6) 800   7) 3 200   8) 2 500   9) 1 800   10) 6 000
Activity 2: 1) 300 x 30 = 9 000   2) 200 x 50 = 10 000
3) 300 x 20 = 6 000   4) 100 x 40 = 4 000   5) 800 x 10 = 8 000
Activity 3: 1) 10 x 40 = 400 (about 400 ball pens)
2) 130 x 3 = 390 (about 390 marbles)

5. Summarizing the Lesson
How do we estimate the product of 2- to 3-digit numbers multiplied by 1- to 2-digit numbers?

To estimate the product:
- Round off either the multiplicand or multiplier or both to its greatest place value.
- Multiply the rounded factors.
(Remember: Do not round off 1-digit factor.)

6. Applying to New and Other Situations
Have pupils work on Activity 4 in the LM. Provide similar exercises in estimating products.
Answer Key:
1) 130 x 10 = 1 300 (about 1 300 jeepneys)   2) 30 x 20 = 600 (about 600 birds)

C. Evaluation
Let the pupils do Activity 5 in the LM individually.
Answer Key:
1) 720   2) 2 800   3) 8 000   4) 6 000   5) 4 000

D. Home Activity
Have the pupils find the factors that when multiplied will give an estimated product. Refer them to Activity 6 in the LM.
Answer Key:
1) 6 x 14   2) 5 x 28   3) 9 x 26   4) 6 x 58   5) 9 x 487

Lesson 41 Multiplying Mentally 2-Digit Numbers by 1-Digit Numbers with Products up to 100

Week 4

Objective
Multiply mentally 2-digit numbers by 1-digit numbers without regrouping with products of up to 100
Value Focus
Cooperation and independence, readiness to help others

Prerequisite Skills
Addition of 3- to 4-digit numbers without regrouping

Materials
Flash cards, crayons, illustrations

Instructional Procedures

A. Preliminary Activities
   1. Drill
      Flash number cards with basic multiplication facts.
   2. Review
      Let the pupils give the estimated product.
      Examples:  125 x 25     346 x 18  981 x 15

B. Developmental Activities

   1. Presenting the Lesson
      Post the problem on the board.
      Four boys helped their teacher return some workbooks to the library. Each boy carried 12 workbooks. How many workbooks did they carry altogether?
      Multiply 12 by 4. Do it mentally.
      Think:
      Multiply the ones by ones. Multiply the tens by ones.
      Give the product.
      \[
      \begin{array}{c}
      1 \\
      \times 4 \\
      \hline
      \end{array}
      \begin{array}{c}
      2 \\
      \times 3 \\
      \hline
      \end{array}
      12 \\
      48
      \]
      The product is 48.
      So, 48 workbooks were carried by the boys.

   2. Performing the Activity
      Let pupils work in pairs and answer the following mentally.
      \[
      \begin{array}{cccccccc}
      13 & 11 & 21 & 23 & 13 & 12 \\
      \times 3 & \times 8 & \times 4 & \times 2 & \times 2 & \times 3
      \end{array}
      \]

   3. Processing the Activity
      Ask: Who was able to give the answer first?
Was the answer correct?
What technique did you use that helped you compute the answer quickly?

Emphasize to the pupils that to multiply mentally 2-digit numbers by 1-digit numbers:
1. Multiply the ones by ones.
2. Multiply the tens by ones.
3. Give the product.

4. **Reinforcing the Concept**
   a. Form two groups with 7 members. Flash combinations of numbers. The first one who can give the correct answer will have the chance to color the first shape in the house. Repeat the process until the group had completed coloring the shapes in the house. The first group to complete coloring the house wins the game.

Prepare the following flashcards and houses.

**GAME: Color the House**

<table>
<thead>
<tr>
<th></th>
<th>23</th>
<th>24</th>
<th>14</th>
<th>11</th>
<th>10</th>
<th>43</th>
<th>33</th>
<th>51</th>
</tr>
</thead>
<tbody>
<tr>
<td>x 2</td>
<td>x 2</td>
<td>x 2</td>
<td>x 4</td>
<td>x 3</td>
<td>x 3</td>
<td>x 3</td>
<td>x 2</td>
<td></td>
</tr>
</tbody>
</table>

**Group 1**

<table>
<thead>
<tr>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>

**Group 2**

<table>
<thead>
<tr>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>

b. Ask: Have you experienced hunting treasures? Do you want to experience it? Refer pupils to Activity 1 in the LM.

