforcing Activity - Refer to the LM 25 -Gawain

4. Application- Refer to the LM 25 Gawain-

Add the following. Do it mentally

1. What is the sum of 300 and 200? _____
2. What is the sum if 400 is added to 570? _____
3. $500 + 400 =$ _____
4. If 300 is added to 900 the sum is equal to _____
5. Combine 100 and 800, the result is equal to _____

5. Generalization

What are the things to remember in adding mentally 3-digit numbers with multiples of 100-900?

Master the basic addition facts.
 Add the ones, tens and hundreds.
 Use the Zero/identity property of addition.

EVALUATION

Add mentally.

1. $500 + 400$ is equal to _____
2. What is the sum of 300 and 900? _____
3. 100 added to 800 is equal to _____
4. If 300 is added to 500, the sum is equal to _____
5. What is the sum if 600 is added to 200? _____
6. $400 + 300 =$ _____
7. $300 + 600 =$ _____
8. $500 + 400 =$ _____
9. Combine 300 and 400 is equal to _____
10. Add: $700 + 200 =$ _____

HOME ACTIVITY

Refer to the LM 25 – Gawaing Bahay

Teaching Guide for Mathematics Grade 2 Analyze and Solve Word Problems Lesson 26

TITLE: Problem solving involving addition of whole numbers

OBJECTIVE

Analyzes and solves word problems involving addition of whole numbers including money with sums up to 1000 without and with regrouping. (What is/are given?)

PREREQUISITE CONCEPTS AND SKILLS

Concept of Addition

MATERIALS

Show Me Board	Activity Sheets	Flask cards
Window Cards	Cut-outs of phrases of “What is asked”	
Basket made of rattan	Number Cards	

INSTRUCTIONAL PROCEDURES

Drill

Basic Addition Facts (A1)

Strategy: Game- “Family of 18”

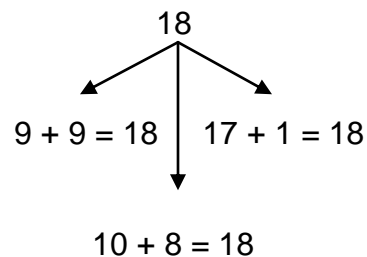
Instructions:

Ask the pupils to enumerate as many as they can “Addition Facts with the sum of 18”

They will be given 5 minutes to do the activity

Pupil/s with more “Family of 18” formed, wins the game.

Examples of “Family of 18” are:



A.2 REVIEW

How do we state the answer to “what is asked” when the question of the problem begins with How many?

Present and post a sample word problem.

During the first day of Early Enrolment, one hundred twenty-seven enrolled in Grade 1 and 560 in Grade 2. How many children enrolled?

Ask: Underline the question in the problem.
Rewrite the question in answer statement
Solve the problem and show all your solutions

The Grade 2 pupils prepared a “portfolio” of used stamps. The Group 1 collected 789 used stamps while the Group 2 collected 209. How many used stamps did the Grade 2 pupils collect in all?

Ask: Underline the question in the problem.
Rewrite the question in answer statement
Solve the problem and show all your solutions

B. DEVELOPMENTAL ACTIVITY

Motivation

Strategy- “Creating Problem”

Instructions:

Group the class by 5s.

The group will be named after their favorite animal. There will be no duplication of animals

Within 4 minutes, they will create/write three word problems.

All given facts will be underlined

The team that finished first within 4 minutes wins.

Pupils' outputs will serve as springboard in the presentation and development of the lesson.

- C. Presentation of the lesson
Distribute the counters and copies of activity sheet
Posing a Task

There are 30 apples, 25 mangoes and 50 chicos on a fruit tray. How many fruits are there in all?

Instruct the pupils use the counters in solving the problem.

Processing:

What are the fruits mentioned in the problem?

Do you eat fruits? Why?

What are the benefits of eating fruits?

Ask: Underline the question in the problem.

Underline the given in the problem.

Rewrite the question in answer statement

Solve the problem and show all your solutions

Post additional illustrative examples

1. There are 157 Mathematics books on the first shelf and 289 English books on the second shelf. How many books are there in all?
2. Cristy has saved ₱ 567 in two weeks and ₱ 495 in another two weeks. How much is her savings?

- C. Reinforcing activities –Refer to the LM 26- Gawain 1
- D. Application- Refer to the LM 26-Gawain 2
- E. Generalization
How can we identify what is/are given in word problems involving addition of whole numbers?

EVALUATION

Directions: Read the following problems. Underline the question in the problem and rewrite the question in an answer statement

1. One hundred Sixty-six Depositors deposited in the bank this morning. In the afternoon, another 150 depositors came to deposit. How many depositors deposited money in the bank?
-

2. There are 36 boys and 27 girls in the Mathematics class of Teacher Nemie Maaba. How many pupils are there in the class?

3. At Agnipa Elementary School there are 219 pupils in Grade 2 and 239 in Grade. How many pupils are there in the two grade levels?

4. The DCPADILLA bus travelled 349 kilometers on Monday and 598 kilometers on Thursday. How far did the bus travel in two days?

5. Victor sells newspaper every day. He sold 469 on the first week and 493 on the second week. How many newspapers did he sell in two weeks? _____

HOME ACTIVITY

Refer to LM 26 – Gawaing Bahay

Teaching Guide for Mathematics Grade 2 Addition and Problem Solving Lesson 27

TITLE: Problem solving involving addition of whole numbers

OBJECTIVES: Analyzes and solves word problems involving addition of whole numbers including money with sums up to 1000 without and with regrouping. (Word clues and Operations to be used).

PREREQUISITE CONCEPTS AND SKILLS

Concept of Addition

Analyzes and solves word problems involving addition of whole numbers (What is asked/what are given).

MATERIALS

Show Me Board	Samples of word problems
Flash Cards	Manila Papers
Worksheets	Number Cards
Popsicle sticks	Pebbles

INSTRUCTIONAL PROCEDURES

Preparatory Activities (Presenting the lessons)

A.1 Drill:

Strategy: “GO GO AROUND THE WORLD”

Instructions:

Post at least 20 number cards in the walls of the room

Ask the pupils to position at the back of the room before the game starts

Time Limit: 8 seconds per number cards

After 8 seconds, the teacher will say MOVE. Pupils need to go to another card and answer the question.

These will be done until all pupils answered the number cards.

- Examples of Number cards.

$34 + 64$	$53 + 45$	$38 + 61$	$47 + 52$
-----------	-----------	-----------	-----------

A.2 REVIEW

Analyze and solve word problems involving addition:

What are given

What is asked

STRATEGY: PROBLEM ANALYSIS

Instructions:

Post word problems on the board

Ask the pupils to answer the question asked.

Let them write their answers on the Show Me Board

Examples of Word problems:

1. The Grade 2 pupils were able to collect 729 pieces of bottles while the Grade 3 pupils collected 248 pieces. How many pieces of bottles did they collect altogether?
 - a. The Mothers Club organized “Hanapbuhay Para sa Lahat” program using recycled materials. Roger collected 782 tansans in making doormats and Dino had 299 tansans for the tambourine. Find the total number of tansans collected.

A.3 MOTIVATION:

Carlo reads the announcement in the bulletin board.

WANTED MATHEMATICS TUTOR
Please call at 09082858218 or
Visit at 768-J Remedios St, Blumentritt
Sampaloc, Manila

SITUATION

One afternoon, Carlo has a problem. He can't answer his mathematics assignment. He is asking for help. Can you help him?

A. DEVELOPMENTAL ACTIVITIES

1. Presentation

Present Carlo's assignment:

Larry collects postcards. He has 65 postcards. He buys 23 more. How many postcards does he have now?

- What are the word clues?
- Underline the question in the problem
- Rewrite the question in answer statement

STRATEGY: "ACT OUT THE PROBLEM"

Instructions:

- Divide the class into 3 small groups
- Let the group act out the word problem
- Use the Popsicle sticks/pebbles instead of postcards.

❖ ASK:

- ✓ How did you arrive at the correct answer?
- ✓ How did you add 65 and 23?
- ✓ What words in the problem made you think that you have to add 65 and 23.
- ✓ Show all your computations

Present additional examples:

1. Cris has 459 marbles and Dan has 347 marbles. How many marbles do they have altogether?
2. This School Year, there are 456 girls and 345 boys in Grade 2. How many pupils are there in Grade 2? What are the word clues?

Reinforcing Activities – Refer to LM 27 Gawain 1

Application- Refer to LM 27- Gawain 2

Generalization

What did we look for in the word problem?

How did we know the operation to be used?

EVALUATION:

Directions: Read the following problems. Box the word clues. Then, write the operation/equation to be used and

1. There were 456 fishermen and 398 farmers who attended the training on livelihood programs. How many fishermen and farmers were there altogether?
2. During the plant fair, 432 fruit seedlings and 425 decorative plants were sold. How many plants were sold altogether?
3. The GSP Romblon Council helped keep the park clean. Troop Rose gathered 457 bottles and Troop Carnation collected 459 bottles. How many bottles were collected by the two troops?
4. During the Independence Day, there were 398 red balloons and 599 yellow balloons released. How many balloons flew up and away?
5. Mr. Guardacasa jogged 17 kilometers on Monday. He jogged 15 kilometers on Saturday. How many kilometers did he jog in all?

HOME ACTIVITY-Refer to LM 27-Gawaing Bahay

Teaching Guide for Mathematics Grade 2 Addition and Problem Solving Lesson No. 28

TITLE: Problem solving involving addition of whole numbers

OBJECTIVE: Analyzes and solves word problems involving addition of whole number including money with sums up to 1000 with and without regrouping (Transforming Word Problems into Number Sentences and Stating Complete Answer)

PREREQUISITE CONCEPTS AND SKILLS

Concept of Addition
Solving Word Problems- What is asked; what are given, word clues and Operation to be used

MATERIALS

Number Cards Show Me Board
Flask Cards Activity Cards/Worksheets
Mystery Box of Knowledge

INSTRUCTIONAL PROCEDURES

A. Preparatory Activities (Presenting the Lesson)

A.1 Drill

Strategy: Game- **"GIVE ME FIVE"**

Instructions:

1. Place number cards inside the Mystery Box of Knowledge
2. Each pupil will draw five number cards in the Mystery Box of Knowledge.
3. Then, they will answer the five addition combinations simultaneously.
4. Time Limit: 35 seconds to answer the five addition combinations.
5. Pupil/s who finish the activity ahead of time/on time will say **"GIVE ME FIVE"**

Examples of Number Cards

$132 + 432$	$809 + 84$	$654 + 126$
-------------	------------	-------------

A.2 REVIEW

Strategy: **"PROBLEM SOLVING STRATEGY"**

Instructions:

1. Divide the class into three learning stations.
2. Distribute the prepared word problems to each group.
3. Pupils will solve the problems in 40 seconds.
4. As soon as they finish solving the problems, members of the learning station will SAY- **"PROBLEM SOLVED"**

Examples of the Problems

1. Jerry picked 255 ripe mangoes and Rommel picked 414 green mangoes. How many mangoes did they pick?
What are given?
What is asked?
What operation should be used?
2. Two fishermen went fishing. The first fishermen caught 256 kilos of milkfish and the other one 135 kilos. How many kilos of milkfish did they catch?
What is asked?
What are given?
What operation should be used?

3. Tatay Carlos is a farmer who planted 346 mango trees, 210 coconut trees and 78 orange trees in the orchard. How many fruit trees are there in the orchard?

What is asked?

What are given?

What operation should be used?

A.4 MOTIVATION

PLAYING BASKETBALL

“What is your favorite game?” Today we will play basketball.

These are the scores obtained two teams played between Grade 1 and Grade 2 pupils during the Family Day

SCORE BOARD	
GRADE 1	GRADE 2
56	78

What is the score of Grade 1? What is the score of Grade 2?

A.5 PRESENTATION

Using the results of the basketball game played between Grade 1 and Grade 2, prepare a word problem.

Last Family Day Celebration, basketball games served as the most spectacular presentation. The result of the game was;

SCORE BOARD	
GRADE 1	GRADE 2
56	78

PROCESSING

- What is the score obtained by the Grade 1?
- What is the score obtained by the Grade 2?
- What operation should used if we add the scores of the two teams?
- If ever we combined/add the scores of the two teams, what is the number sentence?
- What is the sum of the scores of the two teams?
- ✓ Present another illustrative example:

In Mr. Jomar Guadracasa’s farm, there are 250 mango trees and 248 kaimito trees. How many fruit trees are there altogether?

PROCESSING

How do we transform a word problem into a Number Sentence?
What is the correct answer?

B. REINFORCING ACTIVITIES- Refer to LM 28- Gawain

C. SUMMARY/GENERALIZATION:

STEPS TO REMEMBER IN SOLVING PROBLEMS

- What is asked in the problem
- What are given
- What operation should be used
- Transform the problem into a Number Sentence
- Solve for the Final Answer

EVALUATION

Directions: Read the following problems. Write the number sentence and the final answer.

1. There are 156 boys were watching the basketball game. Forty-seven more boys came to watch. How many boys were watching the game?
Number Sentence: _____
Final Answer: _____
2. 347 Mathematics book.
475 Reading Books
How many books are there in all?
Number Sentence _____
Final Answer _____
3. The BSP Romblon Council had conducted” Barya Para Sa Bata” project. The Grade Pupils raised P 590 while the Grade 2 collected Php 378. How much fund was raised altogether?
Number Sentence _____
Final Answer _____
4. Mark brought 235 seashells and Carie brought 698 barbecue sticks for their project. How many materials for their project are there in all?
Number Sentence _____
Final Answer _____
5. During the inventory of school supplies in school, a teacher counted 250 reams of graphing paper and 569 reams of bond paper. How many reams of paper are there in all?
Number Sentence _____
Final Answer _____

Teaching Guide for Mathematics Grade 2
Subtraction
Lesson 29

TOPIC: Subtraction with Regrouping

OBJECTIVE

Subtracting 2- to 3-digit numbers with minuends up to 999 with regrouping in the hundreds place

PREREQUISITE CONCEPTS AND SKILLS

1. Comprehension of Subtraction
2. Subtracting 2-3 digit numbers with regrouping
3. Place Value
4. Intuitive knowledge of subtracting numbers the minuend is bigger than the subtrahend.
5. Intuitive knowledge of subtracting 2-3 digit numbers subtracts first the ones, the tens and the hundreds.

MATERIAL

1. Real objects
2. Cut outs
3. Number cards
4. Activity cards
5. Worksheet

INSTRUCTIONAL PROCEDURE

A. Preparatory Activities

1. Drill – “I HAVE”

Strategy: Pair –Shared

Mechanics:

Distribute the number cards. See to it that everybody has a number card.

Request a volunteer to read the question in his or her number card.

The one holding the number card with the answer of the question previously read will say I HAVE. . .

These will be done until all pupils read the question in their own number cards.

Example of number cards:

I have 18 – 9. Who has 13 – 8?

I have 10. Who has 12 – 6?

I have 9. Who has 20 – 10?

I have 6. Who has 30 – 10?

2. Review

Strategy: Game- "Where's My Partner?"

Instructions;

Distribute the number cards with missing parts;

Let the pupils look for the missing parts.

Use the Calendar in finding the missing part.

You can find the missing number by working it forward or backward

Examples of number cards:

SUN	TUES	WED	THUR	WED	FRI	SAT
	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	31			

Fill in the numbers that are missing from these calendar pieces. Use the calendar above as you guide.

1.

24
10

2.

28
21

3.

30

B. Developmental Activities

1. Motivation- "Story Telling"

Present picture of a boy holding the telephone directory.

"Edeson is a Grade 2 pupil of Odiongan North Central School. One day, he was asked by her mother to find the telephone numbers of Mayor Dario Manato and Governor Reagan Mayuga in the telephone directory. He wrote down the telephone numbers 8 902 and 7 975. He tried to subtract one from the other. But he could not do it.

ASK: Did you see a telephone directory ?
 Do you have a copy of a telephone directory at home?
 What can you find in the telephone directory?
 Why Edeson could not subtract the numbers found in the telephone directory?

2. Presentation

Present picture of poultry yard

Tatay Ricarte has poultry in his farm. He gathered 990 eggs in the first poultry yard and 857 eggs in the second poultry. Mang Ricarte asked his Grade 2 son to find the difference on the number of eggs gathered in two days. His son finds hard in subtracting one from the other.

Distribute counters.

Guide the pupils in preparing graphical representation of the problem

Processing:

Who has poultry in his farm?

Do you eat eggs? Why?

How many more eggs did he gather in the first than in the second poultry?

SAY: Let us find the difference using the Place Value Chart.

STEP 1 – Subtract the Ones
 Not enough ones
 Regroup

Thousands	Hundreds	Tens	Ones
9	9	8	0
	8	5	7
			3

STEP 2 - Subtract the tens

Thousands	Hundreds	Tens	Ones
9	9	8	0 10
	8	5	7
		3	3

STEP 3

Subtract the hundreds

Thousands	Hundreds	Tens	Ones
9	9	08	10
	8	5	7
	1	3	3

SAY: Now, first poultry is more than the second poultry by 1 333

We can use expanded method of subtracting numbers with regrouping.

SAY: Let us have an illustrative example:

Use expanded method:

$$\begin{array}{r} 990 \rightarrow 900 + 90 + 0 \\ - 857 \rightarrow 800 + 50 + 7 \end{array}$$

Regroup the tens and hundreds place

$$\begin{array}{r} 990 \rightarrow 900 + 90 + 0 \rightarrow 900 + 80 + 10 \\ - 857 \rightarrow 800 + 50 + 7 \rightarrow 800 + 50 + 7 \\ \hline 100 + 30 + 3 \\ = 133 \end{array}$$

Directions: Subtract. Arrange the numbers in columns.

1. $7\ 106 - 3\ 484$
2. $8\ 058 - 2\ 589$

3. Reinforcing Activity – Refer to LM 29 Gawain

4. Application- Refer to LM 29-Gawain

5. Generalization

To subtract numbers with regrouping:
Write the numbers in vertically to align the digits in each place value
Subtract the from the left, starting with the ones
Then, tens, hundreds and finally the thousands

EVALUATION

1. What is the difference between 7 841 and 2 975?

Answer: _____

2. Subtract 787 from 8 988.

Answer: _____

3. $711 - 479 =$ _____

4. At Looc Central School there are 2 537 children enrolled, and 969 are primary pupils. How many are intermediate pupils?

Answer: _____

5. Use expanded method: Subtract 579 from 9 048.

Answer: _____

HOME ACTIVITY

Refer to LM 29 – Gawaing Bahay

TEACHING GUIDE FOR MATHEMATICS GRADE 2

Subtraction

Lesson 30

TITLE: Subtracting With Regrouping

OBJECTIVE:

Subtract 2- to-3 digit numbers with minuends up to 999 without regrouping

PREREQUISITE CONCEPTS AND SKILLS

1. Comprehension of Subtraction
2. Subtracting 2-3 digit numbers without regrouping
3. Place Value
4. Intuitive knowledge of subtracting numbers the minuend is bigger than the subtrahend.
5. Intuitive knowledge of subtracting 2-3 digit numbers subtracts first the ones, the tens and the hundreds.

MATERIALS:

- | | |
|-----------------|-----------------|
| 1. Real objects | 3. Number cards |
| 2. Cut outs | 4. Window cards |

INSTRUCTIONAL PROCEDURES

A. Preparatory Activity

1. DRILL

Basic Facts in addition

Strategy: Pair-shared – “MY FAMILY MEMBERS”

Mechanics:

Instruct the pupils to look their partners. The boys should be partnered with the girls.

Then, draw number cards from the Mystery Box of Knowledge one at the time.

Then, based from the number card shown by the teacher, ask the pupils to give addition facts as many as they can.

Illustrate one or two examples before going to start the drill.

	$= 9 + 9$	$17 + 1$	$13 + 5$
18	$= 10 + 8$	$15 + 3$	$12 + 6$
	$= 16 + 2$	$14 + 4$	$11 + 7$

Partners with more addition facts combinations will be declared winner.

Examples of Number Cards



2. REVIEW

Basic Facts of Subtraction

Administer Basic Facts of Subtraction using the window cards (S₁)

Time Limit: 5 minutes

3. Pre-Assessment

Say: Using your Show Me Boards, tell the pupils to write down their answer to the following questions. Ask them to show their answer after each question.

$$187 - 98 =$$

$$265 - 87 =$$

$$243 - 57 =$$

$$140 - 67 =$$

$$361 - 83 =$$

DEVELOPMENTAL ACTIVITY

1. Motivation

Ask: Why do we need to master the basic subtraction facts?

Elicit some answers from the class. Ask at least five to seven pupils to answer the questions. While the pupils are answering the questions, publish on the board their answers.

2. Presentation

Posing a Task

Distribute the counters.

Arminda and Analyn are twins. One day, they went to the garden. They saw many beautiful flowers. Arminda picked 45 flowers. She gave 14 of them to Analyn. How many flowers were left to Arminda?

Then post the story problem. Call 2 or 3 pupils to read the problem.

Ask the pupils to identify what are given in the problem.

Call a pupil to underline the question asked in the problem. Then ask a volunteer to rewrite/restate the question in answer statement.

PROCESSING:

Who are the twins?

Where did they go?

What did they pick?

How many flowers did Ann pick?

How many flowers did Ann give to Annie?

What will you do to find the number of flowers left to Arminda

Arminda picked 45 flowers and she gave 14 flowers to Analyn.

Transform the sentence above into number sentence/equation. Use the counter to represent the given in the problem.

Then, solve on the board. Call 2-4 pupils.

Check whether their answers are correct?

Let's find out.

Processing the solutions and answers

We all know that the parts of a subtraction sentence are minuend, subtrahend and the difference.

We use the minus sign and equal sign.

Show to the class how to subtract 2-3 digit numbers without regrouping

Hundreds	Tens	Ones
	4	5
	1	4
		1

Subtract:

Hundreds	Tens	Ones
	4	5
	1	4
	3	1

Give some examples.

Subtract the following:

1. $568 - 345 = \underline{\hspace{2cm}}$ 2. $537 - 15 = \underline{\hspace{2cm}}$ 3. $868 - 446 = \underline{\hspace{2cm}}$

Reinforcing Activity- Refer to LM No. 30-Gawain

Refer to the LM 30- Gawain 1-3

APPLICATION-Refer to the LM 30-Gawain

Generalization

How do we subtract numbers when ones digit of the subtrahend is greater than the ones/tens digit on the minuend?

Subtract the ones. If the subtrahend is greater than the minuend borrow one ten and add the number in the ones place. Then, subtract.

(Regrouping in the tens place)

Subtract the ones digit first. Then, subtract the tens. If the subtrahend in the tens place is greater than the minuend in the tens place borrow one ten and add the number. Rename the number in the hundreds place.

EVALUATION:

Find the difference of the following.

1. $167 - 35 =$ _____
2. $484 - 213 =$ _____
3. $875 - 52 =$ _____
4. $367 - 253 =$ _____
5. $346 - 125 =$ _____
6. Subtract 85 from 886 _____
7. Minus: $478 - 65$ _____
8. If 56 is subtracted from 479, the difference is _____
9. $267 - 54 =$ _____
10. $535 - 22 =$ _____

HOME ACTIVITY

Refer to the LM 30 – Gawaing Bahay

Teaching Guide for Mathematics Grade 2
Subtraction
Lesson No. 31

TOPIC: Subtracting mentally 1-digit numbers from 1 to 2 digit numbers with minuends up to 50

OBJECTIVE

Mentally subtract 1-digit number from 1 to 2 digit numbers with minuends up to 50

PREREQUISITE CONCEPTS AND SKILLS

1. Comprehension of Subtraction
2. Mastery of Basic Subtraction Facts

MATERIAL

1. Number cards
2. Flash cards
3. Bingo Cards
4. Mystery Box of Knowledge

INSTRUCTIONAL PROCEDURE**A. Preparatory Activity**

1. Drill

Strategy: MATH RELAY- “THE WINNER TAKES IT ALL”

Mechanics:

Group the class into 4 teams.

Team 1- Jose Rizal

Team 2- Andres Bonifacio

Team 3- Lapu-Lapu

Team 4- Graciano Lopez Jeana

Designate a recorder for each team.
 Each team shall have a representative to answer the question.
 The teacher shall draw number card in the Mystery Box of Knowledge one at a time.
 Representative of each team shall answer the question and write the answer on their Show Me Board as fast as he can.
 The group which obtained the highest score shall be declared winner.

Example of Number Cards

$12 - 6$	$10 - 7$	$25 - 15$	$15 - 10$
----------	----------	-----------	-----------

Ask: Who won the game?
 How did they give the answer?
 What have you noticed?

2. Review

Strategy: DECODING

Puzzling Difference:

Directions: Match Column A with column B. Write your answer on the space below to solve the mystery word.

Column A

Column B

9 - 3

A = 8

5 - 5

M = 6

10 - 7

T = 9

15 - 5

H = 10

20 - 10

A = 0

50 - 30

E = 10

13 - 5

I = 15

18 - 9

C = 5

20 - 5

T = 3

10. 15 - 10

M = 20

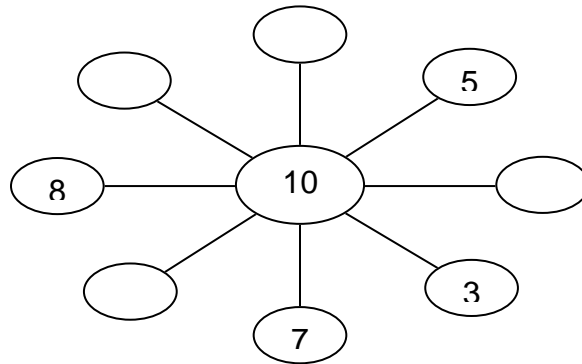
11. 30 - 20

S = 10

B. Developmental Activities

1. Motivation

Present the illustration below. Ask the pupils to brainstorm on how to get the correct answer.



What did you do to get the answer?
Is there any pattern to get the answer?
What operation did you use?

2. Presentation

Performing the Task

Present number cards.

Find the mystery number.

I am a 2-digit numbers. My ones place is 0 and my tens place is five more than my ones place. If 30 is subtracted from me, the difference is equal to 20. Who am I?

Let pupils answer mentally?

The teacher may give varied exercises for the pupils to master the basic subtraction facts.

Processing the solutions and answers

How did you subtract the given numbers? (We subtracted the numbers mentally?)

In subtracting mentally do you need counters? Why not?

Remember:

Master the basic subtraction facts.

3. Reinforcing Activity - Refer to the LM 31 Gawain

4. Application –Refer to the LM 31- Gawain
5. Generalization
In subtracting mentally what are the things to remember?

EVALUATION

Subtract mentally to find the difference.

1. $50 - 9 =$ _____
2. If 5 is subtracted from 45, the difference is equal to _____
3. Mang Oscar has 45 mangoes. He gave 9 to his neighbor. How many mangoes were left? _____
4. $48 - 5 =$ _____
5. Subtract 9 from 34. The difference is equal to _____
6. $48 - 7 =$ _____
7. What is 5 subtracted from 45? _____
8. $47 - 5 =$ _____
9. $35 - 9 =$ _____
10. $38 - 8 =$ _____

HOME ACTIVITY

Refer to LM 31 – Gawaing Bahay

Teaching Guide for Mathematics Grade 2 **Subtraction** **Lesson 32**

TOPIC: Subtracting mentally 3-digit numbers by Ones without Regrouping

OBJECTIVE

To mentally subtract 3-digit numbers by ones without regrouping

PREREQUISITE CONCEPTS AND SKILLS

1. Comprehension of Subtraction
2. Mastery of Basic Subtraction Fact

MATERIAL

1. Number cards
2. Flash cards

INSTRUCTIONAL PROCEDURE

A. Preparatory Activity

1. Drill - Basic Facts in Subtraction (Use window cards)
Time Limit: 5 minutes
Samples of Basic Facts of Subtraction

Subtract the following

$10 - 2 = \underline{\quad}$	$10 - 5 = \underline{\quad}$	$10 - 6 = \underline{\quad}$
$8 - 5 = \underline{\quad}$	$9 - 6 = \underline{\quad}$	$9 - 2 = \underline{\quad}$
$7 - 3 = \underline{\quad}$	$5 - 1 = \underline{\quad}$	$7 - 6 = \underline{\quad}$
$5 - 4 = \underline{\quad}$	$6 - 4 = \underline{\quad}$	$8 - 4 = \underline{\quad}$
$10 - 7 = \underline{\quad}$	$9 - 4 = \underline{\quad}$	$10 - 8 = \underline{\quad}$
$9 - 5 = \underline{\quad}$	$7 - 5 = \underline{\quad}$	$6 - 4 = \underline{\quad}$
$7 - 6 = \underline{\quad}$	$8 - 6 = \underline{\quad}$	$9 - 7 = \underline{\quad}$

2. Review - Comprehension of Subtraction Strategy: "Game- Problem of the Day Relay"

Divide the class into four small learning groups
Ask the pupils to position at the back part of the classroom
Post four word problems written in the manila paper at designated learning stations.
All pupils are required to solve individually.
The group shall move around the four stations to solve the word problems
The group with more correct answers will be declared winner.
Examples of Problems of the Day

1. Angelic collects family pictures. She needs 355 pictures to fill her personalized album. She already has 150 pictures. How many pictures does she need to fill the personalized photo album?
2. Six hundred two Grade 2 pupils went to an educational trip. Two hundred eighty-seven of them were boys. How many were girls were there?
3. During the election of Supreme Pupil Government (SPG), Clifford Nino received "Nine hundred six" votes. His opponent, El Nino John received "seven hundred eight" votes. How many more votes did Clifford Nino receive than El Nino John?

B. Developmental Activities

1. Motivation- "Family of Five"

Instructions;

Instruct the pupils to give subtraction combination facts with the difference of 5.

Example

$$30 - 25 = 5 \quad \leftarrow \quad \textcircled{5} \quad \rightarrow \quad 25 - 20 = 5$$

$$\begin{aligned}45 - 40 &= 5 \\55 - 50 &= 5 \\75 - 70 &= 5\end{aligned}$$

$$\begin{array}{c} \downarrow \\10 - 5 = 5 \\15 - 10 = 5 \\11 - 6 = 5 \\12 - 7 = 5\end{array}$$

$$\begin{aligned}50 - 45 &= 5 \\65 - 60 &= 5 \\85 - 80 &= 5\end{aligned}$$

2. Presentation

Divide the class into 5 learning groups.
Call 2 or 3 pupils to read the story problem.

One Saturday morning, Mother and Nilo went to the pet shop. Mother bought a pet dog for ₱ 358. Nilo gave ₱ 5 as his share. How much did Mother pay?

Ask the following questions:

Who went to the pet shop?

What did they do in the pet shop?

How much was the dog cost?

How much did Nilo give to his mother?

Do you think Nilo love to have a pet dog? Why?

What can you say about Nilo?

How much did Mother pay if Nilo gave ₱5?

Say: Let us find the answer.

Performing the Task

Ask the pupils to underline the question in the story problem.

Rewrite the question in answer statement.

Ask:

Who can write the subtraction sentence on the board?

What is the minuend?

How many digits are there?

What is the subtrahend?

How many digits are there?

What did you do to find the difference?

So, how much did mother pay?

Processing the solutions and answers- use the counters in representing the given in the problem.

Let the class focus on the example given.

H	T	O
3	5	8
		5
3	5	3

Give other examples. First, let them arrange vertically then subtract.
Do it mentally.

$457 - 6 = \underline{\hspace{2cm}}$

$769 - 5 = \underline{\hspace{2cm}}$

$654 - 3 = \underline{\hspace{2cm}}$

$348 - 7 = \underline{\hspace{2cm}}$

3. Reinforcing Activity – Refer to LM 32 Gawain 1-2

4. Application –Refer to LM 32-Gawain

5. Generalization

To subtract mentally 3 digit numbers by ones what should you do?

In subtracting mentally 3 digits by ones without regrouping, just subtract the ones bring down the tens and hundreds.

EVALUATION

Read and understand each situation. Then subtract mentally.

1. Total rice harvest - - 359 sacks
 Number of sacks sold - - 8 sacks
 No. of sacks left - - _____

2. Total Grade 2 Enrolment - 128 pupils
 Number of pupils dropped - 5 pupils
 Total enrolment for the month - _____

3. Number of visitors arrived - 259 persons
 Number of visitors left before dinner 8 persons
 Number of visitors left after dinner _____

HOME ACTIVITY

Refer to the LM 32 – Gawaing Bahay

Teaching Guide for Mathematics Grade 2
Subtraction
Lesson 33

TOPIC: Subtraction mentally 3-digit numbers without regrouping

OBJECTIVE

Mentally subtracts 3-digit by tens without regrouping

PREREQUISITE CONCEPTS AND SKILLS

1. Concept of Subtraction
2. Mentally subtracts 3-digit numbers by ones without regrouping

MATERIALS

1. Number Cards
2. Show Me Board
3. Activity Sheets/Worksheets
4. Mystery Box of Knowledge

INSTRUCTIONAL PROCEDURE

A. Preparatory Activities

1. Drill

Strategy: GAME- "FAMILY OF 25"
MECHANICS

Instruct the pupils to form circles. This time, the boys should have a separate group from the girls.

The teacher will draw number cards from the Mystery Box of Knowledge and show it to the pupils.

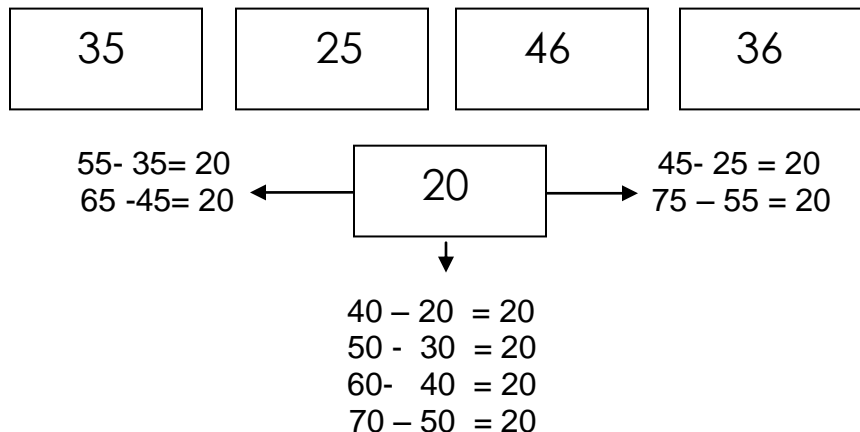
The pupils will construct subtraction combinations with the difference equal to the number printed in the card as shown by the teacher.

The pupils will subtract mentally to find the answer.

The first one to answer correctly will take a seat.

Do these for at least ten rounds.

EXAMPLES OF NUMBER CARDS



2. Review

Mentally subtracts 3-digit by ones without regrouping

Strategy: Game- “SEARCH FOR THE MATH WIZARD”

Give each pupil a Show Me Board

Instruct the pupils to listen very well as the teacher reads a word problem or Addition facts.

A pupil with most correct answers wins and will be declared Math Wizard of the day

Possible word problems to be asked:

1. What number is 327 less than 5? _____
2. $178 - 6 =$ _____
3. $198 - 6 =$ _____
4. $245 - 4 =$ _____
5. What is 8 subtracted from 359? _____
6. $727 - 5 =$ _____

B. Developmental Activities

1. Motivation

Strategy: GAME

“MAKING MATHEMATICS ALIVE”

Present this situation:

“I am 89 less than 7” Who am I?

Ask:

What are the given data in the problem?

What operation should be used to find the answer?

What is the correct answer?

2. Presentation

Strategy: GETTING READY

Place: In the Mathematics Class

Present a picture of a teacher with her pupils.

TEACHER: Class, it time to go home! Pack your things now.

Situation:

On a way home, the Grade II pupils passed-by the construction site. There are 195 construction workers in all. Of these, 52 are wearing yellow shirt and the rest are blue. How many construction workers are wearing blue?

Let's solve these number stories in two ways.

1. Expanded Form

$$\begin{array}{r} 195 \\ \underline{52} \end{array} \begin{array}{l} \longrightarrow \\ \longrightarrow \end{array} \begin{array}{r} 100 + 90 + 5 \\ \underline{50 + 2} \end{array}$$
$$100 + 40 + 3 = 143$$

2. Short Method

$$\begin{array}{r} 195 \\ 52 \\ \hline 143 \end{array}$$

Present additional examples:

1. $567 - 45 = \underline{\hspace{2cm}}$
2. $763 - 51 = \underline{\hspace{2cm}}$
3. $689 - 77 = \underline{\hspace{2cm}}$

3. Reinforcing Activity- Refer to LM No. 33- Gawain

4. Application-Refer to LM No. 33- Gawain

5. Generalization

To subtract 3-digit numbers by tens without regrouping, start with the ones, the tens, and lastly the hundreds.
We can subtract mentally 3-digit numbers by tens in two ways:
Expanded and short forms.

EVALUATION

Subtract mentally.

1. What is the difference if 46 is subtracted from 579?
2. $895 - 64 = \underline{\hspace{2cm}}$
3. Subtract: $694 - 43 = \underline{\hspace{2cm}}$
4. What is the difference when you subtract 64 from 795? $\underline{\hspace{2cm}}$

5. During the typhoon PABLO, 598 people were homeless. About 85 of these are children. How many were adults? _____
6. $678 - 52 =$ _____
7. Mother had 125 kilos of lanzones. She sold 15 kilos that day. How many kilos were left for Mother to sell the following day?
8. $895 - 74 =$ _____
9. $567 - 42 =$ _____
10. $896 - 85 =$ _____

HOME ACTIVITY

Refer to the LM 33 – Gawaing Bahay

Teaching Guide for Mathematics Grade 2

Subtraction

Lesson 34

TOPIC: Subtraction mentally 3-digit by hundreds without regrouping

OBJECTIVE

Mentally subtract 3-digit by hundreds without regrouping.

PREREQUISITE CONCEPTS AND SKILLS

1. Concept of Subtraction

MATERIAL

- | | |
|------------------|-------------------------------|
| 1. Number Cards | 3. Activity Sheets/Worksheets |
| 2. Show Me Board | 4. Mystery Box of Knowledge |

INSTRUCTIONAL PROCEDURE

A. Preparatory Activities

1. Drill

Strategy: GAME OF FACTS

MECHANICS

Let all pupils form a circle. One circle for the boys and another circle for the girls

The teacher will draw number cards from the Mystery Box of Knowledge and show it to the pupils. (One at a time)

The pupils will subtract mentally to find the answer.

The first one to answer correctly will take a seat.

Do these for at least ten rounds.

EXAMPLES of NUMBER CARDS

1. $45 - 12 =$ _____
2. $10 - 7 =$ _____
3. $25 - 15 =$ _____
4. $21 - 10 =$ _____
5. $15 - 13 =$ _____
6. $12 - 6 =$ _____
7. $18 - 9 =$ _____
8. $16 - 12 =$ _____
9. $32 - 22 =$ _____
10. $32 - 12 =$ _____

2. Review

Subtracting mentally 2-digit numbers by ten

Strategy: Game: "TELL ME MY DIFFERENCE"

Instructions

Let all pupils to count off by 3s. All number one will be group one, all number 2 will be group 2 and all number 3 will be group 3.

The teacher will draw number card from the Mystery Box of Knowledge and show them to the pupils. (One at a time)

Group members will cooperatively solve mentally the difference and write it on their Show Me Board.

For every correct answer, one point will be given to a group

Do these for at least five rounds. The group with more points wins the game.

EXAMPLES OF NUMBER CARDS

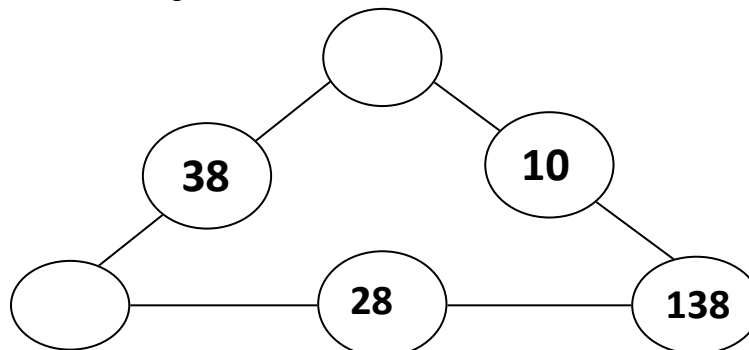
1. $78 - 25 =$ _____
2. $89 - 75 =$ _____
3. $34 - 24 =$ _____
4. $68 - 56 =$ _____
5. $27 - 15 =$ _____
6. $56 - 44 =$ _____
7. $38 - 17 =$ _____
8. $12 - 11 =$ _____
9. $32 - 20 =$ _____
10. $56 - 43 =$ _____

B. Developmental Activities

1. Motivation

Strategy: MAGIC CIRCLE

Fill in the correct numbers in both ends such that the difference of any two end numbers gives the number in the middle of the line.



2. Presentation

Strategy: MYSTERY NUMBER

ASK: Have you seen a magician?

What does a magician do?

Would you like to see a magician performs some tricks?

Present this story problem:

A magician placed 134 white birds in a basket and subtracted them by a mystery number. Only 34 of the white birds came out. What is the mystery number?

Processing:

Note: Ask the pupils to use the counters first in representing the given in the problem.

How many white birds did the magician have?

How many white birds came out of the basket?

What is the mystery number?

What did you do to get the mystery number?

Example 2

Using Expanded Form

$$345 - 131 = N$$

How many digits are there in the first number? In the second number?

Steps:

$$\begin{array}{r} 345 = (300 + 40 + 5) \quad \text{express numbers in expanded form} \\ - 131 = - (100 + 30 + 1) \\ \hline \quad \quad 200 + 10 \quad 4 \quad \text{subtract} \\ \quad \quad 214 \quad \quad \quad \text{express the number in standard form} \end{array}$$

Present another set of examples.

What number is less than 203 is equal to 422?

What is the difference between 693 and 242?

What is 255 subtracted from 487?

$$436 - 215 = \underline{\hspace{2cm}}$$

3. Reinforcing Activity – Refer to LM 34 Gawain 1-2

4. Application- Refer to LM 34- Gawain

5. Generalization

How do we subtract numbers mentally?

-First, subtract the digits in the ones place

-Second, subtract the digits in the tens place, and

Third, subtract the digits in the hundreds place.

Master the Basic Facts of Subtraction.

EVALUATION

Listen carefully to your teacher

1. Subtract 220 from 330.
2. Take away 151 from 264
3. $467 - 356 =$ _____
4. $257 - 145 =$ _____
5. $675 - 554 =$ _____
6. What is 324 subtracted from 679?
7. What number is 467 less 245?
8. $357 - 246 =$ _____
9. $241 - 130 =$ _____
10. $342 - 231 =$ _____

HOME ACTIVITY

Please refer to the LM 34 – Gawaing Bahay

TEACHING GUIDE FOR MATHEMATICS GRADE 2
Subtraction
Lesson 35

TITLE: One step problem solving involving subtraction of whole number

OBJECTIVE:

Analyzes and solves one-step word problems involving Subtraction of whole numbers including money with minuends up to 1000 with and without regrouping.

PREREQUISITE CONCEPTS AND SKILLS

1. Subtracting 2-3 digit numbers with minuends up to 999 with and without regrouping.
2. Mentally subtract 3-digit by hundreds with and without regrouping.
3. Analyzing word problems involving addition of whole numbers including money with and without regrouping

MATERIALS:

1. Worksheet
4. Pocket chart

- 2. Show Me Board
- 3. Flash Cards

- 5. Window Cards (S₁)

INSTRUCTIONAL PROCEDURES

A. Preparatory Activity

1. DRILL

Use flash cards of subtraction facts. Subtract mentally

9- 8

10-9

12 - 10

15 - 9

10-9

2. REVIEW

Solving addition problems and comprehension check-up

STRATEGY: **“PROBLEM SOLVE ME”**

Instructions:

Group the class into four (4) small learning groups

Each group will be given an activity sheet

Assign a group leader to each group

A group leader will be the one to present and explain the group’s output.

Time Limit: 3 minutes

Activity Number 1

Cathy bought 10 red roses and another 15 white roses to be offered in the mass. How many roses did she buy in all?
--

What is asked in the problem? _____

What are the given facts? _____

What operation should be used? _____

What is the Number Sentence? _____

What is the answer? _____

Activity Number 2

There are 32 Boy Scouts and 45 Girl Scouts playing in the playground. How many scouts are playing in the playground?
--

What is asked in the problem? _____

What are the given facts? _____

What operation should be used? _____

What is the Number Sentence? _____

What is the answer? _____

Activity Number 3

At Romblon East Central School, there are 3 sections in Grade II. Section- LOVE has 45 pupils, Section HOPE has 42, and Section- CHARITY has 50 pupils. How many pupils are there in Grade II?

What is asked in the problem? _____

What are the given facts? _____

What operation should be used? _____

What is the Number Sentence? _____

What is the answer? _____

Activity Number 4

Mark has Php 25.00. This morning, his mother gave him Php 30.00 more. How much money does he have now?

What is asked in the problem? _____

What are the given facts? _____

What operation should be used? _____

What is the Number Sentence? _____

What is the answer? _____

What is the Number Sentence? _____

What is the answer? _____

DEVELOPMENTAL ACTIVITIES

1. Motivation:

Strategy: "**THINK AND SHARE**"

Post on the board this problem.

Father has a favorite number. If you add 8 to it and then subtract 6, you get 12. What is the number?

ASK:

What are given in the problem? _____

What is asked in the problem? _____

What is/are the operation should be used? _____

What is the Number Sentence? _____

What is the correct answer? _____

2. PRESENTATION

Strategy: **STORY TELLING**

“Mark is a Grade II pupil of Odiongan North Central School. He is fond of playing marbles. He has 25 red marbles. He lost 12 of his marbles. How many marbles were left?”

Tell the class: Let us analyze the story problem.

Ask:

What are the steps in solving word problems?

For mastery, present the steps in solving word problems.

Step I- Understand the problem.

Know what is asked in the problem.

Step II- Plan what to do

Know what the given facts in the problem.

Step III – Do the Plan or solve to find the answer

Know what operation should be used

Formulate the number sentence

Step IV- Check your answer

Use your counter if you want to check your answer.

Present more practice exercises.

1. Cristy bought a doll for Php 690.00. She gave the salesclerk Php 1000.00. How much change did she receive?

2. A market vendor had 150 kilos of dressed chicken to sell. He sold 98 kilos in 2 days. How many more kilos of dressed chicken did he have to sell?

3. There are 90 Grade II pupils joined the choir. Only Fifty-eight will represent the school in a contest. How many choir members will not compete?

3. **REINFORCING THE ACTIVITY** - Refer to the LM No.35- Gawain

4. **APPLICATION-** Refer to LM No. 35- Gawain

Generalization

How do we analyze and solve word problems?

Step I- Understand the problem.

Know what is asked in the problem.

Step II- Plan what to do

Know what the given facts in the problem.

Step III – Do the Plan or solve to find the answer

Know what operation should be used

Formulate the number sentence

Step IV- Check your answer

Use your counter if you want to check your answer.

EVALUATION.

Read and analyze the following problems. Applying the steps in solving word problems, find the correct answer.

1. There are 84 eggs in a tray. Fifty-eight are broken. How many eggs are not broken?

What is asked in the problem? _____

What are given in the problem? _____

What operation should be used? _____

What is the Number sentence? _____

What is the correct answer? _____

2. There are sixty-eight choir members. Fifty-seven will represent in the Show Time Contest. How many choir members will not compete?

What is asked in the problem? _____

What are given in the problem? _____

What operation should be used? _____

What is the Number sentence? _____

What is the correct answer? _____

3. During the PTA Meeting of Cajidiocan Central Elementary School, 250 parents and teachers attended. If there were 150 males, how many females attended the PTA meeting?

What is asked in the problem? _____
What are given in the problem? _____
What operation should be used? _____
What is the Number sentence? _____
What is the correct answer? _____

4. In the school canteen, there were 65 guavas in the basket. The school canteen took 28 guavas for the visitors. How many guavas were left?

What is asked in the problem? _____
What are given in the problem? _____
What operation should be used? _____
What is the Number sentence? _____
What is the correct answer? _____

5. Eve bought school supplies worth Php 357.00. If she has Php 500.00, how much would be her change?

What is asked in the problem? _____
What are given in the problem? _____
What operation should be used? _____
What is the Number sentence? _____
What is the correct answer? _____

HOME ACTIVITY

Refer to the LM 35 – Gawaing Bahay

Teaching Guide for Mathematics Grade 2 Addition, Subtraction and problem solving Lesson 36

TOPIC: Order of operations involving addition and subtraction.

OBJECTIVE

Perform order of operations involving addition and subtraction of small numbers

PREREQUISITE CONCEPTS AND SKILLS

1. Concept of addition
2. Concept of Subtraction
3. Properties of Addition
4. Analyzes and solves one-step-word problems involving subtraction of whole numbers including money.

MATERIALS

1. Show Me Board
2. Flash Cards
3. Window Cards
4. Activity Sheets/Worksheets

INSTRUCTIONAL PROCEDURE

A. Preparatory Activities

1. Drill

STRATEGY: "RACE TO 100"

Instructions:

Distribute the Window Cards (A1)

Instruct the pupils to answer the addition facts as fast as they can.

Time Limit: 7 minutes

Check pupils work

Pupil/s who obtained the highest score, won the game

Samples of Addition Facts (A1)

$8 + 8 = \underline{\quad}$	$9 + 5 = \underline{\quad}$	$2 + 7 = \underline{\quad}$
$7 + 6 = \underline{\quad}$	$6 + 9 = \underline{\quad}$	$9 + 7 = \underline{\quad}$
$7 + 2 = \underline{\quad}$	$8 + 5 = \underline{\quad}$	$8 + 7 = \underline{\quad}$
$6 + 4 = \underline{\quad}$	$6 + 5 = \underline{\quad}$	$6 + 4 = \underline{\quad}$

2. Review

Problem solving involving one-step word problem involving subtraction of whole numbers including money

Strategy: STORY TELLING

Instructions:

Present a mathematical story problem.

Instruct the pupils to answer the questions with speed and accuracy.

Pupils should write their answers on the Show Me Board.

"AT THE PET SHOP"

The Magada Family has a pet shop at the Quinta Market. At present, a pet shop had 245 love birds, and 197 of them were sold. How many love birds were left?

Questions:

What is asked in the problem? _____

What are given in the problem? _____

What operation should be used? _____
What is the mathematical sentence? _____
What is the correct answer? _____

A FRUIT STAND

Cathy has a fruit stand at Odiongan Market. She had 987 apples in the crate. Gerald bought 569 apples. How many apples were left in the crate?

Questions:

What is asked in the problem? _____
What are given in the problem? _____
What operation should be used? _____
What is the mathematical sentence? _____
What is the correct answer? _____

3. Pre-assessment

Answer the following:

1. What is the sum of 347 and 129? _____
2. What is the difference of 753 and 378? _____
3. Add: 692 and 126, the sum is equal to _____
4. Subtract 67 from 898. _____
5. Simplify: $8 - 9 + 6 =$ _____
6. Perform the indicated operations: $12 + 10 - 9 =$ _____
7. $67 - 59 =$ _____
8. $89 + 18 =$ _____
9. Simplify: $12 - 8 + 23 =$ _____
10. Combined: 23 and 25 = _____

B. Developmental Activities

1. Motivation

STRATEGY: EXPLORING THE MATHEMATICAL OPERATIONS

Present these mathematical operations:

$$10 + 6 - 5 = \underline{\hspace{2cm}}$$

ASK:

Anybody can solve the problem?

What operation should be done first?

What is the final answer?

2. Presentation

Use the illustrative example in the motivation stage in developing the lesson.

$$10 + 6 - 5 = \text{-----}$$

Explain:

In solving this kind of problem with two or more operations are involved, addition shall be done first and followed by subtraction.

$$\begin{aligned} 10 + 6 - 5 &= \\ 16 - 5 &= \end{aligned}$$

Then, subtraction follows next.

$$16 - 5 = 11$$

The final answer is equal to 11.

Present additional illustrative example.

$$25 - 10 + 12 = \underline{\hspace{2cm}}$$

Solutions:

$$25 - 10 + 12 - 22 = 3$$

3. Reinforcing Activity - Refer to the LM 36- Gawain

Directions: Divide the class into three (3) small learning groups. Each group will be given a worksheet to do.

4. Application

Simplify the following operations, then find the answer to the following using the order of operations.

1. $14 + 16 - 10 = \underline{\hspace{2cm}}$

2. $20 - 15 + 30 = \underline{\hspace{2cm}}$

3. $12 + 15 - 9 = \underline{\hspace{2cm}}$

4. $16 - 10 + 26 = \underline{\hspace{2cm}}$

5. $12 + 15 - 10 = \underline{\hspace{2cm}}$

5. Generalization

How to perform order of operations involving addition and subtraction of whole number?

What operation shall be done first? The second operations?

In performing order of operations involving addition and subtraction of whole numbers including money;
Addition shall be done first; then
Subtraction as they occur.

EVALUATION

Perform the following operations then find the answer to the following applying the order of operations.

1. $25 - 12 + 11 =$ _____
2. $30 + 15 - 25 =$ _____
3. $12 + 12 - 9 =$ _____
4. $16 - 12 + 15 =$ _____
5. $17 - 11 + 21 =$ _____

HOME ACTIVITY

Refer to the LM 36 – Gawaing Bahay

Teaching Guide for Mathematics Grade 2 Addition Lesson 37

TOPIC: Solving two-steps word problems involving addition and subtraction

OBJECTIVE

Solves two-step word problems involving addition and subtraction of 2 to 3 digit numbers including money using appropriate procedures (What is ask/What is/are given)

PREREQUISITE CONCEPTS AND SKILLS

1. Performs order of operations involving addition and subtraction
2. Comprehension of Addition
3. Comprehension of Subtraction
4. Analyzes and solves one-step word problems

MATERIALS

1. Number Cards
2. Show Me Board
3. Window Cards
4. Activity Sheets/Cards
5. Mystery Box of Knowledge

INSTRUCTIONAL PROCEDURE

A. Preparatory Activity

1. Drill - Comprehension of Subtraction

Strategy: MATH RELAY- “Winner Takes It All”

Directions:

Group the class into four teams

Designate a recorder in each team

Each team shall have a representative to answer the question

The teacher shall draw a number card in the Mystery Box of Knowledge one at the time.
 Representative of each team shall answer the question and write the answer on their Show Me Board as fast as they can.
 The group that obtained the highest score shall be declared winner

Example of Number Cards:

$84 - 23 =$ _____	$66 - 13 =$ _____
$98 - 34 =$ _____	$57 - 20 =$ _____
$38 - 10 =$ _____	$26 - 10 =$ _____
$79 - 56 =$ _____	$89 - 32 =$ _____
$49 - 11 =$ _____	$56 - 32 =$ _____

2. Review

Steps in Solving Word problems (Solving One-Step Word problem)
 Strategy- Game "Problem Solve Me"

Instructions:

Divide the class in three learning stations.
 Distribute the prepared word problems to each group.
 Pupils will solve the problems in 40 seconds
 As soon as they finish solving the problems, members of the learning station will say "Problem Solve Me"

Examples of Word Problems

The Grade parents prepared 96 egg sandwiches. If 75 sandwiches were eaten, how many were left?

What is asked in the problem? _____
 What are given? _____
 What operation should be used? _____
 What is the number sentence? _____
 What is the correct answer? _____

Out of 92 eggs in a basket, 45 were sold. How many eggs were left in the basket?

What is asked in the problem? _____
 What are given? _____
 What operation should be used? _____
 What is the number sentence? _____
 What is the correct answer? _____

There are 197 pupils in Grade Two. If 145 of them are boys, how many are girls?

What is asked in the problem? _____

What are given? _____
What operation should be used? _____
What is the number sentence? _____
What is the correct answer? _____

There are 75 eggplants on the first plot and 55 tomato plants on the second plot. How many plants are there in all?

What is asked in the problem? _____
What are given? _____
What operation should be used? _____
What is the number sentence? _____
What is the correct answer? _____

Rogelio has 250 marbles and Paulo has 165 marbles. How many marbles do they have altogether?

What is asked in the problem? _____
What are given? _____
What operation should be used? _____
What is the number sentence? _____
What is the correct answer? _____

3. Pre-assessment

Solve the following word problems.

The Boy Scout Officials trained 789 scout masters on April. On May, they trained 975. What is the total number of scout masters trained in two months?

What is asked in the problem? _____
What are given? _____
What operation should be used? _____
What is the mathematical sentence? _____
What is the correct answer? _____

The Grade II pupils collected 989 used stamps. While the Grade III pupils collected 879 used stamps. How many used stamps did the Grade III and Grade II pupils collect altogether?

What is asked in the problem? _____
What are given? _____
What operation should be used? _____
What is the mathematical sentence? _____
What is the correct answer? _____

There are 899 pupils in Looc Central School. In Sta. Fe Central School, there are 765 pupils. What is the difference in the number of pupils between the two schools?

What is asked in the problem? _____

What are given? _____

What operation should be used? _____

What is the mathematical sentence? _____

What is the correct answer? _____

B. Developmental Activities

1. Motivation

Strategy: SEARCH and RETRIEVAL OPERATION

Instructions:

Search across and down for hidden subtraction sentences. Ring each subtraction sentence.

Example: $38 - 23 = 15$

38	23	15	35	32	89
12	12	38	96	31	65
50	11	16	75	51	24
65	43	22	21	75	29

2. Presentation

Posing a Task

Amelda and Dario picked guavas in their orchard. Amelda picked 25 guavas and Lito picked 16. Amelda ate 8 guavas. How many guavas were left?

PROCESSING:

Comprehension questions

What are the fruits mentioned in the problem?

Do you eat fruits? Why do we need to eat fruits?

What is asked in the problem?

What are the given?

Post additional illustrative examples:

Miss Mercado has 50 pupils in her class. One morning, 6 pupils were absent and in the afternoon 2 were absent. How many pupils reported to Miss Mercado's class on that day?

What is asked in the problem? _____

What are given? _____

Gerry has read 13 pages of a book on Fairy Tales. There are 305 more pages left. How many pages does the book have in all?

What is asked in the problem? _____

What are given? _____

3. Reinforcing Activity - Refer to the Learning Material

Instructions:

Divide the class into three small learning groups.

Each group will be given a card containing the activity to do.

Each group will be given 2-3 minutes to perform the activity

And then transfer to another learning station up to the last station.

4. Application

Solve the following problems:

Tatay Canor harvested 998 mangoes. He sold 575 of them. How many mangoes were left?

What is asked in the problem? _____

What are given in the problem? _____

There are 50 tribe-participants participated in the Ati-atihan Festival. Of these, 37 tribe-participants won prizes. How many did not win prizes?

What is asked in the problem? _____

What are given in the problem? _____

5. Generalization

STEPS TO REMEMBER IN SOLVING WORD PROBLEMS

What is asked in the problem?

What are given?

What operation/s should be used?

Transform the problem into a number sentence

Solve for the Final Answer.

EVALUATION

Read the following problems. Then answer the questions after each problem.

1. During the Educators Congress, 198 parents and 32 teachers attended. If there were 67 males, how many females attended the Educators Congress?

What is asked in the problem? _____

What facts are given? _____

2. Albert and Jomar gathered okra from their vegetable garden. Albert gathered 25 okra while Jomar gathered 18 okra. Their father gave 12 okra to their neighbor. How many okra were left?

What are given in the problem? _____

What facts are given? _____

3. There are 86 marbles in a box. Of these, 19 are blue, 27 are yellow, and 26 are red. The rest of the marbles are green. How many green balls are in the box?

What is asked in the problem? _____

What facts are given? _____

4. In a Mathematics quiz, Tina answered 23 items correctly. If there are 35 items in all, how many items was she not able to answer?

What is asked in the problem? _____

What facts are given? _____

HOME ACTIVITY

Refer to LM 37 – Gawaing Bahay

Teaching Guide for Mathematics Grade 2 Addition, Subtraction and Problem Solving Lesson 38

TOPIC: Solving two-step word problems

OBJECTIVE

Solve two-step word problems involving addition and subtraction of 2 -to 3 digit numbers including money using appropriate procedures
(Operation to be used, Number sentence and the Correct Answer)

PREREQUISITE CONCEPTS AND SKILLS

1. Concept of addition
2. Concept of Subtraction
3. Solving Word problems- What is asked, what are given?

MATERIALS

1. Number Cards
2. Show Me Board
3. Flask Cards
4. Activity Sheets
5. Window Cards (A1 and S1)
6. Mystery Box of Knowledge

INSTRUCTIONAL PROCEDURE

A. Preparatory Activity

1. Drill

Strategy: "MY FAMILY"

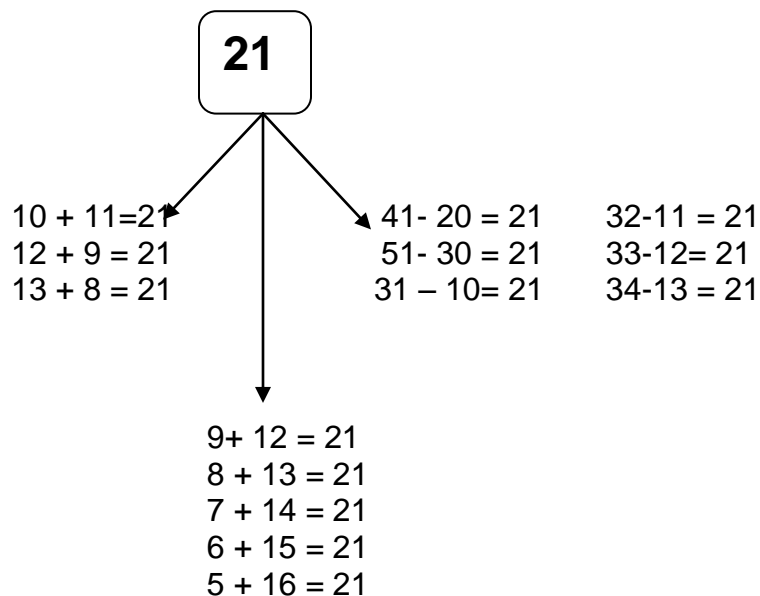
Instructions:

Ask the pupils to enumerate as many as they can "addition and subtraction facts" with sum and difference of 21.