**Answer Key:**

<table>
<thead>
<tr>
<th>22 x 2 = 44</th>
<th>20 x 5 = 100</th>
<th>31 x 3 = 93</th>
<th>29 x 2 = 58</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 x 5 = 60</td>
<td>41 x 2 = 82</td>
<td>22 x 4 = 88</td>
<td>12 x 3 = 36</td>
</tr>
<tr>
<td>49 x 1 = 49</td>
<td>22 x 3 = 66</td>
<td>12 x 4 = 48</td>
<td></td>
</tr>
</tbody>
</table>
5. Summarizing the Lesson

What helped you answer the computation problems easily? How do you multiply mentally 2-digit numbers by 1-digit number without regrouping?

<table>
<thead>
<tr>
<th>To multiply mentally 2-digit numbers without regrouping</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Multiply the ones by ones.</td>
</tr>
<tr>
<td>- Multiply the tens by ones.</td>
</tr>
<tr>
<td>- Give the product.</td>
</tr>
</tbody>
</table>

6. Applying to New and Other Situations

Have pupils do Activity 2 in the LM in groups with 4 members each. Provide each group with the secret message activity.

<table>
<thead>
<tr>
<th>12</th>
<th>13</th>
<th>23</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>13</th>
<th>26</th>
<th>20</th>
<th>22</th>
<th>23</th>
</tr>
</thead>
<tbody>
<tr>
<td>x 5</td>
<td>x 2</td>
<td>x 2</td>
<td>x 4</td>
<td>x 3</td>
<td>x 2</td>
<td>x 3</td>
<td>x 1</td>
<td>x 3</td>
<td>x 2</td>
<td>x 3</td>
</tr>
<tr>
<td>60</td>
<td>26</td>
<td>46</td>
<td>44</td>
<td>36</td>
<td>26</td>
<td>39</td>
<td>26</td>
<td>60</td>
<td>44</td>
<td>69</td>
</tr>
</tbody>
</table>

I T S M A T H T I M E

C. Evaluation

Let the pupils work on Activity 3 in the LM. Have them read each problem carefully then write only the product in their own paper.

Answer Key:
1) 36 sampaguita plants   2) 88 eggplant seedlings   3) PhP100   4) 48 seedlings   5) 26 oranges

D. Home Activity

1. Have pupils work on Activity 4 in the LM.

   Answer Key:
   1) 77   2) 24   3) 69   4) 48   5) 39

2. Let each pupil write one word problem involving multiplication of 2-digit by 1-digit number without regrouping. On the next class day, let pupils exchange their word problems by pairs and solve the problems mentally.
Lesson 42  Solving Problems involving Multiplication of Whole Numbers

Week 5

Objective
Solve routine and non-routine problems involving multiplication of whole numbers including money using appropriate problem solving strategies and tools

Value Focus
Helpfulness, Cooperation, Thriftiness

Prerequisite Skills
1. Basic multiplication facts
2. Multiplication of whole numbers
3. Steps in solving word problem

Materials
Flashcards, activity card, story problem

Instructional Procedures

E. Preliminary Activities
1. Drill
   Conduct a drill on basic multiplication facts using double roulette. Let the pupils answer in their “Show Me” board.

   2. Review
      Let pupils give the steps in solving word problems.

F. Developmental Activities

  1. Presenting the Lesson
Present the story problem below.

The family of Mr. Ruiz enjoys harvesting star apple in their backyard. They placed them in 9 baskets. Each basket contains 15 star apples. How many star apples did they harvest in all?

Ask: Who harvested star apples? Where did they place the fruits?

Present this guide to the children in analyzing and illustrating the problem.