They will be given 5 minutes to perform the activity.

Pupil/s with more addition and subtraction combinations formed, will be declared as "Mathematics Wizard/s of the day". His /her name will be posted on the bulletin board.

Example of addition/subtraction combinations of 21



2. Review

Solving Word problems- "*What is asked and what are given*"

Strategy: "PROBLEM SOLVING STRATEGY"

Instructions:

Divide the class into three learning stations

Distribute the prepared word problems to each group

Pupils will solve the problems in 30 seconds

As soon as they finish solving the problems, members of the learning station will SAY- "WE MADE IT- PROBLEM SOLVED"

EXAMPLES OF PROBLEMS

There are twelve red marbles, twenty-four yellow marbles and seventeen green marbles in a box. Find the total number of marbles.

What is asked in the problem? _____

What are given? _____

Laura, teacher of grade 3 students has 84 gifts for her students. There are 67 students and each received one gift from the teacher. Find the number of gifts remaining with Laura.

What is asked in the problem? _____

What are given in the problem? _____

Bella has to solve 125 Math problems. She solved 46 problems yesterday and 53 problems today. How many problems are to be solved?

What is asked in the problem? _____

What are given in the problem? _____

1. Motivation

Strategy: "STORY TELLING"

"AT SCHOOL FAMILY DAY"

Jomar has 475 boxes of banana Cake to sell during the School Family Day. At the end of the day, 174 boxes were unsold. How many boxes were sold?

Processing:

Comprehension Questions

What kind of pupil is Jomar?

What did he sell?

If you were Jomar, are you willing to sell banana cake? Why?

Analyzing the problem

What is asked in the problem?

What are given in the problem?

What is the mathematical sentence?

What operations are to be used to solve the problem?

What is the correct answer?

Presentation

Present a story word problem written on the manila paper.

Mother Tina and Brother Jay picked eggplant in their family vegetable garden. Mother Tina picked 156 eggplants and Brother Jay picked 120. Mother Tina sold 250 pieces of eggplants in the market. How many eggplants were left?

Analyzing the problem

What is asked in the problem? _____

What are given in the problem? _____

What operations are to be used? _____

What is the mathematical sentence? _____

What is the correct answer? _____

Joy had some Christmas cards to sell. After she sold 47 of them, she still has 44 cards left to sell. How many cards did Joy have before?

Analyzing the problem

What is asked in the problem? _____

What are given in the problem? _____

What operations are be used? _____

What is the mathematical sentence? _____

What is the correct answer? _____

3. Reinforcing Activity - Refer to the LM 38 Gawain 1-3

4. Application-Refer to LM No -Gawain

Read the following problems. Then solve by answering the questions asked.

6. Generalization

STEPS TO REMEMBER IN SOLVING TWO-STEPS WORD PROBLEMS INVOLVING ADDITION AND SUBRTACTION.
What is asked in the problem?
What are given in the problem?
What operations are to be used?
Transforming the word problem into Number Sentence
Solve for the Final Answer

EVALUATION

Read the following problems. Write the operations are to be used, transforming the word problem into a number sentence and the final answer.

1. Coco has to solve 125 Math problems. She solved 46 problems yesterday and 53 problems today. How many problems are to be solved yet?

What operations are to be used? _____

What is the mathematical sentence? _____

What is the final answer? _____

2. Rinarose arranges a small party for her eleventh birth day with an amount of ₱10 000. She bought spaghetti for ₱ 812.50, cake for ₱ 2 580, cookies for ₱ 1 424 and French fries for ₱1 914. Find the balance amount of Rose.

What operations are to be used? _____

What is the mathematical sentence? _____

What is the final answer? _____

3. Mrs. Bautista was given 25 cards for her collections. She now has 95 in all. How many cards did she have before?

What operations are to be used? _____

What is the mathematical sentence? _____

What is the final answer? _____

4. Maricel needs pots for her flowering plants. Clay pots cost ₱ 50.00 each and ceramic pots cost ₱ 65.00 each. How much money will Maricel spend if she buys 3 of each kind of pots?

What operations are to be used? _____

What is the mathematical sentence? _____

What is the final answer? _____

5. Conrad has a big basket of fruits. He has 95 mangoes. He put 35 ripe mangoes and 29 green mangoes in a small basket. How many mangoes remained in the big basket?

What operations are to be used? _____

What is the mathematical sentence? _____

What is the final answer? _____

HOME ACTIVITY

Refer to the LM 38 – Gawaing Bahay

Teaching Guide for Mathematics Grade 2
Addition
Lesson 39

TOPIC: Solving two-step word problems involving addition and subtraction

OBJECTIVE

Solves two-step word problems involving addition and subtraction of 2- to 3- digit numbers including money using appropriate procedures

PREREQUISITE CONCEPTS AND SKILLS

1. Concept of Addition
2. Concept of Subtraction
3. Order of Operations
4. Analyzes and solves one-step word problems involving subtraction

MATERIALS

- | | |
|------------------|-----------------------------|
| 1. Number Cards | 3. Activity Sheets |
| 2. Show Me Board | 4. Mystery Box of Knowledge |

INSTRUCTIONAL PROCEDURE

A. Preparatory Activity

1. Drill

Lesson: Order of Operations

Strategy: Game- RACE TO FIVE

Instructions:

Place the number cards inside the Mystery Box of Knowledge
The teacher will draw the number cards in the Mystery Box of Knowledge

Then, she/he will show the mathematical sentence written in the number cards

Pupils will answer the mathematical sentence simultaneously.
The first pupil/s to have five correct answers win/s the game.

Examples of Number Cards

- | | |
|---------------------------|----------------------------|
| 1. $10 + 12 - 17 =$ _____ | 6. $18 - 15 + 6 =$ _____ |
| 2. $20 - 5 + 25 =$ _____ | 7. $12 + 18 - 20 =$ _____ |
| 3. $15 + 12 - 25 =$ _____ | 8. $18 - 12 + 25 =$ _____ |
| 4. $25 - 21 + 15 =$ _____ | 9. $17 + 15 - 18 =$ _____ |
| 5. $16 + 15 - 14 =$ _____ | 10. $18 - 15 + 18 =$ _____ |

2. Review

Lesson: Analyzes and solves one-step word problems involving addition or subtraction

Instructions:

Divide the class into three learning stations

Distribute the prepared word problems to each group.

The group will solve the problems within the allotted time

As soon as they finish solving the problems, members of the learning station will SAY- WE CAN DO IT.

Examples of the Problems

The Boy Scout Council of the MIMAROPA Region sent 540 scouts to the National Scouting Jamboree at Mount Makiling. Western Visayas Region sent 568 scouts. How many scouts were sent by the two regions?

What is asked? _____

What are given? _____

What operation should be used? _____

What is the mathematical sentence? _____

What is the final answer? _____

The Grade I pupils collected 376 used soft drink straws. The Grade II pupils collected 675 used soft drink straws. How many used soft drink straws did the Grades I and II collect in all?

What is asked in the problem? _____

What are given? _____

What operation should be used? _____

What is the mathematical sentence? _____

What is the final answer? _____

Mang Caloy is a baker and sold 445 loaves of bread and had 97 loaves of bread left. How many loaves of bread did he have at first?

What is asked in the problem? _____

What are given? _____

What operation should be used? _____

What is the mathematical sentence? _____

What is the final answer? _____

B. Developmental Activities

1. Motivation

Ask the pupils:

What is your father's occupation?

What is the importance of the farmers in the community?

What is the importance of the farmers in our country?

What are the contributions of the farmers in our economy?

2. Presentation

Present this story problem.

Mang Digoy is a farmer. He has 356 cavans of rice to sell. He sold 98 cavans yesterday and 145 cavans today. How many cavans of rice were left to him?

Processing:

What is asked in then problem? _____

What are given? _____

How many operations should be used in solving the problem? _____

What are they? _____

What are the word clue/s you identify the operations to be used in solving the problem? _____

What is the mathematical sentence? _____

What is the final answer? _____

Present another story problem:

Raymund harvested 670 pineapples. He sold 345 pineapples on Monday and 156 pineapples on Tuesday. How many pineapples were not sold?

3. Reinforcing Activity – Refer to LM 39 - Gawain

4. Application

5. Generalization

What are the steps in solving a 2-step word problem involving addition and subtraction including money?

EVALUATION

Read, analyze and solve the following problems. Then answer the questions after each problem.

1. There are 245 Grade II pupils in Montfort Academy. Of these 124 are boys. How many are girls?

What is asked in the problem? _____
What are given? _____
What operations should be used? _____
What is the number sentence? _____
What is the final answer? _____

2. Mrs. Talastas sold coconut butter for ₱ 120.00 and ube jam for ₱ 75.00. She gave ₱ 65.00 of her sale to her daughter. How much was left to her?

What is asked in the problem? _____
What are given? _____
What operations should be used? _____
What is the number sentence? _____
What is the final answer? _____

Herbert planted 65 pechay and 50 radish seedlings. Of these, 25 plants died due to disease. How many plants continued to grow?

What are given? _____
What operations should be used? _____
What is the number sentence? _____
What is the final answer? _____

HOME ACTIVITY

Refer to the LM 39 – Gawaing Bahay

Teaching Guide for Mathematics Grade 2 Multiplication Lesson 40

TOPIC: Multiplication as Repeated Addition

OBJECTIVE

Illustrate multiplication as repeated addition

PREREQUISITE CONCEPTS AND SKILLS

1. Counting group of equal quantity using concrete objects
2. Addition of whole numbers

MATERIALS

1. Learning Module
2. Real objects (pebbles/counters)
3. Chart with story problem
4. Activity card of addition

INSTRUCTIONAL PROCEDURE

A. Preparatory Activities

1. Drill – Do this as group activity.

Use pebbles or counters. Instruct each member of the group to count five pebbles/counters. Let them laid the pebbles/counters on the table or floor.

Ask:

How many groups of pebbles/counters were there?

What is the total number of counters/pebbles?

(Continue with other numbers like 6, 7, 8, etc...)

2. Review – Do this as group activity. Give each group with this activity card.

Add the following as fast as you can. Post your work after you're done.

1. $3 + 3$

2. $7 + 7$

3. $8 + 8$

4. $6 + 6$

5. $9 + 9$

6. $5 + 5$

7. $2 + 2$

8. $4 + 4$

9. $1 + 1$

B. Developmental Activities

1. Motivation

Play “The Boat is sinking”

Example: The boat is sinking...group yourselves into 3...etc...

2. Presentation

- Ask the pupils to go out and collect 3 pieces of pebbles or dried leaves each.
- Ask them to group themselves into groups with 5 members and lay the materials on the table separately to form groups.

Ask: How will you make these materials useful?

How many groups of pebbles (dried leaves) were there? 5

How many pebbles (dried leaves) were there in each group? 3

Can you make other groupings of the same number aside from what we did? Please show it.

- Tell the pupils that it is written in word as **five groups of three** and in symbol as **5 x 3**.

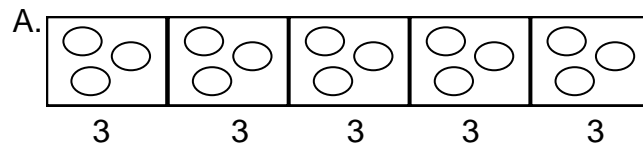
Ask: How many pebbles (dried leaves) were there in all? 15

How did you arrive in that answer? We use addition.

Who can show how it was done?

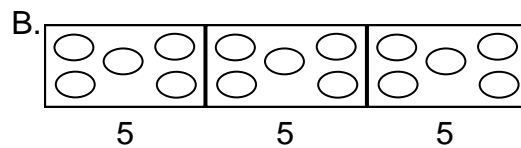
- Show this representation of the above situation drawn in a manila paper.

$$5 \times 3$$



Ask: Is there any other way of presenting it that will give the same result?

Possible answer.



Ask: How many groups were there in A? in B?
How many members in each group were there in A? in B?
How many objects in all were there in A? in B?
How did you know it? (Ask one pupil to show it.)
($3 + 3 + 3 + 3 + 3$) and ($5 + 5 + 5$)

- Write the multiplication equation of the above situation on the board as shown below:
 $3 \times 5 = 15$
- Then let the pupils write the equation on how they come up with 15 as their answer using addition.
- The possible answer is $3 + 3 + 3 + 3 + 3 = 15$ or $5 + 5 + 5 = 15$

Ask: What pattern have you observed?

3. Reinforcing Activity –Refer to LM 40

Discuss each activity after checking.

4. Application – Refer to LM 40

5. Generalization

Ask: What have you learned today?

To illustrate multiplication as repeated addition, add the multiplicand repeatedly according to its multiplier.

5. Generalization

To illustrate multiplication as repeated addition, add the multiplicand repeatedly according to its multiplier.

EVALUATION

Illustrate the following multiplication using repeated addition.

1. 5×3
2. 7×4
3. 2×6
4. 4×8
5. 3×7

HOME ACTIVITY

Refer to LM. 40– Gawaing Bahay

Teaching Guide for Mathematics 2 Multiplication Lesson 41

TOPIC: Multiplication as Counting by Multiples

OBJECTIVE

Illustrate multiplication as counting by multiples

PREREQUISITE CONCEPTS AND SKILLS

1. Counting 2's, 5's and 10's through 100
2. Illustrating multiplication as repeated addition

MATERIAL

1. Learning Module
2. Activity sheet on skip counting, repeated addition
3. Chart with story problem

INSTRUCTIONAL PROCEDURE

A. Preparatory Activities

1. Drill

Group the pupils. Let the group fill in the missing number as fast as they could.

1. 2, 4, 6, __, 10
2. 3, 6, __, 12, 15
3. 4, 8, 12, 16, __
4. __, 10, 15, 20, 25
5. 6, __, 18, 24, 30

2. Review – Do this as group activity.

Finish the repeated addition to illustrate the following multiplication.

1. $5 \times 6 = 5 + 5 + \underline{\hspace{2cm}}$
2. $7 \times 3 = 7 + \underline{\hspace{2cm}}$
3. $8 \times 4 = 8 + \underline{\hspace{2cm}}$
4. $9 \times 7 = 9 + 9 + \underline{\hspace{2cm}}$
5. $4 \times 8 = 4 + 4 + \underline{\hspace{2cm}}$

B. Developmental Activities

1. Motivation

Assign number to each of your pupils. Tell them to be alert and remember their corresponding number because anytime you will call them to tell their corresponding number.

The pattern on how you call your pupils is the multiples of a certain number.

Example:

Multiples of 3 (3, 6, 9, 12,....etc.)

2. Presentation

- Group the pupils. Give each group 20 pebbles or counters whichever is available in your classroom.
- Guide them to arrange the first 2 sets as shown below.

II IIII

- Instruct them to add two more sets.
- Let each group explain their corresponding answer.
- Then show the correct set of counters. (IIIIII IIIIIIIII)
- Ask them the pattern they see.
- Instruct them to form the fifth set. (IIIIIIIIII)

- This time show the illustration of the above situation as shown below.

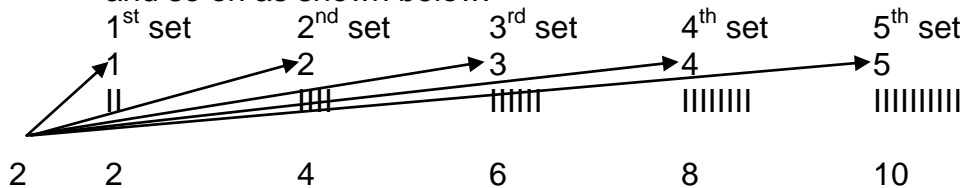
1st set 2nd set 3rd set 4th set 5th set
II IIII IIIII IIIIIII IIIIIIIII

Ask: What pattern have you observed?

How many 2's were there in the first set? in the second set? in the third set? in the fourth set? in the fifth set?

What pattern did you see?

Call some pupils to write the numerical value of the first set, second and so on as shown below.



Explain that 2, 4, 6, 8, and 10 are the multiples of 2 (2, 4, 6, 8, 10).

Explain also that the first set is the product of multiplying 2 and 1, second set of 2 and 2 etc.

3. Reinforcing Activity – Refer to LM 41

4. Application – Refer to LM 41

5. Generalization

To illustrate multiplication as counting by multiples, get the multiples of the multiplicand until the number of times determined by the multiplier.

EVALUATION

Use the number grid below to illustrate the following multiplication as counting by multiples. Follow the colour coding.

1. 7×5 (red)
2. 9×4 (yellow)
3. 8×6 (orange)
4. 6×3 (green)
5. 5×7 (blue)

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
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

HOME ACTIVITY

Refer to LM 41– Gawaing Bahay

Teaching Guide for Mathematics Grade 2 Multiplication Lesson 42

TOPIC: Multiplication as Equal Jumps in a Number Line

OBJECTIVE

Illustrate multiplication as equal jumps in a number line

PREREQUISITE CONCEPTS AND SKILLS

1. Illustrating multiplication as counting by multiples
2. Addition of whole numbers

MATERIAL

1. Learning Module
2. Activity sheets
3. Marker and Manila paper
4. Flashcards of addition
5. Illustration of a number line

INSTRUCTIONAL PROCEDURE

A. Preparatory Activities

1. Drill

Conduct drill on addition of whole numbers using flashcards.
(One digit by one digit only)

2. Review – Do this as group activity.

Illustrate the following multiplication by completing the multiples.

1. $5 \times 4 = \{5, \dots\}$

2. $3 \times 6 = \{3, 6, \dots\}$

3. $2 \times 5 = \{2, 4, \dots\}$

4. $4 \times 3 = \{4, \dots\}$

5. $6 \times 2 = \{6, \dots\}$

B. Developmental Activities

1. Motivation

Imitate the movement of some animals like frog, duck etc.

2. Presentation

Let the pupils play “The Leaping Frog”.

Form a group with five members in each group. Draw a straight line on the floor. Mark the line. Vary the number of markings for each group.



Each member will take turn in jumping to the line. Make sure that they will land on the markings.

Process what they have done:

a. How many markings are there in your line?

b. Do they have the same distances?

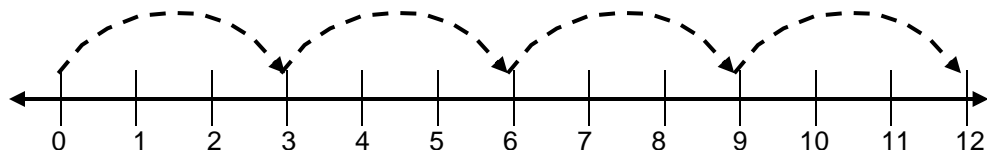
c. How many jumps did you make?

Let the representative of each group report their output.

Then show an illustration of a number line. Ask the pupils if they can see the similarity between the illustration and what they have done earlier.

Discuss how a number line can be used to illustrate multiplication.

The number line below shows 4 groups of 3 or 4×3 .



Discuss further that the multiplier shows how many equal jumps should be made in a number line. The multiplicand determines the spaces.

3. Reinforcing Activity - Refer to LM 42

4. Application – Refer to LM 42

5. Generalization.

To illustrate multiplication as equal jumps in a number line, determine first the multiplicand and the multiplier. The multiplier determines the number of equal jumps while the multiplicand determines the number of spaces per jump.

EVALUATION

Illustrate the following multiplication as equal jumps in a number line.

1. 4×5

2. 3×7

3. 5×6

4. 6×6

5. 7×4

HOME ACTIVITY

Refer to LM 42 – Gawaing Bahay

Teaching Guide for Mathematics Grade 2 Multiplication Lesson 43

TOPIC: Writing Related Equation for each Type of Multiplication

OBJECTIVE

Write a related equation for multiplication as repeated addition

PREREQUISITE CONCEPTS AND SKILLS

1. Addition of whole numbers
2. Illustrating multiplication as repeated addition

MATERIAL

1. Learning Module
2. Activity sheet
3. Flashcards of addition facts
4. Illustrations
5. Chart with story problem

INSTRUCTIONAL PROCEDURE

A. Preparatory Activities

1. Drill

Drill the pupils using flashcards of addition facts.

2. Review - Do this by pair. Give each pair this activity sheet.

Illustrate the following multiplication using repeated addition.

1. 4×7

2. 7×6

3. 6×3

4. 3×7

5. 6×6

B. Developmental Activities

1. Motivation

Do you eat fruits? Why?

Elicit answers from the pupils.

2. Presentation – Let the class read the story problem below.

Alma bought 2 kilos of mango; 2 kilos of rambutan, 2 kilos of banana and 2 kilos of lanzones. How many kilos of fruits did she buy in all?

Use fruit toys. These toys should be placed in baskets. One basket for each kind of fruit. Each basket is labelled with their corresponding kilos. Show the fruit toys and let the pupils touch them.

Ask: How many kinds of fruits were there?

How many kilos was each kind of fruit?

How many kilos of fruits were there in all?

How did you know the answer?

Present the above situation using illustration.

2 kg 2 kg 2 kg 2 kg

Ask: How many groups of fruits were there?

How many kilos of fruits were there in each group?

How many kilos of fruits were there in all?

How did you find the answer?

Can anyone write a related equation for this situation?

Call some pupils to write the equation they have formed.

Then write this equation, $2 + 2 + 2 + 2 = 8$

3. Reinforcing Activity - Refer to LM 43

4. Application – Refer to LM 43

5. Generalization

In writing related equation for multiplication as repeated addition, the multiplicand is the number being added while the multiplier is the number of times the multiplicand is added.

EVALUATION

Write a related equation for the following repeated addition.

1. $5 + 5 + 5 + 5 + 5 + 5$

2. $3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 + 3$

3. $9 + 9 + 9 + 9$

4. $7 + 7 + 7 + 7 + 7$

5. $6 + 6 + 6 + 6 + 6 + 6 + 6$

HOME ACTIVITY

Refer to LM 43– Gawaing Bahay

Teaching Guide for Mathematics Grade 2 Multiplication Lesson 44

TOPIC: Writing Related Equation for each Type of Multiplication

OBJECTIVE

Write a related equation for multiplication as counting by multiples

PREREQUISITE CONCEPT AND SKILL

1. Illustrating multiplication as counting by multiples
2. Writing related equation for multiplication as repeated addition

PREREQUISITE CONCEPTS AND SKILLS

1. Addition of whole numbers
2. Illustrating multiplication as repeated addition

MATERIAL

1. Learning Module
2. Activity sheets
3. Chart with story problem
4. Illustrations

INSTRUCTIONAL PROCEDURE

A. Preparatory Activities

1. Drill – Do this as group activity.

Write a related equation for the following repeated addition.

1. $3 + 3 + 3 + 3 + 3 + 3$
2. $6 + 6 + 6 + 6 + 6 + 6 + 6$
3. $8 + 8 + 8 + 8 + 8 + 8$
4. $7 + 7 + 7$
5. $4 + 4 + 4 + 4 + 4 + 4$

2. Review - Do this as group activity.

Illustrate the following multiplication using counting by multiples.

1. 8×4
2. 5×9
3. 7×6
4. 2×8
5. 3×7

Use the number grid below:

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
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

B. Developmental Activities

1. Motivation

Let us play "I have _____".

You will start then call one of your pupils.

Say: I have 2, 4, 6, 8, 10....which are the multiples of _____?

Whoever gives the correct answer will take turn.

2. Presentation

Present the situation below:

Andy is reading a book. He found out that he can finish two pages of the book in one minute. How many pages of the book can he finish in 3 minutes?

Let the pupils simulate the situation above and record how many pages they can read in one minute.

Note: Pupils may vary in the number of pages but bring their attention on the situation.

Ask the pupils to bring out 12 pieces of paper representing the pages of the book.

Let the pupils bring out the number of pages after your instruction.

Example: After 1 minute (2 pages), after 2 minutes (4 pages), etc.

This time present an illustration of the above situation as shown.

After 1 minute



After 2 minutes

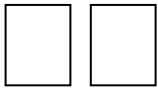


After 3 minutes

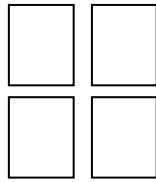


or

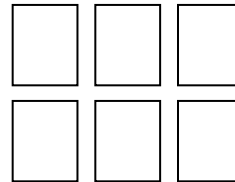
1 minute



2 minutes



3 minutes



Call one pupil to write the numerical value of pages. (2, 4, 6)

Ask: What do you think is the multiplication equation of this? $2 \times 3 = 6$
What if he continued reading until 5 minutes, how many pages will he finish?

Let the pupils present their equation.

3. Reinforcing Activity - Refer to LM 44

4. Application – Refer to LM 44

5. Generalization

To write a multiplication equation using counting by multiples, the multiplier is the total number of multiples while the multiplicand is the first number among the multiples.

EVALUATION

Write a related equation for the following shaded multiples of the given number.

1. 3

0	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

2. 4

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
---	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----

3. 8

0	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	31	32	33	34	35	36	37	38	39
40	41	42	43	44	45	46	47	48	49

4. 6

0	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

5. 2

0	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	31	32	33

HOME ACTIVITY

Refer to LM 44 – Gawaing Bahay

Teaching Guide for Mathematics Grade 2 Multiplication Lesson 45

TOPIC: Writing Related Equation for each Type of Multiplication

OBJECTIVE

Write a related equation for multiplication as equal jumps in the number line

PREREQUISITE CONCEPT AND SKILL

1. Illustrating multiplication as equal jumps in a number line
2. Writes a related equation for multiplication as counting by multiples

MATERIAL

1. Learning Module
2. Activity sheets
3. Flashcards
4. manila paper and marker
5. tape measure
6. sticks of the same length
7. Chart of a number line

INSTRUCTIONAL PROCEDURE

A. Preparatory Activities

1. Drill – Do this as group activity.
Illustrate the following using number line.

1. 4×6
2. 3×7
3. 8×7
4. 2×8
5. 6×6

Let them post their outputs.

2. Review - Do this by pair.

Write a related equation for the multiples of a certain number as shown below.

1. 4 {4, 8, 12, 16, 20, 24}

4. 3 {3, 6, 9, 12}

2. 7 {7, 14, 21, 28, 35}

5. 8 {8, 16, 24, 32}

3. 6 {6, 12, 18, 24, 30, 36}

B. Developmental Activities

1. Motivation

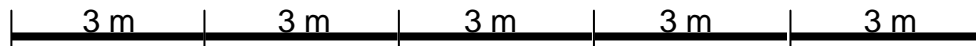
Assist the pupils in measuring the length of their arms. Let them identify who has the same length. Ask, "Why do you think we have different length of arms?"

2. Presentation

Note: The following materials were given as group assignment yesterday.

5 sticks of 3 meters each

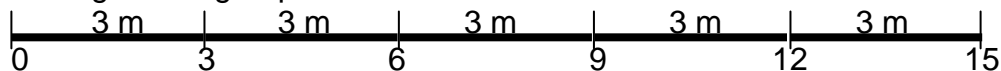
Let the group lay the sticks on the floor end to end in a straight line. Instruct to mark the point where the sticks meet as shown below.



Ask: How long is the combined sticks?

How did you know it?

Ask again the groups to mark the sticks as shown below.

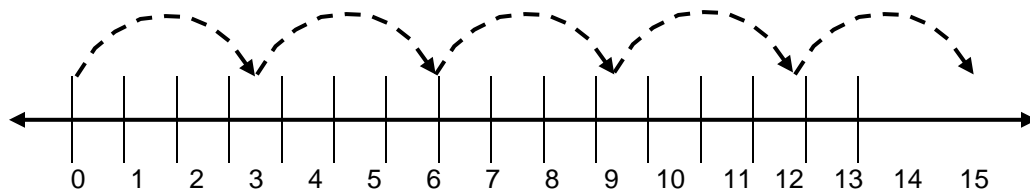


Ask: How long is each stick?

How many sticks were used to reach 15?

If you can jump 3 m, how many jumps can you make?

The present it using a number line as shown below.



Do you have an idea on how we can translate the above situation in an equation? (Call pupils)

Possible answers: $3 + 3 + 3 + 3 + 3 + 3 = 15$

$$5 \times 3 = 15$$

3. Reinforcing Activity - Refer to LM 45

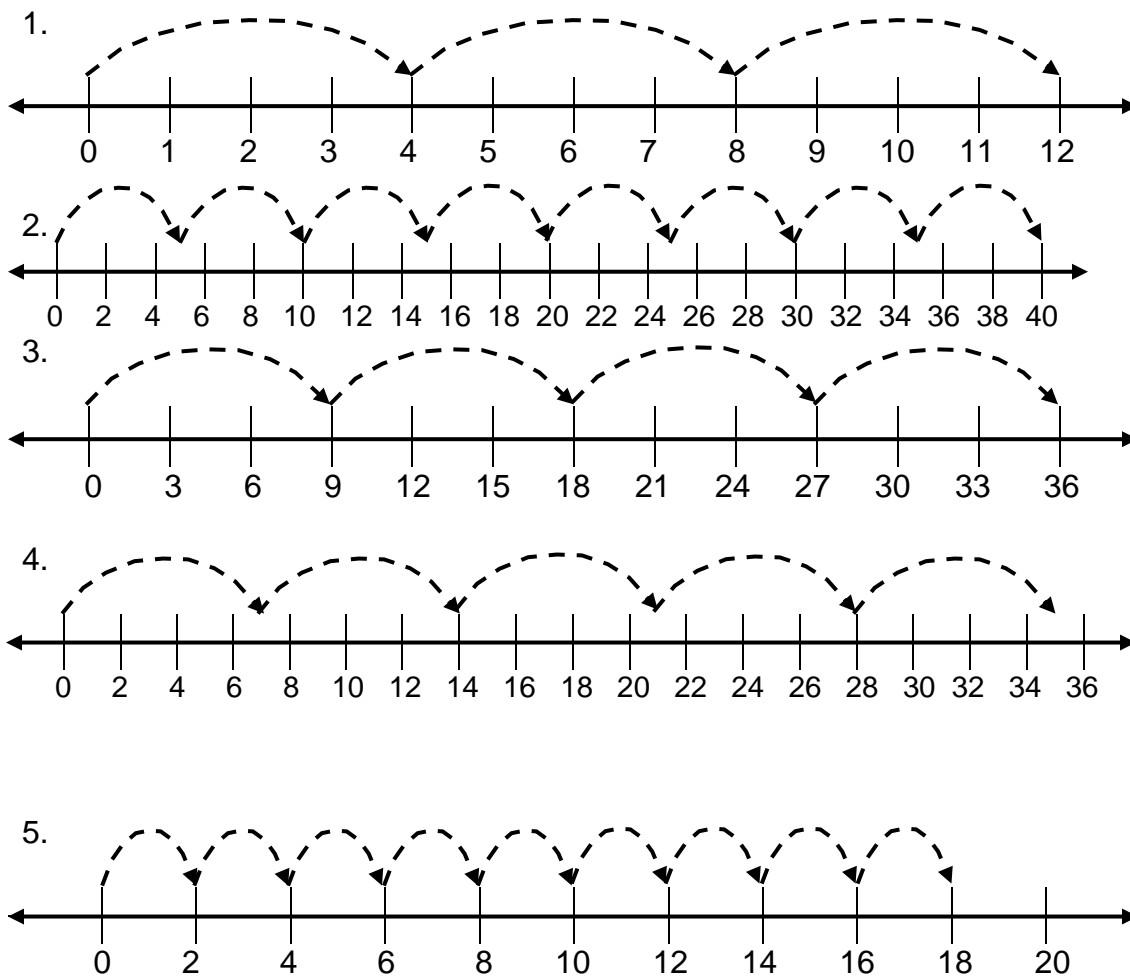
4. Application – Refer to LM 45

5. Generalization

In writing a related equation for multiplication as equal jumps in a number line, the number of jumps serves as the multiplier while the distances between the jumps is the multiplicand.

EVALUATION

Write a related equation for the following number line.



HOME ACTIVITY

Refer to LM 45 – Gawaing Bahay

Teaching Guide for Mathematics Grade 2
Multiplication
Lesson 46

TOPIC: Identity Property of Multiplication

OBJECTIVE

Illustrate the property of multiplication that any number multiplied by one (1) is the same number

PREREQUISITE CONCEPTS AND SKILLS

1. Illustrating multiplication as repeated addition, counting by multiples
3. Writing related equation for each kind of multiplication
4. Using the properties of addition in computing for sums of up to 1000 (Zero/Identity property of addition)

MATERIAL

1. Learning Module
2. Activity sheets
3. marker and manila paper

INSTRUCTIONAL PROCEDURE

A. Preparatory Activities

1. Drill – Do this as group activity.

A. Illustrate the following using repeated addition.

1. 2×8
2. 6×4
3. 5×7

B. Illustrate the following using counting by multiples.

4. 8×5
5. 9×3

2. Review – Do this as group activity.

Answer the following. What property of addition has been shown by this illustration?

1. $2 + 0 =$
2. $7 + 0 =$
3. $5 + 0 =$
4. $9 + 0 =$
5. $6 + 0 =$

B. Developmental Activities

1. Motivation

How do you participate in group activity? Elicit answer from the pupils. Direct them to the idea that each member of the group should participate.

2. Presentation

Show 3 sets of colored counters as shown below:



Ask one pupil to count the counters aloud.

Ask: How many groups of 2's were there in set A?
How many groups of 3's were there in set B?
How many groups of 5's were there in set C?

Ask the pupils if they can still describe the set of counters.

Example: Set A: one group of 2 counters.

Let the pupils draw a representation of the above situation.



Ask someone to write the numerical value of the counters in each set.

Ask: Can anyone write an equation for set A? set B? set C?

Some pupils may write the following:

Set A: $1 + 1 = 2$

Set B: $1 + 1 + 1 = 3$

Set C: $1 + 1 + 1 + 1 + 1 = 5$

If they cannot arrive to the multiplication equation such as 2×1 , 3×1 , 5×1 , ask the following guide questions:

Set A. How many groups of 2's were there?

How many were there in each group?

How many counters were there in all?

Note: Ask the above questions for set B and set C.

3. Reinforcing Activity - Refer to LM 46

4. Application – Refer to LM 46

5. Generalization

Any number multiplied by one (1), the answer is the number.

EVALUATION

Do the following instruction.

A. Illustrate the following using repeated addition.

1. 8×1

2. 5×1

3. 9×1

B. Illustrate the multiplication sentence below using number line.

4. 6×1

5. 7×1

HOME ACTIVITY

Refer to LM 46 – Gawaing Bahay

Teaching Guide for Mathematics Grade 2 Multiplication Lesson 47

TOPIC: Illustrating Zero Property of Multiplication

OBJECTIVE

Illustrate the property of multiplication that zero multiplied by any number is zero

PREREQUISITE CONCEPTS AND SKILLS

1. Illustrating multiplication as repeated addition and counting by multiples
2. Illustrating property of multiplication that any number multiplied by one (1) is the same number
3. Using zero/identity property of addition in computing for sums of up to 1000

MATERIAL

1. Learning Module
2. Activity sheet
3. marker and manila paper
4. bottle caps (5)
5. Chart with story problem

INSTRUCTIONAL PROCEDURE

A. Preparatory Activities

1. Drill on using zero/identity property of addition

Give each pair of pupils this activity sheet. Let them give the answer as fast as they could at your signal.

Example:

$$3 + 0 = \underline{\quad} \qquad 6 + 0 = \underline{\quad} \qquad 8 + 0 = \underline{\quad}$$

$$7 + 0 = \underline{\quad} \qquad 5 + 0 = \underline{\quad} \qquad 4 + 0 = \underline{\quad}$$

What property of addition is shown in the above illustration?

2. Review – Do this as group activity. Give each group a manila paper and marker.

Use repeated addition to illustrate the multiplication below.

$$1. 9 \times 1 \qquad 2. 6 \times 1 \qquad 3. 7 \times 1$$

$$4. 8 \times 1 \qquad 5. 4 \times 1$$

B. Developmental Activities

1. Motivation

Play “Mixing-mixing...saan ang may laman”

Prepare 5 bottle caps. Turn them upside down. Put a small stone inside one of the bottle caps. Mix them then ask one of your pupils to guess which bottle cap has the small stone.

Mix again and call other pupils to guess.

How do you feel when you select the bottle cap without stone?

(Note to the teacher: Do this as a trick. Just show the small stone at the start. Deceive the pupils as if you place the small stone inside the bottle caps.)

2. Presentation

Ask 3 pupils to come in front and extend their arms on the side with palm on top.

Ask: How many palms do you see?

Put two candies on each palm.

Ask: How many candies were there in all? How did you know it?

Can anyone here write the addition or multiplication equation of this?

$$2 + 2 + 2 + 2 + 2 + 2 = 12 \quad \text{or} \quad 6 \times 2 = 12$$

Take away all the candies from the hands of the pupils.

Ask: How many candies can you see now?

Show an illustration of 6 hands with 2 candies and another illustration of hands without candy.

Ask the pupils to write an equation of the hands with candies and of the hands without candy.

Post the equation on the board as shown:

With candy:

$$2 + 2 + 2 + 2 + 2 + 2 = 12 \quad \text{and} \quad 6 \times 2 = 12$$

Without candy:

$$0 + 0 + 0 + 0 + 0 + 0 = 0 \quad \text{and} \quad 6 \times 0 = 0$$

The post, $4 \times 0 = \underline{\hspace{2cm}}$

Ask: What do you think is the answer?

3. Reinforcing Activity - Refer to LM 47

4. Application – Refer to LM 47

5. Generalization.

Zero multiplied by any number the answer is zero.

EVALUATION

Illustrate the following multiplication using repeated addition.

1. 5×0
2. 3×0
3. 9×0
4. 6×0
5. 7×0

HOME ACTIVITY

Refer to LM 47 – Gawaing Bahay

Teaching Guide for Mathematics Grade 2 Multiplication Lesson 48

TOPIC: Commutative Property of Multiplication

OBJECTIVE

Illustrate commutative property of multiplication

PREREQUISITE CONCEPTS AND SKILLS

1. Illustrating multiplication as repeated addition and counting by multiples
2. Illustrating property of multiplication that any number multiplied by one (1) is the same number
3. Using commutative property of addition in computing for sums of up to 1000

MATERIAL

1. Learning Module
2. Activity sheet
3. marker and manila paper
4. Chart with story problem

INSTRUCTIONAL PROCEDURE

A. Preparatory Activities

1. Drill – Do this as group activity. Give each group a marker and manila paper.

Illustrate the following multiplication using repeated addition.

1. $6 \times 7 =$ _____
2. $5 \times 3 =$ _____
3. $9 \times 2 =$ _____
4. $4 \times 8 =$ _____
5. $3 \times 6 =$ _____

Let each group post their outputs after they are done.

2. Review – Do this as group activity. Give each group this activity sheet.

Fill in the missing number.

1. $3 + 5 = \underline{\quad} + 3$
 $\underline{\quad} = \underline{\quad}$

4. $6 + 2 = 2 + 6$
 $\underline{\quad} = \underline{\quad}$

2. $2 + 7 = \underline{\quad}$
 $9 = 9$

5. $\underline{\quad} = 6 + 9$
 $15 = 15$

3. $\underline{\quad} + 8 = 8 + 4$
 $\underline{\quad} = 12$

B. Developmental Activities

1. Motivation

Play "Match Maker"

Give each pupil a multiplication sentence just like as shown below.

2×3 3×2 5×6 6×5 (Prepare as many as the number of your pupils.)

Let the pupils move around and look for they think is their partner or match.

Let them explain why they chose their partner.

2. Presentation

Group the pupils into 6 groups. Give each group 28 pieces of shells. Tell the first 3 groups to group the shells into 4 groups with the same number of shells then the remaining group to 7 groups with the same number of shells.

This time pair the groups. (1 and 3, 2 and 4, 5 and 6)

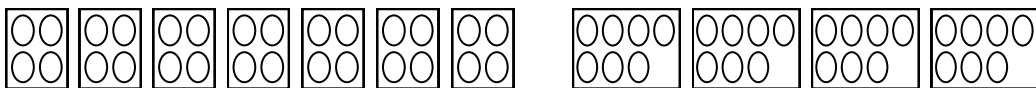
Ask: What is the difference between the two groups paired?

What is the common between the two groups paired?

Present an illustration of the above situation as shown below:

7 groups of 4

4 groups of 7



Ask: How many shells were there in the first group?

How about on the second group?

Let the pupils write an equation for 7 groups of 4 and 4 groups of 7.

$7 \times 4 = 28$ and $4 \times 7 = 28$

Ask the pupils on their observation with regards to pattern?

Then introduce the term "commutative property of multiplication".

Let them tell something about the property using their observation on the two equations.

Ask also some pupils to give examples wherein commutative property is shown. Let that pupil explain his answer.

3. Reinforcing Activity - Refer to LM 48

4. Application – Refer to LM 48

5. Generalization.

Commutative Property of Multiplication (CPM) states that changing the order of the factors does not affect the product. To illustrate CPM, get the reverse of the multiplication then use repeated addition, counting by multiples and equal jumps in number line.

EVALUATION

Illustrate commutative property of multiplication using repeated addition.

1. $5 \times 8 = 8 \times 5$

2. $4 \times 5 = 5 \times 4$

3. $6 \times 7 = 7 \times 6$

4. $8 \times 4 = 4 \times 8$

5. $9 \times 6 = 6 \times 9$

HOME ACTIVITY

Refer to LM 48 – Gawaing Bahay

Teaching Guide for Mathematics Grade 2 Multiplication Lesson 49

TOPIC: Multiplication Table of 2, 3, 4

OBJECTIVE

Construct and fill up the multiplication table of 2, 3 and 4

PREREQUISITE CONCEPTS AND SKILLS

1. Illustrating multiplication as repeated addition, counting of multiples and equal jumps in a number line
2. Writing related equation for each kind of multiplication

MATERIAL

1. Learning Module
2. Activity sheets

INSTRUCTIONAL PROCEDURE

A. Preparatory Activities

1. Drill – Do this as group activity. Give each group a marker and manila paper.

Illustrate the following using:

Repeated addition: 3×6 and 4×7

Counting of multiples: 2×8 and 4×3
Equal jumps in a number line: 3×5 and 2×9
Let them post their output and discuss briefly.

2. Review – Do this in pairs.

Write a related equation for the following.

1. $2 + 2 + 2 + 2 + 2$
2. $3 + 3 + 3 + 3 + 3 + 3 + 3$
3. $4 + 4 + 4$
4. $3 + 3 + 3 + 3 + 3$
5. $4 + 4 + 4 + 4$

B. Developmental Activities

1. Motivation

Play “Bugtungan Tayo”. You will start.

Example: What is the result if we add 2 seven times?

The pupil who gives the correct answer takes turn.

2. Presentation

Present the following group of objects.

1. 2 groups of 2 pencils
2. 3 groups of 2 ballpen
3. 4 groups of 2 erasers

Ask: How many groups of pencils were there?

How many pencils were there in each group?

How many pencils were there in all?

(Ask these questions for ball and erasers)

Ask the pupils to write a related equation of the above situation using repeated addition. You may ask the pupils to show other ways.

Now show an illustration of the above situation.

Ask: How many groups of objects were there in number 1? 2? 3?

How many objects were there in each group?

How many objects were there in all?

(You may call some pupils to count the illustration.)

This time show the multiplication equation of the above situation as shown below:

1. $2 \times 2 = 4$ or $2 + 2 = 4$
2. $3 \times 2 = 6$ or $2 + 2 + 2 = 6$
3. $4 \times 2 = 8$ or $2 + 2 + 2 + 2 = 8$

3. Reinforcing Activity - Refer to LM 49

4. Application – Refer to LM 49

5. Generalization.

To construct and fill up the multiplication table it is necessary to master multiplication as repeated addition and counting by multiples.

EVALUATION

Spot the error in the multiplication table below.
Then give the correct answer.

x	0	1	2	3	4	5	6	7	8	9	10
2	0	2	5	7	8	9	12	14	17	18	20
3	0	3	6	8	12	13	18	21	25	27	30
4	0	2	4	8	16	20	21	28	28	30	40

HOME ACTIVITY

Refer to LM 49 – Gawaing Bahay

Teaching Guide for Mathematics Grade 2 Multiplication Lesson 50

TOPIC: Multiplication Tables of 5 and 10

OBJECTIVE

Construct and fill up the multiplication tables of 5 and 10

PREREQUISITE CONCEPTS AND SKILLS

1. Multiplication as repeated addition, counting of multiples and equal jumps in a number line
2. Constructing and filling up multiplication tables of 2, 3, and 4

MATERIAL

1. Learning Module
2. Activity sheets
3. manila paper and marker

INSTRUCTIONAL PROCEDURE

A. Preparatory Activities

1. Drill – This will be done by groups.
Illustrate the following using repeated addition.
1. 2×3
2. 2×9
3. 5×6
4. 6×4
5. 4×7

2. Review - Do this as group activity. Distribute a marker and a piece of manila paper to each group.

Construct and fill up multiplication table of:

Group 1 – table of 2

Group 2 – table of 3

Group 3 – table of 4

Post your work after completing the table.

B. Developmental Activities

1. Motivation

Play this modified “Basketball Shoot (2x)”.

Group the pupils into five. Let them think of their group name.

Select a group to start.

Instead of saying “Basketball Shoot (2x) pass to Volleyball spike, the group will say multiplication sentence. The group that receives a pass will answer first the multiplication before chanting.

Example:

2 x 3 (2x) pass to Dog’s group.

Dog’s group will answer first before chanting. Example: 5 x 6 (2x) pass to cat’s group.

2. Presentation

Tell the pupils that you will play a game.

Say: Group yourselves into a group with 5 members.

Note: Ask those pupils who are not included in the group to sit down.

Ask: How many groups were formed?

How many members were there in each group?

Show 2 sets of illustrations on the board.

Set A: 5 groups of 2 pupils

Set B: 10 groups of 3 pupils

Ask: How many groups were there in set A? set B?

How many pupils were there in each group in A? in B?

How many pupils were there in all in set A? in set B?

Ask the pupils to write an equation for the above situation either in repeated addition or multiplication.

Example: $5 \times 2 = 10$ or $2 + 2 + 2 + 2 + 2 = 10$

$10 \times 3 = 30$ or $3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 = 30$

3. Reinforcing Activity - Refer to LM 50

4. Application – Refer to LM 50.

5. Generalization.

In order to fill up the multiplication table, it is necessary to master multiplication as repeated addition and counting by multiples.

EVALUATION

Complete the multiplication table below. Do this on your paper.

X	1	2	3	4	5	6	7	8	9	10
5										
10										

HOME ACTIVITY

Refer to LM 50 – Gawaing Bahay

Teaching Guide for Mathematics Grade 2 Multiplication Lesson 51

TOPIC: Multiplying Mentally

OBJECTIVE

Multiply mentally to fill up the multiplication tables of 2, 3, 4, 5 and 10

PREREQUISITE CONCEPTS AND SKILLS

1. Constructing and filling up multiplication tables of 1, 2, 3, 4, 5, and

MATERIAL

1. Learning Module
2. marker and manila paper
3. question box
4. empty bottle
5. Chart of multiplication table (2, 3, 4, 5 and 10)

INSTRUCTIONAL PROCEDURE

A. Preparatory Activities

1. Drill

Conduct drill on mental addition.

Think of an addition sentence. Call one pupil to answer it. If his/her answer is correct, he/she will take turn.

2. Review – Do this as group activity. Give each group a marker and a piece of manila paper.

Construct and fill up multiplication table of:

Group 1 – Table No. 2

Group 4 – Table No. 5

Group 2 – Table No. 3

Group 5 – Table No. 10

Group 3 – Table No. 4

Then let them post their output.

B. Developmental Activities

1. Motivation

Take turns in asking “What is the result of adding 8 four times?”

The pupil who gives the correct answer will take his turn in asking question.

2. Presentation

Tell the pupils to prepare to prepare pebbles or counters.

Flash multiplication cards.

Example: 2 groups of 5

Let the pupils form groups using pebbles or counters.

Ask: How many groups were formed?

How many pebbles/counters were there in each group?

How many pebbles or counters were there in all?

Flash at least 5 cards. (4 groups of 2, 5 groups of 3, 3 groups of 7)

Show illustration of objects with:

1. 2 groups of 3 dogs
2. 3 groups of 4 cats
3. 4 groups of 2 chickens
4. 5 groups of 5 worms
5. 10 groups of 4 birds

Ask the following questions after the flashing of cards.

1. How many groups of _____ were there in all?
2. How many _____ were there in each group?
3. How many _____ were there in all?

Then flash multiplication cards. Let the pupils answer it mentally.

3. Reinforcing Activity – Refer to LM 51

4. Application – Refer to LM 51

5. Generalization

To multiply mentally, add the multiplicand as fast as you can many times as determine by the divisor.
 Your mastery in multiplication as repeated addition, counting by multiples and construction and filling up of multiplication table are very helpful in filling up multiplication table mentally.

EVALUATION

Fill up the multiplication table below mentally.

x	0	1	2	3	4	5	6	7	8	9	10
2											
3											
4											
5											
10											

HOME ACTIVITY

Refer to LM 51 – Gawaing Bahay

**Teaching Guide for Mathematics Grade 2
 Multiplication
 Lesson 52**

TOPIC: Analyzing and Solving One-Step Word Problem

OBJECTIVE

Analyze and solve one-step word problems involving multiplication of whole numbers including money

PREREQUISITE CONCEPTS AND SKILLS

1. Analyzing and solving one-step word problems involving subtraction of whole numbers including money
2. Illustrating multiplication as repeated addition and counting by multiples
3. Writing related equation for each type of multiplication

MATERIAL

1. Learning Module
2. Activity Cards/Sheets
3. Strips of manila paper with questions in analyzing the problem
4. Illustration of a boy watering plants
5. Chart with story problem

INSTRUCTIONAL PROCEDURES

A. Preparatory Activities

1. Drill – Do this as group activity.
Let them construct fill up the multiplication tables of 2, 3, 4, 5, and 10 as fast as they could. The first group to finish will received a reward.
2. Review – Do this as group activity. Give each group this activity sheet. Let them report their output.

Problem:

Maria and Ana have ₦ 50.00 and ₦ 30.00 respectively. How much money do they have in all?

1. Who can state the problem in his own word?
2. Underline what is asked in problem.
3. Who can state the question in statement form?
4. Who can solve the problem with a complete solution?

B. Developmental Activities

1. Motivation

Show an illustration of a boy watering plants.

Let them describe what they saw.

Bring the pupils to the idea of taking care of plants.

2. Presentation

Write this on a manila paper.

Dave reads 4 pages of a story book everyday. How many pages can he read in 5 days?

Ask: Who can state the problem in his own words? How do you understand the problem? Can you tell us about it?

Who can go to the board and underline what is asked in the problem?

Can you write it in a statement form?

This time group the pupils into 5 groups. Give each group 20 pieces of colored paper or coupon bond.

Tell them that the pieces of paper represent the pages of the book.

Instruct the pupils to group the pieces of paper to show the number of pages Dave can finish in 5 days?

Ask: How many pages can he finish in a day?

How many pages can he finish in 5 days?

Let the group draw the number of pages per day for 5 days as shown.

1 st day	2 nd day	3 rd day	4 th day	5 th day
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

How many pages were there in all?

Let the pupils write the numerical value of the pages per day.

4 4 4 4 4

Ask: What equation can you make of the given situation?

3. Reinforcing Activity - Refer to LM 52

4. Application – Refer to LM 52

5. Generalization.

Use the following guide in analyzing word problem.

1. State the problem in your own word.
2. Determine what is asked by underlining it.
3. State the question in statement form.
4. Solve the problem with complete solution.

EVALUATION

Read the following problem then answer these guide questions/instructions.

You can use different solutions.

1. State the problem in your own word.
2. Determine what is asked by underlining it.
3. State the question in statement form.
4. Solve the problem with complete solution.

A. A box weighs 2 kg. What is the total weight of 4 boxes?

B. The price of one ice candy is ₱ 5.00. How much will you pay for 6 pieces of ice candy?

HOME ACTIVITY

Refer to LM 52– Gawaing Bahay

Teaching Guide for Mathematics Grade 2 Multiplication Lesson 53

TOPIC: Analyzing and Solving Two-Step Word Problem

OBJECTIVE

Analyze and solve two-step word problems involving multiplication of whole numbers as well as addition and subtraction including money

PREREQUISITE CONCEPTS AND SKILLS

1. Analyzing and solving one-step word problems involving multiplication of whole numbers including money
2. Addition and Subtraction of whole numbers

MATERIAL

1. Learning Module
2. Activity Cards/Sheets
3. Chart with story problem
4. Illustration of a boy plating on his vegetable garden

INSTRUCTIONAL PROCEDURE

A. Preparatory Activities

1. Drill

Drill the pupils in addition and subtraction of whole numbers using flashcards.

Play “Rolling Multiplication”.

Think of a multiplication (4×5). Then say, I roll this multiplication to (call one of your pupils). He/She will answer the multiplication. If his/her answer is correct, he/she will take turn.

2. Review – Do this as group activity. Give each group this activity sheets.

Read the problem below then answer the questions that follow.

Eggplant seedlings were planted 8 seedlings per row. If there were 3 rows, how many eggplant seedlings were planted?

1. State the problem in your own word.
2. Underline what is asked.
3. State the question in statement form.
4. Solve the problem with complete solution.

B. Developmental Activities

1. Motivation

Show an illustration of a boy planting on his vegetable garden.

Ask: What does the boy do?

Is it good to have a vegetable garden at home? Why?

2. Presentation

Write the problem on a manila paper.

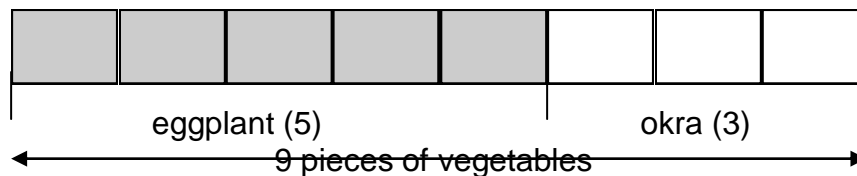
Mario harvested 5 okras and 4 eggplants from his garden. He sold the vegetables in their neighbors at ₱ 3.00 each. How much is his total sales?

Ask some pupils to restate the problem on their own words.

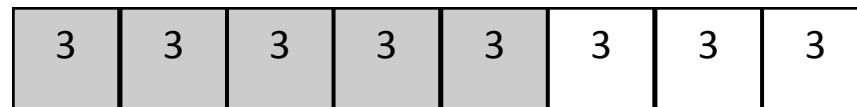
Call one pupil to underline the question.

Ask pupils to restate the question in a statement form.

Show this bar to represent the problem above.



Then:



Use repeated addition:

$$3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 = 27$$

or multiplication equation:

$$9 \times 3 = 27$$

Ask the pupils if they have other solution for the problem. Let them show it.

3. Reinforcing Activity – Refer to LM 53

4. Application – Refer to LM 53

5. Generalization.

Use the following guide in analyzing word problem.

1. State the problem in your own word.
2. Determine what is asked by underlining it.
3. State the question in statement form.
4. Solve the problem with complete solution.

Review your work if it makes sense.

EVALUATION

Use the following guide in analyzing the word problems below.

1. State the problem in your own word.
2. Determine what is asked by underlining it.
3. State the question in statement form.
4. Solve the problem with complete solution.

A. Five boys and 2 girls were given ₱ 10.00 each.
How much did they receive in all?

B. There were 5 contestants at the start. Three were eliminated.
The remaining contestants will be given 3 questions each. How
many questions should be prepared?

HOME ACTIVITY

Refer to LM 53 – Gawaing Bahay

Teaching Guide for Mathematics Grade 2 Division Lesson 54

TOPIC: Division as Separation of Sets into Equal Parts

OBJECTIVE

Model and describe division situations in which sets are separated into equal parts

PREREQUISITE CONCEPTS AND SKILLS

1. Recognizing sets of objects of up to 20 elements
2. Representing the concept of subtraction by taking away and comparing two sets
3. Subtracting group of equal quantity using concrete objects
4. Counting and telling how many objects there are in a given set

MATERIALS

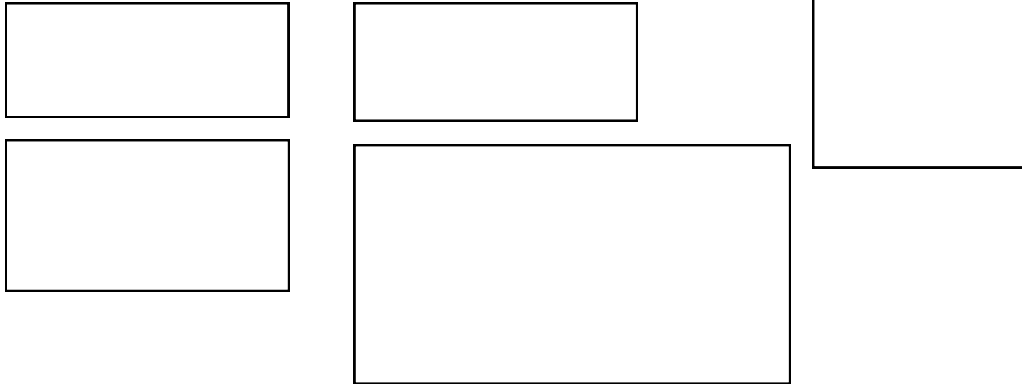
1. Learning Module
2. Illustrations
3. Stones, Counters

INSTRUCTIONAL PROCEDURE

A. Preparatory Activities

1. Drill – Do this in a form of a contest

Give each group this activity card. Let them recognize how many sets of object they can form from the given illustration. The first group to post their work wins.



2. Review

Group the pupils with 3 members in each group. Provide counters or pebbles. As starter, each group should have at least 20 counters/pebbles.

Give them the instruction on grouping the objects.

Example: Give me a group of 10 counters/pebbles.

B. Developmental Activities

1. Motivation – Do this as group activity.

Form at least 5 groups. Give them one illustration as shown here (right) in a one whole coupon bond. You may give different illustrations for every group.



Say: Let us make a puzzle. Cut the picture into 6 equal parts in any way you like.

Let them exchange puzzle. At your signal, the groups will race in assembling the puzzle. The first group to assemble wins.

Process what they did particularly in cutting the pictures to form a puzzle.

Let them come up with the idea of separation into equal parts.

2. Presentation

Group the pupils into five groups. Ask them to collect 10 pencils (ballpen, coins, eraser, crayon etc)

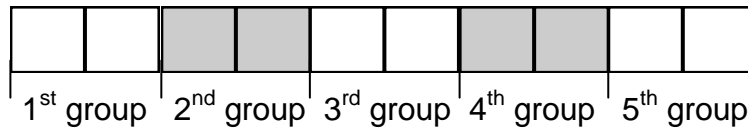
Say: Separate them into two groups and five groups.

Ask: How many groups were formed?

How many objects were there in each group?

Ask the groups to draw the objects they have collected and grouped. They may bar a line or any representation of the objects.

Example:



Ask: How many groups of 2's can you make out of 10 pencils?
How many groups of 5's can you make out of 10 pencils?

If we will separate the set of 10 pencils into 3 groups, would it be possible that all pencils will be included in the group? Why? Why not?

3. Reinforcing Activity - Refer to LM 54

4. Application – Refer to LM 54

5. Generalization

Division situations can be modeled and described as separation of sets into equal parts.
--

EVALUATION

Let the pupils get counters of up to 30 pieces. Then model the following division situations. Go around and check the work of the pupils.

1. There was a set of 18 books.
They were separated into 3 shelves with equal number of books per shelf.
How many books were there in each shelf?
2. A set of 16 mangoes was separated into 4 bags with equal number of mangoes in each bag.
How many mangoes were there in each bag?
3. A set of twenty-five peso coins was separated equally into five boxes.
How many pesos were there in each box?
4. A set of twenty-one pupils was separated equally into 7 groups.
How many pupils were there in each group?
5. There was a set of twenty-four fruits separated equally into 4 fruit trays.
How many fruits were there in each fruit tray?

HOME ACTIVITY

Refer to LM 54 – Gawaing Bahay

Teaching Guide for Mathematics Grade 2
Division
Lesson 55

TOPIC: Division as Equal Sharing

OBJECTIVE

Represent division as equal sharing

PREREQUISITE CONCEPTS AND SKILLS

1. Modelling and describing division situations in which sets are separated into equal parts
2. Subtracting group of equal quantity using concrete objects

MATERIAL

- | | |
|------------------------------|---------------------------------|
| 1. Learning Module | 4. Counters |
| 2. manila papers and markers | 5. paper and a pair of scissors |
| 3. Activity cards/sheets | 6. Chart with story problem |

INSTRUCTIONAL PROCEDURE

A. Preparatory Activities

1. Drill – Use counters

Distribute counters to each pupil. Then give the following instruction:

1. Count 6 counters. Separate them into 2 equal parts.
2. Show 10 counters. Separate them into 5 equal parts.
3. Prepare 12 counters. Separate them into 4 equal parts.

(You may modify this according to the availability of materials.)

2. Review – Do this as group activity. Let each group present their outputs.

Model the following division situation using illustration. You may use any shape to represent each object in the problem.

1. 9 wristwatches were separated into 3 boxes
2. 8 baskets were separated into 4 mothers
3. 12 glasses were separated in 2 glass tray
4. 15 horses were separated into 5 trucks
5. 15 papayas were separated into 7 baskets

B. Developmental Activities

1. Motivation

Let each pupil get a scratch paper. Then teach him how to make a paper boat or airplane.

2. Presentation

Group the pupils into five groups. Instruct them to get one whole

sheet of paper. Guide them in folding the paper 4 times. Use a pair scissor to cut the folded paper following the marks.

Ask: How many pieces were made? (16)

Activity: (Actual)

For the first member of the group:

Share equally the pieces of paper to your 4 classmates.

How many pieces did each of them receive? (4)

For the second member:

Share equally the pieces of paper to your 8 classmates.

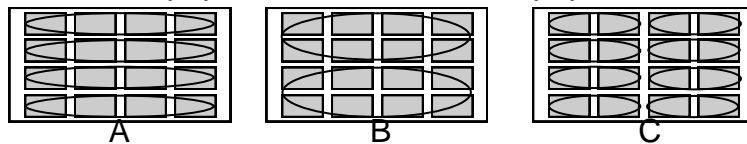
How many pieces did each of them receive? (2)

For the third member:

Share equally the pieces of paper to your 2 classmates.

How many pieces did each of them receive? (8)

Show 3 sets of 16 papers drawn in a manila paper or cartolina.



Ask: Into how many groups was set A divided? set B? set C?

How many groups were there in set A? set B? set C?

How many members were there in each group?

3. Reinforcing Activity - Refer to LM 55

4. Application – Refer to LM 55

5. Generalization

Division can be presented using equal sharing.

EVALUATION

Present the following division situations using equal sharing.

Use any shapes to represent the objects in each problem.

Then answer the question that follows.

1. Share equally 15 pieces of mangoes to 5 people.

How many pieces of mango will each of them get?

2. Equally share 12 pieces of biscuits to your 12 friends.

How many pieces of biscuits will each of them receive?

3. Share equally the 8 slices of cake to your 4 friends.

How many slices will each of them get?

4. Share equally 20 pieces of rambutan to 10 of your friends. How many rambutan will you give to each of them?

5. Share equally ₱ 18.00 to you and your three brothers.
How much will each of you get?

HOME ACTIVITY

Refer to LM 55 – Gawaing Bahay

Teaching Guide for Mathematics Grade 2

Division

Lesson 56

TOPIC: Division as Repeated Subtraction

OBJECTIVE

Represent division as repeated subtraction

PREREQUISITE CONCEPTS AND SKILLS

1. Writing subtraction equations
2. Subtracting whole numbers up to 1000
3. Modelling and describing division situations in which sets are separated into equal parts
4. Representing division as equal sharing

MATERIAL

1. Learning Module
2. Illustrations
3. Activity cards/sheets
4. Flashcards of subtraction facts
5. Counters

INSTRUCTIONAL PROCEDURE

A. Preparatory Activities

1. Drill

Flash subtraction cards as drill.

2. Review – Do this as group activity.

Let the group use counters to model division as equal sharing.
Then let them write the answer.

1. Share equally 100 pieces of paper to 25 pupils.
2. Share equally 28 ballpoints to 7 children.
3. Share 16 pencils to 8 participants.
4. Share 30 erasers to 10 sections.
5. Share 14 sharpeners to 14 pupils.

B. Developmental Activities

1. Motivation

Play “Trip to Jerusalem”. But in this game instead of eliminating one player, 2 players will be eliminated.

Every elimination ask the class if how many were left.
 Connect this activity to the next activity in the presentation.

2. Presentation

Present this situation written on a piece of manila paper.
 ₱ 20.00 was equally divided to 5 children.

Show ₱ 20.00 to the pupils. (Note: Make sure that twenty pesos is in the form of ₱ 1.00 coin).

Call 5 pupils in front.

Ask one pupil to divide the money among the 5 pupils.

Ask: How much did each of them receive?

Repeat the process. This time you divide the money among the 5 pupils.

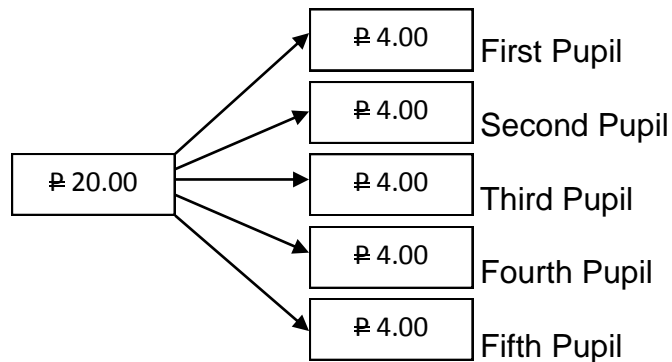
Ask: How much money do I have in all?

Say: I will give ₱ 4.00 to (first pupil). How much was left to me?

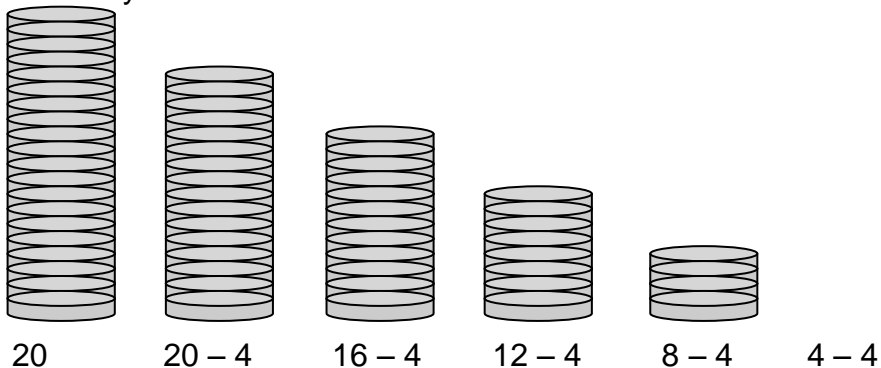
Give another 4 to the second, third, fourth and fifth pupil.

Ask: How much was left to me?

Present this illustration:



You may use this illustration:



Show the process of subtraction as this:

$$20 - 4 = 16$$

$$16 - 4 = 12$$

$$12 - 4 = 8$$

$$8 - 4 = 4$$

$$4 - 4 = 0$$

3. Reinforcing Activity - Refer to LM 56

4. Application – Refer to LM 56

5. Generalization

Division can be represented using repeated subtraction.

EVALUATION

Show the following division situations using repeated subtraction.

1. ₱ 10.00 was divided equally to 5 pupils.
2. Thirty pieces of vitamins were divided equally to 10 athletes.
3. Twenty pieces of “neon papers” were divided equally to 5 pupils.
4. Fifteen pieces of fishballs were equally divided to 3 plates.
5. Thirty-six pupils were equally divided to 6 groups.

HOME ACTIVITY

Refer to LM 56 – Gawaing Bahay

Teaching Guide for Mathematics Grade 2 **Division** **Lesson 57**

TOPIC: Division as Equal Jumps in a Number Line

OBJECTIVE

Represent division as equal jumps on a number line

PREREQUISITE CONCEPTS AND SKILLS

1. Illustrating multiplication as equal jumps in a number line
2. Modelling and describing division situations in which sets are separated into equal parts
3. Representing division as equal sharing
4. Representing division as repeated subtraction

MATERIAL

1. Learning Module
5. manila paper and marker

- | | |
|----------------------------------|------------|
| 2. Illustration of a number line | 6. Pebbles |
| 3. Stones | 7. ruler |
| 4. Flashcards | |

INSTRUCTIONAL PROCEDURE

A. Preparatory Activities

1. Drill

Prepare 5 sets of 30 stones. Group the pupils into five.

The first player will come near the table. Then the teacher will say, count 20 stones and divide them into 4. The first to show the correct grouping wins.

Continue until all the members of the groups had played. Use other numbers such as 30, 45, 18, 36, etc.

2. Review – Do this as group activity. Give each group a manila paper and marker.

Let the group present the following division situations using repeated subtraction.

1. Twelve books were equally shared by six pupils.
2. Ten candies were equally divided among five friends.
3. Fifteen notebooks were equally shared to five typhoon victims.
4. Eight watermelons were shared equally by four mothers.
5. Nine pencils were given equally to three boys.

B. Developmental Activities

1. Motivation

Let the class sing this song then act the action words.

(Tune: Are You Sleeping)

Walking, walking (2x)

Hop, hop, hop (2x)

Jumping, jumping, jumping (2x)

Now STOP (2x)

(Connect hopping with equal jumps in a number line.)

2. Presentation

Give each group a string of different lengths (G1-6m, G2-8m, G3-10m, G4-12m, G5-14m). Instruct them to divide and cut the strings into (G1-3, G2-2, G3-5, G4-4, G5-7).

Call the first group. Let four members hold the string end to end.

Ask:

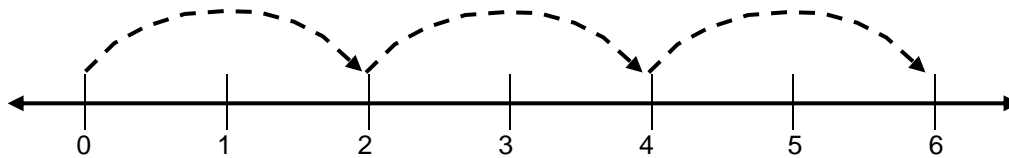
What is the length of the string? 6 m

How many cuts were made? 3

How long do you think is each cut? 2m

Therefore if 6 will be divided into 2 meters we can make 3 pieces.

Show this using a number line as shown below.



Process also the other strings.

Ask: If we cut the string into 6 equal parts, how long will each piece be?

Let the pupils show their solution in any way using their previous knowledge.

3. Reinforcing Activity - Refer to LM 57

4. Application – Refer to LM 57

5. Generalization

Division can be presented using equal jumps on a number line.

EVALUATION

Present the following division situations using equal jumps in a number line.

1. Divide a 28-meter rope into 7 pieces of equal length.
2. Divide a 36-cm bamboo split into 6 pieces with equal length.
3. Divide into 6 pieces with equal length the 18 feet steel bar.
4. Divide into 2 pieces of equal length a 10 feet coco-lumber.
5. Divide a 6-meter of tying wire into 3 pieces with equal length.

HOME ACTIVITY

Refer to LM 57 – Gawaing Bahay

Teaching Guide for Mathematics Grade 2

Division

Lesson 58

TOPIC: Division as Formation of Equal Groups of Objects

OBJECTIVE

Represent division as formation of equal groups of objects

PREREQUISITE CONCEPTS AND SKILLS

1. Models and describes division situations in which sets are separated into equal parts
2. Represents division as equal sharing, repeated subtraction

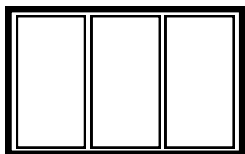
MATERIAL

1. Learning Module
2. Activity sheets
3. Chart with story problem and division situations
4. Illustrations of objects
5. manila paper and marker

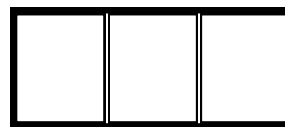
INSTRUCTIONAL PROCEDURE

A. Preparatory Activities

1. Drill – Do this as group activity. Give each group a manila paper where they will write the answer.
Describe the following division situations.



Example: The 6 mangoes were grouped into three groups.



Each group contains 2 pieces of mango.

2. Review – Do this as paired activity. Write the following division situations in a chart.

Let each pair answer the following division situations.

1. If you will share equally 12 squidballs to 3 persons, how many squidballs will you give to each of them?
2. If you will equally share 8 guavas to 4 children, how many guavas will they receive?
3. If you will equally share 16 biscuits to your 4 friends, how many biscuits will each of them get?
4. If you will share equally 14 pieces of banana chips to 2 children, how many pieces of banana chips will they receive?
5. If you will share equally 21 boiled sweet potato to your 7 friends, how many pieces of boiled sweet potato will you give each of them?

B. Developmental Activities

1. Motivation

Play “The Boat is Sinking”.

Example: The boat is sinking.....Group yourselves into 4.

Continue the game and process what they did.

What did you do?

2. Presentation

Group the pupils into 6 groups.

Give each group the following: (You may choose other objects which are available inside your classroom.)

- Group 1 and 2 - 15 pieces of pebbles each group
- Group 3 and 4 - 15 pieces of popsicle sticks each group
- Group 5 and 6 - 15 pieces of coin (play money) each group

Give this instruction:

Group the materials into 3 groups of equal objects. Make sure that there will be no objects left.

Ask: How many groups of (_____) were made?

How many were there in each group?

If we divide 15 into 3, what is the answer?

Say: Group the materials into 5 groups.

Ask: How many groups were made?

How many were there in each group?

Let the group draw on a manila paper the materials they have grouped.

Then ask them to group the objects into 3 by ringing the objects.

Let the group post and explain their work.

3. Reinforcing Activity - Refer to LM 58

4. Application – Refer to LM 58

5. Generalization

Division can be presented using formation of equal groups of objects.

EVALUATION

Follow the instructions below. You may use any shape.

1. Form groups of objects to show 15 balls divided into 5 groups.
2. Form groups of objects to show 18 pieces of pencils divided into 3.
3. Form groups of equal objects to show 50 erasers divided into 5 groups.
4. Form groups of equal objects to show 21 books divided into 3 groups.
5. Form groups of equal objects to show 35 pieces of ballpen divided into 7 groups.

HOME ACTIVITY

Refer to LM 58 – Gawaing Bahay

Teaching Guide for Mathematics Grade 2
Division
Lesson 59

TOPIC: Writing Related Equation

OBJECTIVE

Write related equation in equal sharing

PREREQUISITE CONCEPTS AND SKILLS

1. Presenting division as equal sharing, repeated subtraction, formation of equal groups of objects
2. Identifying and writing numbers
3. Identifying and writing operation symbols

MATERIAL

- | | |
|--------------------------|----------------------------|
| 1. Learning Module | 4. Flashcards |
| 2. Illustrations | 5. Concrete objects |
| 3. Activity cards/sheets | 6. manila paper and marker |

INSTRUCTIONAL PROCEDURE

A. Preparatory Activities

1. Drill – Do this as group activity

Let the group show the following division situations using concrete objects available in their group.

- | | |
|-------------------------------|--------------------------------|
| 1. 6 is divided into 2 groups | 4. 15 is divided into 3 groups |
| 2. 9 is divided into 3 groups | 5. 18 is divided into 9 groups |
| 3. 8 is divided into 4 groups | |

2. Review – Do this as group activity.

Present the following division situations as equal sharing. You may draw any shape.

1. Fifteen guavas were shared equally to five children
2. ₱ 10.00 was shared equally to 2 pupils.
3. Twenty pieces of paper were shared equally to four friends.
4. Twelve pieces of banana were shared equally to five monkeys.
5. Six watermelons were shared equally to six mothers.

B. Developmental Activities

1. Motivation

Ask the pupils to get one whole sheet of paper. Then fold it three times and cut along the lines.

Tell the class to imagine that the pieces of paper are money. They will donate the money to the victims of typhoon.

Say:

Share your money to 4 people. Call one pupil to demonstrate how many pieces of money he/she will give to each of them.

(Call some more pupils to demonstrate other situation.)

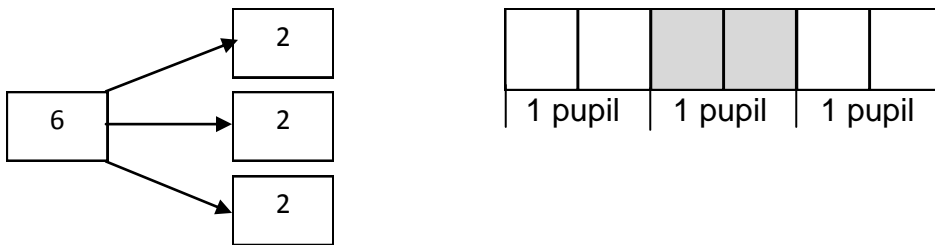
2. Presentation

Prepare 6 candies. Call 3 pupils then ask them to share equally the candies among them.

Ask: How many pupils shared the candies?

How many candies did each of them receive?

Show these illustrations:



Ask the pupils to write related equation of the above situation.

Example: $6 - 2 = 4$ and $6 \div 2 = 3$

$$4 - 2 = 2$$

$$2 - 2 = 0$$

If you feel the pupils cannot write an equation, guide them with the following questions:

1. How many candies were there in all? 6
2. How many pupils will share the candies? 3
3. How many candies will each of them receive? 2

Then write the equation: $6 \div 2 = 3$

3. Reinforcing Activity - Refer to LM 59

4. Application – Refer to LM 59

5. Generalization

In writing related equation using equal sharing, count the total number of objects in the set then divide it with the total number within the group. The answer will be the total number of groups.

OR

The dividend is the total number of objects in the set while the divisor is the number of objects in each group. The total group is the quotient.

EVALUATION

Write a division equation for each of the following situations.

1. Six pairs of slippers were equally shared to three pupils.
Equation: _____
2. Five classmates shared equally ten pieces of rambutan.
Equation: _____
3. Two kids shared equally the two puppies.
Equation: _____
4. Sixteen chocolates were shared equally by eight cousins.
Equation: _____
5. Twelve pencils were equally shared by four indigent pupils.
Equation: _____

HOME ACTIVITY

Refer to LM 59 – Gawaing Bahay

**Teaching Guide for Mathematics Grade 2
Division
Lesson 60**

TOPIC: Writing Related Equation

OBJECTIVE

Write related equation in repeated subtraction

PREREQUISITE CONCEPTS AND SKILLS

1. Representing division as repeated addition
2. Writing related equation for equal sharing
3. Subtracting whole numbers

MATERIAL

1. Learning Module
2. Activity sheet (division situation)
3. manila paper and marker

INSTRUCTIONAL PROCEDURE

A. Preparatory Activities

1. Drill – Do this as group activity.
Give each group this activity sheet.
Present the following division situation using repeated subtraction.
 1. Eighteen candles were divided equally to six customers.
 2. Thirty-five toys were shared equally to fifteen children.
 3. Sixty pieces of boiled banana were shared equally to 12 workers.
 4. Twenty-seven marbles were divided equally to three boys.
 5. Twenty dancers were grouped equally into 4.

2. Review – Do this as group activity.
Write a related division equation for the following situations.
 1. Fourteen gifts were shared equally to seven babies.

2. Thirty-six lanzones were shared equally by six friends.
3. Eight slices of pizza were shared equally to four visitors.
4. A footlong bread was cut into four pieces and shared equally by four persons.
5. A whole cake cut into ten slices was shared equally by five children.

B. Developmental Activities

1. Motivation

Let the class sing "Paru-parung Bukid". The lyrics should be written on a manila paper. Cover some of the lyrics every time they repeat on singing. Continue until all the lyrics are covered. See if they can memorize the song.

The idea here is repeated subtraction of words.

2. Presentation

Prepare 12 pieces of pad paper.

Ask: Who wants to have this pad paper?

Give 3 pieces of paper to one of the pupils.

Ask: How many were left?

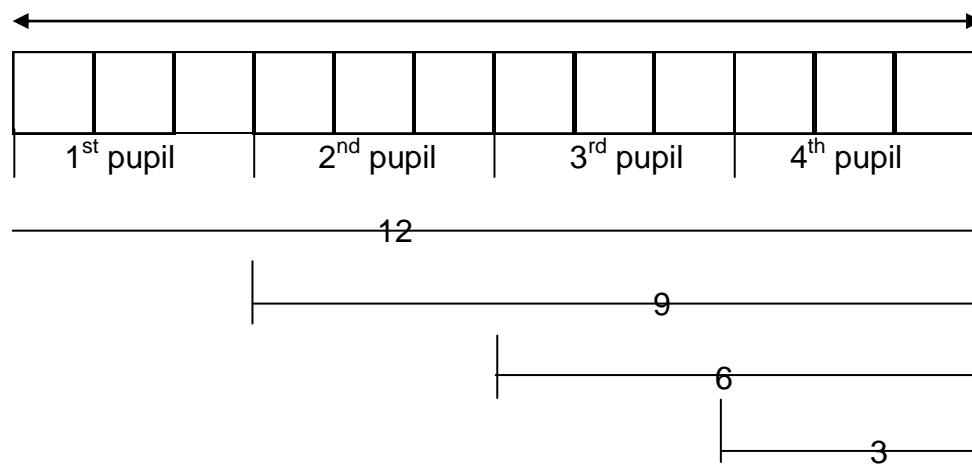
Give another 3 pieces to another pupil.

Ask: How many were left?

Give another 3 pieces to another pupil.

Ask: How many were left?

Say: Let us draw the situation using a bar. (Post your prepared illustration.)



Write the repeated subtraction of the above situation:

$$12 - 3 = 9$$

$$9 - 3 = 6$$

$$6 - 3 = 3$$

$$3 - 3 = 0$$

Thus, the equation is: $12 \div 4 = 3$

3. Reinforcing Activity - Refer to LM 60

4. Application – Refer to LM 60

5. Generalization

EVAL
Write

In writing equation using repeated subtraction, use the highest minuend as dividend while the common subtrahend serves as the divisor.

Do this on your paper.

1. Eighteen fruits were equally divided to 6 children.

$$18 - 3 = 15$$

$$15 - 3 = 12$$

$$12 - 3 = 9$$

$$9 - 3 = 6$$

$$6 - 3 = 3$$

$$3 - 3 = 0$$

2. Twenty-four clothes were equally divided to 6 people.

$$24 - 4 = 20$$

$$20 - 4 = 16$$

$$16 - 4 = 12$$

$$12 - 4 = 8$$

$$8 - 4 = 4$$

$$4 - 4 = 0$$

3. Nine “suman” were shared equally to 3 visitors.

$$9 - 3 = 6$$

$$6 - 3 = 3$$

$$3 - 3 = 0$$

4. Ten notebooks were divided equally to 5 children.

$$10 - 2 = 8$$

$$8 - 2 = 6$$

$$6 - 2 = 4$$

$$4 - 2 = 2$$

$$2 - 2 = 0$$

5. Fourteen pencils were shared equally to 7 pupils.

$$14 - 2 = 12$$

$$12 - 2 = 10$$

$$10 - 2 = 8$$

$$8 - 2 = 6$$

$$6 - 2 = 4$$

$$4 - 2 = 2$$

$$2 - 2 = 0$$

HOME ACTIVITY

Refer to LM 60 – Gawaing Bahay

Teaching Guide for Mathematics Grade 2 Division Lesson 61

TOPIC: Writing Related Equation

OBJECTIVE

Write related equation for equal jumps on a number line

PREREQUISITE CONCEPTS AND SKILLS

1. Writing multiplication equation using a number line
2. Subtraction of whole numbers
3. Presenting division situation using equal jumps on a number line

MATERIAL

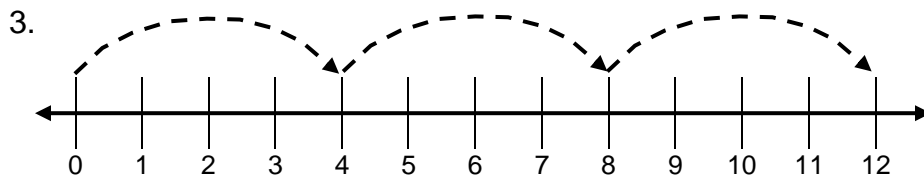
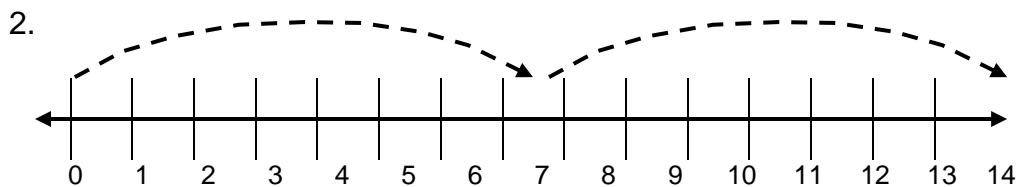
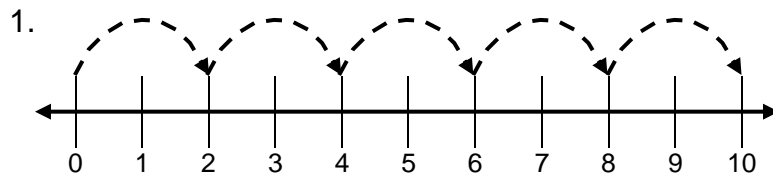
1. Learning Module
2. Activity sheet
3. manila paper and marker
4. Illustration (Application)

INSTRUCTIONAL PROCEDURE

A. Preparatory Activities

1. Drill – Do this as group activity.

Write the multiplication equation of the following illustration as fast as you can. The first group to finish wins.



2. Review – Do this as group activity.

Let the groups present the following division situations using number line. Give them manila paper and marker.

1. A 20-meter long cocolumber was divided into 5 pieces.
2. A string 18-meter was cut equally into 3 pieces.
3. A 10-feet pipe was divided equally into 2 pieces.

B. Developmental Activities

1. Motivation

Play “Hold and Play”. Do this outside the classroom.

The class will form a big circle. Two of the pupils will act as the “IT”.

One of the “ITs” will pass the ball and say “HOLD” then “PLAY”. The pupils will not allow the “IT” to get the ball by passing the ball

around. Once the “IT” gets the ball he will be replaced by the pupil who holds the ball last.

2. Presentation

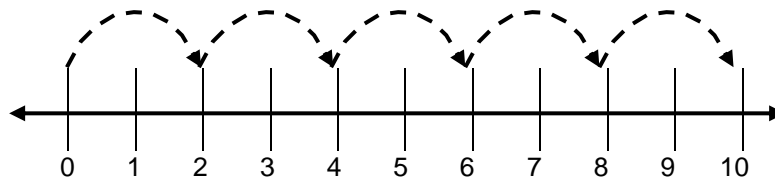
Ask the pupils to form a straight line with equal distances. Assign a particular number (from 0 to 10) to each of your pupils in consecutive order. The number zero will hold the ball first.

Say: Pass the ball to the multiples of 2, multiples of 3 etc.

Get inside the classroom and process what they have done.

Illustrate the passing of the ball (multiples of 2, 3 etc.) using a number line.

Example:



Then, show how to write an equation of this number line.

Explain:

The last number where the arrow landed is the dividend. The distance between the jumps is the divisor. The number of jumps is the quotient. Thus, the equation is; $10 \div 2 = 5$.

Let the pupils draw a number line on the multiples of 3

3. Reinforcing Activity - Refer to LM 61

4. Application – Refer to LM 61

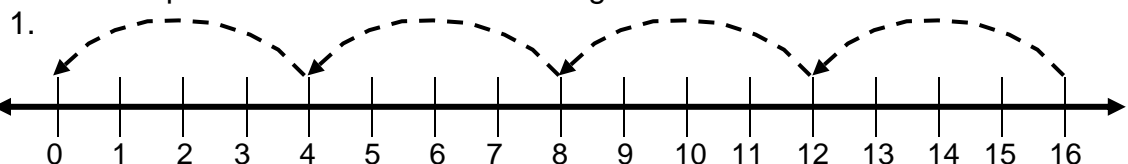
5. Generalization

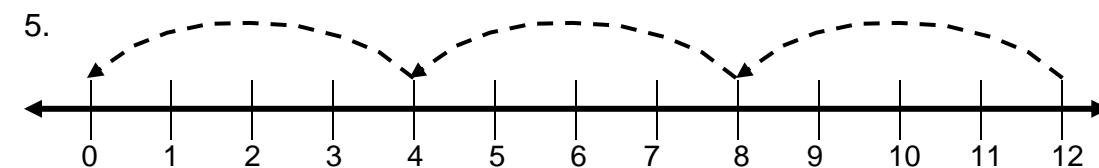
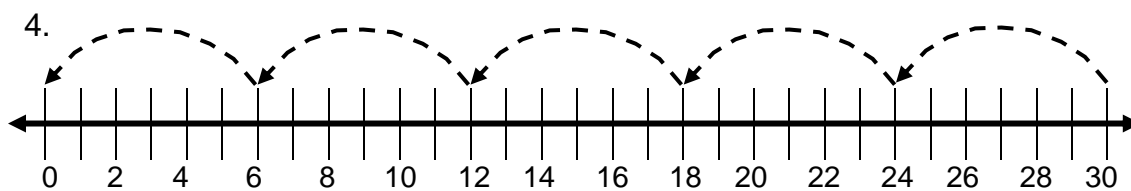
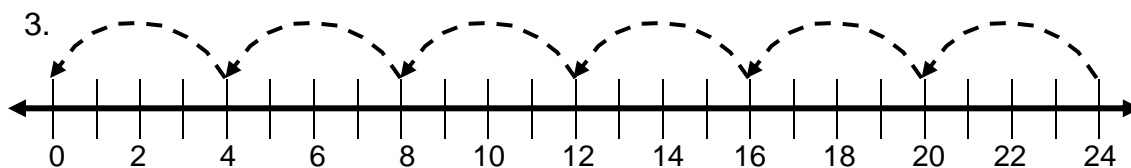
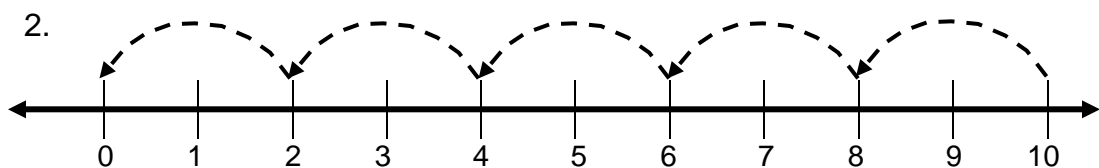
Follow the following steps in writing equation using a number line:

1. The last number where the arrow landed will serve as the dividend.
2. The distance between the jumps is the divisor.
3. The number of jumps is the quotient.

EVALUATION

Write an equation for each of the following number line.





HOME ACTIVITY

Refer to LM 61 – Gawaing Bahay

**Teaching Guide for Mathematics Grade 2
Division
Lesson 62**

TOPIC: Writing Related Equation

OBJECTIVE

Write related equation as formation of equal objects

PREREQUISITE CONCEPTS AND SKILLS

1. Formation of equal objects
2. Presenting division situations as formation of equal groups of objects
3. Writing a related equation for equal jumps on the number line

MATERIAL

1. Learning Module
2. Manila paper and marker
3. Activity sheet with number line
4. Chart with division situations

INSTRUCTIONAL PROCEDURE

A. Preparatory Activities

1. Drill – Do this as group activity. Give each group a manila paper and marker.

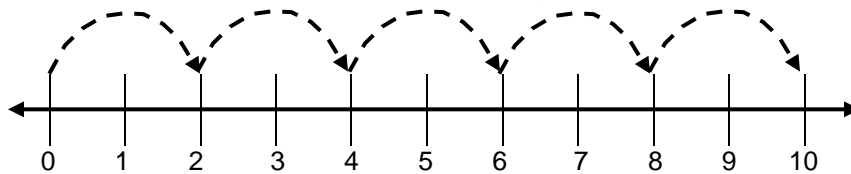
Present the following division situation using formation of equal objects. Use any shape to present the objects in each problem.

1. Fourteen pupils shared equally seven sets of computer.
2. Eight pesos was shared equally to 2 children.
3. Ten pieces of toys were shared equally to five kids.
4. Twelve guavas were grouped into three.
5. Thirty shrimps were equally shared by six children.

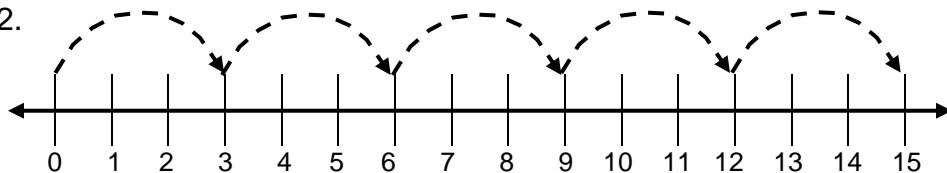
2. Review – Do this as group activity. Give each group this activity sheet.

Write a related equation for the following equal jumps in a number line.

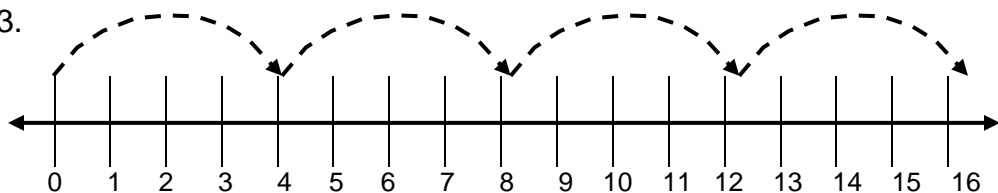
1.



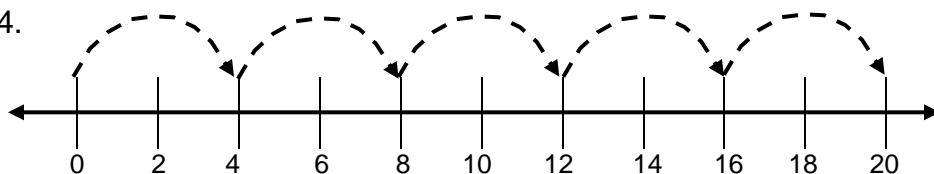
2.



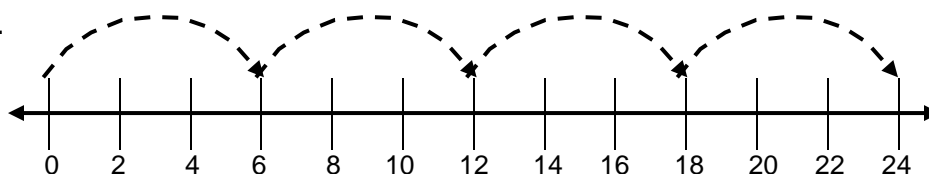
3.



4.



5.



B. Developmental Activities

1. Motivation

In the tune of “Gangnam” music, let the pupils dance. Then stop the music followed by the instruction:

Example: Group yourselves into 5. (Continue for about 5 minutes)
(Note: The number of group may vary according to the number of pupils in the class.)

2. Presentation

Group the pupils. Give each group 20 counters.

Tell them to group the counters in the way they like as long as there will be no counters left.

Ask: How many counters do you have?
How many groups have you made?
How many were there in each group?

Ask the group to draw the groupings they have made on a manila paper.

Let them post their work and discuss why they come up with such illustration.

Discuss one of the illustrations.

Ask: What related equation can we write for this illustration?
Let the pupils write their equation whether they are different as long as it will give the same result.

Example: $20 \div 4 = 5$
 $20 \div 5 = 4$
 $20 \div 2 = 10$
 $20 \div 10 = 2$

3. Reinforcing Activity - Refer to LM 62

4. Application – Refer to LM 62

5. Generalization

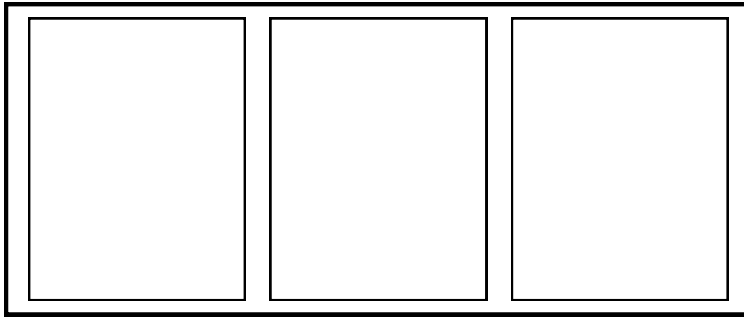
In writing equation for formation of equal objects, follow these steps:

1. The total member of the group serves as the dividend.
2. The number of members per group is the divisor.
3. The number of groups is the quotient.

EVALUATION

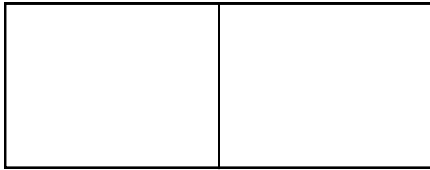
Write an equation for each formation of equal objects below.

1.



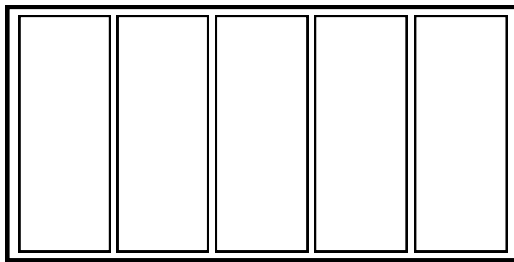
Equation: _____

2.



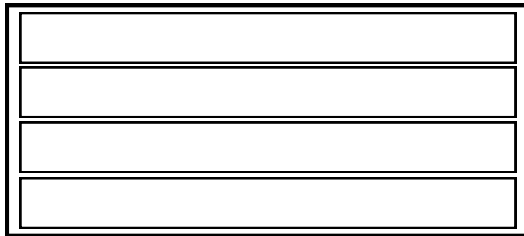
Equation: _____

3.



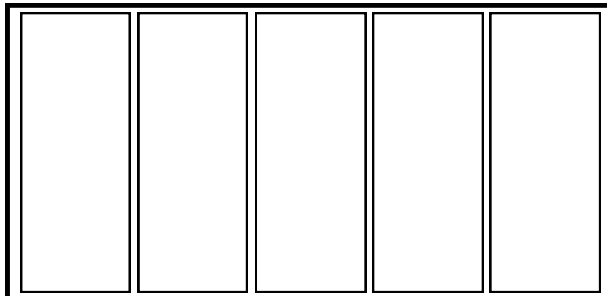
Equation: _____

4.



Equation: _____

5.



Equation: _____

HOME ACTIVITY

Refer to LM 62 – Gawaing Bahay

Teaching Guide for Mathematics Grade 2
Division
Lesson 63

TOPIC: Dividing Numbers

OBJECTIVE

Divide numbers found in the multiplication tables of 2, 3, 4, 5 and 10

PREREQUISITE CONCEPTS AND SKILLS

1. Writing a related equation for each type of situation: equal sharing, repeated subtraction, equal jumps on a number line, and formation of equal groups of objects
2. Representing division as equal sharing, repeated subtraction, equal jumps on a number line, and formation of equal groups of objects

MATERIAL

1. Learning Module
2. manila paper and marker
3. Activity sheet
4. Activity card (division table placed inside an envelope)

INSTRUCTIONAL PROCEDURE

A. Preparatory Activities

1. Drill – Do this as group activity. Give them manila paper and marker.

Present the following division situations as indicated below.

A. Repeated subtraction

1. 40 players were grouped into 8 teams
2. 10 hotdogs were shared to 5 children

B. Equal jumps on a number line

3. A 36-m tying wire was divided into 6 pieces

C. Formation of equal groups of objects

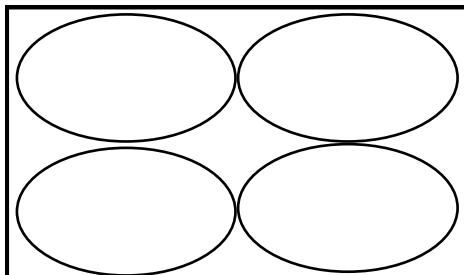
4. 21 pieces of guavas were grouped into 3
5. 18 pieces of mango were shared equally to 6 children

2. Review – Do this as group activity.

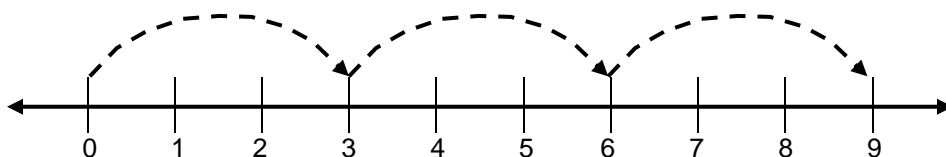
Let each group write a division equation for the following illustration.

1. $28 - 4 = 24$
 $24 - 4 = 20$
 $20 - 4 = 16$
 $16 - 4 = 12$
 $12 - 4 = 8$
 $8 - 4 = 4$
 $4 - 4 = 0$

2.



3.



B. Developmental Activities

1. Motivation

Ask:

When was the last time that you received a card? (birthday, Christmas, etc..)

Say:

I will give you a card today. But before you will receive the card, I want you to group yourselves into 5.

Then bring out the envelope with an activity card and give to each group.

Ask them to open it.

2. Presentation – Do this as group activity.

Use the activity card just opened by each group. The activity cards are shown below.

Use repeated subtraction to fill in the correct answer.

Use this table:

Division equation	Repeated subtraction	Answer
Example: $2 \div 2$	$2 - 2 = 0$	1
$4 \div 2$	$4 - 2 = 2$ $2 - 2 = 0$	2

For group 1, multiplication table 2

For group 2, multiplication table 3

For group 3, multiplication table 4

For group 4, multiplication table 5

Let each group present their outputs.
Discuss how they filled up the table above.

3. Reinforcing Activity - Refer to LM 63

4. Application – Refer to LM 63

5. Generalization

Dividend is the number to be divided.
The divisor is the number that divides the dividend.
The answer in division is called the quotient.
In dividing numbers, use your knowledge in presenting and writing division as equal sharing, repeated subtraction, equal jumps on a number line and formation of equal groups of objects.

EVALUATION

A. Divide the following. Write your answer on your paper.

1. $10 \div 2 = \underline{\quad}$ 2. $24 \div 3 = \underline{\quad}$ 3. $36 \div 4 = \underline{\quad}$
4. $15 \div 5 = \underline{\quad}$ 5. $40 \div 10 = \underline{\quad}$

B. Answer the following questions. Write your answer on your paper.

1. What is the result if we divide 16 by 2?
2. The result of dividing 21 by 3 is _____.
3. Divide 28 by 4. What is the result?
4. What is the quotient of dividing 30 by 5?
5. What will be the result of dividing 70 by 10?

HOME ACTIVITY

Refer to LM 63 – Gawaing Bahay

Teaching Guide for Mathematics Grade 2 **Division** **Lesson 64**

TOPIC: Mental Division

OBJECTIVE

Mentally divides numbers found in the multiplication tables of 2, 3, 4, 5 and 10

PREREQUISITE CONCEPTS AND SKILLS

1. Dividing numbers found in the multiplication tables of 2, 3, 4, 5 & 10
2. Subtracting whole numbers mentally

MATERIAL

1. Learning Module
2. Division Flashcards
3. Subtraction flashcards
4. Cartolina, marker
5. Chart with division problem

INSTRUCTIONAL PROCEDURE

A. Preparatory Activities

1. Drill – Use subtraction flashcards

Flash subtraction cards. Let the class answer them first. Then call the pupils one by one randomly to answer the subtraction on the cards mentally.

2. Review – Do this as paired activity.

Let the pair compare their work.

Divide the following.

1. $18 \div 2 = \underline{\quad}$
2. $15 \div 3 = \underline{\quad}$
3. $24 \div 4 = \underline{\quad}$
4. $45 \div 5 = \underline{\quad}$
5. $30 \div 10 = \underline{\quad}$

B. Developmental Activities

1. Motivation

Say:

Let us play “Maghulaan Tayo”. This is how:

The teacher will start. How many 3s are there in 15?

Whoever gets the correct answer will take turn.

Do this for about 3 minutes.

2. Presentation

Show the following objects to the class:

15 pieces of chalk

20 paper clips

10 one peso coins

Ask one pupil to count the number of objects.

Say: If I will group these chalks into 3 groups, how many were there in each group?

What if I group them into 5 groups, how many will be in each group?

Note: Ask these questions for pad paper and peso coins.

Call pupils to answer the question.

Show the prepared illustration of the following objects:

18 chickens

12 goats

8 carabao

Say: If the chickens will be grouped into 6, how many chickens will be in each group?

Use slateboards where the pupils will write the answer.

(Ask the same question with goats and carabao.)

This time use division flashcards.

First, the whole class will answer. They will write the answer on their corresponding slateboards. Then, call pupils to answer the division equation mentally.

3. Reinforcing Activity - Refer to LM 64

4. Application – Refer to LM 64

5. Generalization

To do mental division, you may use repeated subtraction. Subtract the dividend by the divisor many times until you reach zero. But memorizing the multiplication table will be of great help in mental division.

EVALUATION

Note: (Optional) Pair the pupils. Give 5 to 10 division flashcards to each pair. They will take turn in flashing and answering it mentally. Move around and observe.

Divide the following mentally.

1. $18 \div 2 = \underline{\quad}$

2. $12 \div 3 = \underline{\quad}$

3. $24 \div 4 = \underline{\quad}$

4. $25 \div 5 = \underline{\quad}$

5. $60 \div 10 = \underline{\quad}$

B. Answer the following questions mentally.

1. What is the result if we divide 8 by 2?

2. The result of dividing 18 by 3 is _____.

3. Divide 32 by 4. What is the result?

4. What is the quotient of dividing 45 by 5?

5. What will be the result of dividing 30 by 10?

HOME ACTIVITY

Refer to LM 64 – Gawaing Bahay

Teaching Guide for Mathematics Grade 2
Division
Lesson 65

TOPIC: Analyzing Word Problem

OBJECTIVE

Analyze one-step word problems involving division of numbers found in the multiplication tables of 2, 3, 4, 5, and 10

PREREQUISITE CONCEPTS AND SKILLS

1. Division of whole numbers
2. Analyzing one-step word problems involving multiplication of whole numbers including money

MATERIAL

1. Learning Module
2. Used calendar
3. manila paper and marker
4. Activity card

INSTRUCTIONAL PROCEDURE

A. Preparatory Activities

1. Drill – Do this as group activity.

Use a calendar.

Color the three numbers when the two will be divided the third number will be the result. Be sure that the three numbers have the same color. Color as many as you can.

The group with many set of division after the time set wins.

Example: When 12 will be divided by 3 the result is 4.

MAY						
S	M	T	W	TH	F	S
	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	31			

2. Review – Do this as group activity.

Give this activity card to each group. Then tell them to analyze.

Let them answer the different steps in analyzing word problems.

(Note: Do not give the steps yet.)

There were five pupils. Each of them has ₱ 5.00. How much money do they have in all?

Let each group present their outputs.

B. Developmental Activities

1. Motivation

Ask:

What special occasion do we celebrate during October 5?
(World Teachers' Day)

Ask also the value of every teacher.

2. Presentation

Write this problem on a manila paper then post on the blackboard.

The Supreme Pupil Government of Calagonsao Elementary School had prepared 18 pieces of ballpen as their gift to their teachers during the celebration of World Teachers' Day. If these will be divided among nine teachers, how many ballpens will each of them receive?

Ask: Can you restate the problem in your own words?

Call pupil to underline the question in the problem.

Ask pupils to restate the question in the form a statement.

Solve the problem:

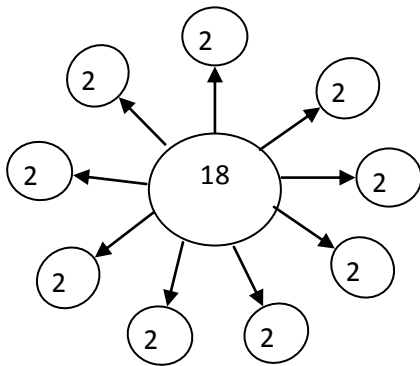
First, show 18 pieces of ballpen . Then call one pupil to divide the ballpen to 9 teachers.

Ask: How many ballpen will each teacher received?

Do you have other ways of solving the problem?

Call pupils to show their solution.

You may show this illustration to guide the pupils.



3. Reinforcing Activity - Refer to LM 65

4. Application – Refer to LM 65

5. Generalization

Use the following guide in analyzing word problem.

1. State the problem in your own word.
2. Determine what is asked by underlining it.
3. State the question in statement form.
4. Solve the problem with complete solution.

EVALUATION

Read the problem below.

Use the following guide in analyzing the word problem.

1. State the problem in your own word.
2. Determine what is asked by underlining it.
3. State the question in statement form.
4. Solve the problem with complete solution.

A. One pitcher of juice can serve 10 persons. If there are 50 persons, how many pitchers of juice will you prepare?

B. Van Chester has 32 pictures. He placed 4 pictures in each page of the photo album. How many pages did he use?

HOME ACTIVITY

Refer to LM 65 – Gawaing Bahay

Teaching Guide for Mathematics Grade 2 Division Lesson No. 66

TOPIC: Solving One-Step Word Problems Involving Division

OBJECTIVE

Solve one-step word problems involving division of numbers found in the multiplication tables of 2, 3, 4, 5, and 10

PREREQUISITE CONCEPTS AND SKILLS

1. Division of whole numbers
2. Solving one-step word problems involving multiplication of whole numbers including money

MATERIAL

1. Learning Module
2. marker and manila paper
3. Activity card

INSTRUCTIONAL PROCEDURE

A. Preparatory Activities

1. Drill – Do this as group activity.

The group will file on front of the blackboard. They will determine who will be the first player, second.....fifth player.

The teacher will say:

First player. Divide 16 by 2.

The player will write the answer on the board. The player who writes the answer first earns points.

The group with the highest point after all the players had answered wins.

2. Review – Do this as group activity. Give each group manila paper and marker.

Use the following guide in analyzing the word problem.

1. State the problem in your own word.
2. Determine what is asked by underlining it.
3. State the question in statement form.
4. Solve the problem with complete solution.

There were 40 Boy Scouts at Calagonsao Elementary School. They were grouped into 8. How many members were there in each group?

B. Developmental Activities

1. Motivation

Ask:

How much is your “baon” today? (Let them bring out their baon.)

Who gave it to you?

2. Presentation

Post this situation:

Fifty pesos was shared equally to 5 children. How much will each of them received?

Ask somebody from the class to restate the in his own words.

Call somebody to underline the question.

Ask: Who can restate the question in a statement form?

Show 5 pieces of ₱ 10.00 coins. Call someone to count the money.

Call 5 pupils then divide the money among them.

Ask: How much did each pupil receive?

You may show this illustration to reinforce pupils' learning.

₱ 10.00	₱ 10.00	₱ 10.00	₱ 10.00	₱ 10.00
---------	---------	---------	---------	---------

1st pupil 2nd pupil 3rd pupil 4th pupil 5th pupil

Ask pupils to show other solution that they might know in order to solve the problem.

3. Reinforcing Activity - Refer to LM 66

4. Application – Refer to LM 66

5. Generalization

In solving one-step word problem, carefully analyze the problem, solve then check your final answer. Consider also if your answer makes sense.

EVALUATION

Solve the following problems. Show your complete solution. Label your answer properly.

1. The average children per family at barangay Calagonsao is four. If there were 36 children, how many families were there?
2. Mang Rowet works 8 hours in a day. If he worked 48 hours, how many days did he already work?
3. Van Chester arranged equally 28 roses in 4 vases. How many roses did he put in each vase?
4. Twenty-seven participants in the Journalism Writeshop were grouped into 3 with equal number of participants. How many participants were there in each group?
5. Twenty Grade 2 pupils were divided equally into 2 multicabs. How many Grade 2 pupils rode in each multicab?

HOME ACTIVITY

Refer to LM 66 – Gawaing Bahay

Teaching Guide for Mathematics Grade 2
Fraction
Lesson 67

TOPIC: Visualizing and Identifying Unit Fractions

OBJECTIVE

Visualize and identify unit fractions with denominators 10 and below

PREREQUISITE CONCEPTS AND SKILLS

1. Visualizing and identifying $\frac{1}{2}$ and $\frac{1}{4}$ of a whole object
2. Dividing a whole into halves and fourths
3. Dividing the elements of a set of objects into two groups of equal quantities to show halves and fourths of sets

MATERIAL

1. Learning Module
2. Illustrations of halves and fourths
3. Activity cards/sheets
4. Pencils, books
5. Chart with story problem

INSTRUCTIONAL PROCEDURE

A. Preparatory Activities

1. Drill – Do this as paired activity

Prepare illustrations of halves and fourths and give each pair. Write two headings such as one-half and one-fourth and post them on the board. Then let them post their illustrations on the proper heading.

2. Review – Do this as group activity.

Let each group draw the following objects and divide them into halves and fourths.

1. Circle
2. Square
3. Rectangle

Let each group post their outputs.

B. Developmental Activities

1. Motivation

Group the class into five groups then play the game of imitating sounds of animals.

The teacher will act as “WATCHER” then say, Imitate the sound of 2 cows. (Pointing to one of the groups). The group will imitate the sound of the said animal. The trick here is the number of animals. If the teacher says 2 cows only the two members of the group will make sound. Once they did not follow the instructions, their group will be punished.

2. Presentation

Use a piece of banana or other available material.

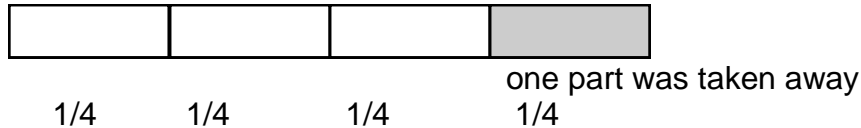
Show it to the class.

Ask: How many bananas were there?

Divide it into 4 equal parts. Ask: How many equal parts were there?

Take away one part. Ask: What part of the banana was taken away?

Show this illustration to represent banana.



Teach the pupil the proper way of reading $\frac{1}{4}$.

Show them where is the numerator and the denominator.

Ask the pupils to tell something about the numerator and the denominator.

Use also string beans.

Divide it into 10 equal parts. Take away one part.

Ask: What part of the string beans was taken away?

Ask the pupils to illustrate the situation above using region. Guide them.

Then let the pupils write the fractional part of the string beans that was taken away?

3. Reinforcement Activity - Refer to LM 67

4. Application – Refer to LM 67

5. Generalization

To visualize unit fractions, use set of objects, region and equal jumps in a number line.

Identifying unit fractions is easy. Unit fractions are those fractions whose numerators are 1.

EVALUATION

A. Visualize the following unit fractions. You may use set of objects, region or number line.

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

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

3. $\frac{1}{7}$

4. $\frac{1}{9}$

5. $\frac{1}{6}$

B. Which is the unit fraction in the following set of fractions? Copy it on your paper.

- | | | | | | | | | | | | |
|----|---------------|---------------|---------------|---------------|---------------|----|---------------|---------------|---------------|---------------|---------------|
| 1. | $\frac{3}{8}$ | $\frac{6}{8}$ | $\frac{2}{8}$ | $\frac{7}{8}$ | $\frac{1}{8}$ | 4. | $\frac{5}{6}$ | $\frac{1}{6}$ | $\frac{3}{6}$ | $\frac{6}{6}$ | $\frac{2}{6}$ |
| 2. | $\frac{1}{5}$ | $\frac{2}{5}$ | $\frac{3}{5}$ | $\frac{4}{5}$ | $\frac{5}{5}$ | 5. | $\frac{8}{9}$ | $\frac{6}{9}$ | $\frac{3}{9}$ | $\frac{1}{9}$ | $\frac{7}{9}$ |
| 3. | $\frac{5}{7}$ | $\frac{6}{7}$ | $\frac{1}{7}$ | $\frac{2}{7}$ | $\frac{4}{7}$ | | | | | | |

HOME ACTIVITY

Refer to LM 67 – Gawaing Bahay A and B

Teaching Guide for Mathematics Grade 2 Fraction Lesson 68

TOPIC: Reading and Writing Unit Fractions

OBJECTIVE

Read and write unit fractions

PREREQUISITE CONCEPTS AND SKILLS

1. Visualizing and identifying unit fractions
2. Reading and writing numbers

MATERIAL

- | | |
|----------------------------|--|
| 1. Learning Module | 2. Show me board/Slateboard |
| 3. Activity cards/sheets | 4. Marker, manila paper |
| 5. Chart of unit fractions | 6. mirror and a paper strip with the word
“AMBULANCE” |

INSTRUCTIONAL PROCEDURE

A. Preparatory Activities

1. Drill - Give each pupil a slateboard/show me board
Take turn in reading and writing whole numbers.
The teacher will start.

Say: Write number 9. (Point to a pupil whom you want to answer).

If the pupil gives the correct answer, he/she will take his/her turn.

Note: You may say “Read this number”.

The pupils will write their answer on their slateboards/show me board.

2. Review - This will be done by group. Each group will be given manila paper and marker.

Visualize the following unit fractions in any way you like.

1. $\frac{1}{8}$

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

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

4. $\frac{1}{6}$

5. $\frac{1}{7}$

B. Developmental Activities

1. Motivation

Prepare a card with the word “AMBULANCE”. Make sure that it is written in the way you see it written in the Ambulance car as shown below.

AMBULANCE

Ask the pupils if they can read the word.

Get a mirror. Position the word in front of the mirror. Now let the class read the word reflected in the mirror.

Discuss the importance of reading and the way the word AMBULANCE is written in the Ambulance car.

2. Presentation

Use discovery approach.

Group the pupils into five. Give each of them a card as shown below.

$\frac{1}{4}$	$\frac{1}{9}$	$\frac{1}{8}$	$\frac{1}{3}$	$\frac{1}{7}$
---------------	---------------	---------------	---------------	---------------

How do you read the following set of unit fractions?

After three minutes let the group’s reporter tell how the unit fractions are read.

Post the different unit fraction on the board. Teach the class how they are read properly.

3. Reinforcing Activity - Refer to LM 68

4. Application – Refer to LM 68

5. Generalization

In reading unit fractions, read first the numerator followed by the denominator which is read and written with /th/ at the end. Only from four to ten denominators.

If the denominator is 2, it is read as half and third if 3.

In writing unit fractions, write the numerator above the bar line which is always 1 and the denominator below the bar line.

EVALUATION

A. (Optional) Do this in pair. Ask the pair to act as a teacher. Read the following unit fractions.

1. $\frac{1}{8}$
2. $\frac{1}{10}$
3. $\frac{1}{5}$
4. $\frac{1}{3}$
5. $\frac{1}{7}$
6. $\frac{1}{6}$
7. $\frac{1}{9}$
8. $\frac{1}{2}$
9. $\frac{1}{4}$

B. To the teacher: Tell the class to write the unit fractions that you will dictate.

1. $\frac{1}{10}$
2. $\frac{1}{7}$
3. $\frac{1}{2}$
4. $\frac{1}{6}$
5. $\frac{1}{9}$
6. $\frac{1}{5}$
7. $\frac{1}{3}$
8. $\frac{1}{4}$
9. $\frac{1}{8}$

HOME ACTIVITY

Refer to LM 68 – Gawaing Bahay

Teaching Guide for Mathematics Grade 2 Fraction Lesson 69

TOPIC: Comparing Unit Fractions Using Relation Symbols

OBJECTIVE

Compare unit fractions using relation symbols

PREREQUISITE CONCEPTS AND SKILLS

1. Visualizing and identifying unit fractions
2. Reading and writing unit fractions

MATERIAL

1. Learning Module
2. Illustrations of one-fourth and one-fifth
3. Activity cards with fractional units
4. Chart with story problem

INSTRUCTIONAL PROCEDURE

A. Preparatory Activities

1. Drill

Write the nine unit fractions on the board. Or you may instruct the pupils to write the nine unit fractions.

Read one of the fractions (be sure that they are not in consecutive orders). Let the pupils ring the unit fraction you have read. To check, let them show their work with their seatmates.

2. Review – Do this as group activity.
Write the following in fractional unit.
1. One part of a set of seven objects.
 2. One part of a group of nine objects.
 3. One part of a set of six objects.
 4. One part of a group of five objects.
 5. One part of a set of eight objects.

B. Developmental Activities

1. Motivation – Ask this question and elicit answers from the pupils.
How do you go to school every day?

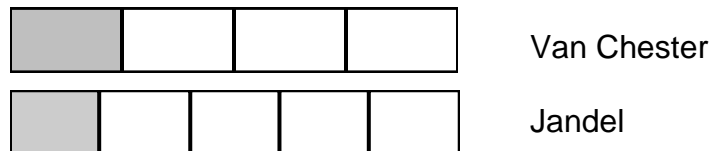
2. Presentation

Van Chester walks $\frac{1}{4}$ km while Jandel walks $\frac{1}{5}$ km in going to school. Who walks a longer distance?

Prepare 2 strips of cardboard with the same length. (about 2 meters each)
Divide the first strip into 4 equal parts and the second into 5 equal parts.
Get one part from each strip.
Compare the strips.