<table>
<thead>
<tr>
<th>Problem:</th>
<th>What is asked for?</th>
</tr>
</thead>
<tbody>
<tr>
<td>What are the given information?</td>
<td></td>
</tr>
<tr>
<td>Draw/illustrate the problem.</td>
<td>Guide the pupils to illustrate the problem such as this.</td>
</tr>
<tr>
<td>What is the process or operation to be used?</td>
<td></td>
</tr>
<tr>
<td>What word/s help you determine the operation to use?</td>
<td></td>
</tr>
<tr>
<td>Write the number sentence.</td>
<td></td>
</tr>
</tbody>
</table>

If you were to solve the problem, what process would you use? Is there a word or words in the problem that tell what process or operation to use?
2. **Performing the Activity**

Group the children into three. Provide them with problems like these in activity cards. Let them analyze.

| 1) A vendor buys 25 boxes of candies. Each box has 50 candies. How many candies are there in all? |
| 2) Nena bought 12 sets of baby dresses. Each set costs PhP185. How much did she pay for all the dresses? |
| 3) Mr. Santos is a postman. He has to deliver 178 letters a day. How many letters must he deliver in 25 days? |

3. **Processing the Activity**

Ask: How do we analyze word problem?
- What should you find out?
- What are the given facts?
- How did you check the correctness of your answer?

4. **Reinforcing the Concept**

Have pupils solve the problems in Activity 1 in the LM. Remind them on how to solve problems correctly.

**Answer Key:** 1) 1 125 atis 2) PhP3 000  3) 180 pencils 4) PhP300  5) 275 pages

5. **Summarizing the Lesson**

Ask: How can you solve a problem?
- What are the steps that we should follow in solving problems?

The steps in solving a word problem are:
1. Understand
2. Plan. Determine the process to be used to solve the problem.
3. Act out the plan.
4. Check or look back.

6. **Applying to New and Other Situations**

Refer to Activity 2 in the LM. Have the pupils solve the illustrated problem and write their answers on their paper.
Lesson 43  Solving Problems involving Multiplication with Addition and/or Subtraction of Whole Numbers

Week 5

Objective
Solve routine and non-routine problems involving multiplication with addition and subtraction of whole numbers including money using appropriate problem solving strategies and tools

Value Focus
Honesty, Cooperation

Prerequisite Skills
1. Basic addition, subtraction and multiplication facts
2. Steps in solving word problem

Materials
Flash cards, activity card, story problem

Instructional Procedures

A. Preliminary Activities

1. Drill
   The teacher flashes the cards and the children write their answers on their “Show Me” board.
2. Review
Present the problem written on Manila paper.

Laura made 56 sampaguita garlands. Each garland has 13 pieces of sampaguita. How many pieces of sampaguita did she use in all?

Ask:
Who made sampaguita garlands?
How many sampaguita garlands did she make?
What is asked in the problem?
What are given?
What is the operation to be used to solve the problem?

Let the children solve the problem and show the answer in their “Show Me” board.

3. Motivation
Present the word problem.

Joy bought 5 shirts for PhP94.00 each. If she had PhP475.00, how much change would she get?

Ask:
Who bought 5 shirts?
How much did each shirt cost?
How much money did she have?
How much would he spend for his five shirts?
The salesgirl happened to give a change more than what Joy should receive. If you were Joy, what would you do? Why?
Is it good to return the money that does not belong to you? Why?

B. Developmental Activities

1. Presenting the Lesson
   a. Using the problem in the motivation, ask the pupils to act out through “Play Store” wherein pictures or objects like shirts, play money, etc. are used. A pupil will go to the store and buy shirts.
b. Present the problem using a diagram.

Read →
  How many shirts were bought?
  How much did a shirt cost?
  How much money did Joy have?

Plan →
  What is the hidden question? the cost of 5 shirts
  What is asked? change Joy would get
  What operation should be used?
  What is the number sentence?
  \( \text{PhP} 475 - (\text{PhP} 94.00 \times 5) = N \)

Solve

**STEP 1** - Look for the cost of 5 shirts.

\[
\begin{align*}
\text{PhP} 94.00 & \quad \text{cost of 1 shirt} \\
\times & \quad 5 \quad \text{number of shirts bought} \\
\text{PhP} 470.00 & \quad \text{cost of 5 shirts}
\end{align*}
\]

**STEP 2**

\[
\begin{align*}
\text{PhP} 475.00 & \quad \text{money of Joy} \\
- & \quad 470.00 \quad \text{cost of 5 shirts} \\
\text{PhP} 5.00 & \quad \text{change}
\end{align*}
\]

Check:
  Go over the solution.
  Is it correct?
  Is your answer reasonable?
  Is it complete?