Ask: Which is longer? shorter?

Illustrate the fractions in the problem as shown below.



Then compare using relation symbol.

$$\frac{1}{4} \text{ is greater than } \frac{1}{5} \text{ or } \frac{1}{4} > \frac{1}{5}$$

Show other example.

What are your observations as I compare the unit fractions?

Example: $\frac{1}{7} < \frac{1}{9}$ $\frac{1}{6} > \frac{1}{3}$ $\frac{1}{8} = \frac{1}{8}$

3. Reinforcing Activity - Refer to LM 69

4. Application – Refer to LM 69

5. Generalization

To compare fractional units we use the relation symbols =, <, and >. The bigger the denominator of the unit fraction, the lesser its value.

EVALUATION

Answer the following questions by writing the correct relation symbol. Write your answer on your paper.

1. What do you think is the relation symbol written in the shaded portion?

$$\frac{1}{7} \text{ [shaded] } \frac{1}{5}$$

2. Compare $\frac{1}{5}$ and $\frac{1}{6}$?

3. What relation symbol will you write inside the circle to compare the shaded part correctly?



4. What relation symbol should you write in the middle of the fractions below to compare them correctly? $\frac{1}{3} \text{ — } \frac{1}{3}$

5. Compare $\frac{1}{7}$ and $\frac{1}{6}$.

HOME ACTIVITY

Refer to LM 69 – Gawaing Bahay

Teaching Guide for Mathematics Grade 2
Fraction
Lesson 70

TOPIC: Ordering Unit Fractions

OBJECTIVE

Order unit fractions

PREREQUISITE CONCEPTS AND SKILLS

1. Visualizing and identifying unit fractions
2. Reading and writing unit fractions
3. Comparing unit fractions using relation symbols

MATERIAL

- | | |
|--------------------------|---------------------------------|
| 1. Learning Module | 4. Flashcards of unit fractions |
| 2. Illustrations | 5. Sticks of different lengths |
| 3. Activity cards/sheets | 6. Measuring tools |

INSTRUCTIONAL PROCEDURE

A. Preparatory Activities

1. Drill – Use flashcards of unit fractions. Let the whole class read the unit fractions then individually.
2. Review – Do this as a group activity.
Compare the following set of fractional units using relation symbols =, >, and <. Do this on your paper.

1. $\frac{1}{8}$ ○ $\frac{1}{6}$

4. $\frac{1}{7}$ ○ $\frac{1}{9}$

2. $\frac{1}{3}$ ○ $\frac{1}{4}$

5. $\frac{1}{2}$ ○ $\frac{1}{3}$

3. $\frac{1}{5}$ ○ $\frac{1}{5}$

B. Developmental Activities

1. Motivation

Let the pupils compare the length of their arms with their classmates'. Let them arrange the length of their arms from the shortest to the longest.

2. Presentation

Prepare 5 pieces of sticks with the following lengths:

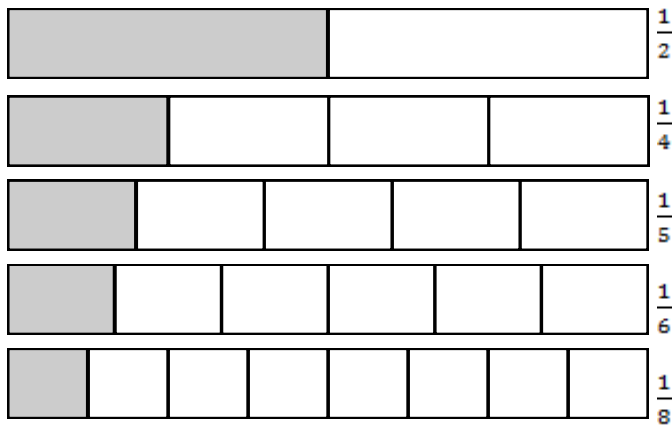
$\frac{1}{4}$ of a meter
 $\frac{1}{5}$ of a meter

$\frac{1}{2}$ of a meter
 $\frac{1}{6}$ of a meter

$\frac{1}{8}$ of a meter

Show the materials to the pupils and ask the pupils to arrange the sticks from the longest to the shortest.

Measure the sticks with the pupils. Then show the illustration of the sticks.



Let the pupils read first the unit fractions.

Ask: What fraction is the longest?

What fraction is the shortest?

Instruct the pupils to:

Arrange the fractions from the shortest to the longest.

$\frac{1}{8}$, $\frac{1}{6}$, $\frac{1}{5}$, $\frac{1}{4}$, $\frac{1}{2}$

Arrange the fractions from the longest to the shortest.

$\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{1}{6}$, $\frac{1}{8}$

Ask the pupils on their observations in arranging fractions.

3. Reinforcing Activity - Refer to LM 70

4. Application – Refer to LM 70

5. Generalization

To arrange unit fractions either from least to greatest (ascending order) or from greatest to least (descending order), we look at the denominator.

The lower the denominator, the bigger its value and the bigger the denominator, the lower its value.

EVALUATION

Answer the following questions. Write your answer on your paper.

1. Order $\frac{1}{7}$, $\frac{1}{5}$ and $\frac{1}{3}$ in descending order.

2. Order these unit fractions in ascending order.

$$\frac{1}{8} \quad \frac{1}{6} \quad \frac{1}{4} \quad \frac{1}{2}$$

3. Order the following unit fractions from least to greatest.

$$\frac{1}{6} \quad \frac{1}{5} \quad \frac{1}{4} \quad \frac{1}{3}$$

4. Copy the following fractions and order them from least to greatest.

$$\frac{1}{2} \quad \frac{1}{5} \quad \frac{1}{6} \quad \frac{1}{10}$$

5. The following unit fractions were arranged from greatest to least. Copy them then insert $\frac{1}{6}$ without changing the order from greatest to least.

$$\frac{1}{3} \quad \frac{1}{5} \quad \frac{1}{7} \quad \frac{1}{9}$$

HOME ACTIVITY

Refer to LM 70 – Gawaing Bahay

Teaching Guide for Mathematics Grade 2 Fraction Lesson 71

TOPIC: Visualizing and identifying other fractions less than one with denominators 10 and below

OBJECTIVE

Visualize and identify other fractions less than one with denominators 10 and below

PREREQUISITE CONCEPTS AND SKILLS

1. Visualizing and identifying unit fractions
2. Reading and writing unit fractions
3. Comparing unit fractions using relation symbols
4. Ordering unit fractions

MATERIAL

1. Learning Module
2. Illustrations
3. Activity cards/sheets
4. Flashcards

INSTRUCTIONAL PROCEDURE

A. Preparatory Activities

1. Drill – Do this as group activity.

Let the groups form their line in front of the blackboard. The first member of the group will go to the board and write the unit fraction that the teacher will say. Do this for the rest of the members of the group.

Example: Write $\frac{1}{8}$ etc.

2. Review

Using the unit fractions written by the pupils on the blackboard during the drill, instruct them to arrange these fractions from least to greatest and vice versa.

B. Developmental Activities

1. Motivation

Group the pupils and play “Bring Me”.
Let the group bring pencil, ballpen, coins etc.
It doesn't matter who brings the first.

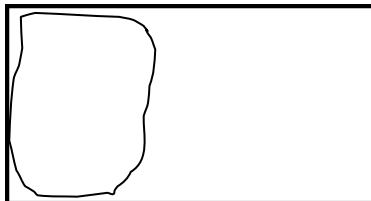
2. Presentation

Use the materials that each group brought to present the lesson.
Group the materials and tell them that they are set of pencil, ballpen, coins, etc.

Ask:

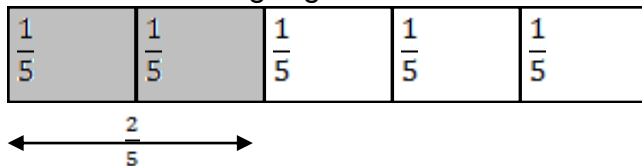
What is the fractional part of (raising one pencil)?
Get two pencils. Ask the pupils of their fractional part.
This time introduce other fractions and how they are visualized.

Example: $\frac{2}{5}$ of the set of rulers.

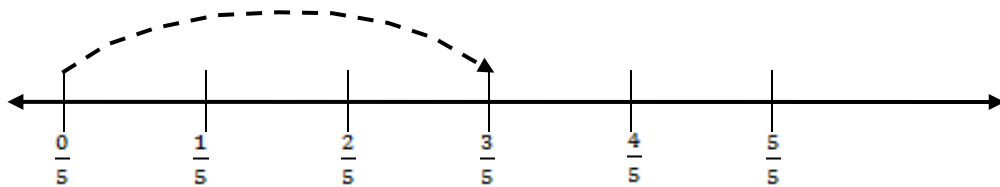


How many rulers are there? How many are ringed?
What part of the rulers is ringed?

Visualize also using region.

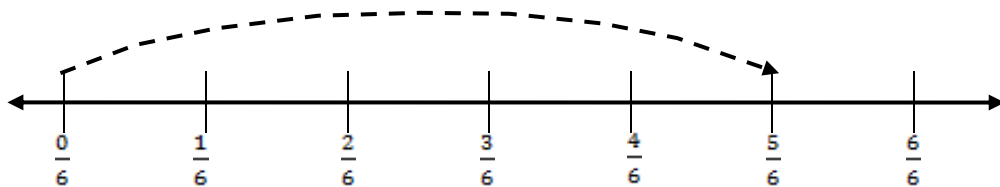


Visualize $\frac{2}{5}$ using number line.



Where does the arrow landed?

What if the arrow landed as shown, what fraction is this?



3. Reinforcing Activity - Refer to LM 71

4. Application – Refer to LM 71

5. Generalization

Other fractions are fractions with numerators other than 1. We can visualize other fractions using number line and grouping of objects. To visualize other fractions, divide the whole into equal parts as shown by the denominator. Then the numerator tells how many parts of the whole. Other fractions (aside from unit fractions) are fractions with numerators more than one.

EVALUATION

A. Visualize the following fractions. You may use set of objects, region and number line.

1. $\frac{5}{7}$

2. $\frac{6}{9}$

3. $\frac{4}{6}$

4. $\frac{5}{8}$

5. $\frac{3}{10}$

B. (Note to the teacher: Let the pupils copy the following fractions. Instruct the pupils to listen carefully as you read the fraction. Then mark the first fraction read as number 1, number 2 for the second etc. until 5.)

$\frac{3}{5}$

$\frac{8}{10}$

$\frac{5}{7}$

$\frac{6}{9}$

$\frac{2}{6}$

HOME ACTIVITY

Refer to LM 71 – Gawaing Bahay

Teaching Guide for Mathematics Grade 2

Fraction Lesson 72

TOPIC: Visualizing and identifying similar fractions

OBJECTIVE

Visualize and identify similar fractions (using group of objects and number line)

PREREQUISITE CONCEPTS AND SKILLS

1. Visualizing and identifying unit fractions
2. Visualizing and identifying other fractions
3. Reading and writing unit fractions

MATERIAL

1. Learning Module
2. Illustrations of group of objects
3. Activity cards/sheets
4. Flashcards of fractions
5. manila paper and marker

INSTRUCTIONAL PROCEDURE

A. Preparatory Activities

1. Drill - Use flashcards of fractions.

Flash them as the class read them. Then call one pupil to read the fractions.

Example:

$$\frac{5}{9}$$

2. Review – Do this as group activity.

Visualize the following fractions using group of objects.

$$\frac{1}{5}, \frac{2}{6}, \frac{4}{7}, \frac{3}{8}, \frac{5}{9}$$

Let each group post their outputs.

B. Developmental Activities

1. Motivation

Prepare strips of papers equal to the number of your pupils. Write to each strip the name of animals. At your signal, the pupils will group themselves according to the name of the animals they received. The trick is they will look for their group using the sounds of the animals only.

2. Presentation

Group the pupils. Give each group 32 counters.

Instruct them to separate the counters into 4 groups.

Ask: How many were there in each group?

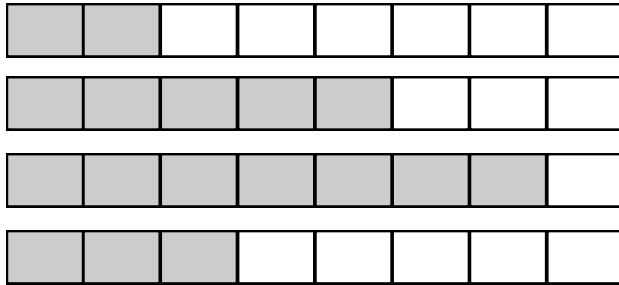
Say: Take away 2 pieces from the first group. What is the fractional part of the taken counters?

Say: Take away 5 counters from the second group? What is the fractional part of the taken counters?

Say: Take away 7 counters from the third group? What is the fractional part of the taken counters?

Say: Take away 5 counters from the fourth group? What is the fractional part of the remaining counters?

Draw bars to show the fractions above.



Then let the pupils write the fractional part of the shaded part.

$$\frac{2}{8}, \frac{5}{8}, \frac{7}{8}, \frac{3}{8},$$

Ask: What is common among the fractions?

Tell the class that they are called similar fractions.

Let them describe these fractions.

3. Reinforcing Activity - Refer to LM 72

4. Application – Refer to LM 72

5. Generalization

Similar fractions are group of fractions with the same denominators.

To visualize similar fractions, divide the wholes into similar equal parts.

To identify if the fractions are similar, just look at their denominators. If their denominators are the same, then they are similar.

EVALUATION

A. Visualize the following set of fractions below as indicated.

1. $\frac{2}{4}$ $\frac{3}{4}$ - using number line

4. $\frac{3}{7}$ $\frac{6}{7}$ - using group objects

2. $\frac{5}{8}$ $\frac{3}{8}$ - using group objects

5. $\frac{6}{9}$ $\frac{7}{9}$ $\frac{3}{9}$ - using number line

3. $\frac{3}{5}$ $\frac{4}{5}$ - using number line

B. Write check (✓) before the number that shows similar fractions and an X mark if not.

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

_____ 4. $\frac{6}{8}$ $\frac{3}{8}$ $\frac{5}{8}$ $\frac{7}{8}$

_____ 2. $\frac{0}{7}$ $\frac{1}{7}$ $\frac{2}{7}$

_____ 5. $\frac{3}{5}$ $\frac{2}{5}$ $\frac{4}{5}$ $\frac{5}{6}$

_____ 3. $\frac{5}{9}$ $\frac{8}{9}$ $\frac{7}{9}$ $\frac{3}{9}$ $\frac{5}{9}$

HOME ACTIVITY

Refer to LM 72 – Gawaing Bahay A and B

Teaching Guide for Mathematics Grade 2 Fraction Lesson 73

TOPIC: Reading and Writing Similar Fractions

OBJECTIVE

Read and write similar fractions

PREREQUISITE CONCEPTS AND SKILLS

1. Reading and writing unit fractions
2. Visualizing and identifying similar fractions

MATERIAL

1. Learning Module
2. Two pictures of a boy scout
3. Flashcards
4. Slateboards/show me board
5. Chart with instruction (Application)

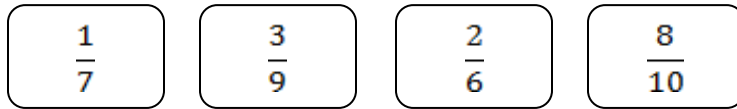
INSTRUCTIONAL PROCEDURE

A. Preparatory Activities

1. Drill – Use flashcards of unit fractions

Let the whole class read the fractions.

Example:



2. Review

Dictate the following fractions. Let the class write them on their paper or on the slateboard/show me board.

1. $\frac{1}{4}$
2. $\frac{1}{5}$
3. $\frac{3}{10}$
4. $\frac{8}{9}$
5. $\frac{2}{3}$

B. Developmental Activities

1. Motivation:

Get two identical pictures then ask the pupils to spot the similarities and differences.

2. Presentation

Ask the pupils to bring out one whole sheet of paper.

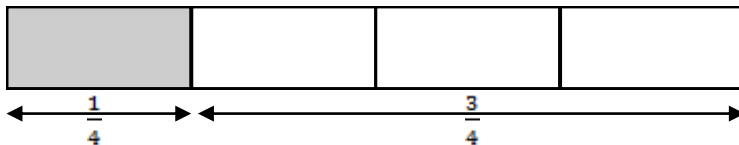
Tell them to divide the paper into 4 equal parts.

Take away 1 part.

Ask: What is the fractional part of the taken part?

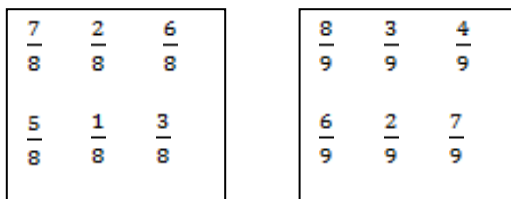
How about the remained part?

Draw the above situation using bar as shown below.



Teach the pupils how the fractions are read.

Post these set of fractions and let the class read them.



Group the pupils then tell them to write similar fractions. Tell them to exchange papers and read the fractions.

3. Reinforcing Activity - Refer to LM 73

4. Application – Refer to LM 73

5. Generalization

Reading similar fractions is just like you are reading unit fractions.

First, read the numerator then followed by the denominator as part of the whole.

Example: $\frac{6}{9}$, it is read as six-ninths.

To write similar fractions, the number above the bar line is the numerator and the number below the bar line is the denominator.

EVALUATION

A. Read the following set of similar fractions.

(Note to the teacher: You may call the pupils one by one or assign little teachers.)

1. $\frac{3}{7}, \frac{6}{7}$

2. $\frac{6}{8}, \frac{3}{8}, \frac{5}{8}$

3. $\frac{4}{9}, \frac{7}{9}, \frac{3}{9}, \frac{6}{9}$

4. $\frac{4}{5}, \frac{2}{5}, \frac{3}{5}$

5. $\frac{5}{6}, \frac{2}{6}, \frac{4}{6}, \frac{3}{6}$

B. Write three similar fractions from:

1. A group of five objects.

4. A group of seven objects.

2. A set of eight objects.

5. A set of nine objects.

3. A set of six objects

HOME ACTIVITY

Refer to LM 73 – Gawaing Bahay

Teaching Guide for Mathematics Grade 2 Fraction Lesson 74

TOPIC: Comparing Similar Fractions using Relation Symbols

OBJECTIVE

Compare similar fractions using relation symbols

PREREQUISITE CONCEPTS AND SKILLS

1. Identifying and visualizing other fractions

2. Visualizing and identifying similar fractions

3. Comparing unit fractions using relation symbols

MATERIAL

1. Learning Module
2. Fraction strips
3. Activity cards/sheets
4. Flashcards
5. Marker, manila paper
6. Slateboards/Show Me Board
7. Illustration of a boy jogging/running

INSTRUCTIONAL PROCEDURE

A. Preparatory Activities

1. Drill – Do this as group activity.

Let the group copy the similar fractions in each set of fractions. Give each group a marker and manila paper where they will write their answer.

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

2. $\frac{3}{6}$, $\frac{7}{9}$, $\frac{4}{6}$, $\frac{2}{6}$, $\frac{5}{7}$, $\frac{5}{6}$, $\frac{6}{8}$, $\frac{3}{4}$

3. $\frac{3}{5}$, $\frac{2}{5}$, $\frac{4}{6}$, $\frac{2}{5}$, $\frac{6}{9}$, $\frac{2}{3}$, $\frac{4}{5}$, $\frac{1}{5}$

4. $\frac{5}{7}$, $\frac{6}{8}$, $\frac{3}{8}$, $\frac{3}{6}$, $\frac{7}{8}$, $\frac{4}{5}$, $\frac{8}{9}$, $\frac{5}{8}$

5. $\frac{6}{7}$, $\frac{2}{7}$, $\frac{5}{7}$, $\frac{5}{6}$, $\frac{6}{8}$, $\frac{4}{7}$, $\frac{7}{9}$, $\frac{3}{5}$

2. Review – Give each pupil a slateboard or show me board. Let them write their answer on it.

Prepare these fractions on a card. Show them. Let them compare the two unit fractions using relation symbols.

1. $\frac{1}{4}$ — $\frac{1}{3}$

2. $\frac{1}{7}$ — $\frac{1}{8}$

3. $\frac{1}{6}$ — $\frac{1}{6}$

4. $\frac{1}{8}$ — $\frac{1}{9}$

5. $\frac{1}{5}$ — $\frac{1}{4}$

B. Developmental Activities

1. Motivation

Show a picture of a girl jogging.

Let the class describe it.

Then ask the benefits of jogging.

2. Presentation

Everyday, Eleonor jogs $\frac{2}{4}$ km every morning while Rogelio jogs $\frac{3}{4}$ km. Who jogs longer?

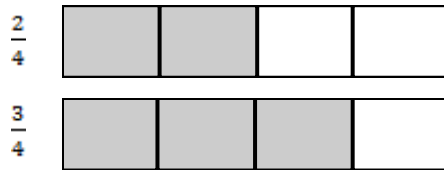
Group the pupils into 5 groups. Give each group 2 strings of the same length.

Instruct them to divide each string into 4 equal parts.

On the first string, take away 2 parts and in the second string take away 1 part. Then ask them to compare the lengths of the remaining pieces.

Ask: Which is longer?

Then show this illustration:



Ask: Who jogs longer?

Compare the two fractions using relation symbol as shown or you may ask the pupils to use their previous knowledge to compare the fractions.

$$\frac{2}{4} < \frac{3}{4} \quad \text{or} \quad \frac{2}{4} > \frac{3}{4}$$

3. Reinforcing Activity - Refer to LM 74

4. Application – Refer to LM 74

5. Generalization

In comparing similar fractions, the bigger the numerator the bigger it is. On the other hand, the smaller the numerator, the smaller it is.

To compare similar fractions, we use =, >, and < symbols.

EVALUATION

Copy the following set of fractions on your paper. Then compare them using relation symbols such as >, = and <.

1. $\frac{5}{7} \text{ — } \frac{4}{7}$

2. $\frac{7}{9} \text{ — } \frac{8}{9}$

3. $\frac{3}{8} \text{ — } \frac{5}{8}$

4. $\frac{5}{6} \text{ — } \frac{5}{6}$

5. $\frac{3}{5} \text{ — } \frac{4}{5}$

6. $\frac{1}{3} \text{ — } \frac{2}{3}$

7. $\frac{4}{4} \text{ — } \frac{3}{4}$

8. $\frac{3}{8} \text{ — } \frac{5}{8}$

9. $\frac{2}{7} \text{ — } \frac{2}{7}$

10. $\frac{5}{6} \text{ — } \frac{2}{6}$

HOME ACTIVITY

Refer to LM 74 – Gawaing Bahay

Teaching Guide for Mathematics Grade 2

Fraction Lesson 75

TOPIC: Ordering Similar Fractions

OBJECTIVE

Order similar fractions

PREREQUISITE CONCEPTS AND SKILLS

1. Visualizing and identifying similar fractions
2. Reading and writing similar fractions
3. Comparing similar fractions using relation symbols

MATERIAL

1. Learning Module
2. Activity cards/sheets
3. Flashcards
4. Marker and manila paper
5. Fraction Cards and Number cards

INSTRUCTIONAL PROCEDURE

A. Preparatory Activities

1. Drill – Do this as group activity

Instruct the pupils to visualize the fractions below using either grouping of objects or number line.

1. $\frac{7}{9}$ and $\frac{3}{9}$
2. $\frac{4}{6}$ and $\frac{2}{6}$
3. $\frac{5}{7}$ and $\frac{5}{7}$

2. Review - Individual

Copy the following on your paper. Compare them using =, < and >.

1. $\frac{3}{6}$ — $\frac{5}{6}$
2. $\frac{4}{7}$ — $\frac{3}{7}$
3. $\frac{7}{9}$ — $\frac{3}{9}$
4. $\frac{5}{5}$ — $\frac{5}{5}$
5. $\frac{6}{8}$ — $\frac{4}{8}$

B. Developmental Activities

1. Motivation – Prepare 5 number cards with numbers 2, 3, 4, 5, and 6 written on them.

Play “Guess the Correct Order”. Five pupils will hold each of the number cards. Make sure that the cards are not facing the class. Call one pupil to arrange the five pupils in correct order either in ascending or descending order. Call at least five pupils to guess the correct arrangement of the numbers. Then reveal the correct order.

2. Presentation

Instruct pupils to prepare 11 pieces of $\frac{1}{6}$ of a one-whole piece of paper.

Say: Connect 2 pieces of paper

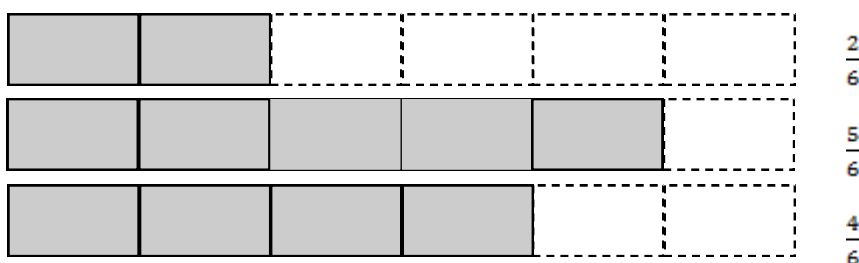
Connect 5 pieces of paper

Connect 4 pieces of paper

Then arrange the connected pieces of paper from the longest to the shortest.

Ask: Which is the longest? shortest?

Show this illustration as representation of the above situation.



Tell the pupils to arrange the fractions in ascending order.

$$\frac{2}{6}, \frac{4}{6}, \frac{5}{6}$$

Tell them to arrange the fractions in descending order.

$$\frac{5}{6}, \frac{4}{6}, \frac{2}{6}$$

Ask: How do we order similar fractions?

3. Reinforcing Activity - Refer to LM 75

4. Application – Refer to LM 75

5. Generalization

In ordering similar fractions, just arrange the numerators whether from the greatest or least. The bigger the numerator the bigger its value while if the numerator is smaller the smaller also its value.

EVALUATION

Answer the following. Do this on your paper.

1. Order $\frac{7}{10}$, $\frac{9}{10}$ and $\frac{5}{10}$ from largest to smallest.

2. Order the following similar fractions below from greatest to least.

$$\frac{7}{5}, \frac{9}{5}, \frac{5}{5}, \frac{5}{5}$$

3. Order these fractions in ascending order. $\frac{3}{8}$, $\frac{6}{8}$, $\frac{2}{8}$

3. Order these similar fractions in descending order. $\frac{6}{9}$ $\frac{7}{9}$ $\frac{8}{9}$

5. The similar fractions below are arranged from lesser to greater.

$\frac{3}{7}$

Add $\frac{4}{7}$ and order them from least to greatest?

HOME ACTIVITY

Refer to LM 75 – Gawaing Bahay

Teaching Guide for Mathematics Grade 2 Money Lesson 76

TOPIC: Reading and Writing Money with Value through 100

OBJECTIVE

Read and write money with value through 100

PREREQUISITE CONCEPTS AND SKILLS

1. Reading and writing numbers
2. Recognizing coins and bills up to ₱ 100 (pesos and centavos)

MATERIAL

1. Learning Module
2. Activity cards/sheets
3. Flashcards of whole numbers
4. Play money and envelopes
5. Chart of values of money
6. Customized deposit slip

INSTRUCTIONAL PROCEDURE

A. Preparatory Activities

1. Drill

Use flashcards to drill the class in reading whole numbers written in symbol and in words.

Example:

12	56	89	Sixty-seven	Thirty-six
----	----	----	-------------	------------

2. Review

Group the pupils into five groups. Each member of the group shall have their corresponding number.

Place groups of play money on your demonstration table.

Call a number. The pupils with corresponding number will come near the table. Then say “Where is 10 centavos?” Continue until everybody has been called.

B. Developmental Activities

1. Motivation

Post this question:

Have you been in a bank?

What do you think people are doing in a bank? (Elicit answers from the pupils)

2. Presentation

Do this as group activity. Simulate that the groups will deposit money in the bank.

Prepare four envelopes with play money inside it.

Group 1

Envelope 1 = 2 pieces of ₱ 100, 3 pieces of ₱ 20.00, 5 pieces of ₱ 50.00, 3 pieces of 5 ¢.

Group 2

Envelope 2 = 3 pieces of ₱ 1.00, 2 pieces of ₱ 5.00, 4 pieces of ₱ 10.00, 2 pieces of ₱ 100.

Group 3

Envelope 3 = 5 pieces of 10¢, 3 pieces of 25¢, 2 pieces of ₱ 20.00.

Group 4

Envelope 4 = 2 pieces of P 10.00, 3 pieces of P 20.00, 2 pieces of 10¢, 3 pieces of 5¢.

Let each group fill up this form:

Denomination	Number of pieces
Bills	
1. ₱ 100.00	_____
2. ₱ 50.00	_____
3. ₱ 20.00	_____
Coins	
4. P 10.00	_____
5. P 5.00	_____
6. P 1.00	_____
7. 25¢	_____
8. 10¢	_____
9. 5¢	_____

Use the form filled up by the groups. But it should be in the manila paper to make it big and readable for the pupils.

Take out ₱ 100.00 bill. Tell the class that it is read as one hundred pesos. Show them how it is written. (₱ 100.00).

Do this with the rest of the money.

3. Reinforcing Activity Refer to LM 76

4. Application – Refer to LM 76

5. Generalization

Recognition of money is very important in reading money. Look at the number and word written on the money. This number and word will tell you how you will read the money. There are two ways in writing money. One is in peso and the other one is in centavo. Attached the symbol (₱) in peso and (¢) in centavo.

EVALUATION

A. Go to your teacher and read the following money.



B. (To the teacher: You may dictate the following.)

Write the following value of money.

1. Fifty pesos

6. Twenty pesos

2. Ten pesos

7. One peso

- 3. Ten centavos
- 4. One hundred pesos
- 5. Twenty-five centavos
- 8. Five pesos
- 9. Five centavos

HOME ACTIVITY

Refer to LM 76 – Gawaing Bahay

Teaching Guide for Mathematics Grade 2
Money
Lesson 77

TOPIC: Counting and Telling the Value of a Set of Bills or a Set of Coins through 100 in peso

OBJECTIVE

Count and tell the value of a set of coins through 100 in peso

PREREQUISITE CONCEPTS AND SKILLS

- 1. Recognizing coins up to ₱ 100
- 2. Reading and writing money with value through 100

MATERIAL

- 1. Learning Module
- 2. Flashcards of coins
- 3. Flashcards with money written in symbols
- 4. Piggy banks with coins in it of different value

INSTRUCTIONAL PROCEDURE

A. Preparatory Activities

- 1. Drill - Conduct drill on recognizing money using flashcards. Let the whole class recognize the money by telling the value. Then call at least ten pupils to recognize the value of the money. Example:



- 2. Review – Use a ball. Pass a ball to the class. Whoever catches the ball will read the flashcards as shown. (You may add.)

25 ¢	50 ¢	30 ¢	90 ¢	85 ¢
------	------	------	------	------

B. Developmental Activities

- 1. Motivation

Show the four piggy banks. (You may use material that is available in your classroom or locality.)

Ask:

What is the use of piggy bank? Elicit answers from the pupils.

2. Presentation

Call four pupils to open the piggy banks.

Ask them to identify the different denominations of the coins and the number of pieces.

Then let the pupils guess the amount. Tell them to use their previous knowledge in adding numbers.

Present this illustration representing the money inside the piggy bank.

First Piggy Bank



Second Piggy Bank



Third Piggy Bank



Fourth Piggy Bank



Let the whole class read the coins first.

Ask: How many ₱ 5 were there? ₱ 10? ₱1?, 25¢?, 10¢? and 5¢?

Ask pupils to write it on the board.

Ask: How much money was there in the first piggy bank? second piggy bank? third piggy bank? and fourth piggy bank?

Ask: Do you have other way of counting the value of the coins?

3. Reinforcing Activity - Refer to LM 77

4. Application – Refer to LM 77

5. Generalization

Counting the value of coins is like counting numbers. Remember that when the coins do not exceed to 100 centavos it is read as centavo. If it exceeds 100 centavo it is read as peso already. Take note that 100 centavos is equal to 1 peso. Peso takes the symbol ₱, while centavo takes ¢.

EVALUATION

Count the following set of coins. Tell its value to your teacher. You will repeat once your answer is wrong.



HOME ACTIVITY

Refer to LM 77 – Gawaing Bahay

Teaching Guide for Mathematics Grade 2
Money
Lesson No. 78

TOPIC: Counting and Telling the Value of a Set of Bills or a Set of Coins through 100 in peso

OBJECTIVE

Count and tell the value of a set of bills through 100 in peso

PREREQUISITE CONCEPTS AND SKILLS

1. Recognizing coins and bills up to ₱ 100 (pesos and centavos)
2. Reading and writing money with value through 100
3. Counting and telling the value of a set of bills or a set of coins through 100 in peso (coins only)

MATERIAL

1. Learning Module
2. Illustrations of set of coins (5)
3. Empty bottles and boxes of milk, sardines etc. (Assigned to groups before the day of the lesson)
4. Play money (paper bills only)
5. Show me boards

INSTRUCTIONAL PROCEDURE

A. Preparatory Activities

1. Drill

Distribute paper bills to each of your pupils.

Then play "Bring Me".

Example: Bring me twenty pesos. Do this until all the paper bills were returned.

2. Review

Distribute at least 5 illustrations of a set of coins to your pupils.

Let them count the coins and tell to their classmates. If wrong, call other pupils.

B. Developmental Activities

1. Motivation

Ask: Have you been to a "tiange"/supermarket/sari-sari store?

What did you do there? Let the pupils tell their experiences.

2. Presentation

Create one group with 5 members. Give them items to sold in a sari-sari store. (The items should have exact value.)

Select pupils who will act as buyers. Give them paper bills.

As much as possible the distribution of money shall be:

₱ 100.00 - 1 piece

- ₱ 50.00 - 2 pieces
- ₱ 20.00 - 12 pieces

After five minutes (or more) ask the sellers to count their sales.

Present illustrations of paper bills for seller 1, 2, 3, 4, and 5.

Call other pupils to read the money.

Call another pupil to count the sales of each seller using the illustration.

Then call another pupil to write the numerical value of the sales of each seller.

Ask pupils to write their solution on coming up with the answer.\

Example:

- Seller 1 - ₱ 100
- Seller 2 - ₱ 50 + ₱ 50 = ₱ 100
- Seller 3 - ₱ 20 + ₱ 20 + ₱ 20 = ₱ 60
- Seller 4 - ₱ 20 + ₱ 20 + ₱ 20 + ₱ 20 = ₱ 80
- Seller 5 - ₱ 20 + ₱ 20 + ₱ 20 + ₱ 20 + ₱ 20 = ₱ 100

3. Reinforcing Activity - Refer to LM 78

4. Application – Refer to LM 78

5. Generalization

Mostly paper bills are whole numbers. When, reading paper bills, count them just like a whole number then attach peso(s) at the end.

EVALUATION

Count the following set of paper bills. Tell their value in peso to your teacher. You will repeat if your answer is wrong.

1. 

2. 

3. 

4. 



HOME ACTIVITY

Refer to LM 78 – Gawaing Bahay

**Teaching Guide for Mathematics Grade 2
Money
Lesson 79**

TOPIC: Counting and Telling the Value of a Set of Bills or a Set of Coins through 100 in peso

OBJECTIVE

Count and tell the value of a set of bills and coins in peso

PREREQUISITE CONCEPTS AND SKILLS

1. Recognizing coins and bills up to ₱ 100 (pesos and centavos)
2. Reading and writing money with value through 100
3. Counting and telling the value of a set of bills or a set of coins through 100 in peso (coins only, bills only)

MATERIAL

- | | |
|--|---------------|
| 1. Learning Module | 4. Flashcards |
| 2. Illustrations of set of bills and coins (5) | 5. Play money |
| 3. Activity cards/sheets | 6. Chart |

INSTRUCTIONAL PROCEDURE

A. Preparatory Activities

1. Drill

Place play money on the table (coins and paper bills). Call the pupils one by one. Let them pick one play money and tell before the whole class its value.

Example: This is _____.

2. Review – Do this as group activity

Give each group an illustration of a set of bills and coins. Let them count the set of coins and bills then tell the value before the class.

Example:



Guide the group to say, “This is a set of coins. It is equal to _____.”

Set B



Guide the group to say, “This is a set of bills. It is equal to _____.”
(You may add other set.)

B. Developmental Activities

1. Motivation

Play “Guess How Much”. Place paper bills and coins inside a jar. Let each pupil guess the total amount of money inside the jar.

After everybody has guessed, reveal the amount which was written in a piece of paper pasted on one side of the jar. Recognize the pupil who guessed correctly.

Note: The amount of money inside the jar is the following:

1 – ₱ 50 1 – ₱ 20 1 – ₱ 5 1 – ₱ 10 5 – ₱ 1

2. Presentation

Say: “Let us prove if the amount written is correct.” Take out the money inside the jar. (It is a combination of bills and coins. Take note that total should be in peso.) Count the bills first then the coins and combine the two values.

Ask: How many ₱ 50’s were there? ₱ 20’s? ₱ 5’s? ₱ 10’s and ₱ 1’s?

Show the illustration of the money on the board. Let the class read the money and write their corresponding numerical values. Let them add the values.

Ask: Do you have other way of counting the value of the money?

3. Reinforcing Activity - Refer to LM 79

4. Application – Refer to LM79

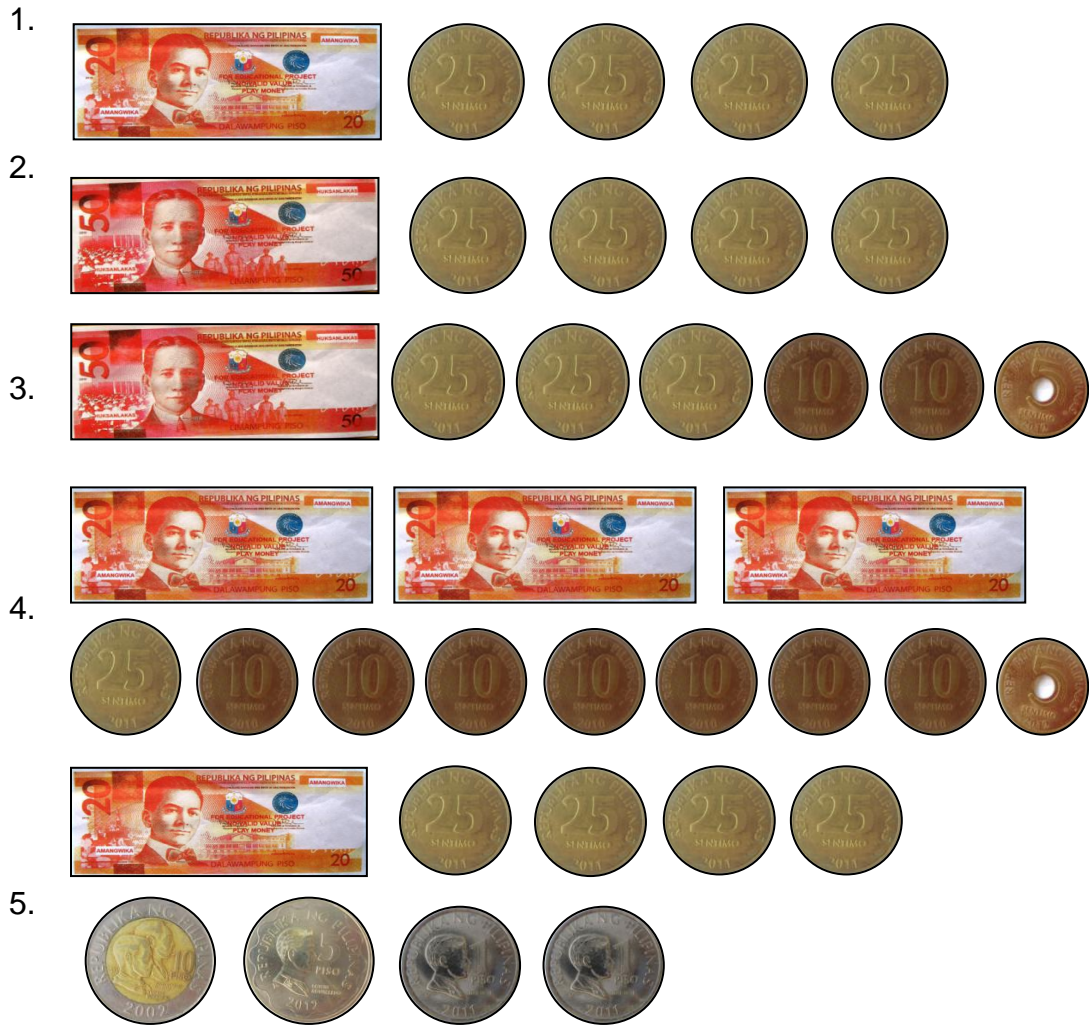
5. Generalization

In counting money including bills and coins, combine all the peso then the centavos. If the centavo is equal to 100 it is read as 1 peso. Separate the peso from centavo by a period. The period is read as and. Use the symbol ₱ for peso and ¢ for centavo. Always tell the peso first before centavo.

EVALUATION

Count the set of bills and coins below. Once done, go to your teacher and tell him/her the value.





HOME ACTIVITY

Refer to LM 79 – Gawaing Bahay

**Teaching Guide for Mathematics Grade 2
Money
Lesson 80**

TOPIC: Counting and Telling the Value of a Set of Bills or a Set of Coins through 100 in Centavo (coins)

OBJECTIVE

Count and tell the value of a set of coins through 100 in centavo

PREREQUISITE CONCEPTS AND SKILLS

1. Recognizing coins and bills up to ₱ 100 (pesos and centavos)

2. Counting and telling the value of a set of coins through 100 in peso

MATERIAL

- 1. Learning Module
- 2. Illustrations
- 3. Activity cards
- 4. Chart of a set of coins
- 5. Show me board/Slateboards

INSTRUCTIONAL PROCEDURE

A. Preparatory Activities

1. Drill

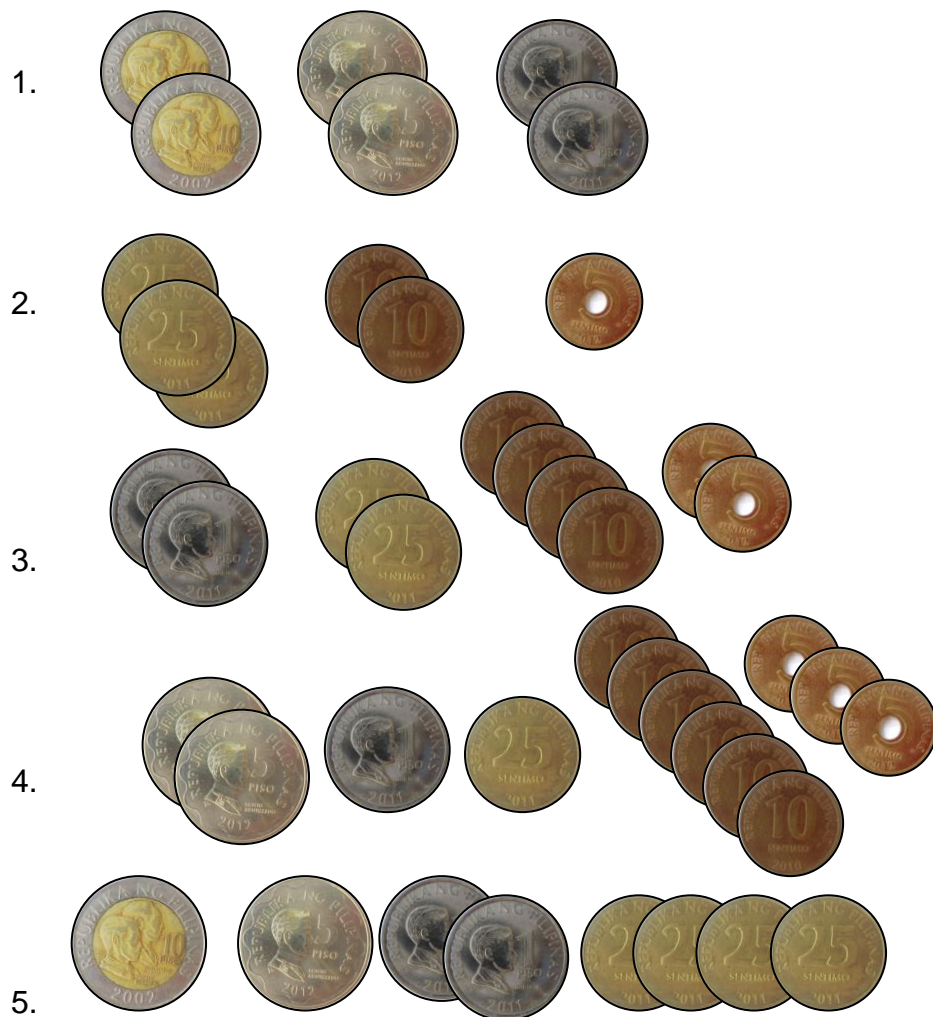
Ask the pupils to tell how much baon does each of them have for today. Ask them to tell how much it was.

You may ask to combine the baon of one pupil with the other.

Do this for at least 3 to 5 minutes.

2. Review – Give each group this activity card.

Count and tell the value of the set of coins below in peso.



B. Developmental Activities

1. Motivation

Post this question: How much baon do you have today? Is it enough for you? Why? Why not?

2. Presentation

Do this as group activity. Give pieces of coins to each group.

Group 1 – 1 piece of ₱ 10 coin

Group 2 – 2 pieces of ₱ 5 coin

Group 3 – 10 pieces of ₱ 1 coin

Group 4 – 40 pieces of 25¢

Group 5 – 100 pieces of 10¢

Group 6 – 200 pieces of 5¢

(Note: If play money is not available, you may use illustrations)

Ask: How much money do you have? (group 1, 2, 3, 4, 5)

How did you know it?

What is common among the values of money of each group?

How many ₱5's are there in ₱ 10?

How many ₱ 1's are there in ₱ 10?

How many 25¢ are there in ₱ 10?

How many 10¢ are there in ₱ 10?

How many 5¢ are there in ₱ 10?

Write the answer on the board.

2 pieces of ₱ 5 coin

10 pieces of ₱ 1 coin

40 pieces of 25¢

100 pieces of 10¢

200 pieces of 5¢

3. Reinforcing Activity - Refer to LM 80

4. Application – Refer to LM 80

5. Generalization

In reading set of coins to centavo, remember that one peso is equal to 100 centavos.
--

EVALUATION

Count the set of coins below. Tell its value in centavo to your teacher or to your classmate assigned by your teacher.

1. There are 100 centavos in one peso. If you will count the set of coins below, how much will it be in centavo?






2. Count the value of the set of coins below in centavo.



3. Count the set of coins below in centavo.



4. I have 4 pieces of  , 5 pieces of  , and 2 pieces of  . How much is this in centavo?

5. You were given the set of coins below. How much is this in centavo?



HOME ACTIVITY

Refer to LM 80 – Gawaing Bahay

Teaching Guide for Mathematics Grade 2
Money
Lesson 81

TOPIC: Counting and Telling the Value of a Set of Bills or a Set of Coins through 100 in Combinations of Pesos and Centavos (Peso and Centavo Coins Only)

OBJECTIVE

Count and tell the value of a set of bills or a set of coins through 100 in combinations of pesos and centavos (Peso and Centavo Coins Only)

PREREQUISITE CONCEPTS AND SKILLS

1. Counting and telling the value of a set of bills or a set of coins through 100 in peso (coins only, bills only, coins and bills)
2. Counting and telling the value of a set of coins and a set of bills through 100 in centavo

MATERIAL

1. Learning Module
2. Illustrations
3. Flashcards
4. Activity cards/sheets of sets of money
5. Play money
6. Empty bottles and boxes of milk, oil vinegar etc

INSTRUCTIONAL PROCEDURE

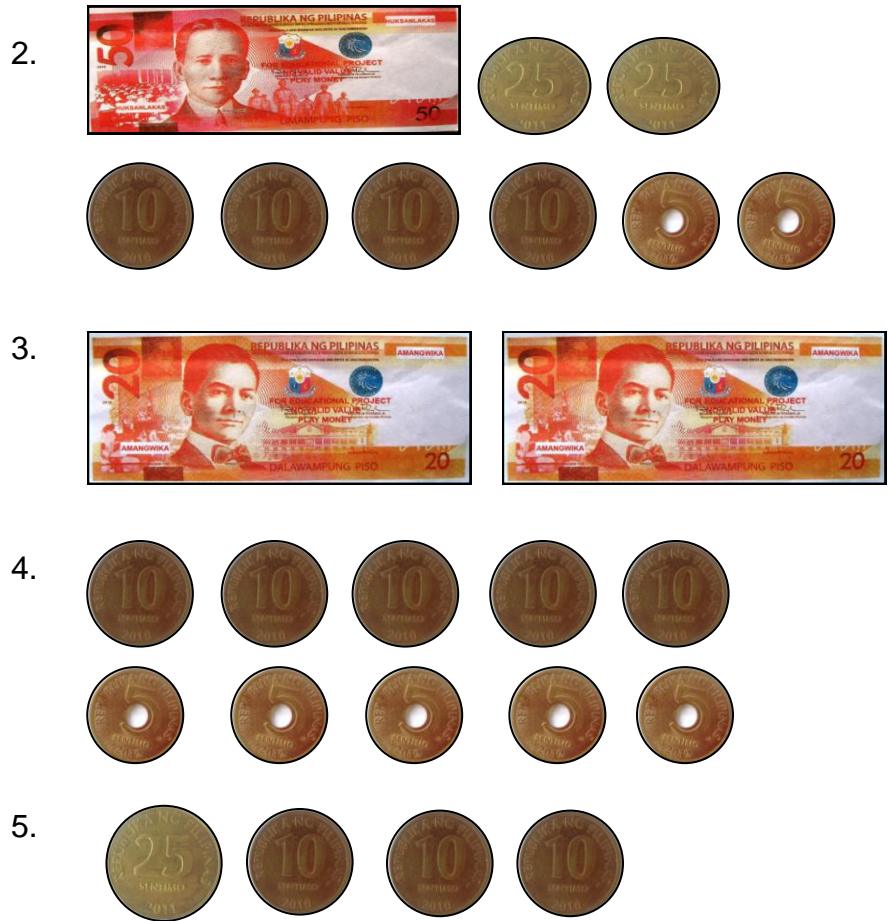
A. Preparatory Activities

1. Drill – Do this as group activity.
Let each group bring out their baon (money). Make sure that the money is properly accounted.
Play “Bring Me”. The first group to bring what is asked will earn point.
Say: Bring me 200 centavos.
Continue the process and reward the group that has earned many points.

2. Review

Group the pupils. Let them count the money in their activity card either in peso or in centavo. The assigned reporter will tell the value of the set of money assigned to them.





B. Developmental Activities

1. Motivation – Simulate buying in a “Sari-sari Store”

Give each group a set of coins (peso and centavo) of different value.
(If possible, there should be more 5 centavos)

Example:

Group 1 – 30 pesos and 50 centavos

Group 2 – 53 pesos and 15 centavos

Group 3 – 15 pesos and 10 centavos

Group 4 – 27 pesos and 75 centavos

Group 5 – 44 pesos and 25 centavos

Place items with tag price in your sari-sari store. Let the pupils use their money to buy the items.

Ask:

How do you find the activity? Is it easy to pay the exact amount?

2. Presentation

Show different denominations of money which is equal to ₱8.35.

Example: 1 piece of P 5 3 pieces of 10¢
 2 pieces of P 1 1 piece of 5¢
 4 pieces of 25¢

Let the class read the money. Then add the corresponding value of each denominations then the total value which is ₱8.35.

Present the pictorial representation of the money.
 1 piece of P 5 3 pieces of 10¢
 2 pieces of P 1 1 piece of 5¢
 4 pieces of 25¢

Ask: How much pesos were there in ₱ 8?
 How much centavos were there?
 If we combine the peso and centavo, how much is the total value?
 Note: Teach the pupils how to read ₱8.35.

3. Reinforcing Activity - Refer to LM 81

4. Application – Refer to LM 81

5. Generalization

The Philippine coins are composed of peso and centavos. The peso includes ₱ 10, ₱ 5 and ₱ 1 while the centavo includes 25¢, 10¢ and 5¢.
 Combine and count the peso first then followed by the centavos. Remember that if centavos are equal to 100 it is already ₱ 1.00. Do not forget also to affix the peso sign at the beginning.

EVALUATION

Count the following set of coins below. Tell their value to your teacher.

1. If you have this set of coins below, how much money do you have?



2. What is the value of the set of coins below?



3. Count the set of coins below. How much is it?



4. How much is the set of coins below?



5. Count the set of coins below.



HOME ACTIVITY

Refer to LM 81 – Gawaing Bahay

Teaching Guide for Mathematics Grade 2

Money

Lesson 82

TOPIC: Counting and Telling the Value of a Set of Bills or a Set of Coins through 100 in Combinations of Pesos and Centavos (Bills and Centavo Coins Only)

OBJECTIVE

Count and tell the value of a set of bills or a set of coins through 100 in combinations of pesos and centavos (Bills and Centavo Coins Only)

PREREQUISITE CONCEPTS AND SKILLS

1. Counting and telling the value of a set of bills or a set of coins through 100 in peso (coins only, bills only, coins and bills)
2. Counting and telling the value of a set of coins and a set of bills through 100 in centavo
3. Counts and tells the value of a set of bills or a set of coins through 100 in combinations of pesos and centavos (Peso and Centavo Coins Only)

MATERIAL

1. Learning Module
2. Pencil and paper
3. Activity sheet (money)
4. Play money
5. Chart (word problem)

INSTRUCTIONAL PROCEDURE

A. Preparatory Activities

1. Drill – Do this in a form of a race. The leader of the group will raise his hand to answer. The group with the highest number of points win.

Example: What is the value of:

- a. 2 pieces of 5 peso coin and 5 pieces of 5 centavo coins.
- b. 8 pieces of 10 peso coins and 1 piece of 25 centavo coin.
- c. 4 pieces of 1 peso coins and 3 pieces of 10 centavo coins
- d. 5 pieces of 20 peso bills
- e. 1 piece of 50 peso and 10 pieces of 5 centavo coins

Reward the group with the highest points.

2. Review – Give each group this activity sheet.

Count the set of coins below. Tell before the class its value. The leader of the group will tell their values.



B. Developmental Activities

1. Motivation

Ask: Have you tried helping cleaning your yard then sell the scrap materials? Elicit answer from the pupils.

2. Presentation

Prepare this situation on a manila paper.

Dexter cleaned their storage room. He collected and sold empty bottles of oil and vinegar.

Say: This is what he received from selling those empty bottles.
(Show the real money. (1 - ₱20 and 3 - 25¢)) Let us read the money.

Ask: How many paper bills were there? What is its value?
How many coins were there? What is its denomination?
How much do you think Dexter receive?
How did you know it? (Elicit answers from the pupils.)

This time present the illustration of the money.



Ask: What is the value of the paper bill? (Ask pupil to write it on the board.)
What is the value of the coins? (Ask pupils to write it on the board.)

Ask pupils to write equations with relation to the above situation.

Example:

$₱ 20 + 25¢ + 25¢ + 25¢ = ₱ 20.75$ (Twenty pesos and seventy five centavos)

Ask: Is it difficult to count money with combination of paper bills and centavo coins? Why? Why not?

Do you have other way of counting this kind of grouping of money?

3. Reinforcing Activity - Refer to LM 82

4. Application – Refer to LM 82

5. Generalization

In counting the value of Philippine money, count the value of the bills first then count the value of the centavo coins. Combine the two values using the symbol ₱. Remember that if centavos are equal to 100 it is already ₱ 1.00.

EVALUATION

Count the following set of bills and centavo coins below. Tell its value to your teacher.

1. What is the value of the set of bills and centavo coins below?



2. If you have the following set of bills and coins below, how much money do you have at all?



3. How much is the set of bills and coins below.



4. The fare from Calagonsao to Odiongan is shown below. How much is it?



5. Count the set of bills and centavo coins below. What is its value?



HOME ACTIVITY

Refer to LM 82 – Gawaing Bahay

Teaching Guide for Mathematics Grade 2
Money
Lesson 83

TOPIC: Reading and Writing Money in Symbols and in Words through 100

OBJECTIVE

Read and write money in symbol and in words through 100

PREREQUISITE CONCEPTS AND SKILLS

1. Reading and writing whole numbers in symbols and in words
2. Reading and writing money with value through 100
3. Counting and Telling the Value of a Set of Bills or a Set of Coins

MATERIAL

- | | |
|--------------------------|------------------------------------|
| 1. Learning Module | 4. Manila paper and markers |
| 2. Illustrations | 5. Weighing scale, scrap materials |
| 3. Activity cards/sheets | 6. Play money |

INSTRUCTIONAL PROCEDURE

A. Preparatory Activities

1. Drill

In this drill, combine the money of the pupils per group. Make sure that the money is properly listed so that after the game it will be properly returned to the owner.

Play “Bring Me”. Then tell the amount you want the group produce.

The group that can produce the exact amount earns point. Reward the group with the highest points.

Example: Eight pesos and fifty centavos

2. Review – Group activity.

Give each group this activity card, manila paper and marker.

A. Write the following in symbol.

- | | | |
|-----------------|-----------------|----------------|
| 1. Eighty-four | 2. Thirty-eight | 3. Twenty-nine |
| 4. Ninety-eight | 5. Fifteen | |

B. Write the following in words.

- | | | | | |
|-------|-------|-------|-------|------|
| 1. 63 | 2. 39 | 3. 27 | 4. 17 | 5. 8 |
|-------|-------|-------|-------|------|

B. Developmental Activities

1. Motivation

How do you dispose your garbage/trash such as empty bottles, plastic, etc.?

Elicit answers from the pupils.

2. Presentation

One of the pupils will act as the buyer of scrap materials. Five other pupils will act as seller of scrap materials.

Set the value per kg of the scrap materials based on the prevailing rate in your locality.

Let the buyer weigh the scrap materials and compute how much he/she should pay the seller. Write the value on the board.

Using the value of the money (written in symbols) written on the board teach the pupils how to read the value then how to write them in words.

Present two charts with values of money written in words and in symbol. Ask the class to read them then call somebody to read them again.

Example:

A

- | |
|------------|
| 1. ₱ 12.75 |
| 2. ₱ 67.20 |
| 3. ₱ 83.95 |
| 4. ₱ 36.80 |
| 5. ₱ 93.75 |

B

- | |
|---|
| 1. Seventy-two pesos and five centavos. |
| 2. Ninety-eight pesos and fifteen centavos. |
| 3. Thirty-three pesos and ninety centavos. |
| 4. Eighty-seven pesos and thirty centavos. |
| 5. Five pesos and fifty centavos. |

Ask: What have you observed in reading money in symbol? How about writing money in symbol? (Do this with letter B)
This time let the class write the value of A in words and B in symbol.

3. Reinforcing Activity - Refer to LM 83

4. Application – Refer to LM 83

5. Generalization

<p>In reading money in symbol, attach pesos for the whole number and centavos for the number after the period or decimal point.</p> <p>In writing money, write the symbol ₱ for the bills and ¢ for centavos. When combining peso and centavo, attach in front the peso sign but there is no need to attach centavo sign.</p> <p>The period or decimal point is read as “and” to separate peso from centavo.</p>
--

EVALUATION

A. (Optional) The teacher may assign the more able pupils to listen and determine if their classmates read the following correctly.

1. ₱ 18.35
2. ₱ 71.90
3. ₱ 0.50
4. 80 ¢
5. 35 ¢

B. Write the following in words.

1. ₱ 9.70
2. 20 ¢
3. ₱ 15.15
4. ₱ 0.05
5. 55 ¢

C. Write the following in symbols.

1. Eighty-seven pesos
2. Seventeen pesos and seventy centavos
3. Forty-five centavos
4. Ten centavos
5. Thirty-nine pesos and eighty centavos

HOME ACTIVITY

Refer to LM 83 – Gawaing Bahay

Teaching Guide for Mathematics Grade 2 Money Lesson 84

TOPIC: Comparing Values of Different Denominations of Coins and Paper Bills through 100 using Relation Symbols

OBJECTIVE

Compare values of different denominations of coins and paper bills through 100 using relation symbols $<$, $>$ and $=$

PREREQUISITE CONCEPTS AND SKILLS

Counting and telling the value of a set of bills or a set of coins through 100 in combinations of pesos and centavos

MATERIAL

1. Ball
2. Flashcards
3. Illustrations
4. Learning Module
5. Different denominations of play money
6. Strips with written values of money either in words or in symbol
7. Activity sheet with illustrations of money or play money posted on it

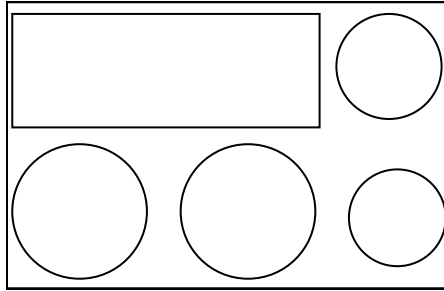
INSTRUCTIONAL PROCEDURE

A. Preparatory Activities

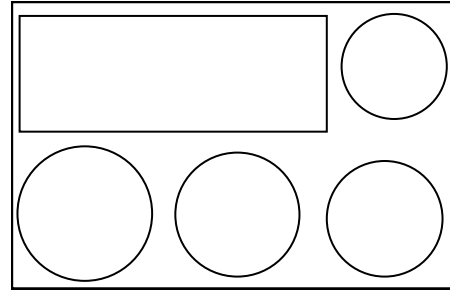
1. Drill – Do this as group activity

Give each group this activity sheet. Let them count and write the value in symbol and in words. Once done, let each group present their outputs.

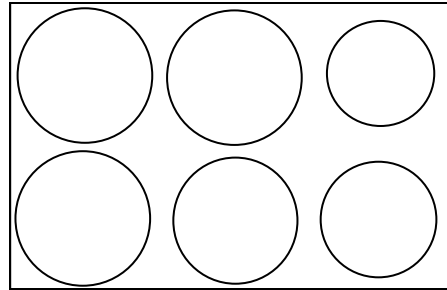
Group 1



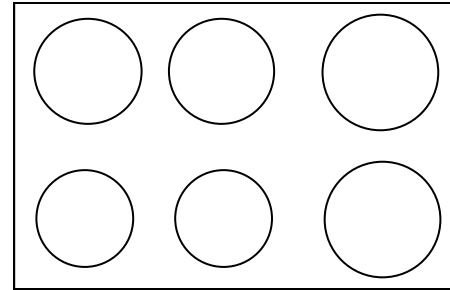
Group 2



Group 3



Group 4



2. Review

Use a ball. Pass the ball to the class. Whoever catches the ball will come in front. The teacher will say; "Give me (amount of money). The pupil will count from the set of money on the table of the said amount.

Example: Fifteen pesos and thirty centavos

B. Developmental Activities

1. Motivation

Ask how much baon each of your pupils have?

Then let the class identify who has the biggest amount of baon.

You may ask the pupils on what is the equivalent of it in different denominations.

2. Presentation

Place the following amount inside a box or jar.

2 – ₱ 88	10¢	₱ 3.05	₱ 73.60	₱ 79.30
35¢	₱ 9.60	₱ 9.05	95¢	

Wrapped them in a coupon bond.

Call 10 pupils. Ask them to get one amount from the box/jar. Pair the pupils. Let them open it and count the value then compare. If they think they have a higher value they will stay on the right side and if lower on the left side.

Ask the class if the pupils went to the correct location.
If they don't, bring them to their proper position.

This time, post the pictorial representation of the money above (prepared ahead) in this order.

	A	B.
1.	₱ 88	₱ 88
2.	10¢	₱ 3.05
3.	₱ 73.60	₱ 79.30
4.	35¢	₱ 9.60
5.	₱ 9.05	95¢

Start comparing the value in each column.

Example: (for number 1) Which is greater in column A or in column B?
How did you know it?
(Do this with 2, 3, 4, and 5)

Since the pupils have idea already which is greater, tell them to use their previous knowledge in comparing numbers using relation symbol in comparing the following values.

	A		B.
1.	₱ 88	___	₱ 88
2.	10¢	___	₱ 3.05
3.	₱ 73.60	___	₱ 79.30
4.	35¢	___	₱ 9.60
5.	₱ 9.05	___	95¢

3. Reinforcing Activity - Refer to LM 84

4. Application – Refer to LM 84

5. Generalization

To compare values of different denominations of coins and paper bills we use the relation symbols =, >, and <.
We use equal sign if the two value we compare are equal.
We use greater than if the value of the first money is bigger than the second value.
We use less than if the value of the first money is smaller than the second value.

EVALUATION

Copy the following then compare them using relation symbols. Write your answer on your paper.

- | | |
|------------------------|-------------------------|
| 1. ₱ 32.35 ___ ₱ 32.95 | 6. ₱ 0.75 ___ ₱ 71.00 |
| 2. ₱ 8.05 ___ ₱ 8.50 | 7. 75¢ ___ 55¢ |
| 3. ₱ 78.90 ___ ₱ 59.85 | 8. 80¢ ___ 80¢ |
| 4. ₱ 0.50 ___ 50¢ | 9. ₱ 67.33 ___ 100 ¢ |
| 5. 95¢ ___ ₱ 9 | 10. ₱ 84.05 ___ ₱ 83.80 |

HOME ACTIVITY

Refer to LM 84 – Gawaing Bahay

Teacher's Guide For Grade 2 Mathematics (Half Circles and Quarter Circles) Lesson 85

TOPIC: Visualizing, Identifying, Classifying and Describing Half and Quarter Circles

OBJECTIVES

1. Distinguish between half and quarter circles
2. Classify fractions of circles into half and quarter circles
3. Describe half and quarter circles

PREREQUISITE CONCEPTS AND SKILLS

1. Identify circles in 3-dimensional objects
2. Model and describe division situations in which sets are separated into equal parts.

MATERIALS

1. Cutouts representing squares and circles.
2. Cutouts of circles, half circles and quarter circles. They should be bordered using a colored marker. The straight edges of half and quarter circles are bordered with dotted lines.
3. Pair of scissors
4. Pocket chart

INSTRUCTIONAL PROCEDURE

- A. Preparatory Activity
Pre-Assessment

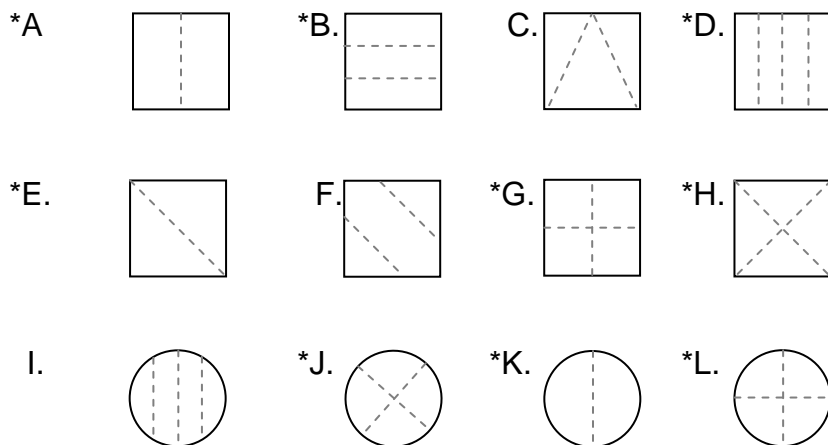
In this activity, the pupils have to show skill in identifying circles in 3-dimensional circular objects. The teacher may (a) bring objects of different shapes, (b) illustrations of these objects or (c) simply ask the pupils to find circular objects inside the classroom. It should be emphasized, however, that the objects are only circular in shape and not circles themselves. The pupils should be asked to support their answer.

Possible explanations by pupils:

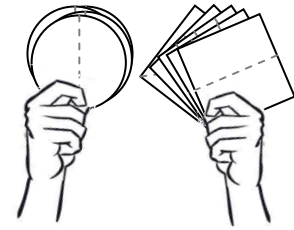
- The (object) has a circular shape because it is round.
- The (object) has a circular shape because it has no corners.
- The (object) has a circular shape because it has no edges/sides.
- The (object) has a circular shape because it can be made to roll.

There may be a limited number of circular objects to choose from if the teacher opted to use (c). To achieve greater number of participation, the teacher may refer to noncircular objects inside the classroom to find out if pupils would consider them as circular or not.

For this part of the pre-assessment, the pupils should demonstrate the ability to identify equal division. Use cutouts of the figures below with corresponding dotted lines. Avoid using pictures of 3-dimensional objects if the object of division was the surface they were printed on. Moreover, the pupils should be made to explain their answer and to name each portion.



While holding several cutouts, say, "Some of these shapes are divided equally and some are not."



Present shape A

"Is this shape divided equally?"

("Yes, it is divided equally!")

"Why do you say so?"

If the pupils would have difficulty answering the question, fold the cutout along the dotted line. Make the pupils realize that both parts fit exactly each other. There may be a need to cut the paper along the dotted line with other figures to show correspondence in shape.

("When folded, the two parts fit exactly each other.")

"How do you call each part/portion?"

("Each part/portion is called one-half.")

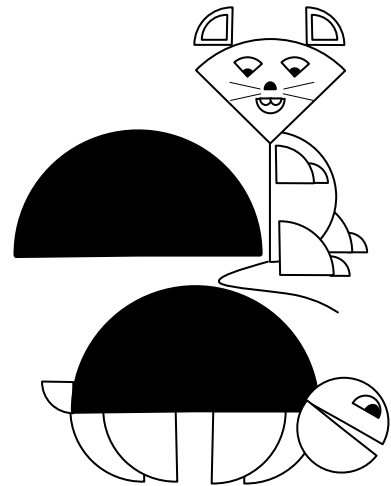
Again, to attain greater participation, let different pupils answer the teacher's questions. Do the same with the other shapes. Those with asterisk show equal division. Conduct a review if majority of the pupils failed to show understanding of the concept of division.

B. Developmental Activities

1. Motivation

Ding Daga and Ping Pagong

The teacher prepares a reproduction of a mouse, a mouse hole and a turtle made out of cutouts of half and quarter circles glued together. He/she tells a story which goes, As sunrise approaches, Ding Daga came home from an exhausting night foraging for food. Tired and heavy-eyed from lack of sleep, he went to his mouse hole at the riverbank.



"Home at last," Ding muttered while yawning. He scampered towards his hole but, to his astonishment, hit his head on something really hard. "I must have hit my head on a rock," he murmured. Anxious that he would hit his head again, he lowered his head and slowly enters his hole. Again, he bumped his head, though not as hard as the first time. "Alas, I really have to fix this

hole. It's becoming too small for me." Wide-awake from hitting his head twice, Ding crouched and tried again to enter his hole. This time, it was his snout. "YOUCH!" he exclaimed in pain but stopped mid-sentence when he noticed his mouse hole moved.

"What's the ruckus about," Ping mumbled.

"Is that you, Ping?" asked Ding. "What are you doing blocking my mouse hole?"

"Well, you asked me to look after it while you're out. Knowing you would be gone the whole night, I was afraid I might oversleep. I decided to sleep by your hole just so I can sleep soundly and guard your hole at the same time. Now that you're here, I think I'll go for a swim."

Ding chuckled as he watches Ping crawled slowly towards the river. "I may have a bruised head and a sore snout but it feels great to have a trustworthy friend as Ping. Pleased with what his friend had done for him, Ding went cheerfully inside his mouse hole.

"Did you enjoy the story?"

"Would you be glad like Ding to have a friend like Ping?"

"What did you notice about the figures I used while telling the story?" ("They were made up of the same shapes.")

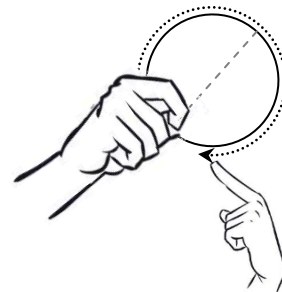
2. Presentation

While holding a bordered circular piece of paper, say, "What shape is defined/represented by this paper?"

("The boundary of the paper represents a circle.")

Ask a pupil to show where the circle is.

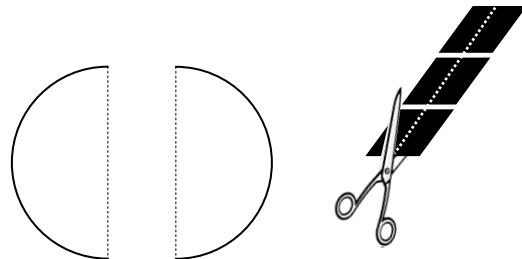
It is expected that the pupil would trace the border around the paper. The teacher then draws a dotted line through the center of the circle. It can also be done beforehand at the flip side of the cutout. It would help if the teacher drew a thick dotted line using a colored marker.



"Does the line divide the circle equally?"

("Yes, the line divides the circle equally.")

Now, the teacher cuts along the dotted line. The trick is to cut with precision so that both half circles would still contain dotted lines along their edges.

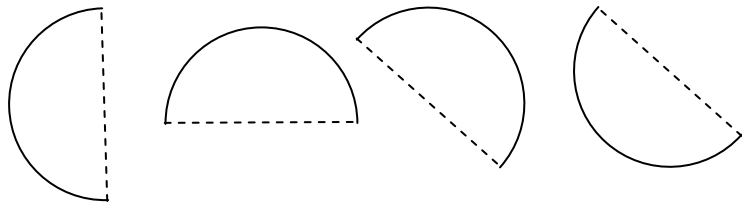


“How do we call each part?”

(“Each part is called one-half.”)

“Who can draw on the board one-half circle?”

You may allow the pupil to use the cutout of a half circle to trace its boundary including the straight edge but only as broken line. The pupil should draw something like the ones shown below regardless of orientation.



Technically, portions of a circle ought to be arcs. The idea of including the interior of the circle or any plane figure, for that matter, is somewhat disadvantageous to pupils when they study geometry in higher grades. However, for the sake of simplicity, pupils may be introduced to half and quarter circles where the edges are represented by dotted lines.

“Children, one-half of a circle is called a **half circle**.”

Write “half circle” on the board.

“Again, what is a half circle?”

(“A half circle is one-half of a circle.”)

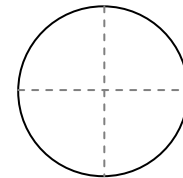
“Using the figure drawn by (name of pupil) on the board, who can show me where the half circle is?”

The pupil should trace the arc of the figure. If he/she included the broken line, explain that it only indicates where the paper was cut. There may be a need to show once again a figure of a circle without the dotted line to make the pupils understand better. It could also help if the teacher shows the flip side of the half circle where there is no dotted line. It may also help if the teacher shows pictures of the following:



If asked what they see, the pupils, most probably, would answer rose (flower/plant), ice cream and balloon. The teacher makes them realize that just as the half circle does not include the dotted line, the plant does not include the pot/soil, the ice cream does not include the cone and the balloon does not include the string.

The teacher gets another cutout of a circle and draws two perpendicular diameters. Again, this can be done earlier on the flip side as shown.

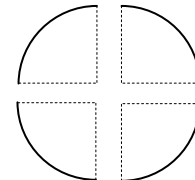


“Into how many parts was the circle divided?”

(“The circle was divided into four parts.”)

“Was the circle divided equally?”

(“Yes, it was divided equally.”)

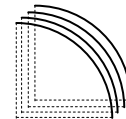


The teacher cuts the paper along the dotted lines and arranges the quarter circles formed to show that each fits exactly one another.

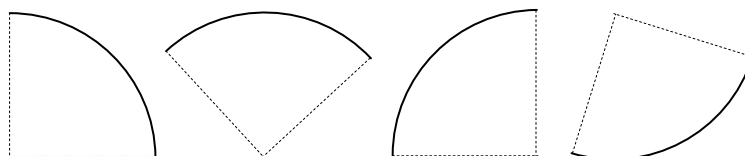
“You’re right! The circle was divided into four equal parts. And how do we call each part?”

(“Each part is called one-fourth.”)

“Who would like to draw a one-fourth circle on the board?”



The pupil may draw a quarter circle regardless of orientation as shown.



“Class, one-fourth of a circle is called a **quarter circle**.”

Write “quarter circle” on the board.

“Again, what is a quarter circle?”

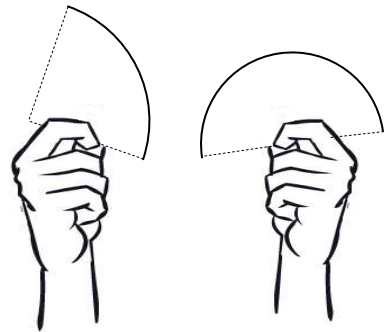
(“A quarter circle is one-fourth of a circle.”)

“Who can show me where the quarter circle is?”

The pupil is expected to run his finger along the arc. Do the same as what was previously done with the half circle if the pupil included the edges.

“Now, let’s see if you can tell which are half circles and quarter circles.”

The teacher presents to the class cutouts of half and quarter circles in pairs. Cutouts should be of different sizes to prevent the pupils from developing the idea that size may be used to distinguish between these figures. The pupils have to identify orally which are half and quarter circles.



“Which of these two is a half circle? a quarter circle?”

(“The half circle is at your left. The one at your right is a quarter circle.”)

The teacher asks the pupils if they agree with the answer. He/She should not immediately correct errors nor suggest that the answer is wrong. Let the pupils discover it for themselves. The same should be done with the rest of the pairs of cutouts.

“All/Most of you have given the correct answers. Can someone tell me how half circles are different from quarter circles?”

Pupils may give several answers. Since cutouts were used, pupils may realize that the number of edges in each may be used to differentiate one



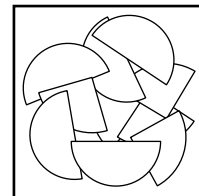
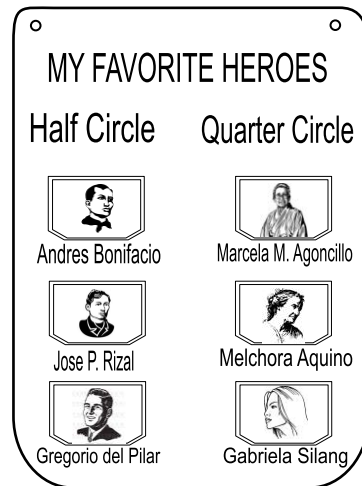
from the other. Half circles have only one edge (diameter) while quarter circles have two edges (radii). Be ready to acknowledge other plausible answers.

3. Reinforcing Activities

The teacher prepares a pocket chart containing pictures and names of Philippine heroes and heroines in two columns. The pupils have to vote for their favorite using half and quarter circles as ballots.

“Class, you are going to vote for your favorite hero and heroine. There are half and quarter circles on the table. Each of you will pick one half circle and one quarter circle and then place them into the pockets where your favorite heroes are. Remember, half circles should be placed into pockets at the left column and quarter circles into those at the right. If you place them in the wrong column, your vote would not be counted. All right, let’s start with (name of pupil).”

While the pupils are casting their votes, the teacher prepares a scoreboard. After the last pupil cast his/her vote, the teacher collects cutouts from each pocket and starts counting them. A pupil may be assigned to tally each vote on the scoreboard. The teacher announces later the names of the hero and heroine who got the greatest number of votes. The teacher may opt to tell their life story or some interesting anecdotes about these two heroes.



4. Application

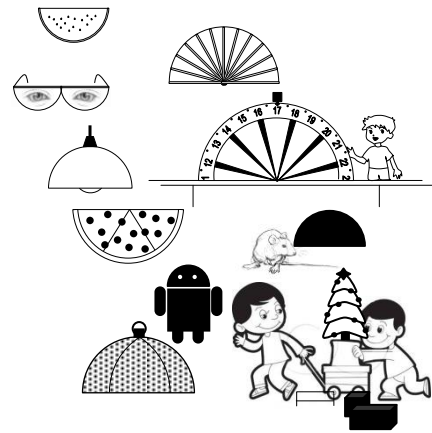
The teacher refers the pupils to 85 Activity No. 1. If time does not permit, the teacher may ask the pupils to do it as homework.

“We have a scene of a busy street on Christmas eve. Can you identify twenty (20) distinct objects or parts of objects showing the shapes of half and quarter circles? Encircle all the objects that you have identified.”

Key:

Objects or parts of objects having the shape of a half circle:

1. Watermelon
2. Fan
3. Eyeglasses
4. Partially-covered roulette
5. Hanging lampshade
6. Pizza/Bibingka
7. Mouse hole
8. Android icon
9. Dome-shaped plastic cover
10. Partially-covered rear wheel



Objects or part of objects having the shape of a quarter circle:

1. Watermelon
2. Fan
3. Buntings
4. Toy windmill
5. Napkin holder
6. Pizza/Bibingka
7. Partially-covered front wheel
8. Angel's wings
9. Partially-hidden moon
10. Santa's sleigh



4. Generalization

“What have we learned about half and quarter circles?”

“Half and quarter circles are parts/portions of a circle. Half circles are formed when a circle is divided into two equal parts. Quarter circles are formed when a circle is divided into four equal parts. Edges formed when cutting a circular paper model are not parts of half and quarter circles. These edges, however, may be used to distinguish half circles from quarter circles.”)

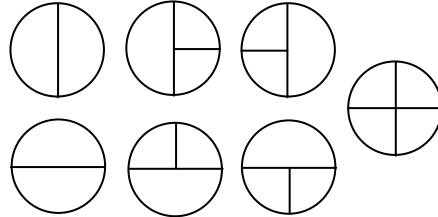
EVALUATION

Refer to LM 85 Activity No. 2

HOME ACTIVITY

The teacher distributes models of half and quarter circles. Each student should receive one model for each figure. The task is to create seven (7) circles composed of models of half circles, quarter circles or combinations of these two. The pupils would use the models as patterns to create other models to be glued together to form circles. Be sure that these patterns came from the same circle.

Using crayons, they would shade each portion using different colors. The figures at the right are just some examples of circles that can be formed using half and quarter circles. The idea is for pupils to create circles not identically formed. Pupils may form circles where the edges of the half and quarter circles used do not form vertical or horizontal lines.



Teacher's Guide For Grade 2 Mathematics
(Modelling Plane Shapes)
Lesson 86

TOPIC: Representing Squares, Rectangles, Triangles, Circles, Half Circles and Quarter Circles Using Cut-Outs and Square Grids

OBJECTIVES

Create representations of

1. squares, rectangles and triangles using paper folding/cutting and square grids;
2. circles, half circles and quarter circles using paper folding/cutting and square grids.

PREREQUISITE CONCEPTS AND SKILLS

1. Identify, name and describe the four basic shapes in 2-dimensional objects: square, rectangle, triangle and circle
2. Draw the four basic shapes

MATERIALS

- | | |
|-------------------------|--------------------------|
| 1. Bond paper/Pad paper | 4. Pencil |
| 2. Pair of scissors | 5. Straight Edge / Ruler |
| 3. Graphing paper | |

INSTRUCTIONAL PROCEDURES

A. Preparatory Activity

Pre-Assessment

Ask the students to get a sheet of paper and cut them into four parts. Tell them to draw the four basic shapes namely, square, rectangle, triangle and circle on each. Allow some time for everyone to finish drawing the shapes.

“Has everyone finished drawing?”

(“Yes, we have!”)

“Now, show me one or more of what you have drawn that would fit my description.”

“Show me a shape.”

The pupils are expected to show/raise all four shapes. The teacher should spend some time verifying the accuracy of the drawings particularly squares being easily distinguishable from rectangles.

“Very good! Squares, rectangles, triangles and circles are all shapes.”

“This time, show me one or more shapes which are 2-dimensional.”

Again, the pupils are expected to show/raise all four shapes. If majority did not, it is likely that pupils have little or no understanding of what 2-dimensional figures are. Spend time clarifying 2-dimensional shapes in contrast with 3-dimensional figures.

“Careful now, show me one or more shapes with sides.”

Pupils are supposed to show/raise their drawings of square, rectangle and triangle. The teacher tells more shape descriptions as, but not limited to the following:

- ... shapes with four sides (square and rectangle)
- ... shapes with three sides (triangle)
- ... shapes without corners (circle)
- ... shapes with all sides equally long (square and/or possibly, a triangle)
- ... shapes without sides (circle)
- ... shapes with four corners (square and rectangle)

If the teacher was convinced that all pupils possess the prerequisite skills for this lesson, he/she may proceed to the

lesson proper. However, intervention should be provided as deemed necessary.

B. Developmental Activities

1. Motivation

How The Scissors Came To Be

There was once a king who possessed two enchanted daggers so powerful he merely thrusts them one after the other into the air to win his battles. With them, the king wields great power that no one dared oppose him. For so many years, peace reigned in the whole



kingdom and everyone lives happily and contentedly except the king. As a great warrior, he missed fighting battles. One morning, as the king sat sleepily on the edge of his bed, he noticed some trees had blocked the view of the majestic mountains outside his window. Somehow, this annoyed the king who pulled one of the daggers out of its sheath.

“These trees have no right to grow here,” and, with one swing of his dagger, all the trees blocking the window fell.

The king’s gardener saw this and felt sad because he loved those trees so much. “He could have just asked me to trim the branches and the leaves,” the gardener uttered in a low, inaudible voice. He knows the king can do anything as he pleases.

That afternoon, while the king was sitting lazily on his throne, he, again, pulled one of the daggers out of its sheath and swings it towards the prince’s dog. It yelped, as its tail fell on the floor. The king laughed heartily when he saw what happened to the dog. He unsheathed the other dagger, swiped it again and the cat’s fur disappeared. The king guffawed uncontrollably that he almost fell from his throne. The princess wept when she saw what happened to her dear kitty. That night, the prince and the princess did not come for dinner.

Now, the villagers became afraid of what the king might do to them. They would scoot inside their houses every time they see the king approaching on his horse. One day, the king met an old man walking down the road. Wondering how the old man would react if his staff broke and his long beard gone, he got both daggers and swiped them. To his amazement, nothing happened. He did it again and still nothing. The old man finally spoke. “The daggers were yours for so many years and yet you do not know how they worked. You cannot use both daggers at the same time because they cancel out each other’s power. I know this because I made them. To stop you from doing more harm...,” the old man waved his staff and the two daggers became welded. “Now, you cannot use them separately,” said the old man. And that’s how the scissors came to be.



“Do you like the story?”

(“Yes, ma’am!”)

“Do you think the scissors are completely useless without its former power? Why do you think so?”

(“No. With a pair of scissors, we can create many beautiful things.”)

2. Presentation

“By this time, everyone knows how to draw and identify squares, rectangles, triangles and circles. In our previous lesson, you also learned how to define and distinguish between half and quarter circles.”

“Drawing these shapes on a piece of paper, as you did a while ago, is just one way of showing what they are and how they look like. We call it representing or modelling shapes. A model is not the thing itself. It just gives us an idea of what is being represented. You sometimes hear people say, ‘He is a model of courage.’ The person is not courage itself but just possesses qualities of being brave.”

“But do you know that there are other ways of modelling shapes aside from drawing them? We will discuss two of them, first of which would be by paper folding and cutting.”

“Paper folding activities usually starts with a square. However, most papers come in rectangular shapes.”

The teacher shows a piece of bond paper or a sheet of pad paper.

“Do you agree that this piece of paper is rectangular in shape?”

(“Yes ma’am!”)

“Our first task is to turn a rectangular piece of paper into a square by paper folding and cutting. You may get a sheet of pad paper and try to follow what I am doing. Be ready also with your pair of scissors”

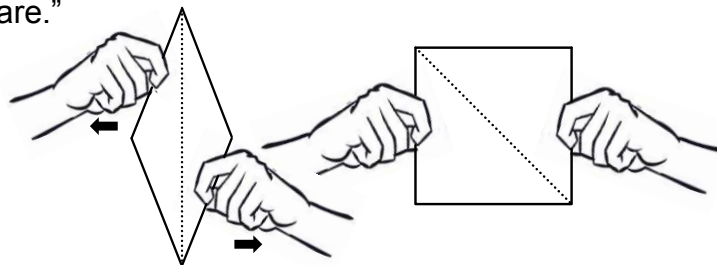
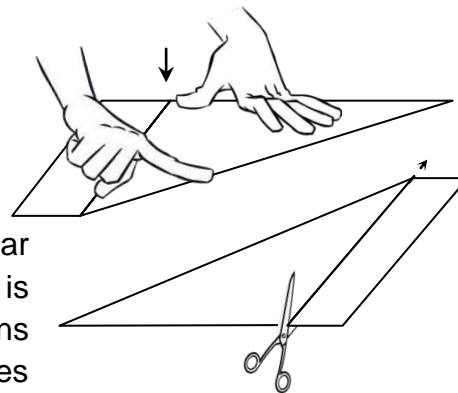
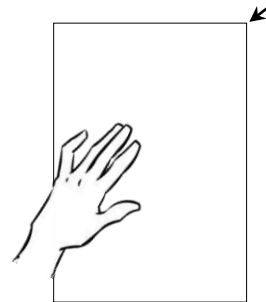
“First, lay out your sheet of paper vertically.”

The teacher may use the board to lay out the paper for everyone to see clearly how the folding is done. After each step, he/she should walk around to see if everyone can follow his/her directions.

“From the upper right hand corner, fold the paper until it meets the opposite edge.”

See to it that the edges are aligned with each other.

“Now, using your pair of scissors, cut the rectangular portion leaving the part which is triangular in shape. What remains are two overlapping triangles which, when unfolded is a model of a square.”



The teacher should check the work of every pupil. It should also be clear to everyone that the edges of the paper represent the square and not the whole paper.

“By the way, class, how would you know that a shape like this one (show the square cutout) is a square?”

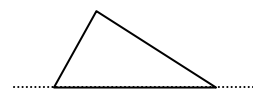
(“The sides are of equal length and the corners form an L shape.”)

To further test if the students really understood the concept of a square, the teacher may show cutouts of a rectangle (All corners form an L shape.) and a rhombus (All sides have the same length.) then ask if they are also representations of squares.



Since most papers are rectangular in shape and has lengths greater or less than twice their widths, dividing them lengthwise or crosswise into 2 equal parts would always yield a rectangular shape.

Creating models for triangles should not be limited to a particular kind. In addition to drawing triangles where one side is always drawn along the horizontal, representing triangles using one kind generated certain problems in higher grades.



It may help if pupils are introduced this early to representing triangles with the following characteristics:

- 3 sides have different lengths (scalene)
- 2 sides have the same length (isosceles)
- 3 sides have the same length (equilateral)

At this point, pupils need not be introduced to the terms “scalene”, “isosceles” and “equilateral”.

“Do you have any questions about making models of squares? If there is none, let’s start making models of triangles.”

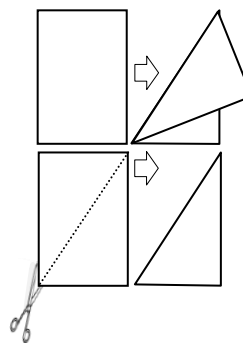
“First off, we would make a triangle out of a rectangular piece of paper. If we would do it by folding, how many folds do you think we need?”

(“We need to fold the paper only once.”)

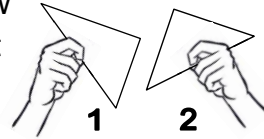
Ask for volunteers, if there are any, to show how it is done. This can be accomplished by folding the paper linking opposite corners and cutting the paper along the fold as shown.

“Do you think we can do the same with a square piece of paper?”

Let the pupils try the same with a square piece of paper.



“If we represent our triangle like this (2), how do you think would it be different from our first triangle?”



“Using a square paper, the triangle has two sides of equal length while the triangle cut out of a rectangular paper has sides of different lengths.”

“That’s right! Now, do you think we can make a triangle with all three sides having the same length just by paper folding? This is quite a challenge, so get another piece of pad paper and try to follow what I’m doing.”

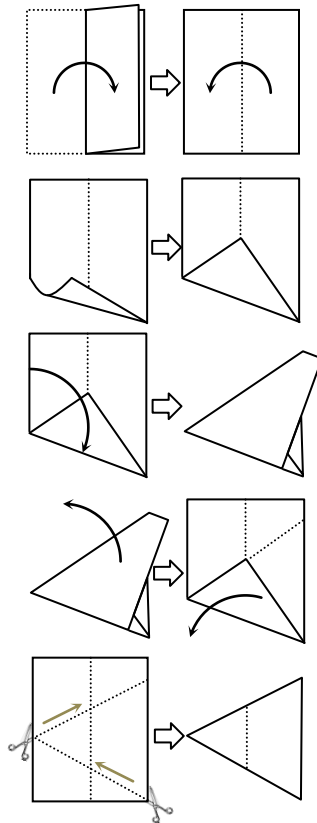
“To start with, fold the paper lengthwise, then, unfold it.”

“Fold the bottom left corner until it meets the fold at the center and forms a pointed tip at the bottom right corner.”

“Fold the upper left corner until it touches the bottom edge.”

“Unfold then cut along both folds. With your ruler, you can check if all the three sides have the same measure.”

There are other ways to create models of equilateral triangles but this is one with the least number of steps. Again, the pupils should be reminded that the edges

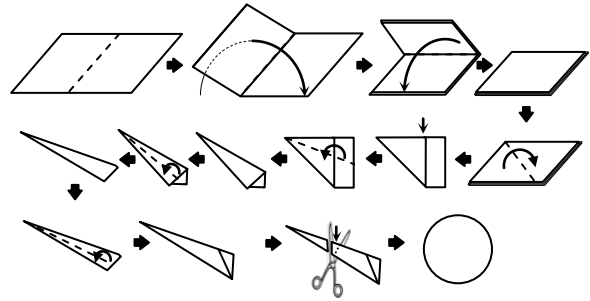


of the cutout form the triangle and does not include the interior.



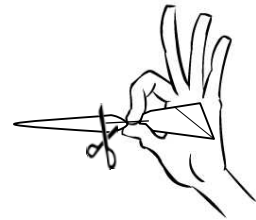
Creating models of circles may be done in two ways. The easier method would be to use a circular object (coin, drinking glass, plate, etc.) and to trace on a piece of paper the boundary/rim using a pencil. The other method is, again, by paper folding, although this is not quite as accurate as the first method. The teacher may opt to introduce both methods.

“Class, do you know that models of circles may be created by paper folding? However, we do this only if we don’t have circular objects to use.”



To create a model of a circle by paper folding, the teacher follows the steps shown above.

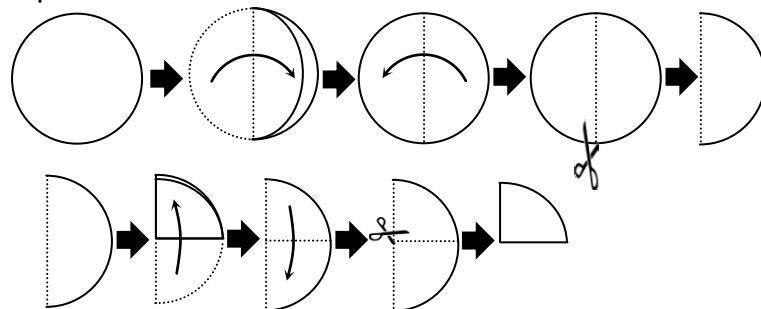
If only more folds can be made with the paper, the more circular the model becomes. Unfortunately, after the sixth fold, it would be very difficult to make another one. However, the teacher can make a small fold at the middle and can cut through it.



At this point, the teacher can already introduce creating models of half and quarter circles.

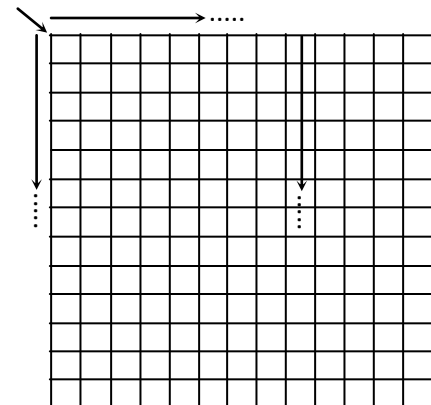
“A few days ago, we had discussed about half and quarter circles. Do you still remember how they look like? Can you make models of these figures?”

Models of half and quarter circles can be made using the following steps:



Creating models of these shapes can also be done using square grids. This requires the use of graphing paper, straight edge and pencil. Moreover, this necessitates some skills in counting among the pupils.

As graphing papers are



relatively expensive, the teacher should plan in advance how to maximize the use of graphing papers so that one or two sheets would be enough to model all shapes.

Starting with rectangles, the teacher and the pupils locate an intersection which would represent one of the vertices of the rectangle.

From this point, the teacher and the students count horizontally a certain number of intersections depending on how large the teacher wanted the rectangle to be. This would represent the second vertex of the rectangle.

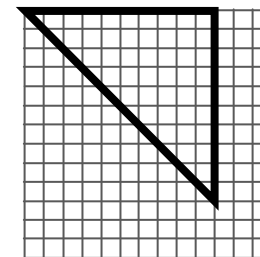
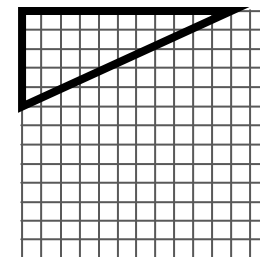
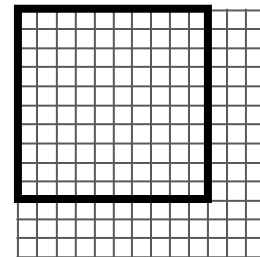
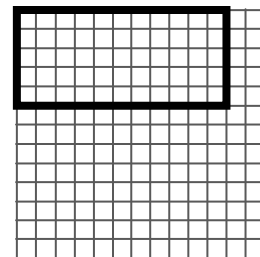
From these two points, the teacher and the pupils count vertically equal number of intersections which should be either greater or less than the number of intersections previously counted horizontally. The resulting two points would represent the two remaining vertices of the rectangle.

With a straight edge and a pencil, the teacher and the pupils connect all consecutive points. Everyone should be careful about connecting any two opposite points. The rectangle formed may appear as shown in the figure.

For squares, the same steps as those for modelling rectangles should be followed. However, the number of intersections to be counted horizontally and vertically should be equal.

Scalene triangles may also be formed using the steps for creating models of rectangles but after locating the second point, the teacher and pupils have to use only one point as reference in counting vertically the number of intersections. The scalene triangle at the right may be formed if the first point was used as reference.

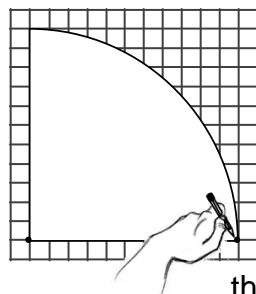
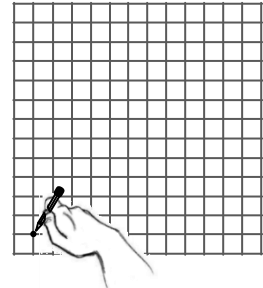
The steps to be followed in making models of squares also apply to isosceles triangles. But just like the case of scalene triangles, only one



point may be used as reference for vertical intersections. The isosceles triangle at the right was formed using the second point as reference.

Unfortunately, equilateral triangles are impossible to make using a square grid, straight edge and pencil only. Nevertheless, if a model of a quarter circle is available, creating an equilateral triangle becomes achievable.

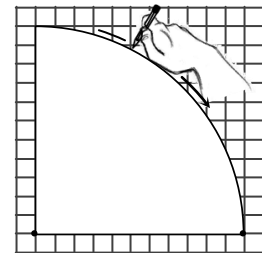
In this method, the teacher and pupils locate first a point on the square grid which would represent one vertex of the equilateral triangle.



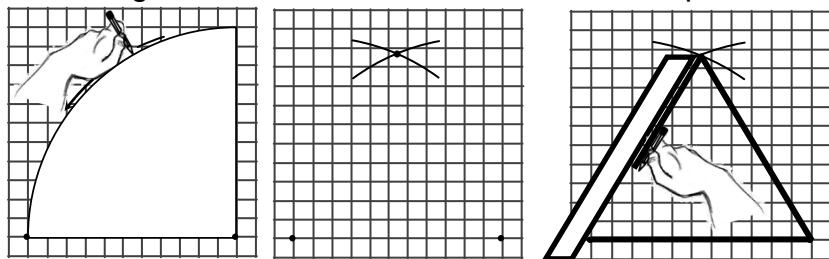
With a quarter circle, the teacher and pupils place the model on the square grid where the intersection of its edges coincides with the first point. A second point is marked as shown in the figure at the left. The distance between

these two points corresponds to the radius of the quarter circle. The arc of the quarter circle is then traced using a pencil.

After tracing the arc, the teacher and the pupils flip the quarter circle horizontally. This time, the intersection of the edges of the quarter circle coincides with the second point. This could also be done without flipping the quarter circle. Rotating it counter clockwise until the intersection of the edges coincides with the second point will produce the same effect. The arc is again traced in such a way that it crosses the first arc. A third point is marked where the two arcs meet. With a straight edge and a pencil, connect all three points by drawing three line segments.



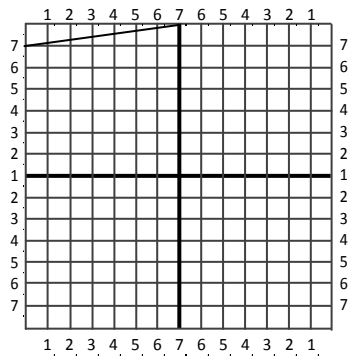
Constructing models of circles, half circles and quarter circles



using square grids require equal and odd number of horizontal and

vertical intersections. The teacher and the pupils draw two perpendicular lines dividing the square grid into four equal quadrants. For clarity, the intersections were numbered as shown.

Creating models of quarter circles using square grids provides the base from which models of circles and half circles can be developed. It requires only one quadrant and is done by joining intersections of the same number with line segments. In the first figure, horizontal and vertical intersections corresponding to number 7 were joined by a line segment.



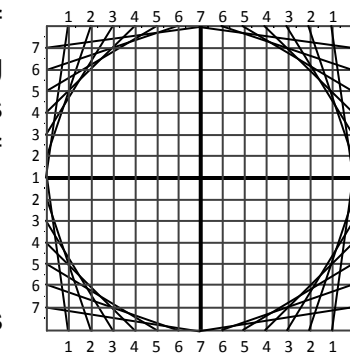
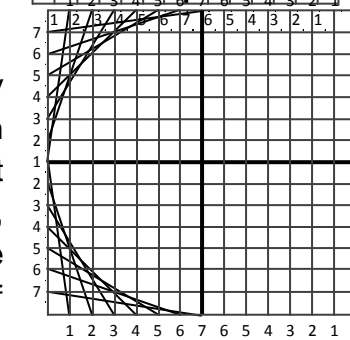
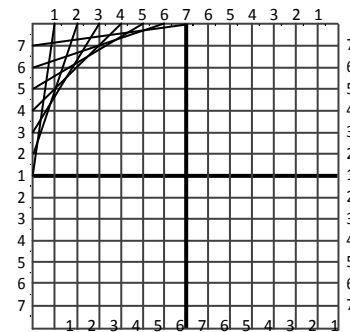
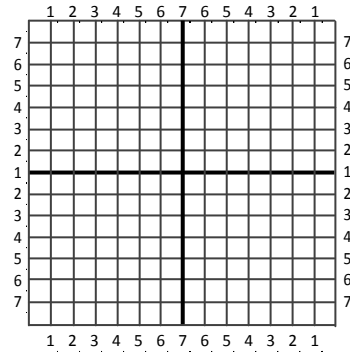
were joined by a line segment. This should also be done with the remaining intersections in the quadrant using a straight edge and a pencil. When completed, it would form a quarter circle as shown in the next figure.

This procedure is just repeated using other quadrants when making circles and half circles. In the case of half circles, any two adjacent quadrants may be used such that four (4) half circles of different orientation can be made. In the figure, using the two adjacent quadrants at the upper and bottom left produced a half circle opening to the right.

On the other hand, circles make use of all four quadrants. Again, modelling circles in this way is not as accurate as those made by tracing the boundary/rim of circular objects.

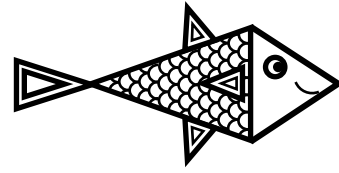
3. Reinforcing Activity

Refer to LM 86 Activity No. 1 – “Hugis Ko, Iguhit Mo”

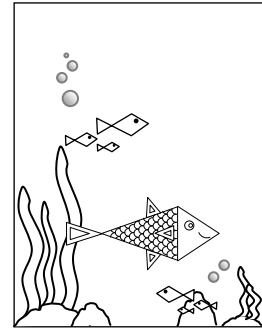


4. Application

The teacher brings to class a model of a fish made up of different shapes. An illustration of the image at the right will suffice but cutouts of the shapes used, if glued together, will produce a better effect especially with the scales and fins.



“Class, this time, let’s have some fun with shapes. Now that you know how to make models of them, you can make images/models of countless objects just by combining these shapes. In this model of a fish, four (4) shapes were used namely, triangle (head, body and fins), circle (eye), half circle (scales) and quarter circle (mouth). When you’re done, stick it on a bond paper and draw things found underwater to make it appear swimming at the bottom of the sea.



5. Generalization

“Making models of different shapes can be done using plain or graphing papers, pencil, straight edge and scissors. Two methods can be used namely paper folding and pattern formation using square grids.”

“Among the models of shapes we had constructed, only triangles have different types. We have those whose sides have different lengths, those whose two sides have the same length and those whose three sides are of equal length. The others, namely, the rectangle, the square and the circle can only vary in size.”

“One thing that you should not forget is that all of them are just models of these shapes and that they do not include the interior.

EVALUATION

The teacher divides the students into three groups. Each group has to divide its members according to the number of tasks to be accomplished. However, at least two pupils should share in the completion of a particular task. A pair may perform more than one task.

The tasks to be accomplished by each group are as follows:

Creating a model of a

- a. square (paper folding)
- b. triangle with 3 sides having different lengths (paper folding)
- c. triangle with 2 sides having the same length (paper folding)
- d. triangle with 3 sides having the same length (paper folding)
- e. rectangle (paper folding)
- f. circle/half circle/quarter circle (paper folding)
- g. square (square grid)
- h. rectangle (square grid)
- i. triangle with 3 sides having different lengths (square grid)
- j. triangle with 2 sides having the same length (square grid)
- k. triangle with 3 sides having the same length (square grid)
- l. circle/half circle/quarter circle (square grid)

HOME ACTIVITY

The teacher asks the pupils to create figures as what was done in Application. However, the pupils have to use all shapes (square, rectangle, triangle, circle, half circles and quarter circles) in this activity.

Teacher's Guide For Grade 2 Mathematics (Mirror Symmetry) Lesson 87

TOPIC: Shapes and Figures That Show Symmetry in a Line

OBJECTIVES:

1. Draw the line of symmetry in shapes and figures;
2. Identify shapes and figures that show symmetry in a line.

PREREQUISITE CONCEPTS AND SKILLS

1. Intuitive concept of similarity
2. Draw basic shapes
3. Divide a whole into halves

MATERIALS:

- | | |
|---------------------|---------------------|
| 1. Bond paper | 4. Ruler |
| 2. Pair of scissors | 5. Pictures/cutouts |
| 3. Graphing paper | 6. Mirror |

INSTRUCTIONAL PROCEDURE

Instructional Procedure

A. Preparatory Activity

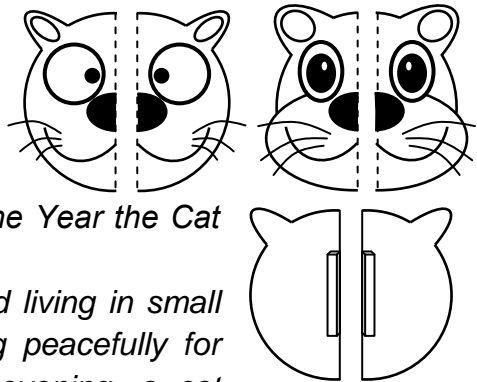
Pre-Assessment

Ask the pupils to draw on a piece of paper the four basic shapes (rectangle, square, triangle and circle). Tell them to divide the shapes into two identical parts using only one line.

B. Developmental Activities

1. Motivation

The teacher prepares images of a cat and a dog as shown. Both should be cut along their lines of symmetry. Handles should be fixed at the back.

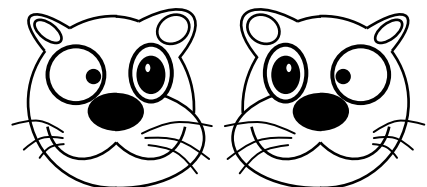


He/she tells the story entitled, "The Year the Cat and the Dog Didn't Fight".

There was once an old wizard living in small hut in the forest. He was living peacefully for many years until one summer evening, a cat came begging for food (The teacher shows the image of the cat as though holding a puppet.). The old man felt sorry for the cat and gave him half of his dinner. A few days later, a dog came which also begged the old man for food. His compassion for animals prompted him to give his lunch to the dog which ate everything hastily. The next day, the old man left to buy some supplies but before he did, he put food on a big plate in case the two animals come looking for him. Finally, the two came and were overjoyed to see the feast that awaits them. That's the time they realized they were not alone. The dog growled at the cat which snarled back. The situation gets out of control. The dog ran after the cat destroying almost everything in their path.

When the old man came home, he can't believe what he saw. His hut was in total disarray. "What have you done?, the old man said in a tired voice. I left more than enough food so that you two can share it in peace. But you didn't."

The old man touches his long white beard three times and,



amazingly, half of their faces were replaced by half of the other's face. (Half of each image is interchanged as shown.) "Both of you will stay that way until next summer and I hope by that time you will learn your lesson."

From that day on, the two stopped fighting. On some occasions, they would but not for long. They're afraid they would injure their own faces.

"How would you describe their faces?"

("Their faces look strange and funny.")

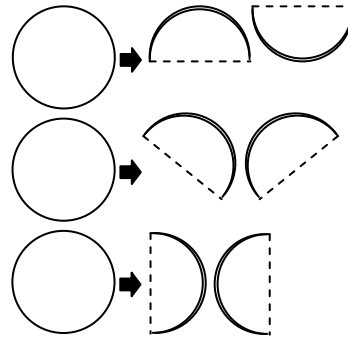
"Do you think the two would learn their lesson after a year?"

("No, the two are still fighting today.")

2. Presentation

"In our activity, you have divided shapes into two identical parts by drawing a line. For our lesson today, we will do this by folding. Do you know that there are some shapes and pictures of real life objects which, when folded, produce two halves that are perfectly the same? Let's us try this with some of the shapes that we have."

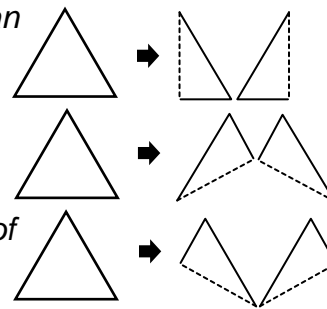
Ask the students to fold a cutout of a circle through its center in three different ways. Let them describe the result (The two half circles are identical.



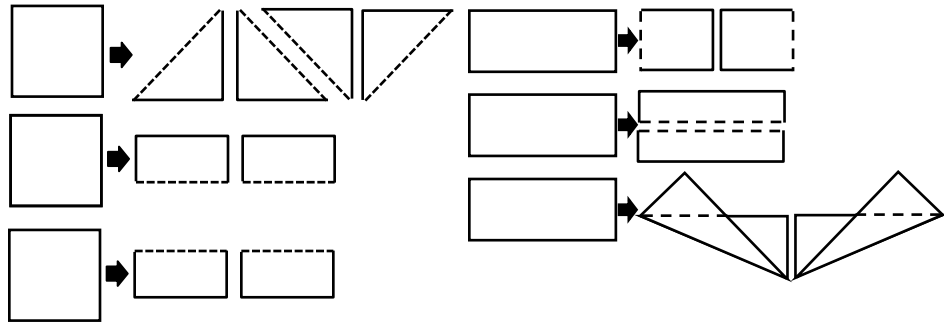
"How do we know that the two half circles are identical?

("Once the circle is folded through its center, the boundary of both half circles perfectly fit each other.")

Let the students try the same with an equilateral triangle (The three sides have the same length.) Ask them to describe and explain the result.



Do the same with squares and rectangles. This would be the turning point of the lesson where the students should begin to understand the concept of symmetry.



“When you folded a square, what shapes were produced?”

“The shapes of a triangle and a rectangle were produced.”

“Can you describe these triangles/rectangles?”

“When the square was folded, the triangles/rectangles produced are identical.”

“Why did you say so?”

“Their edges/corners fit exactly each other.”

“Did you get the same results with rectangles?”

“In certain ways (*vertically and horizontally*) the rectangle was folded, we get the same results. Two identical shapes were produced. But when the rectangle was folded connecting two opposite corners, the edges and corners of the shapes (*triangles*) produced do not fit each other.”

“Does this mean the two are not identical?”

Pupil’s answers may vary. The teacher should explain that the two are actually identical but cutting them along the fold is necessary to make their edges and corners fit exactly each other. Moreover, it should be pointed out that after cutting the rectangle along the diagonal, one of the triangles should be rotated (not flipped) to make the two shapes fit each other. This could be made easily observable by using a cutout with two sides/surfaces having different colors. For comparison, the teacher may use a cutout of a square folded along its diagonal as shown.



Let the pupils try folding cutouts with irregular shapes which when folded would not fit each other. Let the pupils try folding them several times until they realize that the shapes have no symmetry or, more importantly, that not all shapes have symmetry.

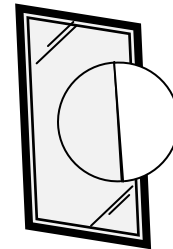
“Class, we formed two identical parts of a shape by folding it along a particular line. We know that they are identical because their boundaries fit exactly each other. When a shape behaves this way when folded (*The teacher should emphasize that cutting is not allowed*), we say that the shape has **symmetry** along the line where it was folded.

The teacher writes the word “symmetry” on the board.

“But always bear in mind, and this is very important, that shapes could only be folded in specific ways to show symmetry. Some shapes can be folded in only one way to show it. Shapes may have symmetry along a particular fold but may not show the same when folded differently.

The teacher demonstrates folding a circle or any other shapes to show their boundaries may not fit as before when folded differently.

“There are many kinds of symmetry but, for now, we will be discussing about **mirror symmetry**. Sometimes, it is also called **reflection symmetry**. Do you know why it is called that way?”



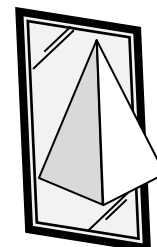
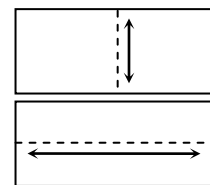
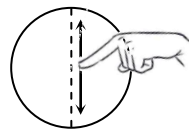
The teacher gets a mirror and place a half circle on it in such a way that the half circle and its reflection forms a circle. The same should be tried with a triangle, a square and a rectangle. The line of symmetry (fold) should always be parallel to the surface of the mirror.

“Now, do you know why it is called mirror or reflection symmetry?”

There may be a need to define the word reflection.

“It is so called because when you place a folded circle/triangle/ square/rectangle on a mirror, they form their original shape with their reflection on the mirror.”)

*The teacher unfolds the circle/rectangle. While he/she runs a finger along the fold, he/she tells the pupils that the fold is called the **line of symmetry** and that not all folds can be the line of symmetry. He/she gets again the mirror and show that half of a rectangle cut diagonally is not symmetrical. Since mirrors are not always available, the teacher tells his/her pupils*

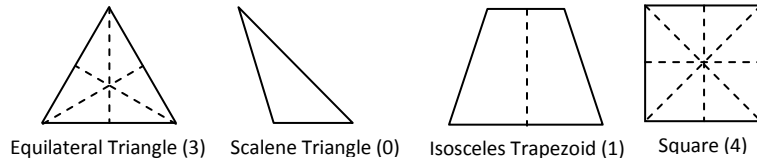


that if portions of a shape or a picture fit exactly with each other when folded, this fold is a line of symmetry. He/she should also emphasized that even if a line divides a shape or a figure into two identical parts, it does not necessarily follow that the two are symmetrical as in the case of the diagonal of a rectangle.

3. Reinforcing Activity

At this point, the teacher asks the pupils to perform an activity where cutouts of shapes shown below have to be used. In this activity, pupils have to identify the number of lines of symmetry in the given shapes by folding. Pupils may try out one or more ways of doing the task. On a sheet of paper, the pupils have to draw the figures and draw their respective lines of symmetry.

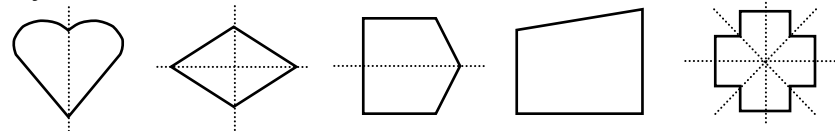
The number of lines of symmetry of the following shapes are given below.



If a significant number of pupils manifest understanding of the concept of symmetry, the teacher may proceed to Activity No. 4. However, the teacher should devote more time making pupils having difficulty understand this concept. They may be asked to do the previous activity with other shapes.

In Activity No. 4, the pupils would again identify the number of lines of symmetry but, this time, no folding is involved. They have to form a mental image of how the folding would be done.

Key:



4. Application

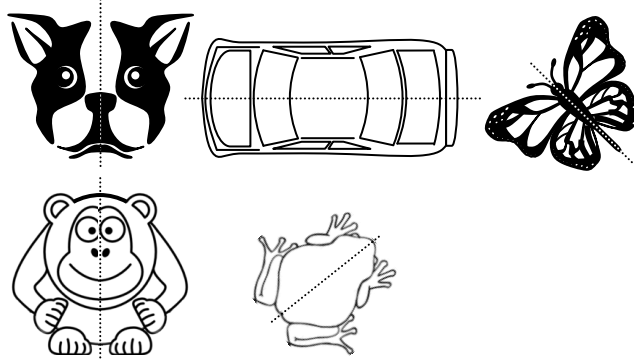
“Do you know that most of the capital letters in the English alphabet have mirror symmetry. Do you also know that most

animals and numerous everyday objects exhibit symmetry? Let's try to identify some of those by doing an activity."

Refer to Activity No. 5.

Key:

A B C D E H I K M



5. Generalization

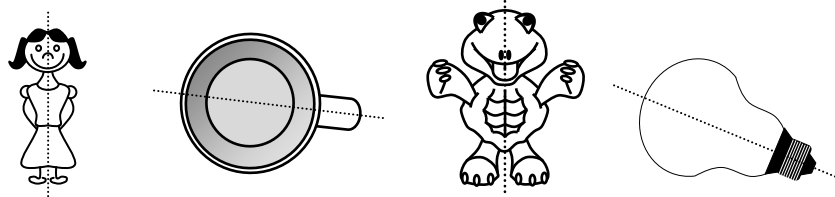
A simple way of looking at symmetry among shapes and figures is that if the shape were folded in half over the line of symmetry, the two portions are identical and would fit each other exactly. However, one should be careful not to immediately infer symmetry when two halves of a shape or figure are identical. Moreover, a shape may show symmetry when folded in a particular way but may fail to show the same when folded differently.

C. Evaluation

Refer to Activity No. 6.

Key:

O T U V W X Y



D. Home Activity

Refer to Activity No. 7

During the discussion of the home activity, the teacher has to make the pupils realize that the sides of each shape have the same length and the rule (For regular polygons, the number of lines of symmetry is equal to the number of sides.) does not apply to shapes with sides of different lengths. This is to prevent pupils from developing misconceptions about shapes and lines of symmetry.

**Teacher's Guide For Grade 2 Mathematics
(Creating Symmetry in a Line)
Lesson No. 88**

TOPIC: Shapes and Figures That Show Symmetry in a Line

OBJECTIVE:

Create figures that show symmetry in a line

PREREQUISITE CONCEPTS AND SKILLS

1. Identify shapes/figures that show symmetry in a line
2. Draw shapes and figures

MATERIALS:

1. Pencil
2. Pair of scissors
3. Graphing paper
4. Ruler

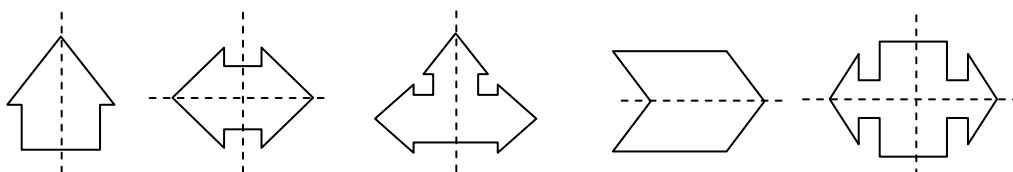
INSTRUCTIONAL PROCEDURE

A. Preparatory Activity

Pre-Assessment

Refer to LM 88 Activity No. 1.

Key:



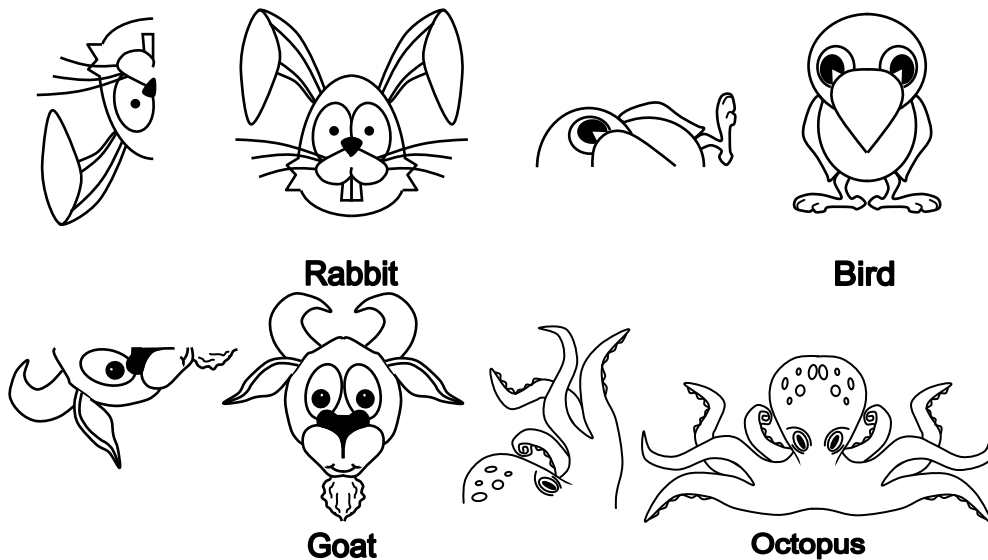
B. Developmental Activities

1. Motivation

“Today, we would play a guessing game. I’ll show one-half of a figure and you have to guess what the figure is. Are you ready?”