2. Performing the Activity

Let the pupils solve the problems by group.

a. There are 2 boxes of marbles. Each box has 12 marbles. How many marbles are there in all? If you get 5 marbles in one box, how many marbles will be left?

Solution 1. Role Play
  Call 1 group to act out the situation. Let them present the 2 boxes. Let the class count the number of marbles in each box. Request one pupil to get 5 marbles in one box. Ask the class to count the number of marbles left.
Solution 2. By Drawing
Call 1 group to draw 2 boxes on a Manila paper. Let another group draw 12 marbles in each box. Ask one pupil to remove 5 marbles in one box. Let the whole class count the number of marbles left.

b. Four persons can sit at a square table. How many persons can sit at three square tables placed end-to-end?

Solution 1. By drawing a picture

Directions:
1. Draw three square tables placed end-to-end.
2. Count how many persons can be seated after the three tables are placed end-to-end.

Solution 2. By using a number sentence

Answer the following questions:
1. How many persons can be seated on individual square tables? Write the number sentence.
2. Will there be the same number of persons seating if the square tables are placed end-to-end? Why?
3. How many persons cannot be seated? What will be the number sentence?
4. How many persons can be seated if the square tables are placed end-to-end? Show your solutions using the number sentence.

3. Processing the Activity
Ask the groups assigned to show their work in class. Ask them to explain how they got their answers.

Expected answers of pupils for Problem 1
We had a role play of the situation. We added the number of marbles first. Then, we subtracted the 5 marbles from one box. We found the total number of marbles by counting the remaining marbles.

\[(12 + 12) - 5 = n\]

We drew 2 boxes and 12 marbles in each box. We crossed-out five marbles in one box. We counted the number of marbles left in the two boxes to get the answer to the question.

\[(2 \times 12) - 5 = n\]

Expected answers of pupils for for Problem 2

Solution 1. By drawing a picture
Solution 2. By using a number sentence

Ask:
How many persons can be seated on individual square tables? Let them write the number sentence.

\[ 3 \times 4 = n \]

3 \times 4 = 12 persons

Will there be the same number of persons (12 persons) seating if the square tables are placed end-to-end? Why? How many persons cannot be seated?
What will be the number sentence?

\[ (3 \times 4) - 4 = n \]

So, how many persons can be seated if the square tables are placed end-to-end?
Let the pupils solve using the number sentence.

\[ (3 \times 4) - 4 = n \]

12 - 4 = 8

So, the number of persons who can sit at three square tables placed end-to-end is **8 persons**.

Emphasize to the pupils that in solving 2-step word problems, answer the hidden question first, then the given question. The operation inside the parentheses is done first.

In solving two-step word problems, use the following questions as guide:

- a. What is asked for in the problem?
- b. What are the given facts?
- c. What is the hidden question?
- d. What processes will you use to answer the hidden question?
- e. What is the number sentence?
- f. What is the complete answer?
- g. What strategy/strategies will you use to solve the problem?

4. **Reinforcing the Concept**
Let the pupils read, analyze and solve the problems in Activity 1 in the LM. Let them do the activity on their paper.

**Answer Key:**
1) \( 6 \times 8 = 48; \ 55 - 48 = 7 \); No, they still need 7 chairs.
2) \( (45 \text{ min} \times 4) + (10 \text{ min} \times 3) = 180 \text{ min} + 30 \text{ min} = 210 \text{ minutes} \)
3) \[ \text{PhP} 1000 - (2 \times \text{PhP}160) + \text{PhP}85 + (4 \times \text{PhP}130) \]
   \[= \text{PhP} 1000 - (\text{PhP}320 + \text{PhP}85 + \text{PhP}520)\]
   \[= \text{PhP} 1000 - \text{PhP}925\]
   \[= \text{PhP}75\]

5. **Summarizing the Lesson**
   Ask: How did you solve the problem? What helped you solve it?