(“Yes, ma’am!”)

The teacher shows halves of different figures and asks what figures they are parts of. The teacher may use different orientations of the figures to make them a little harder to guess.



2. Presentation

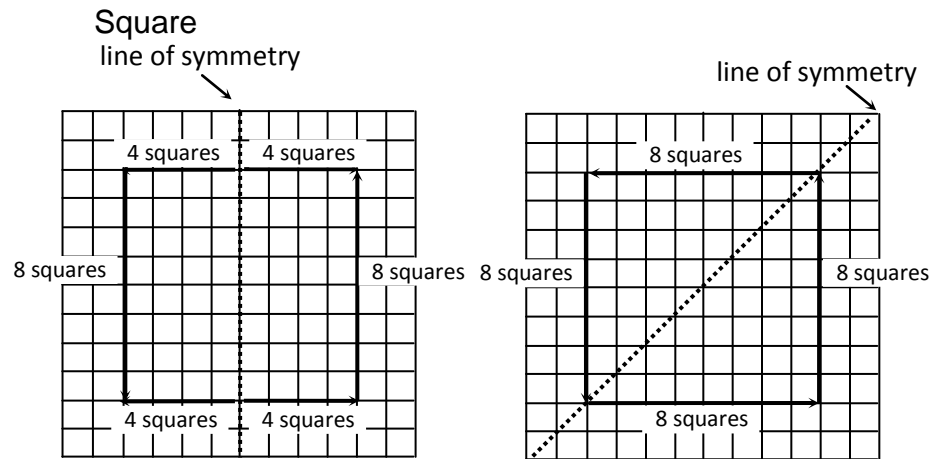
“Class, today you are going to create figures that shows symmetry. You will be needing some graphing papers, scissors, a pencil and a ruler, so be ready with them.

Ideally, pupils should create figures starting from basic shapes to more complex figures as the lesson progresses. Pupils may use any paper but graphing papers would make the task easier especially if the figures have to follow certain shapes and not random ones.

Pupils should be made to remember that creating figures showing symmetry would always start by identifying the line of symmetry which is usually the one that divides the paper into two equal parts.

Creating symmetry in figures can be done in two ways. One is by drawing half of the figure on any side of the line of symmetry and involves folding and cutting. This is ideal for figures with flowing lines and would always result to symmetry. The other is by drawing the entire figure and involves counting equal number of squares in opposite direction from the line of symmetry. A polygonal figure lends itself easily to this method but curve figures may prove to be a little difficult. In this method, care should always be observed so that all edges on one side of the line of symmetry match those on the other side. The teacher should plan ahead on how to maximize the use of graphing papers.

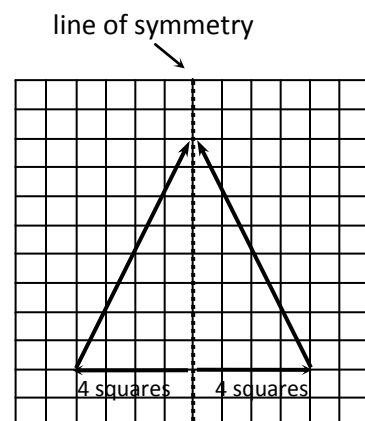
Drawing the entire figure



For the other two lines of symmetry of the square, the same procedure applies. This process likewise applies when creating rectangles using its two lines of symmetry.

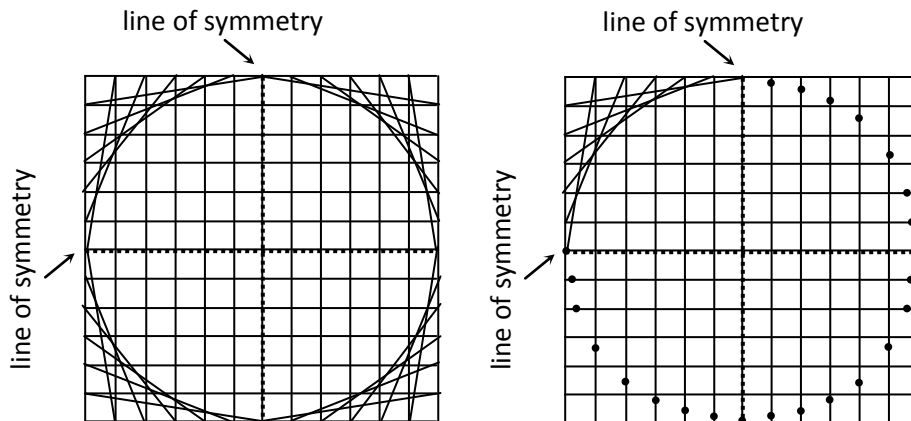
Isosceles Triangle

The first step is to create the base of the triangle which, ideally, should be located at the lower part of the grid. From the line of symmetry, equal number of squares should be counted and marked. In the figure, 4 squares were used on both sides. From these two points, the two remaining sides of the triangle can be drawn to any point along the line of symmetry.



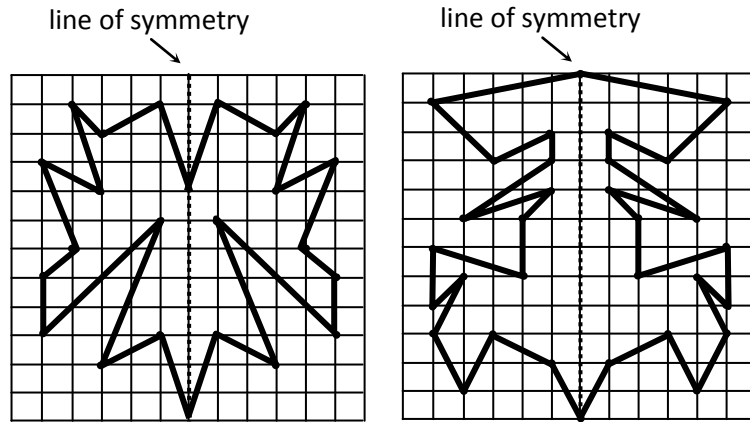
Circles

Circles have infinite number of lines of symmetry. For this purpose, two perpendicular lines of symmetry are used simultaneously dividing the square grid into 4 equal parts. As mentioned earlier, it is not without difficulty creating symmetrical curve figures. The easiest way to accomplish this would be to use the method by which models of circles are created. However, another method may be employed which requires the use of a quarter circle. From this, points are plotted which are equally distant as the points in the arc are from the lines of symmetry. There may be a need to rotate the square grid when plotting the points.



Freestyle Shapes

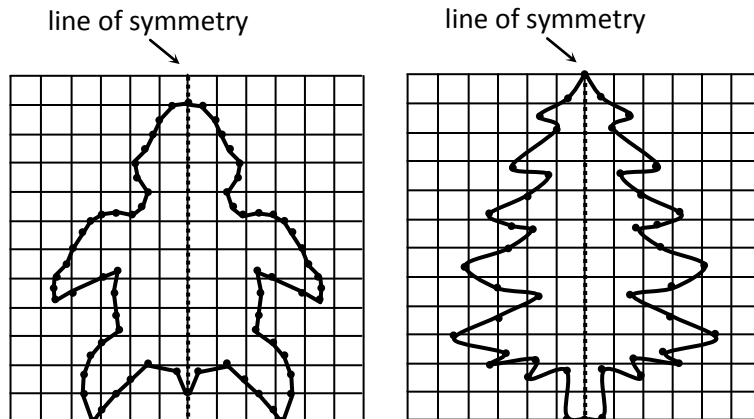
The fun of creating symmetrical figures starts with freestyle shapes. This is achieved by plotting pairs of opposite points equally distant from the line of symmetry. All consecutive points are then connected by a line segment. The figure formed should be closed by connecting the last two pairs of points to the line of symmetry. The figures below are just two examples of the countless number of shapes that can be formed using this method.



Real Life Shapes

When teaching pupils to create shapes of real life objects it is best to use those whose outlines can be easily perceived as representations of these objects. Objects which require a lot of details would be very frustrating for most pupils to make. However, pupils attempting to put some details in their illustrations should not be prevented from doing so.

Pupils should also realize that figures become more defined if more points are used in creating symmetrical figures. Below are figures of a sea turtle and a tree whose outlines can be easily seen as their representations.



Folding and cutting

Folding and cutting is the easier method of creating figures that show symmetry in a line. It merely requires drawing half of the figure on any side of the line of symmetry. The paper is then folded along this line and, with scissors, cut around the

outline of what was drawn. This would have the same effect on the other side of the fold thereby yielding a symmetrical figure.

The teacher may use the previous shapes and figures in teaching this method to the pupils. However, only closed figures that contain the line of symmetry may be used for this purpose.

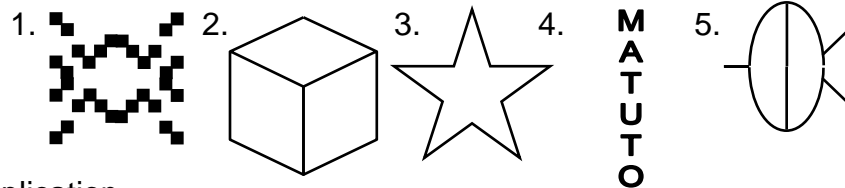
All activities included in this guide only involved drawing the whole figure. The teacher has to make provisions for activities under folding and cutting which is just a variation of the first method. He/she can introduce the second method using simple shapes like squares, rectangles, triangles and circles (best if folded along several lines of symmetry). Freestyle symmetrical shapes can be produced even without an outline. Folding the paper before cutting it ensures that all figures formed are symmetrical regardless of how the cutting was done.

Cutting around outlines of real life shapes would be relatively easy for the pupils if the drawings were made as simple as possible especially if they are the ones to draw them.

3. Reinforcing Activity

Refer to LM 88 Activity No. 2.

Key:

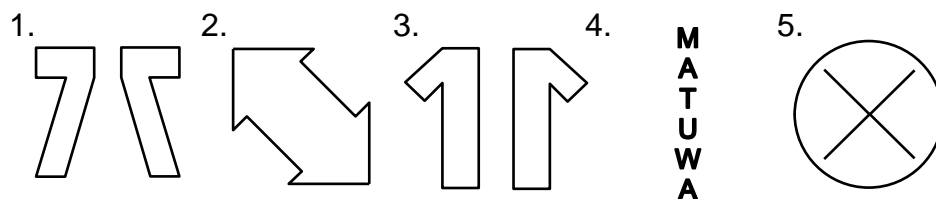


4. Application

Refer to LM 88 Activity No. 3

The teacher should check if there is correspondence of every point/line relative to the line of symmetry.

Key:



5. Generalization

Making figures that exhibit symmetry in a line can be done in two ways. The first is by drawing the whole image with

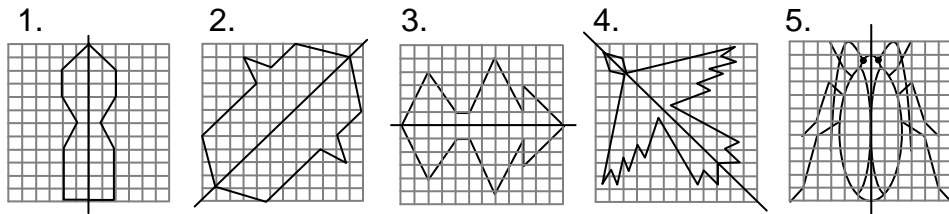
reference to the line of symmetry. This requires sketching first half of the figure on any side of the line and marking some critical points on it. The other half is accomplished by plotting points with reference to the critical points on the outline. These points should be located opposite the critical points and have the same distance from the line of symmetry as their counterpart points.

The second method is by folding the paper along the line of symmetry and cutting around the outline drawn on one side. Perfect symmetry is made certain with the other half directly under the side where the outline was drawn.

EVALUATION

Refer to LM 88 Activity No. 4.

Key:

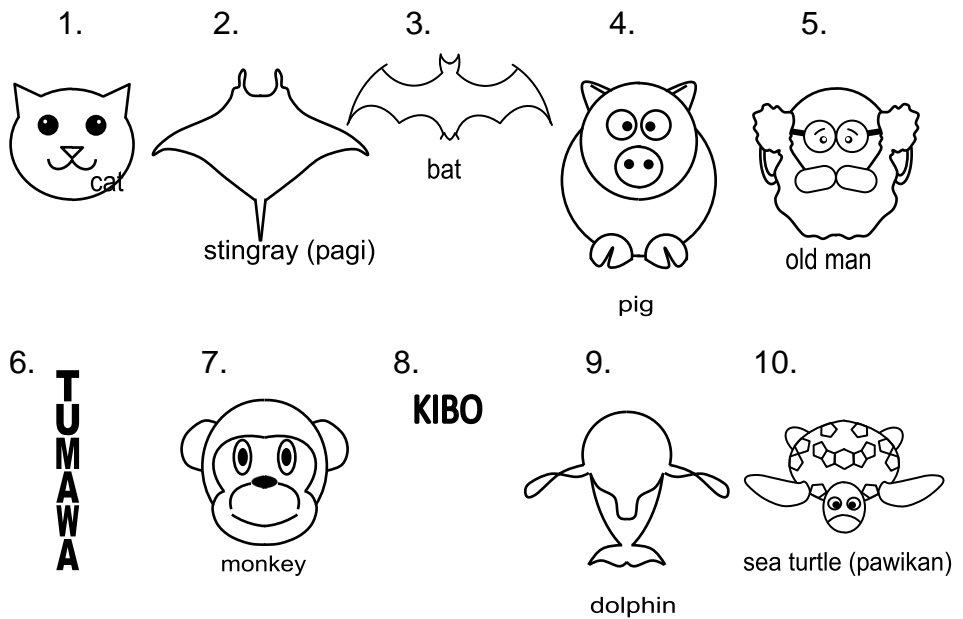


HOME ACTIVITY

Refer to LM 88 Activity No. 5

The completed half need not be as perfect as the other half.

Key:



Teacher's Guide For Grade 2 Mathematics
(Tessellations)
Lesson 89

TOPIC: Square and Triangle Tessellations

OBJECTIVES:

Create representations of

1. recognizes shapes that can tessellate
2. tessellates a surface using triangles and squares

PREREQUISITE CONCEPTS AND SKILLS

1. Draw and cut out squares and triangles
2. Concept of symmetry

MATERIALS:

1. Bond paper/Colored paper
2. Pair of scissors
3. Cutouts of equilateral triangles and squares
4. Pencil
5. Straight Edge / Ruler

INSTRUCTIONAL PROCEDURES

A. Preparatory Activity

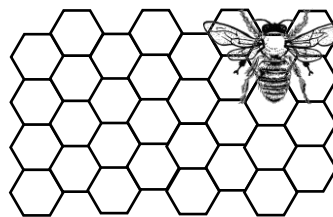
Pre-Assessment

The teacher may forgo pre-assessment.

B. Developmental Activities

1. Motivation

“Class, do you know that bees are masters of navigation, communication and engineering? Bees can fly 3 kilometers in search of nectar and pollen and can return to the exact location where it came from. This is



equivalent to a human traveling hundreds if not thousands of kilometers. Even if there were several beehives in the vicinity, bees would always come to the right beehive. They can do this by orienting themselves with the sun. That is why they usually fly from mid-morning to mid-afternoon.”

“If bees found a food source, they have to communicate its location to other bees. Unfortunately, bees are deaf and cannot

communicate by means of sound. They inform other bees by dancing. Each movement the bee makes means something to the other bees – the location of the food source, its distance and even its abundance.”

“Finally, they are good engineers. Has anyone seen a honeycomb?” (*It would be worthwhile if the teacher brought a picture or an illustration of a honeycomb.*) A honeycomb is a place in their nest that contains their larvae, pollen and honey. Do you remember the shape of each cell forming the honeycomb? Such shape is called a hexagon.” (*The teacher draws a regular hexagon on the board.*) “All these hexagons are identical and scientists today can only speculate how the bees can achieve this feat of engineering.”

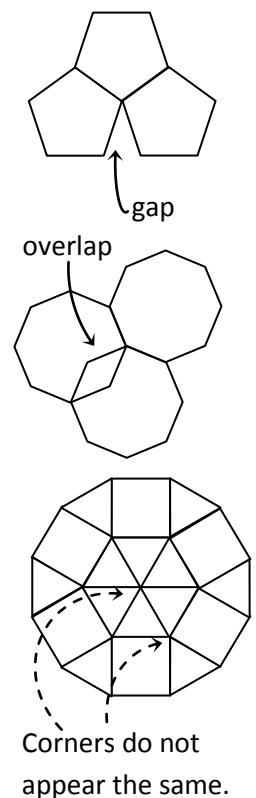
2. Presentation

“Today, our lesson, just like honeycombs, has something to do with creating designs using specific shapes. I will be distributing cutouts of squares and triangles and you will try to create your own design. Try to make your designs in the way bees create their honeycomb.

The teacher groups the pupils into four (4) and distributes cutouts of square and equilateral triangle. Cutouts of one kind should be all identical. Members of the group should divide themselves into two (2) where one group works on a design using squares and the other using equilateral triangles.

The teacher asks the groups to create designs using at least twelve (12) tiles only. Later in the activity, the teacher asks each group to compare their work with the design of the honeycomb. He/she asks members of the group how their design is similar or different to that of the honeycomb. The discussion should revolve around the three basic rules on tessellation.

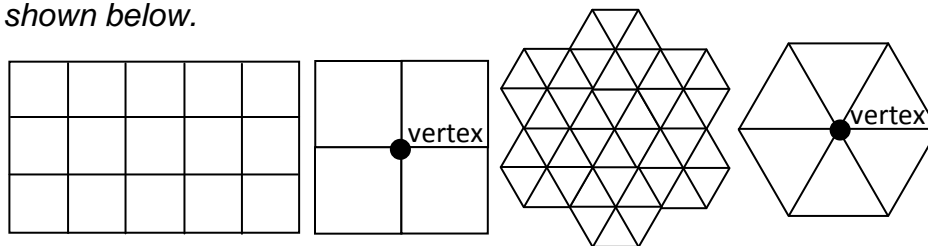
When shapes of one type or a few types are arranged repetitively on a flat surface forming a pattern, the process is called tessellation



(tiling).” (*The teacher writes the word “tessellation” and “tiling” on the board.*) “There are several kinds of tessellations but we would only be concerned with regular and semi-regular tessellations. There are three (3) basic rules to observe when tessellating. First, the tessellation must cover an infinite surface with no overlaps and gaps. We are not going to cover an endless surface. It only means that IF the surface was extended, we can continue to cover it with our pattern. Second, the shapes must be regular polygons and identical. In our case, we would only be using triangles with sides of equal lengths (*equilateral*) and squares.” (*In regular tessellations, four (4) regular polygons can be used – equilateral triangles, squares, hexagons (6 sides) and dodecagons [12 sides].*) “Third, the “vertex” (the corner where the shapes meet) should appear the same.

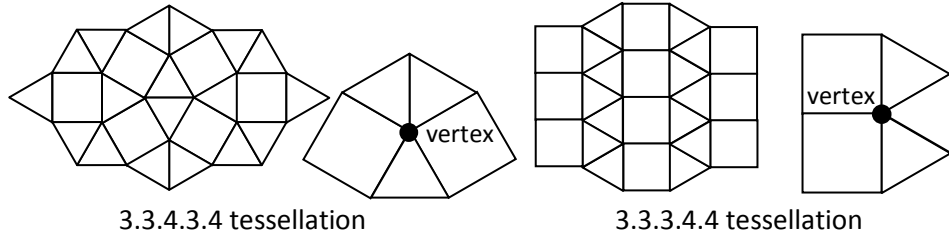
When teaching pupils how to tessellate, it would be ideal to use tiles (cutouts of triangles and squares) rather than drawing them. After a brief introduction of tessellations, the class may spend the remaining time for making tiles. Tessellations would be interesting for children if the tiles have different colors. It would also be helpful if the tiles were made of stiff paper. Due to time constraints, pupils may be engaged in tile making as a home activity.

A regular tessellation is a pattern made by using only one regular polygon. Since hexagons and dodecagons are not included in this lesson, only two (2) regular tessellations can be made as shown below.



For regular tessellations, the pattern is identical at each vertex. The pattern formed is used to name a tessellation with reference to the number of the polygon’s sides and the number of polygons that forms a vertex (number of sides x number of polygons forming a vertex). Since squares have four (4) sides and four (4) squares make up the vertices, the tessellation is called “4.4.4.4”. In the case of equilateral triangles, it is called “3.3.3.3.3.3”. As can be observed, the tessellations followed the 3 rules.

Semi-regular tessellations are made using more than one regular polygon. Again, since hexagons and dodecagons would not be included, only two (2) semi-regular tessellations can be produced using triangles and squares.

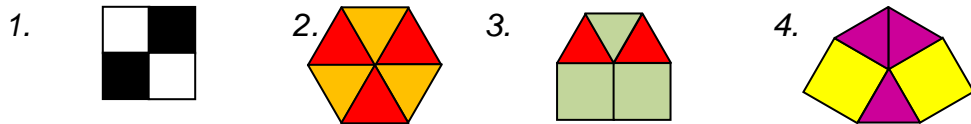


The same rule applies in naming semi-regular tessellations. However, since 2 polygons are involved, we count the number of sides starting with the polygon with the least number of sides.

3. Reinforcing Activity

Refer to Activity No. 13

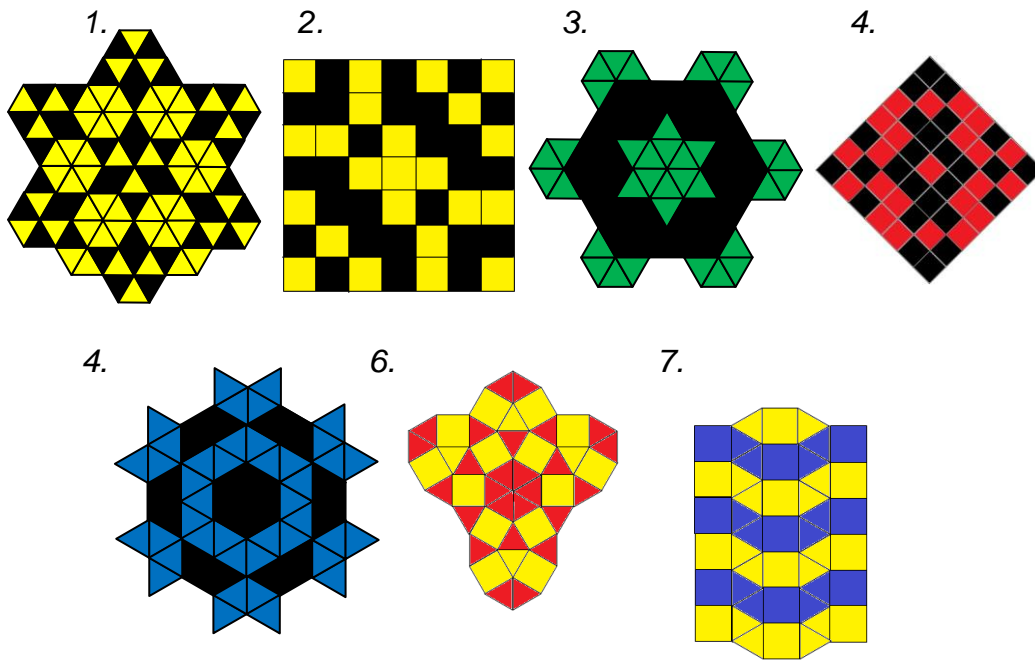
Below are possible color combinations. Outputs may vary according to the colors preferred by the pupils



4. Application

Refer to Activity No. 14

The activity, which is merely coloring the pattern, is appropriate for the age of Grade 2 pupils. However, drawing the pattern on a separate sheet of paper may prove too difficult for them. The teacher may reproduce the patterns (without the numbers) and have it photocopied for distribution to the pupils. Pupils should be told to take extra care to avoid mistakes in coloring. Additional copies may be necessary. However, tiles may be used to patch up errors.



5. Generalization

Tessellation which is also called tiling is the arrangement of one type of shape or a combination of two or more types. Regular tessellations make use of one type of regular polygon. Semi-regular tessellations combine two or more types of regular polygons. Three rules have to be followed in making tessellations. First, the tessellation can be extended on an infinite surface without overlaps and gaps. Second, only regular polygons that are identical may be used. Third, the vertices should be the same. Naming tessellations uses the number of regular polygons that make up a vertex and the number of sides of each of these polygons.

C. Evaluation

Refer to Activity No. 15

1. 2. 3. 4. 5. 6.

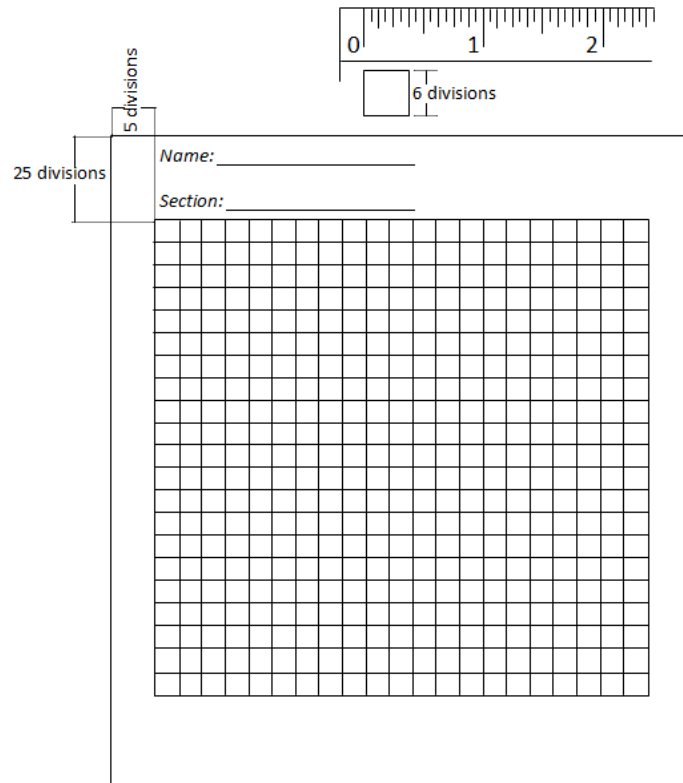
Numbers 2 and 4 has did not follow rule no. 2.

D. Home Activity

Refer to Activity No. 16

To help the pupils in doing the task, the teacher may provide photocopied papers with grid lines where the whole tessellation would

be located exactly at the middle. The design contains 21 squares by 21 squares. Short bond papers have dimensions of 8.5 in x 11 in. In a regular ruler, one inch would have 16 divisions. Everything would be measured in term of these divisions. A square cell/a tile measures 6 divisions. Margins at the left and right measure 5 divisions each. Margins at the top and bottom measure 25 divisions each. The activity may take several days to accomplish.



**Teacher's Guide For Grade 2 Mathematics
(Curves)
Lesson 90**

TOPIC: Straight Lines and Curved Lines

OBJECTIVES:

1. Explains the differences between straight lines and curved lines
2. Identifies straight lines and curved lines

PREREQUISITE CONCEPTS AND SKILLS

1. Recognize and draws a line, line segment and ray

2. Intuitive concept of similarity

MATERIALS:

1. Pencil
2. Straight Edge / Ruler
3. Illustrations of straight and curved lines

INSTRUCTIONAL PROCEDURES

A. Preparatory Activity

Pre-Assessment

The teacher asks the pupils to draw lines, line segments and rays. He/she takes note of those who draw these figures without using a straight edge. Somehow, these pupils may not be aware of the necessity of drawing a line straight.

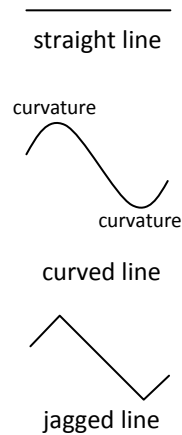
B. Developmental Activities

1. Motivation

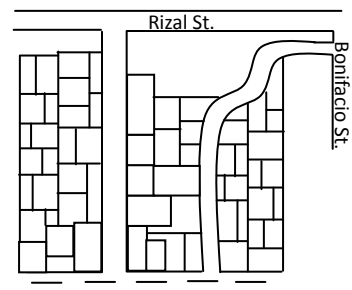
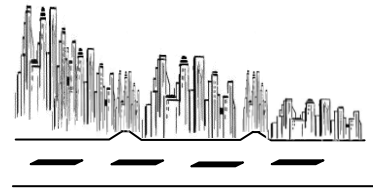
The teacher poses the question, "Which can reach a destination faster, an airplane or a car? Why?" Pupils are expected to answer "airplane" as it is the faster of the two. The teacher then asks, "If a car can run as fast as an airplane flies, would they reach the same destination at the same time? Some pupils may still consider the plane arriving earlier because of road traffic and other obstructions. The teacher poses the same question but with an added condition, "If a car is as fast as an airplane and nothing on the road can delay its progress, do you think it can travel the same distance within the same period as an airplane could? This is the point where pupils may be divided in their answers or, possibly, would all agree. The teacher draws a map on the board by locating two points representing the point of origin and the point of destination. He/she connects them by a curved line that would represent a winding road. "If this (The teacher traces the curved line with his/her finger.) represents the road the car would travel along, how would you represent the path an airplane would take? The pupils should realize that a straight line would represent the path of the airplane and would be the shorter distance between the two. Some questions may be needed to lead them to this conclusion.

2. Presentation

Technically, a curve is a geometric figure which may include both straight and curved lines. When a curve is drawn in only one direction such that no curvature (bend, arc) can be found along its path, the figure formed is a straight line. A curved line, on the other hand, is a smoothly-flowing line that bends gradually at some point/s. This bending changes the direction of the line. However, a curved line is different from a jagged line where the change in the direction of the line is sharp.



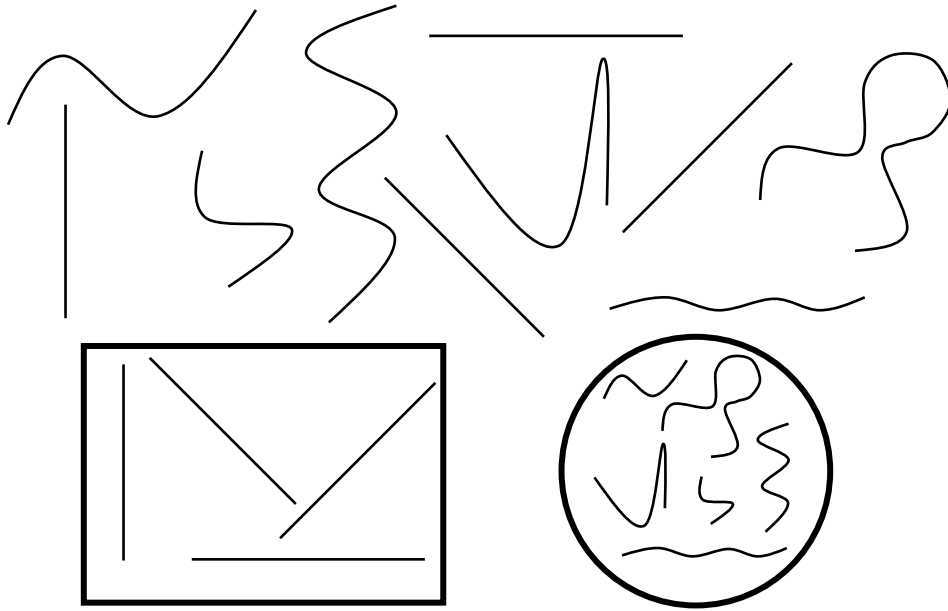
The teacher must be careful on the use of the terms *curve*, *straight line* and *curved line*. In normal language, curves are not straight but, in mathematics, a straight line is also a curve. Moreover, for many, the word “line” would always mean a straight line and would consider the term, “curved line” as an incorrect terminology. Unfortunately, in mathematics, curved lines would always have special names like *parabola*, *arc*, *spiral*, etc. This lesson, however, does not cover those terminologies. For the mean time, the pupils may be introduced to curves by simply using the terms “straight line” and “curved line”. Using the word “curve” when referring to curved lines should be avoided.



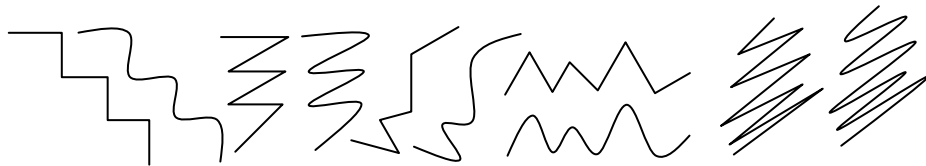
The teacher may start the lesson by posing a situation. Two boys took different roads in going to town. Both saw the same buildings ahead. However, after walking for an hour, the first boy ended up at Rizal street while the second, at Bonifacio street. The teacher then asks the pupils to give possible explanations for this event.

The teacher shows a map of the town. He/she asks some pupils to draw representations of the paths taken by each boy. The teacher asks the pupils to describe each representation.

The teacher presents other representations of straight and curved lines as separate illustrations. He/she asks the pupils if they can group each figure according to their similarity and difference.



To prevent pupils from developing misconceptions about curved and jagged lines, he/she may do the same activity using curved and jagged lines.



If the grouping was done successfully, the teacher asks the pupils how each line may be differentiated from one another. He/she accepts all plausible answers and explains why a certain description would not qualify for a particular type of curve. Some pupils may differentiate by comparing curves with real life objects which may be accepted or not by the teacher as the case may be.

3. Reinforcing Activity

Refer to LM 90 Activity No. 1

In this activity, the pupils have to name things that were formed using straight and curved lines.

Straight Lines

1. hut
2. bench
3. fence

Curved Lines

1. dolphin
2. birds
3. waves
4. island/mountain
5. starfish
6. water splash
7. palm/coconut tree

4. Application

The teacher asks the pupils to draw on a piece of paper 5 straight lines and 5 curved lines.

5. Generalization

How is a straight line different from a curved line?

EVALUATION

Refer to LM 90 Activity No. 2

- | | |
|------------------|------------------|
| 1. curved line | 6. straight line |
| 2. straight line | 7. curved line |
| 3. straight line | 8. straight line |
| 4. curved line | 9. curved line |
| 5. straight line | 10. curved line |

HOME ACTIVITY

The teacher asks the pupils to draw 5 real life objects using straight and/or curved lines.

Teacher's Guide For Grade 2 Mathematics
(Surfaces)
Lesson 91

TOPIC: Flat and Curved Surfaces

OBJECTIVES:

1. Explains the differences between flat surfaces and curved surfaces
2. Identifies flat and curved surfaces in 3-dimensional objects

PREREQUISITE CONCEPTS AND SKILLS

1. Explains the differences between straight lines and curved lines
2. Identifies straight lines and curved lines

MATERIALS:

1. Illustration flat and curved surfaces
2. Real objects with flat and curved surfaces

INSTRUCTIONAL PROCEDURES

- A. Preparatory Activity
Pre-Assessment

The teacher may do without the pre-assessment

- B. Developmental Activities

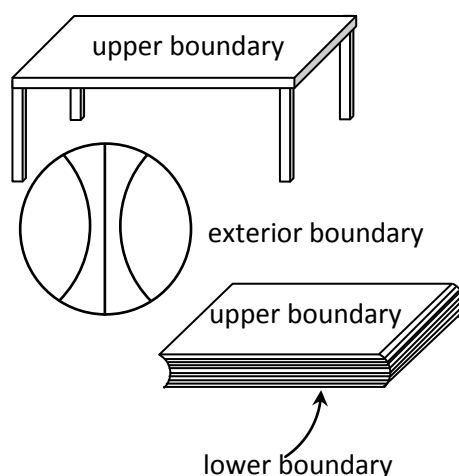
1. Motivation

“Class, do you know how much water there is on the surface of the earth?” Water covers seventy-one percent of the earth’s surface. That is equivalent to almost three pails of water to only one pail of soil. Water is so important that all known forms of life cannot exist without it. However, are you also aware that, with that much water we have on earth, only three percent is potable (suitable for drinking). If you can put all the water on earth in 100 glasses, only three glasses of water are drinkable. Unfortunately, 99% of these 3 glasses of water are either frozen or underground. So what is available to us for drinking? Only a few drops. That’s why water is so precious we have to conserve every drop of it.

2. Presentation

The teacher may introduce this lesson using a variety of objects. He/she lets the pupils hold the objects and asks them to describe how the objects feel to the touch. The pupils may give several answers (smooth, rough, hard, soft, etc.) The teacher then explains that what they touched and felt is the surface of the object.

The surface of an object is its exterior or upper and lower boundaries and, for purposes of this lesson, is classified into flat and curved surfaces. The table top and a ball (basketball, volleyball) may be used initially to explain how these surfaces differ from one another. To do this, the teacher asks pupils to place their hands (palm-face down) on top of the table.



“Is there any part of your hand not on the table?”

“Every part is on the table, ma’am!”

With their hands still flattened, the teacher asks them to place their hands on the ball.

“Is there any part of your hand not on the ball?”

“Yes, ma’am!”

“What do you have to do so that your entire hand touches the ball?”

“We have to curl our fingers, ma’am!”

The teacher repeats the same activity using other pairs of objects like book – drinking glass, blackboard – bowl, etc. Afterwards, he/she asks the pupils to identify which objects have similar surfaces based on the activity.

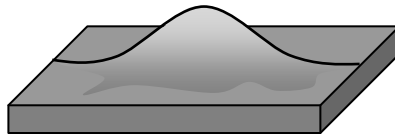
“Class, surfaces like those of tables, floors, books, and blackboard are called **flat surfaces**. Balls, drinking glasses and bowls have surfaces called **curved surfaces**.”

“Another way by which we can distinguish flat surfaces from curved surfaces is by using the top of a table which we already know as a flat surface. If an object is placed on top of the table and there are no spaces between the table’s surface and the object’s, the latter’s surface is a flat surface. Otherwise, the surface is a curved surface.”

The teacher places some objects with identified flat and curved surfaces on the table and asks the pupils to observe where the surface of the table and the surface of the object are in contact.

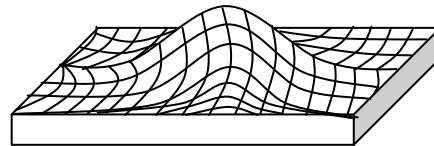
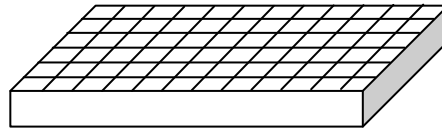


The teacher shows the images at the right.



“Which of these two do you think has a flat surface? a curved surface? Can you guess what lines (curves) can be drawn on these surfaces?”

The teacher presents the images at the right. He/she asks the pupils to describe the lines on both surfaces. The pupils should come up with the conclusion that flat surfaces may contain purely straight lines without curved lines while curved surfaces would always contain curved lines.



3. Reinforcing Activity

Refer to LM 91Activity No. 1

4. Application

Refer to LM 91Activity No. 2

5. Generalization

Surface is the the exterior or upper and lower boundaries of a body or object. Surfaces may be flat or curved. One can draw purely straight lines on flat surfaces which is not true with curved surfaces. Curved surfaces would always contain curved lines although straight lines may also exist on it as in the case of cylinders. Flat surfaces can be covered entirely by a another larger

flat surface. Spaces exist between flat and curved surfaces when in contact.

EVALUATION

Refer to LM 91 Activity No. 3

- | | |
|---------------------------|---------------------------|
| 1. <i>curved surface</i> | 11. <i>flat surface</i> |
| 2. <i>flat surface</i> | 12. <i>curved surface</i> |
| 3. <i>curved surface</i> | 13. <i>flat surface</i> |
| 4. <i>flat surface</i> | 14. <i>flat surface</i> |
| 5. <i>flat surface</i> | 15. <i>curved surface</i> |
| 6. <i>curved surface</i> | 16. <i>flat surface</i> |
| 7. <i>flat surface</i> | 17. <i>flat surface</i> |
| 8. <i>curved surface</i> | 18. <i>curved surface</i> |
| 9. <i>flat surface</i> | 19. <i>curved surface</i> |
| 10. <i>curved surface</i> | 20. <i>curved surface</i> |

HOME ACTIVITY

List 5 objects at home with flat surfaces and another set of 5 objects with curved surfaces.

Teaching Guide for Mathematics Grade 2 (Patterns and Algebra) Lesson 92

TOPIC: Identity Simple Repeating Patterns

OBJECTIVES

1. Identify simple repeating (shapes/numbers/lines) patterns
2. Extend and reproduce simple repeating (shapes/numbers/lines) pattern
3. Explain how simple repeating (shapes/numbers/lines) patterns are formed

PREREQUISITE CONCEPTS AND SKILLS

1. Makes patterns of shapes.
2. Creates a pattern or sequence of objects

MATERIALS

- | | |
|---|--------------------------|
| 1. Cutout of different shapes | 2. Pocket chart |
| 3. Math Kit containing different shapes and strips containing names of the strips | 4. Long and Short Sticks |

INSTRUCTIONAL PROCEDURE

A. Preparatory Activities

1. Pre-assessment

The teacher will show different cutouts of shapes and strips containing names of these shapes. Ask the pupils to recall and identify its corresponding shapes or vice versa.

Using the *Pocket Chart*, model a repeating pattern. Display the following as sample:



Ask the pupils to identify the pattern. Then ask them to make their own pattern.

(Possible answer: one is to one simple repeating pattern or AB sequence)

(The teacher may use classroom objects to help students understand the word pattern. Point to things in the room, such as seat arrangement, floor tiles, cabinet designs, row of window, or boarder design around a bulletin board. As you identify patterns, say: This is a pattern. Show other objects to the pupils to make sure that they really understand the pattern by Asking the “Is this a pattern?” and let them respond “*This is a pattern*” or “*This is NOT a pattern*”)

B. Developmental Activities

1. Motivation

Say: Class, today we will be having a field trip. (It could be inside the campus/school or even inside the classroom.) All you have to do is to look for the objects/things around the school/campus/classroom that represent shapes. Write on a piece of paper the shapes and where you can find it.

The teacher together with the pupils will walk around the school and see how many shapes can be found. The pupils will point out the objects and identify the shapes they see. (Encourage them to name the shapes they see.) After returning to the classroom, discuss what the pupils have recorded.

Did you enjoy our field trip?

What are the objects you found in the campus?

Can you name the shape that it represents?

2. Presentation

Say: Today we will discuss different kinds of patterns.

Patterns are shapes, numbers, size, colors orientation that repeat in a systematic way, but we will focus first on lines, shapes and numbers.

CPA

The teacher will distribute different cutouts/shapes, short and long sticks to represent lines and numbers (circle, triangle, rectangle, square and other shapes) to the pupils or s/he can ask the pupils to create their own cutouts/shapes with different shapes. On the board, s/he will draw the shapes several times in a particular order to create a pattern. (This will serve as his/her pictorial) Model an ABC pattern using shapes, numbers and lines (repeated many times).Ex:



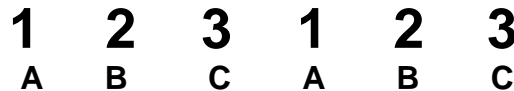
Say: Class this is a pattern. This is also called AB sequence. Ask the pupils what is being repeated. Explain to the pupils that you are making a pattern of rectangle, circle, rectangle, circle, rectangle, circle over and over.



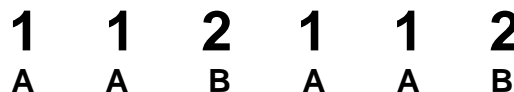
Say: This is an ABC sequence. What is being repeated in the pattern? (circle, triangle, square, circle, triangle, square)



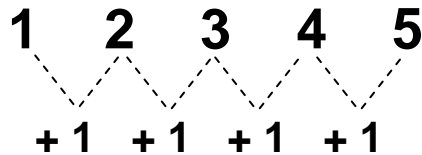
Say: This is an ABB sequence. What is being repeated in the pattern? (one circle, two squares)



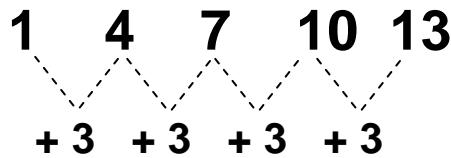
Say: This is an ABC sequence using numbers. What is being repeated in the pattern? (one, two, three, one, two, three)



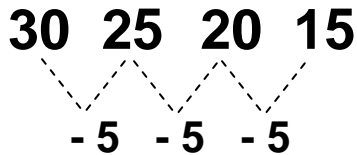
Say: This is an AAB sequence using numbers. What is being repeated in the pattern? (one, one, two, one, one, two)



Say: This is also a pattern. What is being repeated in the pattern?
 (the rule is constantly adding one to the preceding number.
 Explain to the pupils that this is an example of growing pattern –
 a pattern in which successive elements grow according to a
 rule.)



Say: This is a pattern. What is being repeated in the pattern? (the rule
 is constantly adding three to the preceding number.



Say: This is also a pattern. What is being repeated in the pattern?
 (the rule is constantly subtracting five to the preceding number.
 Explain to the pupils that this is an example of decreasing pattern –
 a pattern in which successive elements decrease according to
 a rule.)

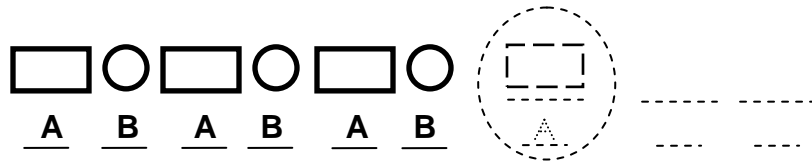


Say: This is also a pattern. What is being repeated in the pattern?
 (the rule is drawing vertical lines and horizontal lines repeatedly)

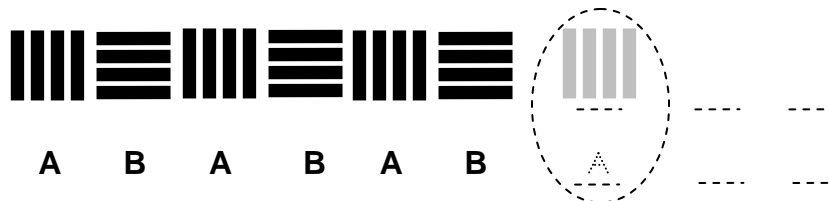
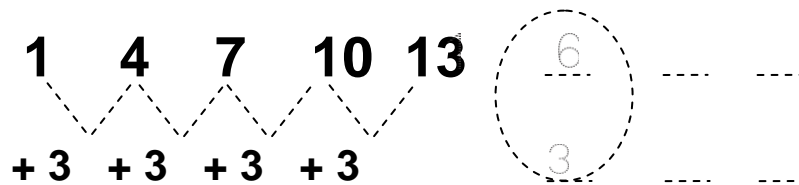
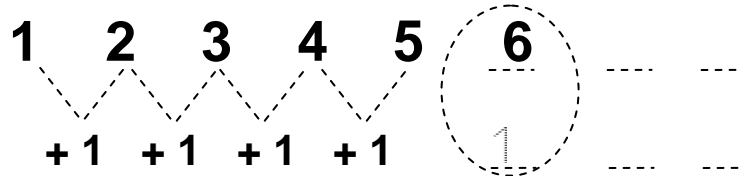
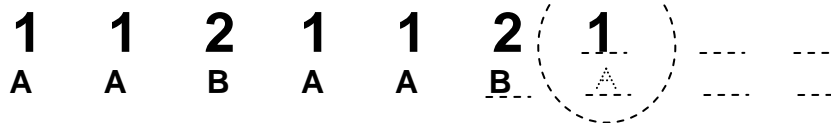
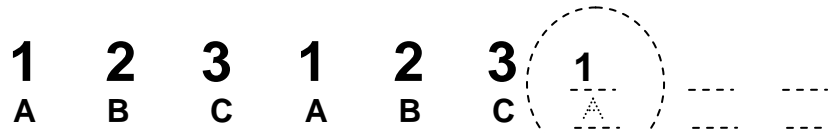
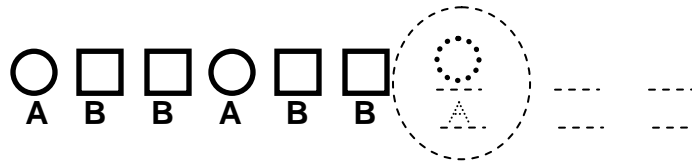
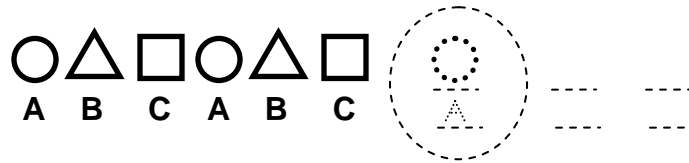


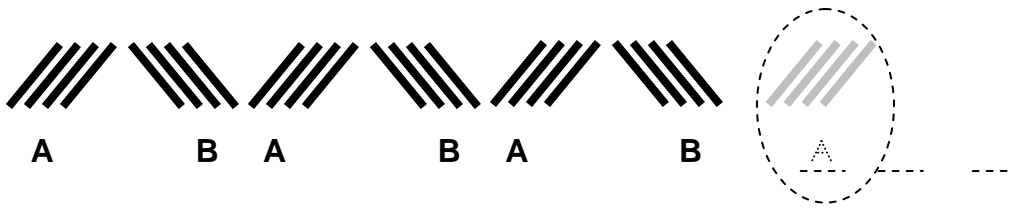
Say: This is also a pattern. What is being repeated in the pattern?
 (the rule is drawing lines repeatedly (slanting to the right and to
 the left))

Using the same figures, s/he will show samples on how to extend the patterns. S/He will ask the pupils what would be the next shapes if the pattern is to be extended and why?



Say: Since the pattern is rectangle, circle, rectangle, circle, rectangle, circle or AB sequence, then the next shape is therefore rectangle. (Then do the same thing on the rest of the samples.)
 Ask: Can you draw/extend the pattern to two or more numbers/figures/lines?





(You may give additional patterns.)

Processing:

What did you observe in the pattern?

What kind of patterns are they?

Is it a repeating pattern? Or not a repeating pattern? Why?

Can you make your own patterns?

What are the rules in making a pattern?

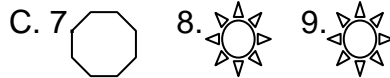
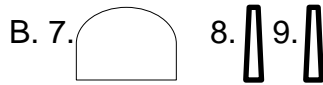
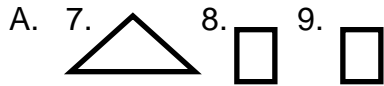
Describe your pattern.

What is the next term in the pattern? (Extend the pattern)

Allow time for discussion and let the pupils share their ideas.

Practice – Refer to LM 92 - Gawain 1-A, B, C and Gawain 2

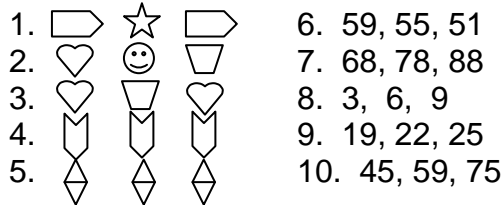
Key Gawain 1



Key Gawain 2

1. Straight Line 2. Curve 3. Slanting 4. Straight Line

Key Gawain 3



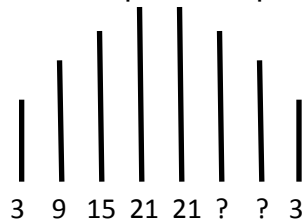
3. Reinforcing Activities

A. Gabby is performing his weekly training program in badminton. He records his stamina building activity and he observes a pattern.

Week 1	Week 2	Week 3	Week 4	Week 5
2 km.	5 km.	8 km	11 km	?

If the pattern continues, how many kilometres will he run in week 5? Why? (The teacher may add another week/s.)

B. Look at the increasing and decreasing pattern. Identify the correct number to complete the pattern.



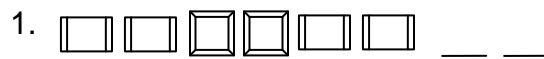
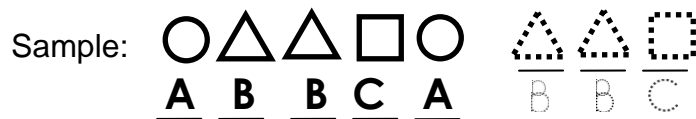
C. A tricycle has three wheels. How many wheels do two tricycles have? The teacher will make a chart on the board similar to the one below:

Number of Tricycles	Total Number of Wheels
1	3
2	?
3	
4	
5	

Ask the pupils to complete the table as s/he increases the number of tricycles. The teacher may add a column for another kind of vehicle (e.g. Jeepney) having different number of wheels. Let the pupils complete the additional column.

4. Application

Identify the pattern used. Explain how they are formed. Extend and draw to complete the pattern.



4.        _ _ _

5.        _ _

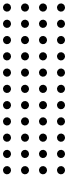

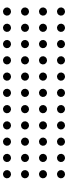

6. **5 10 15 20 25** _ _

7. **1 3 6 10 15 21** _ _

8. **2 5 8 2 5 8** _ _

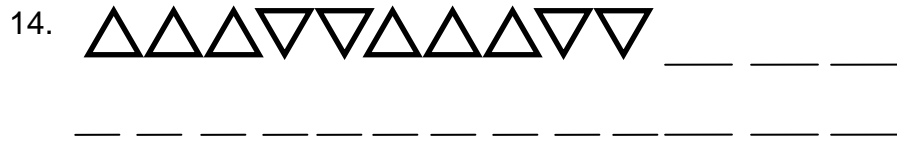
9. **99 88 77 66 55** _ _

10. **100 90 91 83 76** _ _

11.     _ _

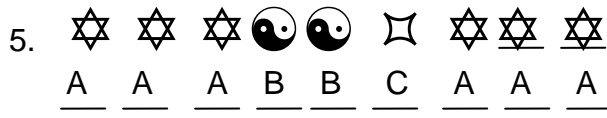
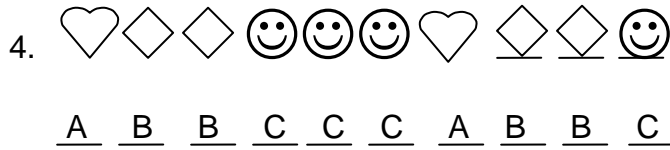
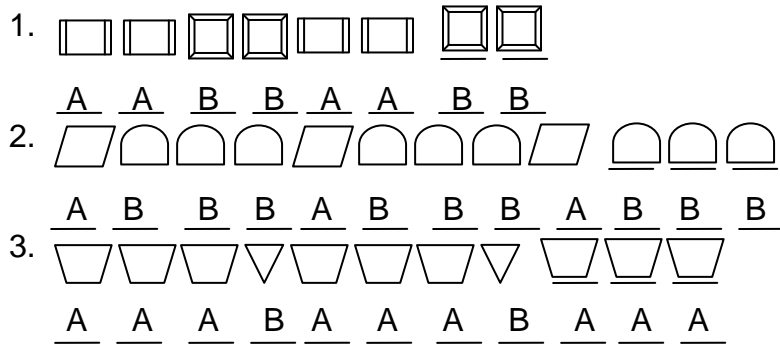
12.     _ _

13.      _ _



15. **1 3 7 15 31 63** _____

Key:



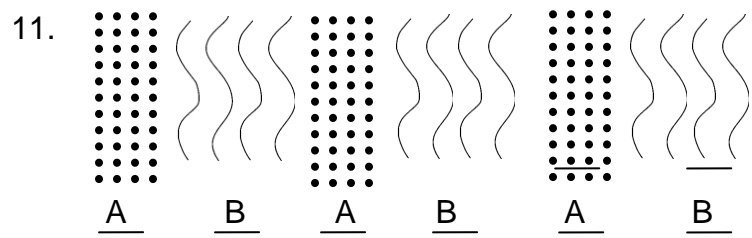
6. **5 10 15 20 25 30 35**
 +5 +5 +5 +5 +5 +5

7. **1 3 6 10 15 21 28 36**
 +2 +3 +4 +5 +6 +7 +8

8. **2 5 8 2 5 8 2 5**
 A B C A B C A B

9. **99 88 77 66 55 44 33**
-11 -11 -11 -11 -11 -11

10. **100 90 91 83 76 70 65**
-10 -9 -8 -7 -6 -5



15. **1 3 7 15 31 63 127 225**
+2 +4 +8 +16 +32 +64 +128

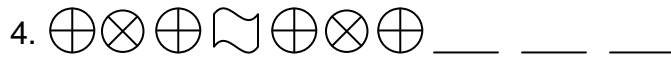
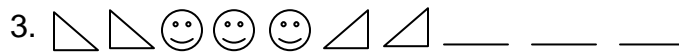
5. Generalization

Ask: What is a pattern? What is a repeated pattern? How do we form patterns? When do we say that objects follow a pattern?

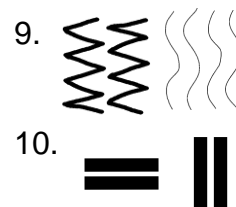
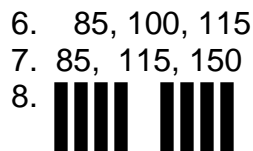
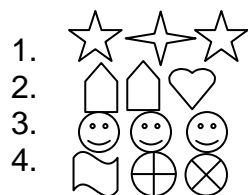
- Patterns are lines, shapes, numbers, colors size, orientation that repeat in a systematic way.
- Repeating pattern – a type of pattern in which elements repeat in a simple manner. (ex.: boy, girl, boy, girl, boy, girl)
- Growing/Decreasing pattern – a type of pattern in which successive elements grow/decrease according to a rule

EVALUATION

Identify the next shape to be used in the given patterns to complete them.
Draw the shapes on the space provided:



Key:



5. 60, 70

HOME ACTIVITY

Refer to LM 92 – Gawaing Bahay

Key - Gawaing Bahay



Teaching Guide for Mathematics Grade 2 (Patterns and Algebra) Lesson 93

TOPIC: Extending and Completing the Patterns

OBJECTIVES

1. Determine the next term (size, color and orientation) in a given sequence and give a reason.
2. Find the complete patterns according to the one or two of the following attributes: size, color and orientation.

PREREQUISITE CONCEPTS AND SKILLS

1. Skip counting by 2, 3, 5 & 10
2. Identify simple repeating (shapes/numbers/lines) patterns
3. Extend and reproduce simple repeating (shapes/numbers/lines) pattern
4. Explain how simple repeating (shapes/numbers/lines) patterns are formed

MATERIALS

1. Cut-out of different shapes
2. Show me board
3. Math Kit containing different shapes and strips containing names of the strips
4. Chart of Number Lines
5. Big Hundred Chart (to be posted on the board)
6. Colored Chalk
7. Colored toys

INSTRUCTIONAL PROCEDURE

A. Preparatory Activities

1. Pre-assessment

The teacher will present a 100 chart to the class. S/He will demonstrate how to skip count by 2, 3, 5 and 10 using the chart. S/He will make a pattern using the chart.

Ex: 2, 4, 6, 8, 10, _____, _____, _____

S/He will ask the pupils to identify the next three numbers

Answer: 12, 14, 16

What is the rule of this pattern? Let the pupils explain their answer. Say: Explain how would you use the "Add 2" rule to predict the next three numbers in the pattern. (continuously adding 2 to the previous number)

Supposed the pattern was reversed and started with

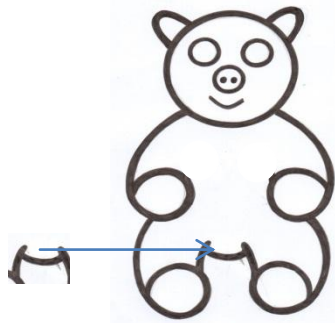
1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

16, 14 then 12, and so on. Ask: Would the rule be the same or different? How can you tell? (See to it the rule is subtracting by 2 and they should be able to discuss the difference between the increasing/growing and decreasing pattern. If they can answer these questions it means that they learn something from the previous lesson)

Give similar examples using skip counting by 3, 5 and 10. Ask again the pupils if they can extend and explain the pattern. Use colored chalk to shade the square of the next three number patterns.

B. Developmental Activities

1. Motivation



Sing the song *Small Circle* with action.

Small Circle, Small Circle, Big Circle

Small Circle, Small Circle, Big Circle

Six times six is thirty six

Six times six makes magic.

This is the boat that we're going to ride

Love Mama, Love Papa


Waving goodbye.

It starts off with

Small circle, small circle, big circle (drawing two small circles for eyes, big circle for face)

Small circle, small circle, big circle (two small holes and a bigger circle to make up the snout)

six times six (one six and an opposite facing six to make the arms) is thirty six

six times six (one six and an opposite facing one) makes magic (the  that connects these sixes)

This is the boat we're going to ride (a smiling mouth)

Love mama, Love papa (half circles for ears) waving goodbye

Ask: What shapes were mentioned in the song? (*Circle*)

What are the sizes of the circle in the song? (*small circle and big circle*)

Can you draw the circles on the board (based on the song)?

What did you notice in the drawing?

Vocabulary Development:

Poultry farm- (The teacher will show an illustration of a poultry farm)

Gather- (The teacher will demonstrate it using real objects or through pictures also)

2. Presentation

Say: Yesterday we discussed different kinds of patterns involving shapes, numbers and lines. We will continue the discussion of different patterns concerning the following attributes: size, colors and orientation. (Ask them to bring toys or s/he will provide improvise cubes or boxes)

CPA

(Teachers are not bound to use the same manipulative. They are free to change or use improvised materials/device.) Let the pupils arrange toys according to color then later according to size or even orientation. Toys that are red in color should be grouped together, as well as the other colors. Then show sequence of colors. (e.g.: Red toy, Blue toy and Green toy, Red toy, Blue toy and Green toy) Once the color pattern is already established, let the pupils guess the next color. Ask: What could be the next color after the Green toy? (Do it for several times but make sure to change the color sequence) On the board or in a piece of paper, let them draw the arrangement of toys/cubes/boxes in terms of colors they have grouped and let them enjoy coloring it. (Note: Be particular with sequencing or pattern and not the neatness and artistry of the work of the pupils.)

The teacher will group the pupils into 4. Each group will receive an activity card containing the strips of colored paper. (red, yellow, green, blue, violet, brown, black, pink and white) The pupils will arrange themselves according to color written in their activity card. The first one to finish will be declared winner.

Activity Card 1: 3 blue, 2 yellow, 1 green, 3 blue, 2 yellow, 1 green

Activity Card 2: 2 red, 2 brown, 1 violet, 2 red, 2 brown, 1 violet

Activity Card 3: 1 white, 3 black, 1 green, 3 blue, 2 yellow, 1 green

Activity Card 4: 2 pink, 3blue, 1 green, 2 pink, 3blue, 1 green

How did you find the activity?

What patterns do you notice?

Tell what colors are in the pattern.

Describe the repeating pattern.

What could be the next color if we extend the pattern?

See LM 93 Extending and Completing the Patterns – Gawain 1:

3. Reinforcing Activities

Introduce to the pupils the game SPOT the DIFFERENCE. The objective of this game is to spot the different attributes of shoes (socks, bags, umbrella or lunch box or any other things or objects that are present in the classroom that are in pairs).

Dump several different pairs of shoes (or slippers, socks, mittens, or other unmatched pairs) into a pile. Then ask the pupils to match up the pairs. After they are properly matched, count the pairs. (Discussing the difference between the single shoe and a pair of shoes is optional but it could help in terms of numbers.) Note the different sizes, shapes, colors of shoes. Show to them a correct pair of shoes.

Ask: How did you know that these shoes went together? Why?

What attributes or characteristics did you use to sort them into pairs? (Give them time to answer)

Mix up the pairs again. This time make some silly pairs. Pair up items that wouldn't normally go together but have at least one common attribute. Ex: two items that are the same color or two shoes with the same brand or design or two shoes with different sizes but same color

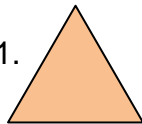
Ask: Can you name what the items have in common? Though they have something in common, can you spot the difference between the pairs?

4. Application

Refer to LM 93 Activity 1 to 3

Key:

Activity 1: 1.



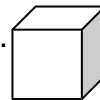
2.



3.



4.



5.



Activity 2 : 1. Oo 2.Hindi 3. Hindi 4. Oo 5. Hindi

Activity 3: 1.



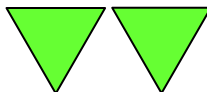
2.



3.



4.



5.





5. Generalization

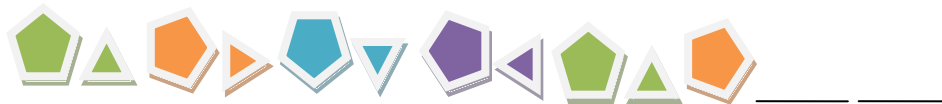
- Patterns are lines, shapes, numbers, colors size, orientation that repeat in a systematic way.
- Repeating pattern – a type of pattern in which elements repeat in a simple manner. (ex.: boy, girl, boy, girl, boy, girl)
- Growing/Decreasing pattern – a type of pattern in which successive elements grow/decrease according to a rule


EVALUATION


Draw the shape that completes the pattern.









1. 

2. 

3. 






4. 

5. 

Key: 1.  2.  3.   4.   5.  

HOME ACTIVITY

See LM 93 – Gawaing Bahay

- Key: 1.  = 3 4 5 3 4 2.  = 3 6 4 7 3 6
3.  = 4 8 5 6 4 8 4.  = 5 7 3 8 4 6 5
5.  = 6 7 8 3 4 5 6

Teaching Guide for Mathematics Grade 2
Measurement
Lesson 94

TOPIC: Measuring Time

OBJECTIVE

Tell and write time in minutes including a.m. and p.m. using analog clock.

PREREQUISITE CONCEPTS AND SKILLS

Skip counting by 5's

MATERIALS

1. Analog clock
2. Pictures/images of analog clock
3. Materials in making improvised clock (scissors, cardboard and circular fastener)
4. *Show Me* board

INSTRUCTIONAL PROCEDURES

A. Preparatory Activities:

Drill

- a. Let the pupils do the skip counting from 5 to 60.
- b. Then, give the series below and let them write the missing number in the box (oral, board work or group work).

5, 10, , 20, , 30, , , 45, , , 60

B. Developmental Activities:

1. Motivation

a. Ask this riddle.

It has face but no eyes, nose and lips
It has hands that moves on and on
What is it?

b. Show real analog clocks (of different shapes: circular, oblong or square) and ask these questions:

- Do you have these at home?
- What are these?
- What do these tell us?

c. Show an improvised analog clock with movable hands.

- Let the pupils read the numbers they see in the clock.

- Allow them to be familiar with the numbers 1-12 and how they are positioned in the clock.
- Ask the pupils to describe the parts of the clock (face and hands). Be sure that the pupils will mention the different lengths of the hands.
- Set the hands in
 - 7:00 and say “we hold flag raising ceremonies at 7:00 in the morning” (do not teach first how to tell time).
 - 8:00 and say “I go to sleep at 8 o’clock in the evening”.

2. Presentation

a. Concrete

Let the pupils make their own improvised analog clock where the two hands point on the numbers they want.

(Important: Give precautionary measures to observe in performing the activity especially in using the scissors), or

The teacher may provide improvised analog clocks if the pupils seem to have difficulty in doing it.

If the second option is preferred by the teacher, he/she may ask the pupils to show the time (by putting the short hand in one number and the long hand in the other number or in both hands in one number) they want in the improvised analog clock.

Show at least three real analog clocks (of different shapes: circular, oblong or square) and ask these questions:

- Do you have these at home?
- What are these?
- What do these tell us?

b. Pictorial

After doing the concrete presentation, let the pupils draw an analog clock on the board or in a piece of paper. The hands may point to any number they want.

c. Abstract

1. The pictures drawn by the pupils can be used in teaching how to tell/read and write the time including a.m. and p.m..

The following steps can facilitate teaching how to tell and write time.

- The number pointed by the short hand tells the hour.
- Each number on the clock face stands for five minutes which is pointed by the long hand.
- To read the time where the short hand is on 8 and the long hand is on 5, count by 5's from 12, 05, 10, 15, 20, 25. It is 25 minutes after 8 o'clock. Then, the time is written 8:25 (the teacher will write the time on the board).

The teacher will read the time and the pupils will repeat how the time is read.

The time 8:25 a.m. can be read as:

- eight twenty-five in the morning
- 25 minutes after 8 in the morning
- 35 minutes before 8 in the morning

The time 2:15 p.m. can be read as:

- two fifteen in the afternoon
- 15 minutes after 2 in the afternoon
- two quarter in the afternoon
- 45 minutes before 2 in the afternoon

- Emphasize that A.M. or a.m. stands for morning and P.M. or p.m. stands for afternoon. (A.M. or a.m. means anti-meridian and P.M. or p.m. means post-meridian).
- a.m. is from 12 midnight to 12 noon and p.m. is from 12 noon to 12 midnight.

2. This time, let the pupils say and write the time shown in the clocks.



For mastery, give additional exercises using the improvised analog clock. Put the long hand and short hand to a certain time and let the pupils read the time. Ask pupils to read time in different ways.

3. Reinforcing Activities:

Refer to Gawain 1, LM 94.

- a. Draw the time 8:15 in the clock below.



- b. Write how the time below is read.

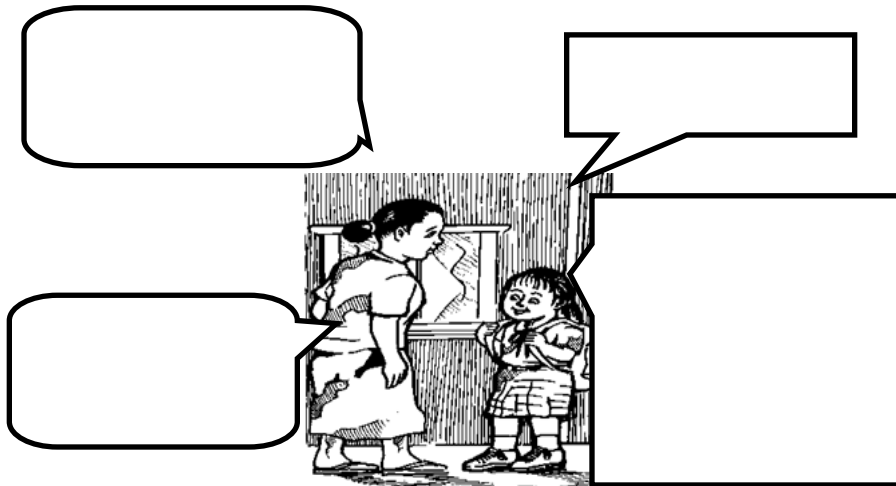


- c. Write the digital time of “eight in the morning”.
d. Draw in the analog clock the time 7:00.
e. Write the time where the short hand is pointing at 8 and the long hand is pointing at 2.

4. Application:

Refer to Gawain 2, LM 94.

Basahin ang comic strip at sagutin ang mga tanong. Isulat ang sagot sa inyong kwaderno.



Mga tanong:

- a. Anong oras dapat mamili sina Karen?
b. Anong oras sila kumain ng almusal?
c. Anong oras siya gagawa ng gawaing bahay?
d. Tumutulong ka ba sa mga gawaing bahay?
e. Ano ang nararamdaman mo kapag inuutusan ka ng iyong mga magulang? Bakit?

Key to Correction:

- a. 7:00 a.m. b. 6:00 a.m. c. 1:00 p.m.
d. answers will vary e. answers will vary

5. Generalization.

How do you read and write time in an analog clock?
(In reading/writing the time say/write first the number hour and followed by the number minutes. Use colon to separate the hour part and the minute part of the time).

EVALUATION:

Read and write the time shown in each clock. (The teacher will draw analog clocks showing the indicated time on the board or in a manila paper. The number of items may be increased.)

1. 3:25
2. 5:50
3. 7:55
4. 12:45
5. 6:15

HOME ACTIVITY

Refer to Gawaing Bahay in the LM 94.

Key to correction

- | | | | |
|----|--------------|--------------|---------------|
| A. | 1. 6:10 | 2. 10:30 | 3. 2:35 |
| B. | 1. 9:10 a.m. | 2. 3:30 p.m. | 3. 11:15 a.m. |
| | 4. 6:30 p.m. | 5. 9:55 a.m. | |

Teaching Guide for Mathematics Grade 2
Measurement
Lesson 95

TOPIC: Measuring time

OBJECTIVE

Tell and write the time in hours and minutes including a.m. and p.m. using digital clock.

PREREQUISITE CONCEPTS AND SKILLS

Telling and writing time using analog clock

MATERIALS

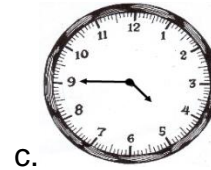
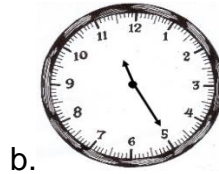
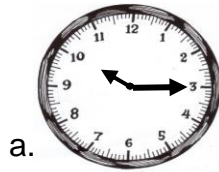
1. Digital clock
2. Picture/image of digital clock
3. Time rack with cubes (with numbers 1-12 for the number of hour and multiples of 5 from 5-60 for the number of minutes)

INSTRUCTIONAL PROCEDURES

A. Preparatory Activities

Drill

What time is shown in each clock below?



B. Developmental Activities

1. Motivation

Do the following.

- Present at least 3 models of digital clocks.
- Give the pupils time to look and hold the model clocks.

Ask the pupils these questions:

- Are you familiar with these things?
- Who among you have things like these at home?
- What are these things? (clocks)
- What do these clocks tell us? (time)
- What symbol divides the hours and minutes in digital clocks? (colon)

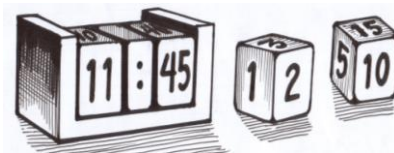
2. Unlocking of difficulties (optional)

There are digital clocks that use 24-hour format, that 13:45 p.m. is equivalent to 1:45 p.m.

3. Presentation

a. Concrete

- Say: this time, we will use this time rack (refer to the picture below which need to be prepared by the teacher) in telling time.



- Show a time in the rack using the cubes. Then, let the pupils read it. Give at least three examples.
- This time, the teacher and the pupils will exchange roles. The teacher will give the time and the pupils will arrange the cubes to represent the time.

b. Pictorial

Individual Activity:

1. Enumerate three important activities you usually do every day.
2. Draw digital clocks at the side of each activity.
3. Then, write the time when you usually attend each activity.

c. Abstract

Ask the pupils to read and write how the time is read.

1.

10:00 a.m.

2.

4:30 p.m.

3.

11:45 a.m.

4. Reinforcing Activity

Refer to Gawain 1, LM 95.

1. Write the digital time of five-forty in the afternoon.
2. How is 7:15 a.m. read?
3. How does 3:20 differ from 3:20?

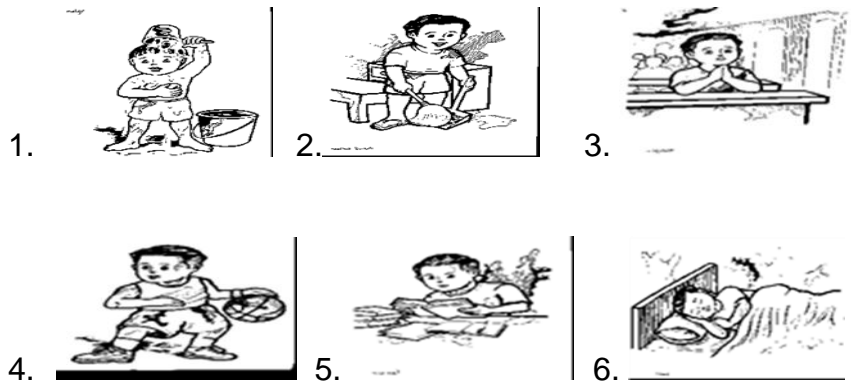
5. Application

Refer to Gawain 2, LM 95

Ang mga gawain ni Buboy tuwing araw ng Linggo ay nakasulat sa ibaba.

Mga Gawain	Oras
Maligo	6:30 a.m.
Kumain ng almusal	7:00 a.m.
Maglinis ng kwarto	7:30 a.m.
Magsimba	9:00 a.m.
Kumain ng tanghalian	11:30 a.m.
Maglaro	4:00 p.m.
Kumain ng hapunan	7:00 p.m.
Mag-aral ng leksyon	7:30 p.m.
Matulog	8:30 p.m.

Isulat sa inyong kwaderno ang oras ng mga nakalarawang gawain ni Buboy



P.E. Integration

Ask the pupils to act/role play the activity Jenny is doing as the teacher states the time.

6. Generalization

How do we read and write time in a digital clock?

EVALUATION

Tell and write the time of hours and minutes in the digital clocks shown (may use of flash cards or power point presentation). Be sure all pupils are given the turn to tell and write the time. Below are examples of the time the teacher can use.

1. 2:25 p.m.
2. 8:15 a.m.
3. 9:45 a.m.
4. 5:30 p.m.
5. 11:40 a.m.

HOME ACTIVITY

Refer to LM 95.

Key to Correction:

1. 6:30 a.m.
2. Answers will vary
3. 6:30 a.m., sapagkat hindi mabuti sa digestive system ang maglakad agad pagtapos kumain.

Teaching Guide for Mathematics Grade 2
Time
Lesson 96

TOPIC: Measuring Time

OBJECTIVES:

Finds the duration of time elapsed using analog and digital clocks.

PREREQUISITE CONCEPTS AND SKILLS

1. Telling and writing time using analog and digital clocks
2. Adding and subtracting two-digit numbers

MATERIALS

1. Improvised analog clock
2. Show Me boards
3. Drawing materials

INSTRUCTIONAL PROCEDURES

A. Preparatory Activities

1. Drill
 - a. Show flashcards with different times (use analog clock).
 - b. Let the pupils write the time in the *Show Me Boards*.

2. Pre-Assessment
Write the time.
 - a. 3 o'clock in the afternoon
 - b. 15 minutes after 10 in the morning
 - c. 20 minutes before 7 in the morning

B. Developmental Activities

1. Motivation:

Carlo watches television at 6:30 p.m. After one hour, he eats dinner. At 8:00 p.m., he studies his lesson. After 30 minutes, Carlo sleeps.

Processing:

- a. What time Carlo watches television?
- b. What time Carlo eats dinner?
- c. What time Carlo sleeps?
- d. How long do you watch television?
- e. What time do you usually sleep?

2. Presentation
 - a. Concrete

1. Using an improvised analog clock,
 - let one pupil show the time 7:10
 - the teacher will move the minute hand from 2 to 6.
 - ask the learners the number of minutes elapsed from 2 to 6.
2. Using the same analog clock showing 7:10, let the pupils show the hands of the clock after
 - 35 minutes
 - 40 minutes
 - One hour

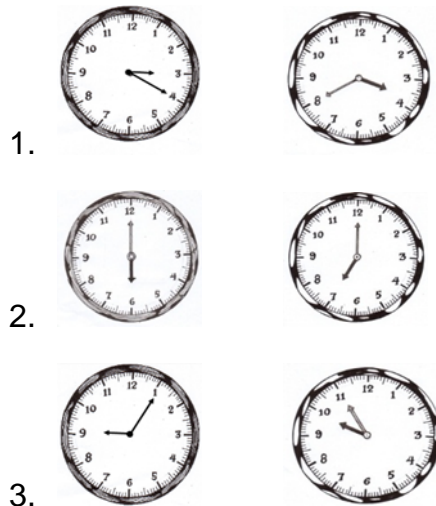
b. Pictorial

Ask the pupils draw the time asked.

1. 8:30 in one analog clock and another time of their choice in another analog clock. Let them write the time of their choice and the time elapsed (hours or minutes) after 8:30.
2. Two digital clocks showing the elapsed time of 45 minutes.

c. Abstract

Let the pupils tell if how much time has elapsed between the two clocks.



See to it that the learners are able to get the correct answers. If there are still who failed to give the expected answers, discuss further the process how to find the time elapsed.

3. Reinforcement Activity

Refer to Gawain 1, LM 96.

Gaano katagal ginawa ang bawat gawain?

1. Naligo



2. Naglinis ng bahay



3. Nagluto



This will expose the learners to find the elapsed time using the analog clock and digital clock.

4. Application

Refer to Gawain 2, LM 96

Ang pangkat nina Nora ang tagapaglinis ng silid aralan. Ika-6:30 ng umaga nang sila ay magsimula at ika-6:55 nang nakatapos.

Mga tanong:

1. Ilang minuto ang nagamit nina Nora sa paglilinis ng silid-aralan? Ipakita at ipaliwanag kung paano nakuha ang sagot.
2. Ilang minuto pa ang lilipas bago mag flag ceremonies sa ika-7:00 ng umaga? Ipaliwanag ang sagot.

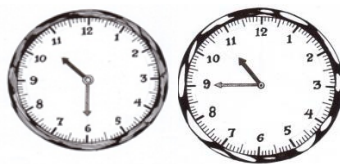
5. Generalization

Time elapsed is the length of time that passed by.
How is the time that elapsed computed?

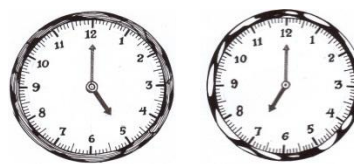
EVALUATION:

A. Alamin kung ilang oras at minuto ang nakalipas sa dalawang orasan?

1.



3.



2.
4.

B. Iguhit o isulat ang tamang sagot.

1. Si Jean ay natulog ng ika 2:00 p.m. Gumising siya pagkatapos ng 30 minuto. Iguhit sa orasan ang oras na siya ay gumising.



2. Ang bibingka ay sinimulang lutuin ng ika 9:30 at naluto ng ika 9:50. Pagkatapos ng ilang minuto naluto ang bibingka?
3. Si Nena ay umalis ng bahay patungong paaralan ng ika 6:30 a.m.. Dumating siya ng 6:45. Gaano siya katagal naglakad?
4. Sinimulang sagutan ni Mark ang takdang aralin ng ika 7:00 p.m.. Natapos niya ito sa loob ng 45 minuto. Isulat sa digital clock ang oras nang matapos si Mark sa pag sagot ng takdang aralin.
- :
5. Nagsimulang maglaba si Lola Noring ng ika 7:00 a.m.. Natapos siya ng ika 10:25 a.m.. Ilang oras at minuto na naglaba si Lola Noring?

Key to correction

A

1. 15 minuto
2. 1 oras
3. 3 oras
4. 1 oras at 55 minuto

B

1.
2. 20 minuto
3. 15 minuto
4. 7:45
5. 3 oras at 25 minuto

HOME ACTIVITY

Refer to LM 96.

Key to correction

A.

- | | | | | |
|------------|---------|---------|---------|---------|
| B. 1. 2:15 | 2. 2:40 | 3. 2:30 | 4. 2:55 | 5. 3:00 |
| 6. 4:00 | 7. 5:20 | 8. 3:30 | 9. 4:30 | 10. 6:1 |

Teaching Guide for Mathematics Grade 2
Time
Lesson 97

TOPIC: Solving word problem involving time.

OBJECTIVE

Solve simple word problem involving time using clock

PREREQUISITE CONCEPTS AND SKILLS

1. Tell and write the time in hours and minutes including a.m. and p.m.
2. Find the duration of time elapsed

MATERIALS

1. Improvised analog clock
2. Picture/image of analog and digital clocks
3. *Show Me* board

INSTRUCTIONAL PROCEDURES

A. Preparatory Activities:

1. Drill

Tell the pupils to write on their *Show Me* boards the time displayed in each of the following pictures of clocks. Ask them to show and tell, one at a time, what they have written.



a. a.m.



b. a.m.



c. p.m.

d. 9:25 a.m.

e. 9:25 p.m.

2. Pre-Assessment:

Using their *Show Me* boards, tell the pupils to write their answers to the following questions. Ask them to show their answers after each question.

Say: Using the clocks numbered 1 to 5, how much time had elapsed

1. between clocks a and b?
2. between clocks b and c?
3. between clocks c and d?
4. between clocks d and e?
5. between clocks a and c?

B. Developmental Activities:

1. Motivation:

- Ask: What time do you usually sleep?
What time do you wake up?
Do you go to school on time?
Is it good for children to be in school on time? Why?

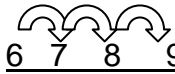
2. Presentation

a. Concrete

Show a picture story and present the problem.

Mona goes to school early everyday to be sure she's not late. She starts walking at exactly 7 o'clock in the morning. She arrives at the school at 7:15 a.m. How long does it take her to go to school?

Processing:

- At what time did Mona start walking to school?
(6:30 a.m.)
- At what time did she reach her school?
(6:45 a.m.)
- Underline the question in the problem.
- Rewrite this question into an answer statement.
(It takes ___ for Mona to go to school)
- How will you solve the problem?
(Using an improvised analog clock and let the pupils show 6:30. Then, let them move the long hand from 6 to 9. Let them count the time duration between 6:30 and 6:45)
- Show your solution.
(May use
 - ✓ two analog clocks with time shown in each clock,
 - ✓ line graph  6 7 8 9, or
 - ✓ subtraction $45-30=15$)
- What is the answer?
(It takes 15 minutes for Mona to go to school)

b. Pictorial

Give the problem below.

Tuwing Sabado, si Grace ay naglilinis ng kanyang silid-tulugan simula 7:15 a.m. hanggang 7:45 a.m.. Ilang minuto ang ginagamit niya sa paglilinis?

Let the pupils copy the problem in a piece of paper. Then, instruct to do the following steps:

1. Underline the question,
2. Rewrite the question into answer statement,
3. Restate the problem focusing on the important details for finding the answer,
4. Decide what process/equation shall be used in finding the answer, and
5. Solve the problem.

c. Abstract

Let the pupils answer this problem.

Naayos ni Mang Pandoy sa loob ng 3 oras ang kanilang bakod na nasira noong nakaraang bagyo. Anong oras siya natapos kung nagsimula siya ng ika-7:00 ng umaga?

3. Reinforcing activity

Refer to Gawain 1, LM 97.

Let each pair of pupils solve the following problems.

1. Natapos ang klase ni Danny ng ika-4:00 p.m.. Kasama si Manny, naglaro sila ng taguan hanggang ika-5:00 p.m.. Gaano katagal silang naglaro?
2. Ang Mababang Paaralan ng Banton ay nakilahok sa Lakbay Aral. Ang bus ay umalis ng ika-5:00 a.m. at dumating sa National Museum ng ika-8:00 a.m.. Ilang oras silang naglakbay?

4. Application:

Refer to Gawain 2, LM 97

Dumating si David sa plasa ng ika-3:45 p.m.. Meron silang usapan ni Jonathan na maglaro sa ika-4:00 p.m.. Ika-4:30 p.m. na ay wala pa rin si Jonathan kaya umuwi na lang si David.

Mga tanong

- a. Ilang minutong nauna si David sa oras na usapan nila ni Jonathan?
- b. Gaano katagal na naghintay si David kay Jonathan?
- c. Naranasan mo na bang maghintay katulad ng naranasan ni David?
- d. Kung ikaw si David, ano ang mararamdaman mo? Bakit?
- e. Kung ikaw si Jonathan, ano ang gagawin mo? Bakit?

5. Generalization

- To solve problems involving time using clock,
1. Underline the question,
 2. Rewrite the question into answer statement,
 3. May restate the problem focusing on the important details for finding the answer,
 4. Decide what process/equation shall be used in finding the answer, and
 5. Solve the problem.

EVALUATION

Show the solutions in solving the following word problems.

1. Baby Nina slept at 8:00 p.m. She woke-up at 6:00 a.m.
How many hours did Baby Nina sleep?
2. Rene arrived home at 6:30 p.m. His younger sister Edit arrived at 8:30 p.m. How many hours earlier did Rene arrive home?
3. Steven started practicing basketball at 4:00 p.m. He finished his practice at 8:30 p.m. How many hours did he practice?

Key to correction: 1. 10 hrs 2. 2 hrs 3. 4 hrs and 30 min

HOME ACTIVITY

Refer to LM 97.

Key to correction: 1. 20 minuto 2. 5:15 a.m. 3. 10

Teaching Guide for Mathematics Grade 2 Time Lesson 98

TOPIC: Time

OBJECTIVE

Find the duration of time elapsed using calendar.

PREREQUISITE CONCEPTS AND SKILLS

1. Naming the days of the week
2. Adding (up to 2 digits) and multiplying (tables of 2, 3, 4, 5 and 10)

MATERIALS

1. Calendars (two or three, one of which is leap year)
2. Drill Cards
3. *Show Me* Boards

INSTRUCTIONAL PROCEDURES

A. Preparatory Activities: (Presenting the lesson)

1. Drill

Show flashcards with names of the seven days. Let the pupils read the names.

Monday

Saturday

Then, post these cards in any order on the board. Ask a volunteer to arranged the cards in the right order (Monday – Sunday or Sunday – Saturday)

2. Pre-Assessment

- a. What days of the week do you go to school?
- b. What day/s of the week do you go to church? (if needed, explain why others go to church during Saturday, Sunday, Friday or any other day of the week)
- c. Which days are considered weekends?
- d. What day is next to Wednesday?
- e. What day comes before Sunday?
- f. What day is two days after Tuesday?
- g. How many days have elapsed from Monday to Friday?

B. Developmental Activities:

1. Motivation

Show calendars and ask the following questions.

- What are these? (calendars)
- Do you have these at home?
- What do these calendars have?
- What do these calendars tell us? (dates)

2. Presentation

a. Concrete

Group activity 1

- Group the learners into 4.
- Give each group an activity card like this one below.

JANUARY						
Sun	Mon	Tue	Wed	Thur	Fri	Sat
		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	31		

Processing

- What do you see in the card?
- What is the first day of January?
- What is the seventh day of January?
Let the pupils box the first group of seven days. Tell them that the first seven days make up one week.
- How many days are there in one week?
Ask the pupils to box the other group of seven days.
- How many groups of seven days are there in January?
- How many days are there in January?
- How many weeks are there in January?

Group Activity 2

Give each group a calendar. Give them enough time to be familiar with the names of the months and realize that one year has 12 months. Then, ask:

- How many months are there in one year?
- What are the names of the 12 months?
- Do all months have 31 days?
- How many months have 30 days? What months are these?
- How many months have 31 days? What months are these?
- What can you say about the month of February?

Unlocking of difficulties (optional)

A year has 365 days and a leap year has 366 days. One day is added to February during leap year which happens every four years.

Group Activity 3

Using the calendar, ask the following questions:

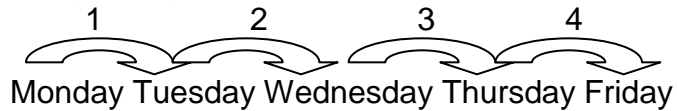
- What is the first month of the year?
- What month comes before March? after March?
- How many months have elapsed from July to November?

Guide the pupils how to find the elapsed time.

That:

- Monday to Friday is (if Monday is day 1 and Friday is day 5)
 - ✓ Monday to Friday is $5 - 1 = 4$ days
 - ✓ July to November is $11 - 7 = 4$ months

- Or using a diagram



b. Pictorial

Let the pupils list the names of seven days and 12 months in either horizontal or vertical position. Ask them to show the solutions (subtraction, diagram or any other ways) in answering the following questions.

- How many days have elapsed from Tuesday to Saturday?
- How many weeks have elapsed from October 7 to October 28?
- How many months have elapsed from February to June? from April to December?
- How many days have elapsed from July 2 to July 30?

c. Abstract

Ask the pupils the following questions.

1. How many days have elapsed from Monday to Sunday?
2. How many days have elapsed from January 1 to February 1?
3. How many months have elapsed from January to November?

3. Reinforcement Activity

Ask the pupils to make a problem on time elapsed. These problems can serve as material for recall of the topic comes the next day.

4. Application

Give the situation to the pupils.

Pumunta si Andoy sa siyudad noong
 Lunes. Biyernes na nang siya ay bumalik sa
 kanilang bahay.

Processing:

- Ilang araw ang lumipas bago bumalik ng bahay si Andoy?
- Kung bumalik siya ng Linggo, ilang araw siya sa siyudad?

- Sakaling ninais niya na bumalik pagkatapos ng 2 araw, anong araw siya babalik ng bahay?

5. Generalization

How do you find the duration of time elapsed using calendar?

Important:

7 days = 1 week

4 weeks = 1 month

12 months = 1 year

EVALUATION

A. Gamit ang kalendaryo, sagutin ang bawat bilang.

1. Ilang araw ang nakalipas mula Linggo hanggang Miyerkules?
a. 1 b. 2 c. 3 d. 4
2. Ilang linggo ang nakalipas mula Setyembre 1 hanggang Setyembre 22?
a. 2 b. 3 c. 4 d. 5
3. Ngayon ay Martes. Ilang araw ang lilipas hanggang Martes ng susunod na linggo?
a. 3 b. 5 c. 7 d. 9
4. Anong petsa pagkatapos ng 25 araw kung ngayon ay Hunyo 1?
a. Hunyo 25 b. Hunyo 26 c. Hunyo 27 d. Hunyo 28
5. Si Charity ay ipinangak ng Mayo. Ilang buwan siya sa Nobyembre?
a. 4 b. 5 c. 6 d. 7

B. Basahin at sagutin.

1. Ilang linggo ang nakalipas mula Enero 1 hanggang Pebrero 1?
2. Ilang buwan ang nakalipas mula Marso hanggang Oktubre?
3. Ilang linggo ang nakalipas mula Nobyembre hanggang Marso ng susunod na taon?
4. Kung ngayon ay Abril, ilang buwan ang lilipas bago mag Disyembre?

Key to correction

- | | | | | |
|---------|------|-------|------|------|
| A. 1. c | 2. b | 3. c | 4. b | 5. c |
| B. 1. 4 | 2. 7 | 3. 16 | 4. 8 | |

HOME ACTIVITY

Refer to LM 98.

Key to correction

1. 11

2. 3

3. 6

4. 1

5. 20

Teaching Guide for Mathematics Grade 2 Time Lesson 99

TOPIC: Word problems involving time using calendar.

OBJECTIVE

Solve simple word problem involving time using calendar.

PREREQUISITE CONCEPTS AND SKILLS

Finds the duration of time elapsed using calendar

MATERIALS

1. *Show Me* boards
2. Calendars

INSTRUCTIONAL PROCEDURES

A. Preparatory Activities:

1. Drill

Using a calendar, let the pupils write the dates of the following occasions:

- | | |
|--------------------|---------------------|
| d. Christmas | c. Rizal Day |
| e. All Saint's Day | d. Labor Day |
| f. New Year's Day | e. Independence Day |

2. Pre-Assessment:

Using their *Show Me* boards, tell the pupils to write down and show their answers to the following questions.

- How many days have elapsed,
 - from Christmas Day to New Year's Day
 - from Labor Day to Independence Day
 - from All Saint's Day to Rizal Day
- How many months have elapsed,
 - from February to March
 - from June to November

B. Developmental Activities:

1. Motivation:

Show a picture of a child approaching a school. Then ask the following questions.

- a. Where do you think the child is going?
- b. On what days do you go to school?
- c. How many days do you go to school?
- d. How many days don't you go to school?

2. Presentation

a. Concrete

Show a picture story about a boy going to a vacation. Present the problem (to be written on the board for the pupils to work on) below.

It is summer. Rino wants to have a vacation in Tagaytay City. Together with his friends, they stayed there from April 15 up to May 5. How many weeks did they stay in Tagaytay?

Guide the students in performing the following steps.

- Underline the question in the problem.
- Rewrite the question into an answer statement.
(Rino and his friends stayed ___ week in Tagaytay.)
- Restate the problem focusing on the important details for finding the answer.
(They stayed from April 15 to May 5)
- What will be your process/equation to answer the question?
(Let the pupils think of how they will solve the problem. Below is just one of the possible solutions)
(April 15, 16, 17, 18, 19, 20, 21 – week 1
22, 23, 24, 25, 26, 27, 28 – week 2
29, 30
May 1, 2, 3, 4, 5, - week 3)
- What is the answer?
(Rino and his friends stayed 3 weeks in Tagaytay)

b. Pictorial

Let the pupils copy the problem in the box. Then instruct them to draw a calendar for January and February. Tell them to use the calendars to show how the problem be solved.

Binisita ni Nanay ang lola ko. Namalagi siya sa bahay nina lola simula Enero 26 hanggang Pebrero 8. Ilang linggong nanatili ang Nanay ko kina lola?

c. Abstract

Solve the following problems:

1. John and Jane will meet five days after Monday. What day will they meet?
2. It's January. How many months will elapse until August?
3. Karina was born in February. How many months is she in October?

3. Reinforcing Activity

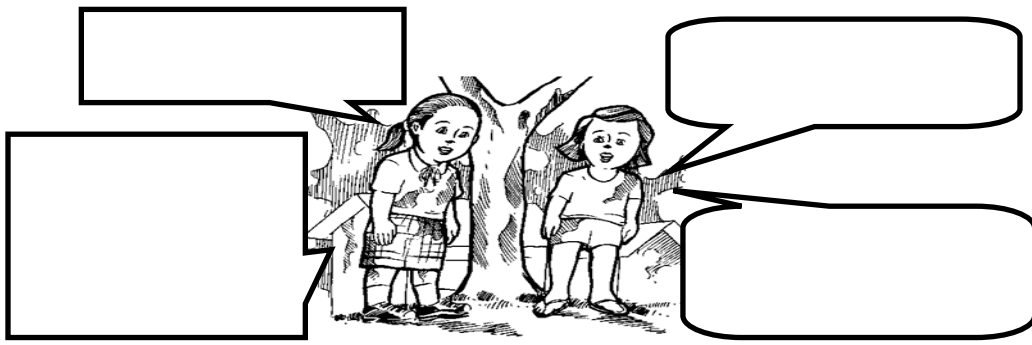
Refer to Gawain 1, LM 99.

Give this problem to the class. Ask them to show or explain how to answer the question.

Ang Tatay ni Boy ay nagtrabaho sa bukirin ni Don Luis sa loob ng 3 buwan. Kailan ang huling buwan niya sa pagtatrabaho sa bukirin kung siya ay nagsimulang magtrabaho sa buwan ng Marso?

4. Application

Refer to Gawin 2, LM 99.



Mga tanong

- a. Kung ang huling buwan na nagkita ang magkaibigan ay Hulyo, anong buwan nangyari ang pag-uusap na ito?
- b. Kung Setyembre 7 ibinigay ang project, anong petsa ito natapos ni Emy?
- c. Anong mabuting ugali mayroon si Emy? Bakit?

5. Generalization

- To solve problems involving time using calendar,
1. Underline the question,
 2. Rewrite the question into answer statement,
 3. Restate the problem focusing on the important details for finding the answer,
 4. Decide what process/equation shall be used in finding the answer, and
 5. Solve the problem.

EVALUATION:

Basahin at sagutin ang tanong.

1. Si Shiela ay ipinanganak noong Oktubre 3, 2005. Ilang taon siya sa Oktubre 3, 2025?
2. Ang Tatay ni Rolan ay 30 taong gulang nang siya ay ipinanganak. Ilang taon ang Tatay niya nang siya ay 7 taong gulang?
3. Tuwing ika-tatlong buwan, si Belinda ay dumadalaw sa kaniyang Lolo sa ibayong bayan. Ilang beses dumalaw si Belinda sa kaniyang Lolo sa loob ng isang taon?

- Key to correction:
1. 20 taong gulang
 2. 37 taong gulang
 3. 4 na beses

HOME ACTIVITY

Refer to LM 99.

Key to correction

1. 2, 5
2. madalas na pakikipag-away ng mga mag-aaral at madalas na pinagagalitan ng punong guro
3. Answers will vary
4. Answers will vary
5. Answers will vary

Teaching Guide for Mathematics Grade 2
Length
Lesson 100

TOPIC: Measuring Length

OBJECTIVE

Identify the appropriate unit of length to measure a particular object and their abbreviations (cm and m)

MATERIALS

1. Meter stick or tape measure
2. Ruler with centimetre scale
3. Objects to be measured

INSTRUCTIONAL PROCEDURES

A. Preparatory Activities:

1. Drill

Play the *Bring Me* game.

- a. Bring me a comb
- b. Bring me a pencil
- c. Bring me an umbrella

2. Pre-Assessment

Use the objects used in the previous game to establish the idea of short and long. Then ask which is short/long between:

- g. Comb and umbrella
- h. Umbrella and chalkboard
- i. Chalkboard and flag pole

B. Developmental Activities:

1. Motivation:

Show to the pupils the materials (ruler with centimetre scale, meter stick or tape measure). Ask the questions that follow.

- Which is better to use in measuring the length of the room, the ruler or the meter stick? Why?
- Can the other measuring device be used in measuring the length of the room?

2. Unlocking of difficulties

Show to the learners how long is 1 centimeter and 1 meter. Tell them that centimeter is a part of a meter and that the abbreviation of centimeter is cm and meter is m.

3. Presentation

a. Concrete

Group activity

Group the pupils into two. Give each group a two sticks of different lengths (1 centimeter stick and 1 meter stick). Let them compare the lengths.

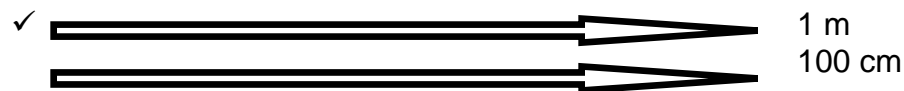
Guiding questions:

1. Which stick is short? Long?
2. How many short sticks are there in the long stick?
3. What equation can represent the relation of the short stick and the long stick? ($100\text{ cm} = 1\text{ m}$)

b. Pictorial

Using a diagram or graph (pictograph or bar/line graph), let the pupils show the relation between a centimetre and a meter (1 cm and 1 meter, 100 cm and 1 m and others).

Below are examples of illustrations that the pupils may draw:



c. Abstract

Show/name objects that are long and short. Examples are pencil, bamboo stick (about 1.5 m long), length of the room, book and many others.

Processing

- Which objects are short?
- Which objects are long?
- What unit of length (cm or m) do you prefer to use in measuring short objects? Why?
- What unit of length do you prefer to use in measuring long objects? Why?
- Is it important to use appropriate unit in measuring the length of an object? Why?

Having the idea of the length of 1 centimeter and 1 meter, the pupils can easily which unit of measure is appropriate in measuring lengths.

4. Reinforcing Activities

Let the pupils answer Activities 1 and 2 in LM 100.

Key to correction

- | | | | | |
|-------|-------|-------|-------|------|
| 1. cm | 2. m | 3. cm | 4. cm | 5. m |
| 1. cm | 2. cm | 3. m | 4. m | 5. m |

5. Application:

Answer activity 3 in LM 100.

Key to correction

1. Pagtanim ng gulay sa bakuran
2. m, dahil malawak ang lupa
3. answers will vary

6. Generalization

Centimeter (cm) is used to measure short objects and Meter (m) is used to measure long objects.

EVALUATION:

Anong **unit of length** ang dapat gamitin sa pagkuha ng haba o sukat sa bawat bilang? Isulat ang sagot at ang **abbreviation** nito sa sagutang papel.

- | | |
|---------------------------|----------------------|
| 1. Haba ng kuwaderno | 6. Haba ng tsinelas |
| 2. Sukat ng iyong baywang | 7. Taas ng baso |
| 3. Lawak ng silid-aralan | 8. Taas ng niyog |
| 4. Kapal ng iyong aklat | 9. Haba ng palaruan |
| 5. Haba ng iyong binti | 10. Kapal ng pambura |

Key to correction

- | | | | | |
|-------|-------|------|-------|-------|
| 1. Cm | 2. Cm | 3. M | 4. Cm | 5. Cm |
| 6. cm | 7. Cm | 8. M | 9. M | 10 cm |

HOME ACTIVITY

Refer to LM 100.

Key to correction

- | | | | | |
|-------|-------|------|------|----------------------|
| 1. cm | 2. cm | 3. m | 4. m | 5. Answers will vary |
|-------|-------|------|------|----------------------|

Teaching Guide for Mathematics Grade 2
Length
Lesson 101

TOPIC: Measuring Length

OBJECTIVE

Measure objects using appropriate measuring tools in centimeter (cm) or meter (m).

PREREQUISITE CONCEPTS AND SKILLS

Identifying appropriate unit in measuring the length of objects

MATERIALS

1. Ruler
2. Meter stick
3. String
4. Objects to be measured (bamboo poles, school supplies, personal belongings, etc.)

INSTRUCTIONAL PROCEDURES

A. Preparatory Activities:

1. Drill

Show pictures of the following objects. Tell them to stand if they will measure the length of the object using *m* and shout hurray if they will use *cm*.

- | | |
|-----------------|------------------|
| a. a road | d. a pencil case |
| b. an eggplant | e. a tree |
| c. a playground | f. a boy's pants |

B. Development Activities

1. Motivation

Show a picture like this.



Questions:

- a. What is the boy holding?
- b. Do you have a toy? What is it?

- c. If this is your toy and I will ask you how long it is, what unit of length will you use? Why?

2. Presentation

a. Concrete

Group activity

1. Divide the class into 4.
2. Give each group a set of objects measurable in centimeter and meter units (with exact lengths).
3. Let them write the result of the activity in the table illustrated below.

Object	Length (m or cm)
1.	
2.	
3.	
4.	
5.	

Processing:

- Which of the objects is the shortest?
- Which of the objects is the longest?
- Can the shortest object be measured using meter?
- Can the longest object be measured using centimeter?
- What is the advantage of using the appropriate unit of length in measuring the length of the objects?

Paired activity

1. Work in pairs
2. Let each pair cut 2 strings of different lengths (1 m and 20 cm)
3. Ask them to measure the following:
 - Length of a pencil
 - Width of a notebook
 - Length of a desk
 - Width of a window
 - Length of a skirt/pants

4. Give them time to report the results. Be sure to check the correctness of the answers.

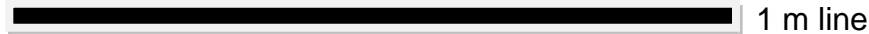
b. Pictorial

Let the pupils draw a 1 meter line on the board. Then, ask one or two pupils to draw a picture of a pencil (or other objects) showing the length in the 1 meter line.

Below is an example of what and how they may draw.



(key)



3. Reinforcing Activities

Let the pupils answer Gawain 1. Refer to LM 101.

Key to correction: 1. 14 cm 2. 15 cm 3. 10 cm

4. Application

Let the pupils answer Gawain 2. Refer to LM 101.

The teacher will provide the materials needed.

2. Generalization.

How do you measure the length of an object?

EVALUATION:

The teacher will prepare five objects with different lengths. Put these objects together with measuring devices (tape measure or meter stick or centimetre ruler) at five stations. Each station should have enough space for the learners to do the measuring. Allow two pupils at a time in one station to measure the lengths of the objects.

Station 1 –a bamboo or wood pole

Station 2 –a wire

Station 3 –a book

Station 4 – a ribbon

Station 5 – an umbrella

Note: Never use objects which have been used in the discussion proper.

Home Activity

Refer to LM 101.

Key to correction

1, 2 and 3- Answers will depend on the size of the paper to be used in reproducing this material.

4. paaralan

Teaching Guide for Mathematics Grade 2
Length
Lesson 102

TOPIC: Measuring Length

OBJECTIVE

Compare lengths in meters (m) or centimeters (cm).

PREREQUISITE CONCEPTS AND SKILLS

Identifying appropriate unit of length in measuring objects

MATERIALS

1. Ruler 2. Meter stick 3. *Show Me* board

INSTRUCTIONAL PROCEDURES

A. Preparatory Activities:

Drill

Show pictures of the following objects. Tell them to stand if the unit of measure to be used in measuring the height or length is *m* and clap three times if *cm*.

- | | |
|----------------|-----------------------|
| a. a glass | d. a slipper |
| b. an umbrella | e. a basketball court |
| c. a crayon | f. a girl's skirt |

B. Development Activities

1. Motivation

Using their *Show Me* boards, tell the pupils to write down their answers to the following questions. Ask them to show their answers after each question.

Which is longer?

- a. 1 cm or 1 m
b. 1 m or 100 cm
c. 10 cm or 1 m

3. Presentation

a. Concrete

1. Prepare five bamboo poles (or other objects) of different lengths (10 cm, 50 cm and 100 cm). Label each pole with the corresponding length.

2. Show/give these poles to the pupils.

Ask the following questions.

- Which of the three sticks is the shortest? How many cm is it?
- Which of the three sticks is the longest? How many cm is it?

- Which between the 50 cm and 100 cm is longer? How many cm is it longer than the other pole?

b. Pictorial

Instruct the pupils draw the poles on the board or in the paper. Ask them label each pole.

Then, let them formulate statements of comparison between two lengths. Like;

- The 10 cm pole is shorter than the 50 cm pole
- The 100 cm pole is longer than the 50 cm pole.
- Two 50 cm poles have the same length with 100 cm pole.

Out of the statements, let them translate each into a mathematical statement like;

- 10 cm is less than 100 cm (may introduce the symbols $<$ and $>$ as $10\text{ cm} < 50\text{ cm}$ - optional)
- 100 cm is greater than 50 cm
- Twice 50 cm is equal to 100 cm

c. Abstract

1. Post/write on the board a list of lengths.

15 cm, 20 cm, 75 cm, 100 cm, 1 m, and 2 m
(examples only)

Let the pupils pick pairs of lengths and let them compare.

2. Compare the lengths in each number by filling up the blank with the appropriate word or symbol.

- 35 cm _____ 70 cm
- 125 cm _____ 215 cm
- 50 m _____ 60 m
- $1\frac{1}{2}$ m _____ 2 m

4. Reinforcing Activities

Let the pupils answer Gawain 1 in LM 102.

5. Application

Ask the class to answer Activity 2 in LM 102.

Additional situation

Nais ni Mang Pipito na mag *jogging*. Mas mahaba nang tatakbuhan ay mas mabuti. Ang haba ng *public plaza* ay 50 m at ang *school playground* ay 60 m. Saan ang dapat piliin ni Mang Pipito?

6. Generalization.

In comparing lengths, the greater value has the longer length.

EVALUATION

Paghambingin ang dalawang units.

Halimbawa: 25 cm at 13 cm

Posibleng mga sagot sagot:

Ang 25 cm ay mas mahaba kaysa 13 cm.

Ang 13 cm ay mas maikli kaysa 25 cm.

1. 30 cm at 50 cm
2. 2 m at 5 m
3. 50 m at 1 m
4. 210 cm at 120 cm
5. 100 cm at 10 cm

HOME ACTIVITY

Refer to LM 102.

Key to correction: answers will vary.

**Teaching Guide for Mathematics Grade 2
Length
Lesson 103**

TOPIC: Measuring Length

OBJECTIVE

Estimate length using meter (m) or centimeter (cm).

PREREQUISITE CONCEPTS AND SKILLS

Identifying appropriate unit of length in measuring objects

MATERIALS

1. Real objects or pictures of objects which can be measured using cm or m
2. Meter sticks and rulers

INSTRUCTIONAL PROCEDURES

A. Preparatory Activities

1. Drill

Show a pencil, a spoon and a 3-inch nail. Using these objects ask the following questions.

- d. About how many pencils long is the table?
- e. About how many spoons long is the umbrella (the teacher will provide umbrella)?
- f. About how many nails long is the Mathematics book?

2. Pre-Assessment

If the pencil is 13 cm long, the spoon is 18 cm long and the nail 7 cm long,

- a. about how many centimeters is the umbrella?
- b. about how many centimeters is the table?
- c. about how many centimeters is the Mathematics book?

B. Development Activities

1. Motivation

Group the class into four. Give each group a set of materials (ruler, meter stick and at least three objects which can be measured by cm and m) to work on.

Then, instruct to estimate in meter and centimeter (without using the ruler or the meter stick) the length of each object. Explain to the pupils that if the actual measure is one-half or more than one-half of the unit, add 1 to the approximated measure. Example, 2 and $\frac{1}{2}$ cm is 3 cm and 5 and $\frac{3}{4}$ m is 6 m.

Processing

- What are the lengths of the objects?
- Are the lengths the real lengths of the objects? (let them measure the objects using the measuring device)
- How did you estimate lengths of the objects?

2. Presentation

a. Concrete

Activity 1

- Group the class into 2. Let each group estimate the measure of the following objects using centimeter or meter.

Group 1: width of the room, length of the teacher's table and length of a pencil

Group 2: length of the room, height of the teacher's chair and length of a chalk.

- Let each group find the measures of the enumerated objects using the appropriate measuring device and units.

Processing:

- Compare your estimated lengths/widths of the objects and the real lengths/widths of the objects (when measured using the measuring device).
- Are your answers exactly the same with the lengths/widths of the objects when measured using the measuring device?
- If the measures are different, how would you describe the difference between the measures? Is it far or close to the real measure?
 - Is the closest measure the estimated measure of the object? Why?
 - What specific word can you use in approximating measurements (about)? Why?

b. Pictorial

In your paper, draw any object you can see around. Under it, label with the estimated length of the real object.

c. Abstract

Name objects with standard measures and are familiar to the learners. Let them estimate the length, height or width of each.

Below are examples of the objects.

1. Length of ballpen or unused pencil
2. Width or length of their math book
3. Height of their classroom
4. Length of the hallway in school
5. Height of the school principal

3. Reinforcing Activities

Let the pupils answer Gawain 1 in LM 103.

4. Application

Ask the class to answer Gawain 2. Refer to LM 103.

Key to correction:

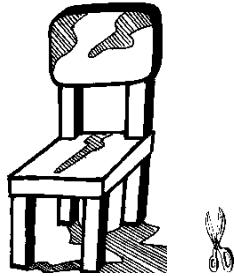
1. Pareho lang, 3 m = 300 cm
2. Statement, graph or picture will do
3. Cm or m will do
4. Answers will vary
5. Generalization

To approximate measurements, it is important to consider the actual length of 1 meter and 1 centimeter.

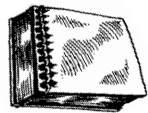
EVALUATION

Estimate/approximate the length of the following objects. Use cm or m.

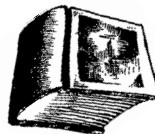
1. The pair of scissors measures 12 cm. About how high is the chair?



2. About how thick is book "b" if the width of book "a" is 18 cm?

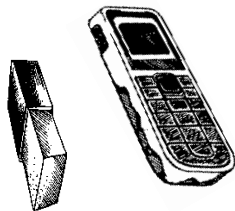


a



b

3. The eraser measures 5 cm. About how many centimeters is the cellular phone?



Key to correction

1. 50 cm
2. 36 cm
3. 10 cm

HOME ACTIVITY

Refer to LM

Teaching Guide for Mathematics Grade 2
Length
Lesson 104

TOPIC: Measuring Length

OBJECTIVE

Solve simple word problems involving length.

PREREQUISITE CONCEPTS AND SKILLS

1. Identifying appropriate unit of length in measuring objects.
2. Comparing lengths in centimeters and meters.

MATERIALS

1. Activity cards
2. Flash cards

INSTRUCTIONAL PROCEDURES

A. Preparatory Activities

1. Drill

Using flash cards, ask the pupils which one is greater.

- a. 2 m or 5 m
- b. 200 cm or 150 cm
- c. 1 and $\frac{1}{2}$ m or 2 m
- d. 50 cm or 75 cm
- e. 150 cm or 510 cm

Fill in the blanks with the correct symbol (> or <).

- a. 1 m ___ 3 m
- b. 200 cm ___ m
- c. 120 cm ___ 210m
- d. 500 cm ___ 800 cm
- e. 1 and $\frac{1}{2}$ m ___ 1 and $\frac{3}{4}$ m

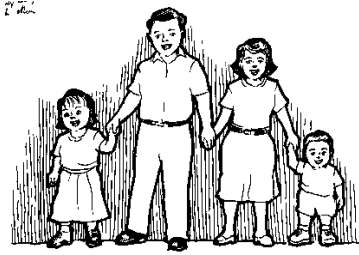
2. Pre-Assessment

Mary Shine has 50 cm red ribbon, 75 cm blue ribbon and 25 cm yellow ribbon. How many centimeters of ribbon are there in all Mary Shine has?

B. Development Activities

1. Motivation

Show a picture of a girl like this one below.



Ask the following questions.

- a. What does the picture represent? (happy family)
- b. Where do you think the family is going?
- c. Is your family like this?

Tell the pupils that they will be attending a family day. The teacher can tell a story what a family day is (the members of the family play, sing or dance together as one team). Then, give emphasis to playing. This will lead the teacher to site situations that involve games on lengths, distances, or heights using centimeter (cm) or meter (m).

2. Presentation

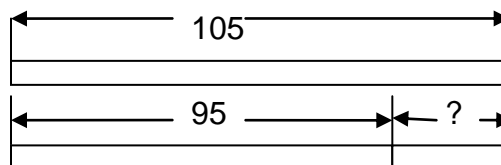
a. Concrete

Give this problem.

Rica stands 95 cm and Nanette stands 105 cm. How many cm is Nanette taller than Rica?

Guide the learners to solve the problem.

- Underline the question
- Rewrite the question into an answer statement (Nanette is _____ taller than Rica)
- Restate the problem focusing on important details that will solve the problem (What is the difference between 105 and 95?)
- Decide what process/equation will be used to find the answer
($105 - 95 = \underline{\quad}$ or $95 + \underline{\quad} = 105$ or



- Give the answer
(Nanette is 10 cm taller than Rica)

b. Pictorial

Let the pupils show the solution to the problem by drawing Rica and Nanette.

c. Abstract

Group the class into 3. Let each group solve the problem in different ways.

Group 1

A store owner finds no place for other items. He decided to extend 50 cm to the 200 cm cabinet. Find the length of the cabinet.

Group 2

The height of Anthony who is now in Grade 2 is 1 m and 4 cm. If the increase to his height is 5 cm, what was his previous height?

Group 3

A concrete flower box is 300 cm long. If every flower is to be planted 10 cm apart, how many flowers will be planted?

3. Reinforcing Activities

Let the pupils answer Gawain 1. Refer to LM 104.

4. Application

Ask the class to answer Gawain 2. Refer to LM 104.

5. Generalization

To solve problems on length,
1. Underline the question,
2. Rewrite the question into answer statement,
3. May restate the problem focusing on the important details for finding the answer,
4. Decide what process/equation shall be used in finding the answer, and
5. Solve the problem.

EVALUATION:

Basahin at sagutin ang bawat bilang.

1. Gaano kalayo ang bahay sa plaza kung ang bawat guhit ay katumbas ng 5 m?
Bahay - - tindahan - - - - paaralan - - - **plaza**
2. Ang **vegetable garden** ni Carlo ay may habang 2 m sa bawat gilid. Nais niya itong paikutan ng **barbed wire** ng 3 beses bilang bakod. Ilang metro ng **barbed wire** ang kakailanganin ni Carlo?
3. Para sa kanyang kaarawan, nilalagyan ni Christy ng **silky raffles** ang laylayan ng kaniyang damit. Kung ang bawat 50 cm ng laylayan ay mangangailangan ng 1 m na **raffles**, ilang **meters** ng **raffles** ang magagamit kung ang laylayan ay 1 at $\frac{1}{2}$ m ang haba?

Key to correction: 1. 45 m 2. 24 m 3. 3m

HOME ACTIVITY

Refer to LM 104.

Teaching Guide for Mathematics Grade 2 Mass

Lesson 105

TOPIC: Measuring mass

OBJECTIVE

Identify and use appropriate unit of mass (in gram or kilogram and their abbreviations g or kg) in measuring a particular object.

PREREQUISITE CONCEPTS AND SKILLS

Reading units in a scale (length)

MATERIALS

1. Weighing scale
2. Objects of different mass (1g, 10 g, 100 g, 1 kg)
3. *Show Me* boards

INSTRUCTIONAL PROCEDURES

A. Preparatory Activities:

1. Drill

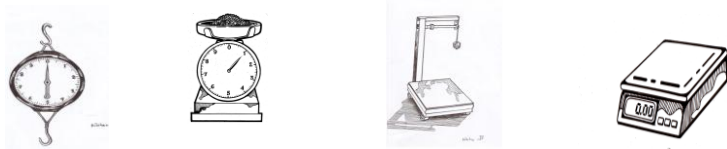
Show at least three pairs of objects (each pair with different mass). Ask which one is heavier/lighter?

- a. a small sachet of milk or a big pack of milk
- b. one piece of banana or 12 pieces of bananas
- c. plastic of cotton and plastic of rice

B. Developmental Activities:

1. Motivation:

Show to the class a real weighing scale available in the community. Below are examples of weighing scales. Pictures of the other weighing scales need to be shown by the teacher (for the pupils' familiarity).



Say: Class, this is a weighing scale. Then ask:

- Have you seen something like this?
- Where do you often see this instrument?
- What are the things measured using a weighing scale?
- When you buy rice, how is it measured? How about fish?

2. Presentation

a. Concrete

Using a weighing scale, let the pupils weigh pairs of objects. Below are examples.

- A gram of rice and a kilogram of rice
- A sachet of milk and a bag of milk (about a kilogram or more)
- Few grams and a kilogram (or more) of fruits

Give the learners enough time see the difference between 1 g and 1 kg, 10 g and 1 kg, 100 g and 1 kg. Tell them that these weights are masses of the objects.

Ask:

- What unit of mass is best to use if the object is light?
- What unit of mass is best to use if the object is heavy?
- What unit is best to use in getting the mass of a bag of rice? 6 pieces of mangoes? 1 piece of banana?

This time, teach the pupils how to read the weight of an object. Focus first on 10 g (up to about 300) and 1 kg (up to about 3). This is to establish only the idea that light masses are to be measured in grams and heavy ones in kilograms.

b. Pictorial

Ask the pupils to draw grocery items that are measured in gram and in kilogram. Group the items as to gram and kilogram.

c. Abstract

What unit is appropriate to the mass in each number?

1. 10 pieces of orange (kalamansi)
2. 5 fishes
3. Papaya fruit
4. 7 pieces of lady finger (okra)
5. Whole chicken meat

3. Reinforcing Activities

Refer to Gawain 1 of LM 105

Key to correction:

1. g 2. g 3. kg 4. K 5. kg 6. Kg

4. Application

Let the pupils answer Gawain 2. Refer to LM 105.

The teacher will provide the materials/objects. Better to prepare those with exact mass like 50 g, 100 g, 1 kg or 2 kg.

5. Generalization

In measuring mass:

- Use gram (g) in light objects
- Use kilogram (kg) in heavy objects

EVALUATION

Gumamit ng **weighing scale** sa pagtukoy ng timbang ng mga sumusunod na bagay. Ibigay ang timbang gamit ang tamang **unit of measure** (g o kg).

(ang guro ang maghahanda ng mga gamit na kakailanganin sa pagsusulit)

1. Pack of rice
2. Fruit (banana, papaya, mango)
3. Asukal
4. School bag
5. Aklat

HOME ACTIVITY

Refer to LM 105.

If not available in the locality, change the items enumerated in the LM.

Teaching Guide for Mathematics Grade 2

Mass

Lesson 106

TOPIC: Measuring Mass

OBJECTIVE

Compare mass in grams or kilograms

PREREQUISITE CONCEPTS AND SKILLS

Finding the mass of an object

MATERIALS

1. Weighing scale with gram and kilogram scales
2. Objects of different sizes and masses (like: pack of powdered milk, pack of sugar, fruits and others)
3. Show Me boards

INSTRUCTIONAL PROCEDURES

A. Preparatory Activities:

1. Drill
 - a. Show pairs (one is heavy and the other is light) of objects to the class.
 - b. Call a volunteer. Let him/her feel the weight of the two objects using his/her hands.
 - c. Ask: Which is heavier? Lighter?

2. Pre-Assessment:

Show objects/pictures of: pack of powdered milk, pack of sugar, pack of salt, fruits and other objects the teacher had prepared. Using *Show Me* boards, let them write which one is heavier.

- a. Packs of powdered milk and sugar.
- b. Packs of sugar and salt.
- c. A banana and a mango.

B. Development Activities

1. Motivation

Show to the class real bananas or any set of fruits, vegetables or root crops available in the community.

Ask:

- Do you eat fruits? Vegetables or root crops?
- Are these foods good to your health?

2. Presentation

a. Concrete

Group activity

Group the class into 2.

- Provide each group with a weighing scale and 16 stones, each weighing 250 g, (or any other objects) of similar sizes which are available in the community.
- Ask each group to fill out the table below:

Number of stones	Mass (in kg)
4 stones	
8 stones	
12 stones	
16 stones	

Processing

- What is the mass of 4 stones? 8 stones? 12 stones? 6 stones?
- Which one is heavier, 4 stones or 8 stones? 16 stones or 12 stones?
- What happens to the mass as the number of stone increases?

b. Pictorial

Let the pupils draw a representation of the table above. Pictograph, line graph or bar graph will do.

c. Abstract

Using *Show Me* boards, let the pupils tell which one is greater/heavier in each of the following pairs of masses. Can use words (greater or less) and symbols (<, >) in comparing the masses.

- 10 g or 15 g
- 50 kg or 15 g
- 26 g or 30 g
- 25 kg or 24 kg
- 75 g or 57 g

3. Reinforcement Activities

Let the pupils answer Gawain1 in LM 106.

4. Application:

Ask the class to answer Gawain 2 in LM 106.

6. Generalization

Greater mass is heavier and smaller mass is lighter.

EVALUATION

Which is heavier?

1. 2 kg or 4 kg
2. 40 g or 30 g
3. 5 kg or 7 kg
4. 100 g or 1,000 g
5. 2 kg or 1 kg

HOME ACTIVITY

Refer to LM 106.

- Key to correction:
1. Si Belinda ($4 < 5$)
 2. 9 kg ($4 + 5 = 9$ or $5 + 4 = 9$)
 3. Baboy ($5 > 4$)

Teaching Guide for Mathematics Grade 2

Mass

Lesson 107

TOPIC: Measuring Mass

OBJECTIVE

Estimate mass using gram or kilogram

PREREQUISITE CONCEPTS AND SKILLS

Measuring mass in g and kg

MATERIALS

1. Weighing scale
2. Pictures/real objects
3. Activity sheets

INSTRUCTIONAL PROCEDURES

A. Preparatory Activities:

1. Drill

Show to the class real or pictures of food items. Say: I will be showing you real/pictures of objects. If it is to be measured by g, say cute and if it is to be measured by kg, say beautiful.

Note to the teachers: Examples of the food items can be vegetables or fruits. Sizes should vary such that g and kg will be mentioned by the class as the unit to measure the mass.


2. Review

Use the objects shown in the drill portion. If pictures were shown, prepare at least three real objects. Let the learners get the mass of each object. Be sure that they get the correct mass and use the appropriate unit.

B. Developmental Activities:

1. Motivation

A picture story:

	<p>Nanay Fina went to the supermarket. She bought a can of powdered milk, a pack of sugar and a sachet of cereal. (<i>Show the real items to the pupils or the pictures or empty containers of these items</i>).</p>
--	--

Ask:

- a. See the content label of these items.
- b. How is the content of each item measured?
- c. Can you guess the mass of these items?

2. Presentation

Show the word ESTIMATE written on a card. Then ask: What does this word mean? Can you estimate the weight of a small pack of powder soap?

a. Concrete

Group activity:

- Group the class into four.
- Provide each group with an activity sheet.

Activity Sheet

Things/objects (to be determined by the teacher)	Approximate weight	Actual weight
1. Bag of corn		To be given by the teacher after all the groups have reported the results of their work.
2. School bag		
3. Book		
4. Fruits		
5. Root crops		

Processing

- Are the approximations of each group the same? Why?
- Which group has the nearest estimation?

The performance can be rated using the rubric below:

Points	Difference of approximation from the actual weight
3	1-3
2	4-6
1	7-9
0	10 and more

b. Pictorial

Let the pupils draw three objects that they know are measured in gram or kilogram. Tell them to write the estimated mass below each picture.

c. Abstract

Estimate the mass of each of the following.

1. a small pack of powdered laundry soap (about 70 g)
2. 3 pieces of crackers (about 25 g)
3. 7 pcs of regular-sized carabao mangos (about 2 kg)
4. half sack of rice (about 25 kg)
5. grade 2 pupil (about 25 kg)

3. Reinforcing Activity

Let the pupils answer Gawain 1 of LM 107.

Key to Correction: 1. kg 2. g 3. kg 4. kg 5. kg

4. Application

Answer Gawain 2. Refer to LM 107.

Key to correction:

1. Php 160

2. Opo, kasi 50 g lang ang sobra at ito ay napakaliit na sobra
 3. 1 at $\frac{1}{2}$ kg, ang 3 ay kalahati ng 6
5. Generalization.

Familiarity of the weight of 100 g and 1 kg will make one good to estimate.

EVALUATION:

Estimate the weight of each of the following. (Show the actual objects. The teacher may provide a different set of materials)

1. A box of bath soap
2. A bag of rice
3. About three pieces of mangoes
4. A canned sardines
5. A pack of powdered juice

HOME ACTIVITY

Refer to LM 107.

Teaching Guide for Mathematics Grade 2
Mass
Lesson 108

TOPIC: Measuring mass

OBJECTIVE

Solve simple problems involving mass

PREREQUISITE CONCEPTS AND SKILLS

1. Compare mass in grams or kilograms
2. Measure mass in grams or kilograms

MATERIALS

1. Different products with mass labels
2. Show Me board
3. Activity sheets

INSTRUCTIONAL PROCEDURES

A. Preparatory Activities:

1. Drill

Show at least three things (examples: packs of rice, powdered milk and salt) to the class. The packs of milk and salt are in small sizes.

Ask the following:

- a. How are these things sold? (by g or kg)
- b. What unit of measure do we use in measuring the mass of light objects (salt and milk)? How about heavy objects (rice)?
- c. Which between the pack of rice and the pack of powdered milk is heavier? How about between the packs of milk and salt?
- d. About how many kilograms is the pack of rice?

2. Pre-Assessment:

A store owner has 80 kg of rice. Today, she was able to sell 35 kg of it. How many kilograms of rice are left unsold?

B. Developmental Activities:

1. Motivation:

Show a picture like this.



Ask the following:

- a. What is the vendor selling?
- b. How are fishes sold, in grams or in kilograms?
- c. What do you think the boy is doing?

2. Presentation

a. Concrete

Present this problem.

Aling Nora sold 3 kg of bananas, 2 kg of oranges and 2 and $\frac{1}{2}$ kg of mangoes. How many kilograms of fruits in all did she sell?

Processing:

1. What did Aling Nora sell?
2. Underline the question.
3. Rewrite the question into an answer statement.
(Aling Nora sold _____ in all)

3. A baker needs 5,000 g of flour. If what he has is 2,500 kg only, how much more does he need to complete the amount of flour he needs?

Key to correction; 1. 4 kg 2. 1,000 g 3. 2,500 g

HOME ACTIVITY

Refer to LM 108.

Key to correction: 1. $1\frac{1}{4}$ kg 2. $\frac{1}{4}$ kg 3. Answers will vary

Teaching Guide for Mathematics Grade 2

Area

Lesson 109

TOPIC: Area Concept

OBJECTIVE

Illustrate area as a measure of how much surface is covered or occupied by plane figure.

PREREQUISITE CONCEPTS AND SKILLS

Visualize triangles, squares and rectangles.

MATERIALS

1. Pictures (Parts of a house covered with square tiles like living room or comfort room).
2. Square tile or a square cardboard
2. Graphing paper.
3. Match sticks or ice cream sticks.

INSTRUCTIONAL PROCEDURES

A. Preparatory Activities:

1. Drill

Using the match sticks or ice cream sticks, form the following figures.

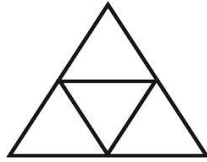
- a. It has 3 sides and 3 corners.
- b. It has 4 equal sides.
- c. It has 2 pairs of equal sides and 4 corners.

Ask:

- a. What shape has 3 sides and 3 corners?
- b. What shape has 4 equal sides?
- c. What shape has 2 pairs of equal sides and 4 corners?

2. Pre-Assessment:

Show this figure.



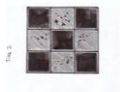
Questions:

- How many sides does the figure have?
- What is the shape of the figure?
- How many triangles can you see in the figure?

B. Development Activities

1. Motivation:

Show a picture of a square tile like this one below.



Ask:

- Do you know what in this picture are? (tiles)
- Have you seen tiles like these?
- Where do we always see tiles? (offices, house)
- What is the shape of each tile in this picture? (square)

2. Presentation

a. Concrete

Show a real square tile. If no real square tile, a square cardboard can be used.

- Ask the shape of the tile/cardboard.
- Explain to them that its shape is square. The teacher may connect this situation to what they have formed in the drill part. It should be clear to them that a square has 2 pairs of equal sides and has 4 equal corners.
- Lay 2 rectangular flat objects (cardboard or cartolina), one is bigger than the other. Be sure that the surface of each object will exactly fit a certain number of the square tiles/cardboards.
- Call a pupil to lay flat the square unit (cardboard tiles) on top of the flat objects.

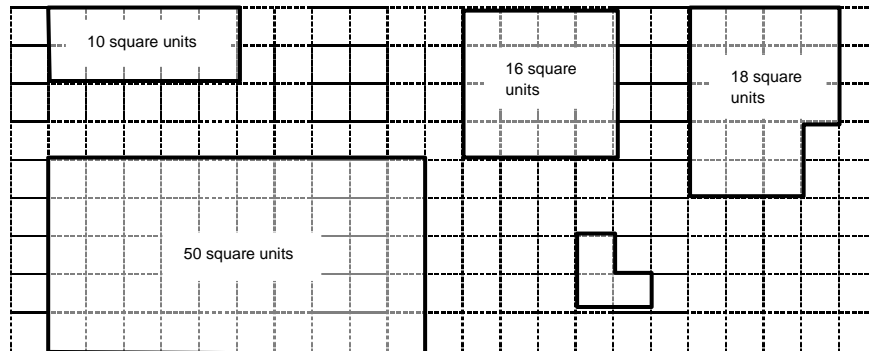
Ask:

- Which object takes more square tiles/cardboards to cover its surface? Why?
- How many square tiles are there in the smaller rectangle? In the other rectangle?
- Tell them that the number of squares used to cover the surface is the area of the object.

b. Pictorial

Activity:

Group the pupils into 4. Give each group an activity sheet related to this one below. The small squares are found outside the figures only and not inside.

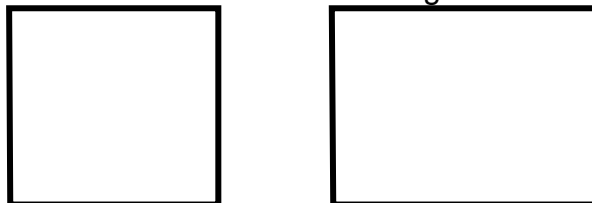


Let the pupils illustrate the area of the given figure by drawing the number of squares.

- A rectangle with an area of 10 square units.
- A square with an area of 16 square units.
- A plane figure with an area of 3 square units.
- A plane figure with an area of 18 square units.
- A rectangle with an area of 50 square units.

c. Abstract

Illustrate the area of each figure below.



3. Reinforcing Activities:

Let the pupils answer Gawain 1 at 2 in LM 109.

4. Application:

Ask the class to answer Gawain 3 in LM 109.

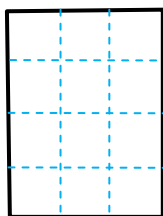
4. Generalization.

Area is the measure of the region inside a plane figure. It is measured in square units.

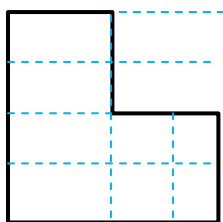
EVALUATION

Draw square units to illustrate the area of a given figure.

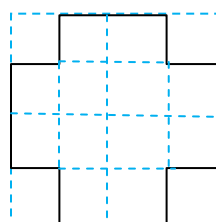
a.



b.



c.



HOME ACTIVITY

Refer to the LM 109.

Teaching Guide for Mathematics Grade 2 Area Lesson 110

TOPIC: Area Concept

OBJECTIVE

Show the area of a given figure using square tile units. (i.e. number of square tiles needed).

PREREQUISITE CONCEPTS AND SKILLS

Illustrate the area of a plane figure.

MATERIALS

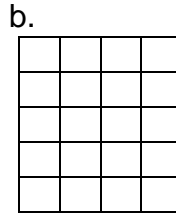
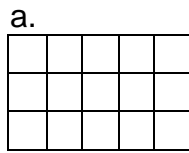
1. Square tiles or square cardboards
2. Graphing paper
3. Straight edge
4. Activity sheets

INSTRUCTIONAL PROCEDURES

A. Preparatory Activities:

1. Drill

How many squares are there in each figure?



2. Pre-Assessment:

Board work activity:

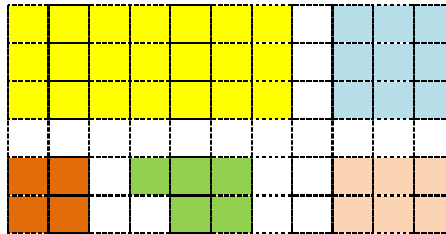
Using cut-out cardboards, let the pupils draw the figures described below. Ask three pupils at a time.

- A square with 4 square units.
- A square with 9 square units.
- A rectangle with 8 square units.
- A rectangle with 3 squares wide and 5 squares long.
- A rectangle with 4 squares wide and 5 squares long.

B. Development Activities

1. Motivation

Show a big grid with different shapes drawn on it.



Questions:

- What are the shapes you can see on the grid?
- Can you easily identify the number of small squares in every figure without counting? Why?

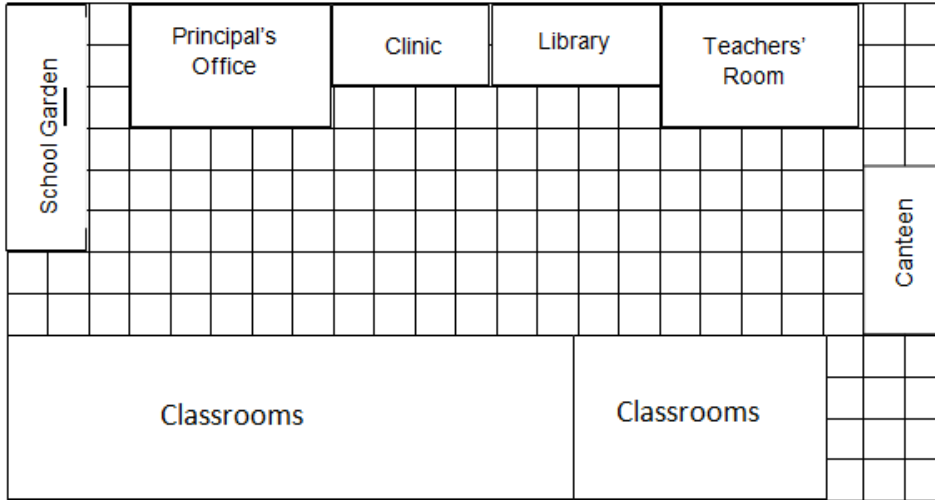
2. Presentation

Concrete/Pictorial

Group the class into 4.

- Give an activity sheet like the one below to each group.

Tell them that this is the floor plan of a school.



2. Instruct the pupils to do the following
 - Draw square units to each area.
 - Write the number of units inside each area.
 - Count the number of squares each area occupied.

Processing

- What are the shapes of the rooms in the floor plan?
- What is the area of each room?
- Which part of the school has the biggest area? How many squares does it occupy?
- Which areas are the same? How many squares does each area occupy?
- Which place in the school has the smallest area? How many squares does it occupy?
- Which has the bigger area, the canteen or the clinic? How many squares does it occupy?

3. Reinforcing Activities

Let the pupils answer Gawain 1 in LM 110.

4. Application

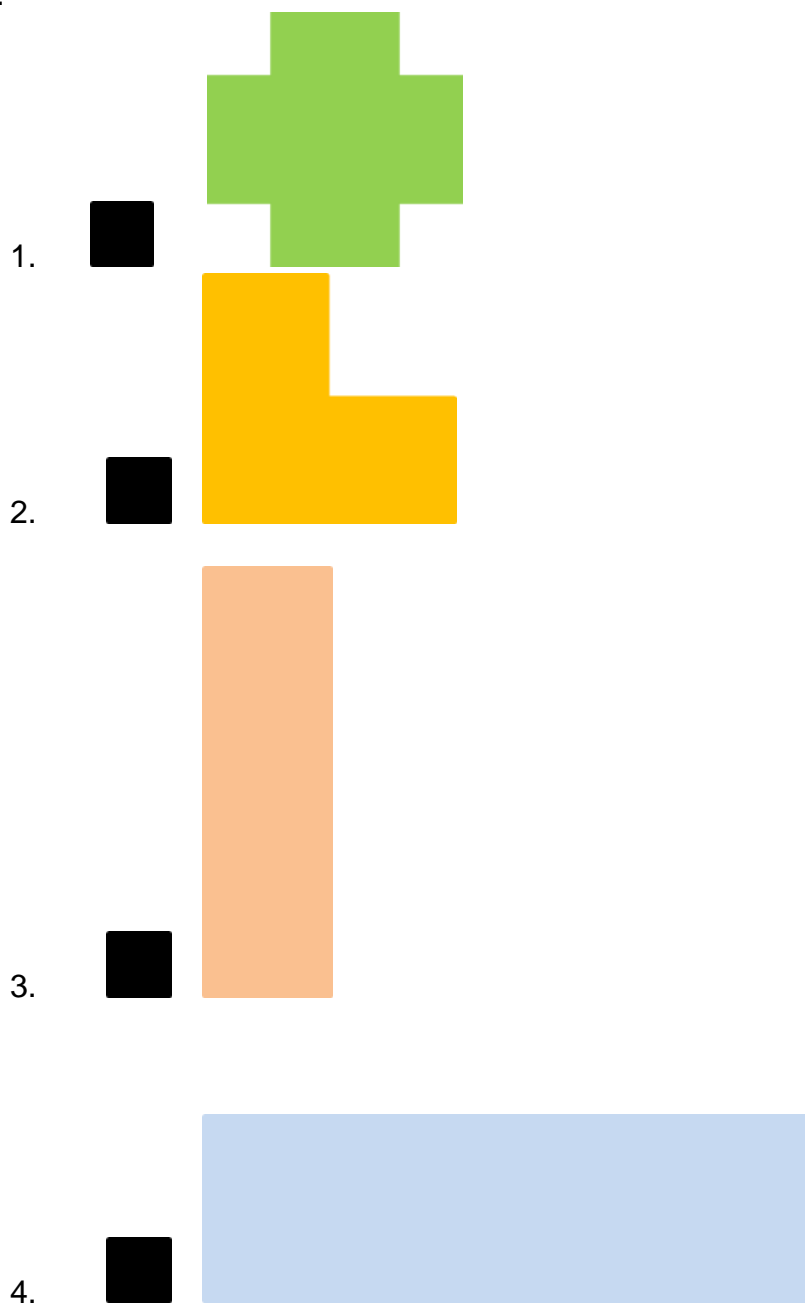
Ask the class to answer Activity 2 in LM 110.

5. Generalization

The area of a given figure can be shown by drawing squares in it.

EVALUATION

Alamin ang area ng bawat hugis gamit ang sukat ng maliit na square na kulay itim.



HOME ACTIVITY

Refer to LM 110.

Teaching Guide for Mathematics Grade 2
Area
Lesson 111

TOPIC: Area Concept

OBJECTIVE

Find the area of a square and a rectangle using square tile units.

PREREQUISITE CONCEPTS AND SKILLS

1. Show the area of a given figure using square tile units.
2. Multiplying one-digit numbers

MATERIALS

1. Square tiles (Cut-out Cardboards)
2. Cartolina with small squares drawn

INSTRUCTIONAL PROCEDURES

A. Preparatory Activities:

1. Drill

a. Show flashcards. Give the answers orally.

$2 \times 2 =$

$5 \times 5 =$

$4 \times 10 =$

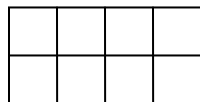
b. Give the products of;

- 3 and 3
- 4 and 4
- 7 and 10
- 8 and 10
- 10 and 9

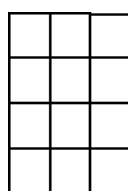
2. Pre-assessment:

Give the number of square units for each figure. Try to recite the number sentence for each answer.

a.



b.



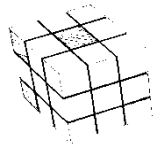
c.



B. Development Activities

1. Motivation

Show this cube or a picture of this.



Questions:

- Are you familiar with this? (it's a rubik's cube)
- Do you play this?
- How many sides does it have?
- What shape is each side?

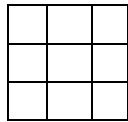
Say: Today, we will find the area of a square and a rectangle using square tile units.

2. Presentation

a. Concrete

1. Give this situation;

One face of the rubik's cube looks this figure below.

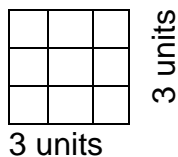


Processing

- How many square tiles are there in the figure?
- How many small squares are there in each column? (3)
- How many squares are there in each row? (3)

2. Show these examples.

Examples 1



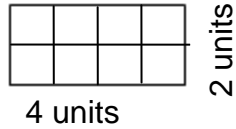
- What do you call the line that enclosed the figure? (sides)
- What will you do with the sides to get the area which is 9? (multiply)

Area = side x side

$$= 3 \times 3$$

$$= 9 \text{ square units}$$

Example 2



$$\text{Area} = 4 \times 2$$

$$= 8 \text{ square units}$$

b. Pictorial

Let the pupils draw a rectangle.

1. Label its length as 6 units and its width 3 units.
2. Show how the area is solved.
3. Give answer.

c. Abstract

The side of a square is 7 units. Find the area of the square.

3. Reinforcing Activities

Let the pupils answer Gawain 1 and 2 in LM 111.

4. Application

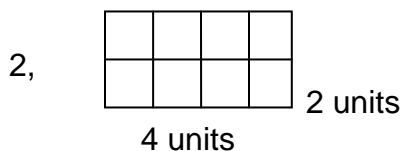
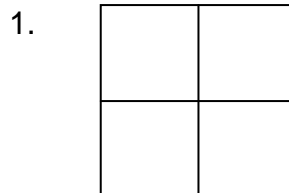
Let the pupils answer Gawain 3. Refer to LM 111.

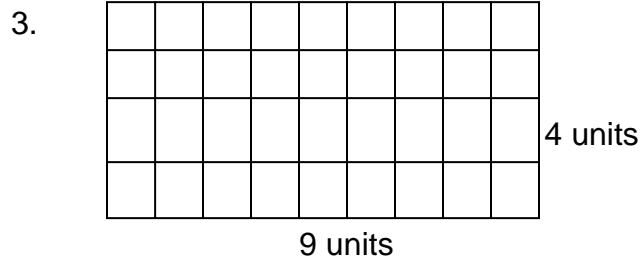
5. Generalization

The area of a:
 Square = side \times side
 Rectangle = side \times side or length \times width

EVALUATION

Find the area of each figure.





HOME ACTIVITY:

Refer to LM 111.

Key to correction:

Activity 1

1. 16 square units
2. 9 square units
3. 20 square units

Activity 2

1. Silid tulugan-30 sq units, kusina-18 sq units, silid kainan-28 sq units, palikuran-12 sq units, sala-42 sq units, silid tulugan- 30 sq units, garahe-21 sq units
2. Palikuran, 12 sq units
3. 3 sq units

Activity 3

1. 2 square units
2. Parisukat, 4 square units
3. 8 square units
4. Answers will vary

Evaluation

1. 4 sq units
2. 8 sq units
3. 36 sq units

Home Activity

1. 25 sq units
2. 90 sq units
3. 40 sq units
4. 2 sq units
5. 80 sq units

Teaching Guide for Mathematics Grade 2
Area
Lesson 112

TOPIC: Area of a Plane Figure

OBJECTIV

Estimate the area of a given figure using any shape.

PREREQUISITE CONCEPTS AND SKILLS

Show the area of a given figure using square tiles.

MATERIALS

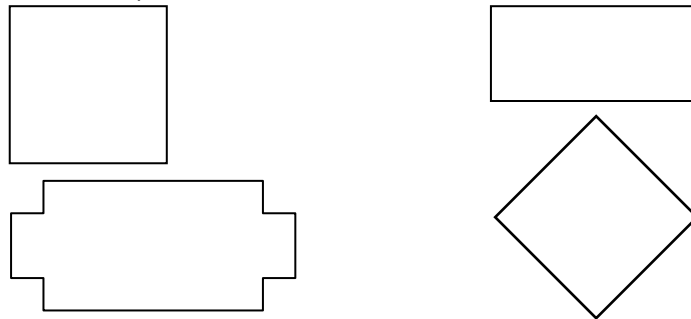
3. Square cardboards cut-outs
4. Square, rectangle, L-shaped and T-shaped big boards

INSTRUCTIONAL PROCEDURES

A. Preparatory Activities

1. Drill

Using the cardboard cut-outs let the pupils show the area of the following figures. (This figures need to be drawn by the teacher on the board. Be sure that the figures will fit with the desired area.)



2. Pre-Assessment

Group the class into 4.

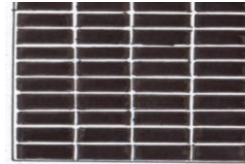
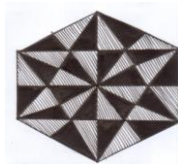
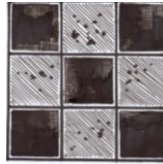
- a. Prepare four learning stations.
- b. Each station has one board and a small square cardboard cut-out as square tile.
 - Station 1 - square board
 - Station 2 - rectangular board
 - Station 3 - L-shaped board
 - Station 4 - T-shaped board

- c. Using the square cut-out cardboard let them find the area of each board.
- d. Give each group the time to present the answers in front of the class.

B. Development Activities

1. Motivation

Show pictures of different tile design like these ones below:



Ask the following questions.

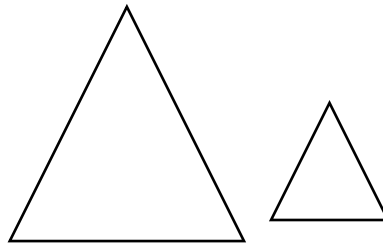
- d. What are the shapes of the tiles?
- e. How many squares does the first figure contain?
- f. How many triangles does the second figure contain?
- g. How many rectangles does the third figure contain?

2. Presentation

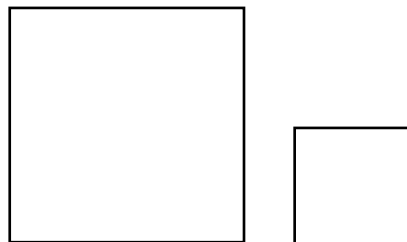
a. Concrete Activity

- Group the class into 3. Using the small objects, let each group estimate (using cardboard cut-outs) the measure of the big objects. (The teacher is not limited to the objects enumerated)

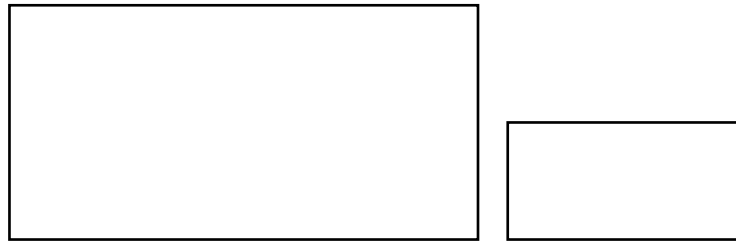
Group 1:



Group 2:



Group 3:



Processing:

Give each group time to report on the following questions.

- How did you estimate the measure of the big objects using the size of the small objects?
- How many small objects do the big objects have?
- Can the small square be used in estimating the measure of the big rectangle? Why?

b. Pictorial

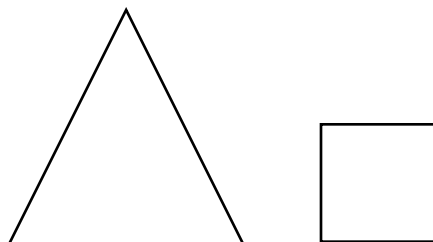
Activity

- Group the class into 2.
- Let each group draw the big figures. Then, inside it, draw the number of small figures. Determine if how many small figure will the big figure contain. (The teacher is not limited to the objects enumerated)

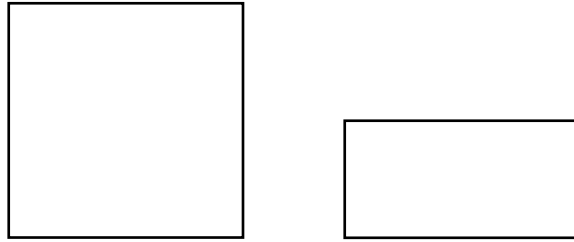
Group 1



Group 2



Group 3



Processing:

Give each group time to report on the following questions.

For group 1 only: Can the small triangle be used in estimating the measure of a big rectangle? How?

For group 2 only: Can the small square be used in estimating the measure of the big triangle? How?

For group 3 only: Can the small rectangle be used in estimating the measure of the big square? How?

For the 3 groups:

- How did you estimate the measure of the big object using the size of the small object?
- How many small objects are there in big object?

c. Abstract

Look at the figures below.



About how triangles will there be in the rectangle?

3. Reinforcing Activities:

Let the pupils answer Gawain 1 in LM 112.

Key to correction: 1. 8 2. 12 3. 6

4. Application:

Ask the class to answer Gawain 2 in LM 112.

Key to correction:

1. 50 square units
2. Mga 3 square units
3. Mga 15 square units

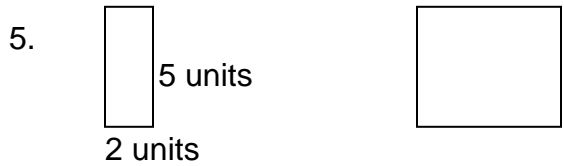
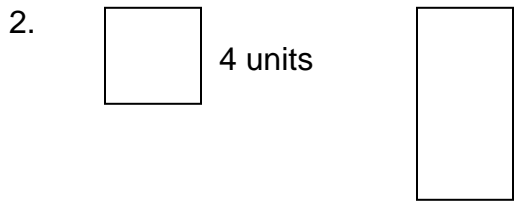
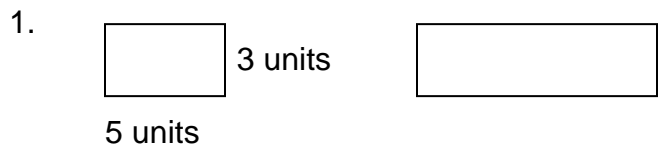
4. Mga 25 square units (if the pupils can't give the exact value, the estimated area can be 20 or more square units)

5. Generalization.

Estimating the measure of a given figure using different shapes can be done by visualizing the given shape and fitting it on the given figure.

EVALUATION:

Given the small figure, estimate the area of the bigger figure.



HOME ACTIVITY

Refer to LM 112.

**Teaching Guide for Mathematics Grade 2
Capacity
Lesson 113**

TOPIC: Measuring capacity

OBJECTIVE

Identify appropriate unit of measure in finding the capacity

PREREQUISITE CONCEPTS AND SKILLS

Measure capacity using non-standard units

MATERIALS

1. Bottles of soft drinks or medicines, cups, glasses and pitcher
2. Different items with different sizes with *ml* or *l* label content
3. *Show Me Boards*

INSTRUCTIONAL PROCEDURES

A. Preparatory Activities:

1. Drill

Show the different measuring device. Ask:

- c. Can you remember how you use these things when you were in Grade 1?
- d. How many glasses of water are there in a pitcher?
- e. Can you still remember the number of bottles of mineral water in a bottle of family-sized soft drink?

The illustration below can be used to help the pupils remember the non-standard units used in measuring liquids.



2. Pre-Assessment

Show the following objects to the class. Let the pupils stand if the content is in liquid form and clap twice if not.

- a. A canned sardines
- b. A bottle of juice
- c. A bottle of vinegar
- d. A pack of powdered milk
- e. A bottle of mineral water

B. Developmental Activities:

1. Motivation:

Show a picture like the one shown below.



Ask:

- a. What is the boy doing? (drinking water)
- b. Discuss the importance of water in our body.
 - For drinking (drink 8 to 10 glasses of water every day)
 - For taking a bath
 - For washing dishes and clothes

2. Presentation

a. Concrete

1. Show different kinds of bottles commonly used in the locality like: 1 liter soft drink, 1.5 liter bottle of juice, 2 bottles of mineral water (big and small) and a bottle of vinegar.
2. Look at the capacity of each bottle on its label and show it to the class.
3. Write the words milliliter and liter on the board for the pupils to see. Then discuss the following:
 - The capacity of a small container is in milliliter while that of the big one is in liter.
 - The abbreviation of milliliter is *ml* and that of liter is *l*.
4. Show to the class these bottles of water.



1 liter



100 milliliter

- Using the 100 ml bottle of water, let them fill the big bottle with water.

- Allow them to see the difference between 1 liter and 100 milliliter.
- Help them realize that 10 ml water is a small amount compared to 1 liter. There is no need to introduce first the equivalence of 1000 ml = 1 l. The purpose is learn that small amount of liquid is to be measured in milliliter and big amount in liter.

b. Pictorial

Ask the pupils to name liquid ingredients that are used in cooking. Examples are water, vinegar, oil and soy sauce.

Let them draw containers and name the ingredient inside of each. Then, write the appropriate unit to be used in measuring the capacity.

Examples:



a glass of milk is - in milliliter



a pitcher of water is - in liter

c. Abstract

Group activity

Divide the class into three's. Using their Show Me Boards, let each group write if the capacity inside the container will be measured by liter or milliliter.

1. Water inside a tank
2. Juice inside a small can
3. Milk in a glass
4. Water in a gallon
5. Vinegar in a sachet

Ask the pupils to present their answers in front of the class.

3. Reinforcing Activities

Let the pupils answer Gawain 1. Refer to LM 113.

Key to correction

1. Liter 2. Milliliter 3. Milliliter 4. Liter 5. Milliliter

4. Application:

Let the pupils answer Gawain 2 in LM 113.

Key to correction: 1. Milliliter

5. Generalization.

The capacity of liquid is measured in liter when in big amount and in mililiter when in small amount.

EVALUATION:

Anong *unit of capacity* ang gagamitin sa mga sumusunod na aytem? Isulat ang liter o mililiter at ang *abbreviation* nito.

1. Tubig sa loob ng tangke
2. Gatas sa tasa
3. Tubig sa pitsel
4. Suka sa bote
5. Juice sa baso

Key to correction: 1. liter 2. mililiter 3. Liter
 4. mililiter 5. mililiter

HOME ACTIVITY

Refer to LM 113.

**Teaching Guide for Mathematics Grade 2
(Statistics and Probability)
Lesson No. 114**

TOPIC: Collect and Organize Data

OBJECTIVE

Collect and organize data using tables and pictures.

PREREQUISITE CONCEPTS AND SKILLS

1. Organize data using charts and graphs.
2. Collect and organizes data using tallies and tables.

MATERIALS

1. Non-transparent bag
2. 20 crayons in red, blue, green and yellow (assorted number of each color)
3. Graphing paper

INSTRUCTIONAL PROCEDURE

A. Preparatory Activities

1. Pre-assessment

Show to the pupils an empty non-transparent bag. (or use a covered jar) Put all the 20 crayons in the bag. Explain to the pupils that they are going to use the crayons to make a graph that shows how many are there in each color. Ask the pupils to create a graph of the colors of the crayons. (similar to the one below using their graphing paper) At random, ask pupil/s

data gathered in the worksheet (refer to sample worksheet: on the board or individually in a sheet of paper.)

Sample worksheet

Category	Leaves	
	Tally	No. of Pupils
Small		
Big		
TOTAL		
Category	Stones	
	Tally	No. of Pupils
Round		
Flat		
TOTAL		

How many pupils brought (categories) stones/leaves?

What is the least common category?

What is the most common category?

What is the total number of pupils?

Practice:

Joe and Rhona are in the same class of 35 students. They had a survey to help them select foods for their class party. The result of the survey is shown in Table 1:

Table 1

Party Food Survey		
Choices	Tally	Votes
Burger	IIII	- 4
Spaghetti	III III III	- 13
Hot Dog	II IIII	- 9
Chicken Salad	III	- 3
Pancit	III I	- 6
TOTAL		

Processing:

What are the food choices of the class?

Which among the foods got the highest votes?

Which among the foods got the lowest votes?

What is the total number of votes?

Based on the result, what are the two foods preferred by the class to have in the party?

Practice: See LM 114 – Gawain 1

Answers will vary.

How many pupils ride a school bus?

How many pupils walk to school?

How many pupils ride a car from home?
 How many pupils ride on their bike?
 What means of transportation do most pupils used?
 (Change the means transportation if necessary. Data will vary depending on information gathered.)

Practice

After filling the “How students get to school?” tally chart, prepare a graph using the same data.

3. Reinforcing Activities Refer to LM 114–Gawain 2

Read the story

How many SPED pupils chose a (flavour) ice cream cone?
 Which flavour wasn't selected?
 How many flavours were chosen only once?
 Which flavour was selected the most?
 Which flavours were selected the same number of times?
 How many pupils chose Rocky Road?
 Assist the pupils to fill up the table.

My Favourite Ice Cream

5					
4					
3					
2					
1					
0					
	Triple	Cookies	Rocky	Double	Ube
	Chocolate	n' Cream	Road	Dutch	Macapuno

Ice Cream Flavours

4. Application

Refer to LM 114 – Gawain 3

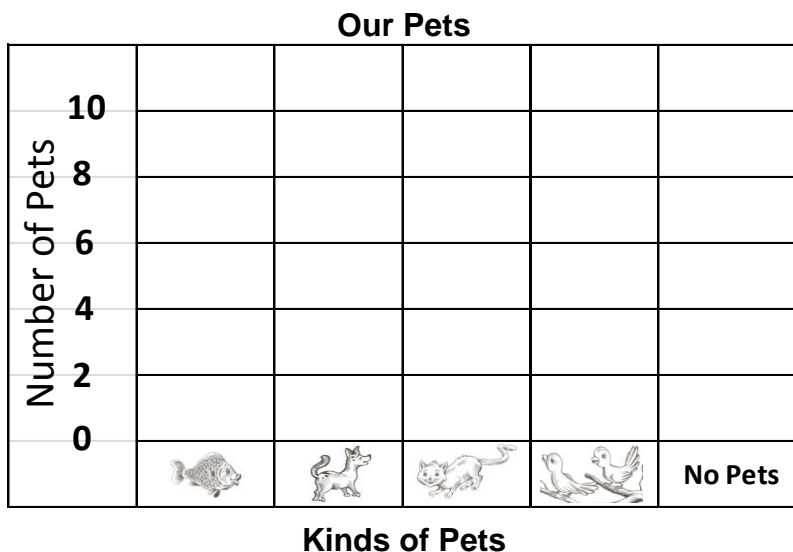
Our Pets

Number of Pets

☞ ☞	☞ ☞ ☞	☞	☞ ☞ ☞	☞ ☞
Fish	Dogs	Cats	Birds	No Pets

Kinds of Pets

Use the above information to fill in the graph below.



Make a tally chart that shows the number of pupils who have pets and who do not have pets.

5. Generalization

- Data are information that are collected about people or things
- Tally Chart is a chart that uses tally marks to show data.

EVALUATION

The students of Holy Infant Academy are voting for the booth they want to have at the Academy Day. They wanted to know the booth preferred by the students. The results of the voting survey are as follows:

No. of Students	200	59	70	30	45
Booth	Movie	Dedication	Food	Jail	Marriage

Make a picture graph using the above data.

HOME ACTIVITY

Refer to LM 114 – Gawain Bahay
Key: Answers will vary.

**Teaching Guide for Mathematics Grade 2
(Statistics and Probability)
Lesson 115**

TOPIC: Read and Make Pictograph

OBJECTIVES

1. Read and interpret data in a given pictograph.
2. Form scale representation of objects from the data collected.
3. Make pictographs using scale representation.

PREREQUISITE CONCEPTS AND SKILLS

1. Collect and organize data using tables and pictures
2. Counting
3. Addition
4. Multiplication

MATERIALS

1. Calendar where Philippine holidays are written
2. Sample Pictographs
- 3.

INSTRUCTIONAL PROCEDURE

A. Preparatory Activities

1. Pre-assessment

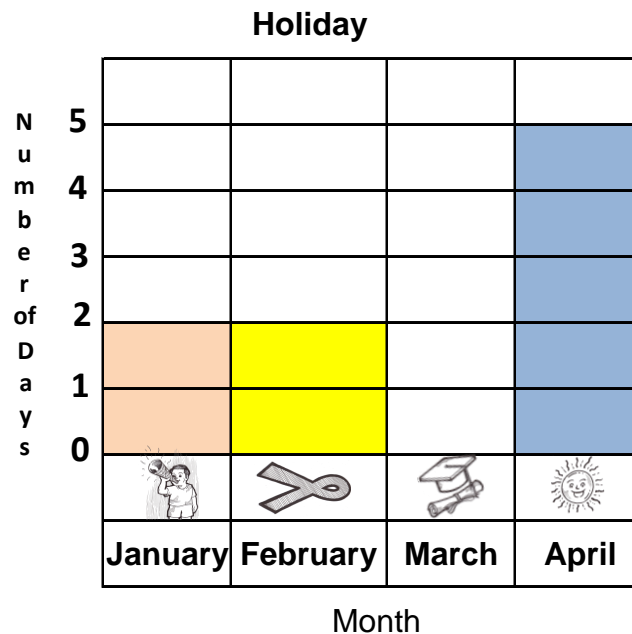
Show a calendar where all regular holidays in every month are listed. Select the first 4 months of the calendar and count the number of holidays. (Number of holidays may vary every year) Make a tally chart and picture graph that will use the information in the selected months. Assist the pupils who hardly or find difficulty to make a tally chart and picture graph similar to the one below:

Tally Chart:

Holiday				
No. of Days				
Month	January	February	March	April

(Help the pupils to think of a symbol that would represent each month that has connection to the holidays)

Picture Graph:



Vocabulary Development:

Pictograph is a graph that uses pictures or symbols to show or represent data.

Label is a short description given for the purpose of identification.

Key or legend is a word or phrase or number written on or next to a picture, map, etc. that explains what it is about or what the symbols on it mean or equal to.

B. Developmental Activities

1. Motivation

What tree is abundant in your place? (Coconut, Mango, etc.)

Have you seen a coconut tree (most common)?

What can we get from a coconut tree?

2. Presentation

Today we will make a pictograph. What is a pictograph? A pictograph is a graph that uses pictures or symbols to show or represent data. All pictographs have labels and Key or legend. A label is a short description given for the purpose of identification. A key or legend is a word or phrase or number written on or next to a picture, map, etc. that explains what it is about or what the symbols on it mean or equal to.

Conduct a survey to the class who have old or new bags, shoes, hats and umbrellas, etc. (anything that the pupils usually bring to school) Group the pupils according to the classification s/he sets. Write on the board or use

large chart paper, or an overhead projector to record the information in a tally chart format. Let the pupils draw the categories if possible. From the collected data, let them create their own data representations or even their own pictograph. S/he should see to it (observe/guide) that the pupils include the necessary parts of the graph/table.

Practice:


Posing Problem:

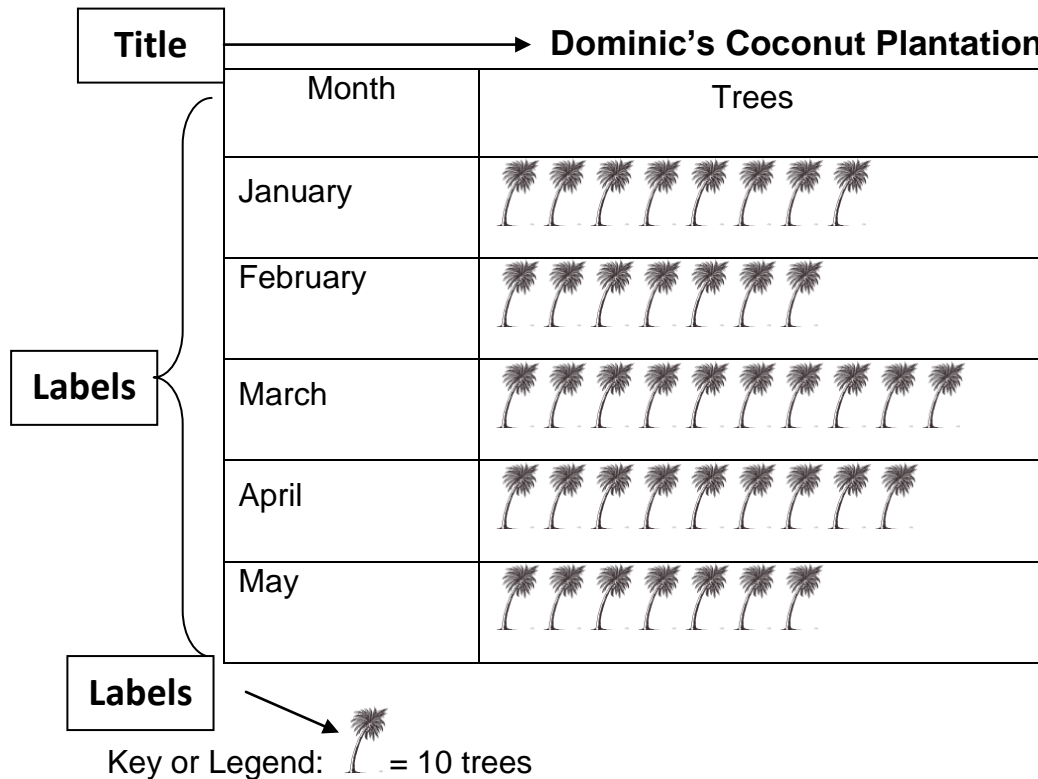
Don Dominic has a big lot. He wanted to have a coconut plantation so he started planting coconut trees on it. Initially, he planted for 5 Months. The graph below shows the total number of coconut tree planted each day:

Month	Number of Trees
January	80
February	70
March	100
April	90
May	70

What we need to do first? (Answers may vary)


What symbol can we use? (Let them decide on the symbol and how many it will represent. A tree would be a logical symbol. Discuss different number representation but explain to them that 10 is the best choice, considering the given trees for the month of March.) On the board, have the pupils list the months. Ask the pupils month by month how many tree symbols they need to draw. (8, 7, 10, 9, 7) What other things they need besides a symbol? (Title, labels, and legend or key.) What title could we use? (Answer may vary. Dominic's Coconut Plantation) What labels could

we use? (Months) The legend or key should be  = 10. Why is it so important? (You cannot read the graph without a key or legend)



Processing:

What is the title of the Pictograph? Who has a big lot? What are the labels in the pictograph? What is the symbol used in the pictograph? What did he want to plant on it? How many months did he plant? Let the pupils read the months. What is the key or legend of the pictograph?



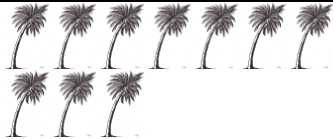


What is the equivalent of one ? (How many coconut tree a picture represents?)

What month did he plant the most number of coconut trees?
 (If 1 coconut tree (picture) is equivalent to ten coconut trees then how many coconut trees did he plant on January or let the pupils figure out how many coconut trees were planted on January: multiply 8 times 10 or $10+10+10+10+10+10+10+10$).

What month did he plant the least number of coconut trees?
 (If 1 coconut tree (picture) is equivalent to ten coconut trees then how many coconut trees did he plant on February and May? Help the pupils figure it out)

What is the total number of of coconut trees did he plant?

Solution:


Day	Tally	
Monday		$8 \times 10 = 80$ $(10+10+10+10+10+10+10+10)$
Tuesday		$7 \times 10 = 70$ $(10+10+10+10+10+10+10)$
Wednesday		$10 \times 10 = 100$ $(10+10+10+10+10+10+10+10+10+10)$
Thursday		$9 \times 10 = 90$ $(10+10+10+10+10+10+10+10+10)$
Friday		$7 \times 10 = 70$ $(10+10+10+10+10+10+10)$

Then: Find the sum of $80 + 70 + 100 + 90 + 70 = 410$ coconut trees

(Integration: Discuss the importance of planting trees.)

3. Reinforcing Activities

Refer to LM 115 – Gawain 1


Legend:  = 10 Boy Scouts

What is the title of the pictograph?

What are the labels of the pictograph?

What is the symbol used in the pictograph? (What is the legend of the pictograph?)

How many days did they clean?

What is the equivalent of one ? (How many boy scouts a picture represents?)

What day did the boy scouts participate the most?

What day did the boy scouts participate the least?

What is the purpose of the barangay clean up?

What is the total number of boy scouts who participated in the clean up?

Write the number equivalent of boy scouts in opposite each day.

(Valuing: Discuss the importance of helping the community/one another)


Make the scale representation of the pictograph "Boy Scouts Barangay Clean Up."

Key:

Araw	Bilang
Linggo	50
Lunes	60
Martes	30
Miyerkoles	40
Huwebes	50
Biyernes	20
Sabado	70

4. Application

Refer to LM 115 Gawain 2.

Legend:  = 3 Awards

1. What is the title of the Pictograph?
2. What are the labels of the pictograph?
3. What is the symbol used in the pictograph?
4. How many pupils received paper stars?
5. How many awards a star represent?
6. Who received the most number of awards?
7. Who received the least number of awards?
8. How many awards did each pupils received?
9. What is the total number of awards for the month?
10. Who could be the smartest among the 5 pupils?

5. Generalization

What is a pictograph?

It is a representation of data using pictures.

What is a key or legend?

It is a short description of a picture or illustration.

How can we interpret a pictograph?

We can interpret a pictograph by using legend.

EVALUATION

Use the information from the tally chart to fill in the pictograph. Draw one (1) 😊 for every two children. Answer the questions below.

Tally Chart:

Classmates' Favorite Snacks				
No. of Classmates				
Snack	Sandwich	Spaghetti	Pizza	Bread
Classmates' Favorite Snacks				
No. of Classmates				
Snack	Sandwich	Spaghetti	Pizza	Bread

Pictograph:

Key: Each 😊 stands for 2 classmates.

1. What is the most favorite snack of the pupils?
2. What is the least favorite snack?
3. How many pupils like sandwich? Spaghetti? Pizza? Bread?
4. How many pupils like spaghetti and bread?
5. What is the total number of pupils?

HOME ACTIVITY

See LM 115 – Gawaing Bahay

Teaching Guide for Mathematics Grade 2 (Statistics and Probability) Lesson No. 116

TOPIC: Make a Guess

OBJECTIVE

Make a guess on whether an event is less likely, more likely, equally likely or unlikely to happen based on facts.

PREREQUISITE CONCEPTS AND SKILLS

1. Predict and record outcome of experiments and chance games.

MATERIALS

1. Paper bags
2. Colored popsicle sticks
3. Impvise spinner
4. Party/Magicians hat
5. Colored candies or small toys
6. Basket of fruits

INSTRUCTIONAL PROCEDURE

A. Preparatory Activities

1. Pre-assessment

Show an empty paper bag to the pupils. Put inside the bag seven colored popsicle sticks (4 red, 2 green, and 1 yellow) (may vary). Don't mention the colors. Say: Your goal is to draw a conclusion about the number and color of each popsicle sticks that is inside the bag. Present the worksheet and model the experiment to the class. Discuss the information regarding "What we Know" about the paper bag and record the idea. Example: I know that there are seven popsicle sticks in the bag. (Later after several trials without putting the popsicle sticks back in the bag, discuss the "My prediction is . . .) Their colors are red, green and yellow.

What We Know . . .

My prediction is that we have . . .

_____ RED, _____ GREEN and _____ YELLOW popsicle sticks.

RESULTS of the EXPERIMENT			
	RED	GREEN	YELLOW
Trial # 1			
Trial # 2			
Trial # 3			
Trial # 4			
I Guess the next is . . .			
Trial # 5			
I Guess the next is . . .			
Trial # 6			
I'm sure the next is . . .			
Trial # 7			

We have are _____ RED, _____ GREEN and _____ YELLOW popsicle sticks.

What makes you so sure/certain that the last popsicle stick is _____ in color?

Vocabulary Development:

Likelihood – are the four events such as: Less Likely, Equally Likely, More Likely and Unlikely that an event will happen/occur.

Less Likely – an event is less likely if it does have a smaller chance of happening.

Equally likely – an event is equally likely if it does have an equal/fair chance of happening. (half/half)

More Likely – an event is more likely if it does have greater chance of happening.

Unlikely – an event is unlikely if it does not have a good chance of happening.

B. Developmental Activities

1. Motivation

Ask the pupils about everyday experiences of chance and certainty that they can recall.

Make a list of things that will never happen. (Example: A flying carabao, you see a live dinosaur today, etc.) Label this list. “Impossible.”

Now make a list of things that will definitely happen. (Example: the sun will rise tomorrow, you will eat something today, etc.) Label this list. “Certain.”

Now make a list of events that may or may not happen. (Example: Tonight might rain, single 6-sided die rolling an even number, etc.) Label this list. “Chance.”

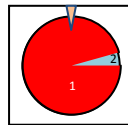
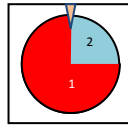
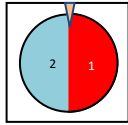
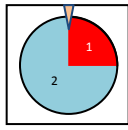
Impossible	Certain	Chance

Analyse the list. Which of the three events has a long list? Which list was easy to think off? Which list was funny to make?

3. Presentation

Let the pupils create different kinds of spinning wheel with different symbols, shapes and numbers and with equal and unequal proportions. (S/He may start teaching from the unlikely to happen then followed by less likely to happen, equally likely to happen and finally to more likely to happen.)

Our topic for today is about making a guess, whether it is less likely, equally likely, more likely, or unlikely to happen. (Present the spinners one by one and discuss its meaning). An event is said to be less likely if it does have a smaller chance of happening. Show the improvised spinner. (Ask the pupils before spinning.) Which color do you think the marker will point? Why? (Then spin it several times.) This shows that red or number 1 is less likely to happen. (Ask a common question every time you present a spinner: Does the size of the covered colors (red and blue) affect the likelihood of which the arrow will land?) Next is happen. An event is said to be equally likely if it does have an equal or fair chance of happening. (Half/half) Can you describe the next spinner wheel? (Let the pupils describe before showing the next spinner.) Ask the pupils. Which color do you think the marker will stop? Why? (Then spin it several times to prove that it is almost equal. Tell them that the more trials you make, the more equally likely the results). Do you think that the spinner is divided equally? Ask again: Does the size of the covered colors (red and blue) affect the likelihood of which the arrow will land? Emphasize to them that red/1 and blue/2 are equally likely to happen. An event is more likely if it does have greater chance of happening. In this case red/1 is more likely to happen than blue/2 or blue/2 is less likely to happen than red/1. If you will compare the first and third spinner, what is something common to them? Are they the same? Why? Ask again: Does the size of the covered colors (red and blue) affect the likelihood of which the arrow will land? Finally, show them the last spinner. An event is unlikely if it does not have a good chance of happening. What can you say about the last spinner? (Blue/2 has a very slim chance or unlikely to happen because red/1 almost occupy the whole wheel. Ask them again: Does the size of the covered colors (red and blue) affect the likelihood of which the arrow will land? Did you understand/enjoy our lesson?



Practice

Show to the pupils a party hat or magician's hat. Put inside the hat 1 orange, 3 blue, 6 green and 12 red candies or small toys. (Act like a magician by showing your hands are clear and you will draw one candy/toy at a time to make it a little bit exciting.) Can you guess the color of the candy/toy that I will draw? (Answer may vary but just the same let them explain why they choose that answer.) Present a worksheet similar to the one below or you may write it on the board. After each draw you will call a pupil to write below the color the word "Less Likely", "Equally Likely", "More Likely" and "Unlikely" and let them explain their answer. After the 11th draw ask them if they can guess the next color to be drawn. Finish the activity.

Draw #	Color of the Candies/Toys			
1	Orange	Blue	Green	Red
2	Blue	Green	Red	Orange
3	Green	Red	Orange	Blue
4	Red	Orange	Blue	Green
5	Orange	Blue	Green	Red
6	Blue	Green	Red	Orange
7	Green	Red	Orange	Blue
8	Red	Orange	Blue	Green
9	Orange	Blue	Green	Red
10	Blue	Green	Red	Orange
▪	▪	▪	▪	▪
▪	▪	▪	▪	▪
▪	▪	▪	▪	▪
22	Blue	Green	Red	Orange

3. Reinforcing Activities

Group the class into 2. Answer the questions provided in each group.

Talk about the pupils answers/reasons. Refer to LM 116 – Gawain 1

Group 1: (Weather)

Events	Likelihood	Reason
It will rain tomorrow.		
The sun will shine tomorrow.		
The following day will be windy.		
We will have a super typhoon.		
We will need a rain coat.		
The sun will rise after 8:00 A.M.		

Key: (Answers will vary)

Group 2: (Household Chores)

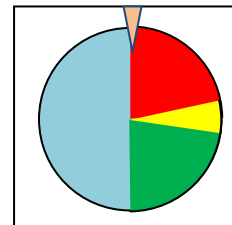
Events	Likelihood	Reason
Wash the dishes		
Clean the yard		
Wash clothes		
Sweep the floor		
Take care of baby sister/brother		
Scrub the floor		

Key: (Answers will vary)

4. Application

Show an improvised spinner and make sure it is fair. Have the whole class do the lesson together. Each pupil will spin once and record the spin in the worksheet. What color the spinner would land? Can you guess the likelihood of each color? (Blue is more likely, yellow is unlikely, red and green is less likely. It is noticeable that there is no equally likely. It is expected that the frequency of red and green are almost the same. Help the pupils realized that red and green are equally likely to each other.)

Color	Tally	Frequency	Likelihood
Red			Less likely
Green			Less likely
Blue			More likely
Yellow			Unlikely



5. Generalization

- An event is less likely if it does have a smaller chance of happening.
- An event is equally likely if it does have an equal/fair chance of happening.
- An event is more likely if it does have greater chance of happening.
- An event is unlikely if it does not have a good chance of happening.

EVALUATION

Present a chart with list of events for the month, and record the events according to the likelihood they will occur.

No.	Events	Likelihood	Why
Ex.	Supervise Recess	More likely	Happening Daily
1.	Reading Books		
2.	Cleaning the room		
3.	Religion Period		
4.	Feeding event		
5.	Playing time		
6.	Ground improvement		
7.	Campus field trip		
8.	Planting Activity		
9.	Viewing Time		
10.	Values formation		

HOME ACTIVITY

Refer to LM 116 – Gawaing Bahay:

Key: (Answers will vary)