6. **Applying to New and Other Situations**
   Let pupils work on Activity 2 in the LM. Read and analyze the problems. Let them write their answer in their notebooks.
   Answer Key: 1) PhP20 2) 300 pastillas 3) PhP375

C. **Evaluation**
   Have pupils work on Activity 3 in the LM individually. Let them write their answers on their paper.
   Answer Key:
   1) PhP260 2) PhP1940 3) 384 mangoes 4) 48 stamps 5) PhP555

D. **Home Activity**
   Let the pupils copy Activity 4 in the LM and have pupils work on this at home.
   Answer Key:
   1) \( (5 \times \text{PhP}1) + (2 \times \text{PhP}5) + (7 \times \text{PhP}10) = \text{PhP}5 + \text{PhP}10 + \text{PhP}70 = \text{PhP}85\)
   2) 25 + (3 \times 25) = 100 one-peso coins
   3) \( 12 + (12 \times 2) + ((12 \times 2) +14) + (12 + (12 \times 2)) = 12 + 24 + 38 + 36 = 110 \) pieces of art paper

**Lesson 44** Creating Problems involving Multiplication without or with Addition or Subtraction

**Week 6**

**Objective**
Create problems involving multiplication without or with addition or subtraction of whole numbers including money with reasonable answers

**Value focus**
Environmental awareness

**Prerequisite Concepts and Skills**
Multiplication, addition, and subtraction of whole numbers including money
Materials
Textbook, flashcard/smart board, roulette, activity number cards, pictures of waste materials/garbage improperly disposed of

Instructional Procedures

A. Preliminary Activities

1. Drill
Use the following.
   a. Roulette to practice learners skills in multiplication
   b. Flash cards to practice learners skills in addition and subtraction

   \[
   \begin{align*}
   75 + 25 & = \_ \_ \_ \\
   60 - 15 & = \_ \_ \_ \\
   13 + 36 & = \_ \_ \_ \\
   45 - 23 & = \_ \_ \_ \\
   80 + 29 & = \_ \_ \_ \\
   \end{align*}
   \]

2. Review
Ask pupils to give the missing number in each expression.

   \[
   \begin{align*}
   18 - 9 & = \_ \_ \_ \\
   12 - 6 & = \_ \_ \_ \\
   32 - 12 & = \_ \_ \_ \\
   16 - 8 & = \_ \_ \_ \\
   20 - 10 & = \_ \_ \_ \\
   \end{align*}
   \]

3. Motivation
Divide the class into 8 groups. Let each group discuss the problem below.

Ask: What are the environmental problems created by people in destroying the environment? How can people provide solutions to these problems? How can people lessen environmental problems?

Ask a representative from each group to share their ideas.

After the sharing of each group, infuse the value of “Environmental Awareness.”

Note: Teacher should use the statements below in valuing.

Examples of environmental issues:
- improper disposal of garbage (Elimination/reduction of wastes in the environment)
- Use of carbon dioxide which contributes to global warming (Shift in behavior towards the environment and individuals’ use of natural
resources, ensuring sustainable development and conservation of the environment.)

B. Developmental Activities

1. Presenting the Lesson
   Post the problem on the board. Ask a pupil to read it.

   One morning Ruby saw 4 guavas in their backyard with 4 birds eating on each guava.

   Ask the following:
   a. Who saw guavas in their backyard?
   b. How many guavas did she see in their backyard?
   c. How many birds eat in each guava?
   d. How many birds all in all did Ruby see eating the guavas?
   e. Putting together the birds and the guavas, how many are there in all?
   f. How many operations are used in the problem?
   g. Can you also create/make your own problem, like the one given, where you can apply multiplication with addition, or multiplication with subtraction?

2. Performing the Activities
   Group Work Activity
   Divide the class into 6 groups. Let each group discuss how they will make a problem based on the given situation. Three groups will focus on Problem 1, while the other three groups will focus on Problem 2.

   Problem 1. Involve multiplication with addition (two-step problem).

   Situation: Mark needs 3 white t-shirts to be used in camping. T-shirt price is PhP120.00. Mark has only PhP300.00.

   Problem 2. Use multiplication with subtraction (Two-step problem.)

   Situation: Adore plans to donate 3 plants in school. Adore has PhP500.00. Price of plants is PhP130.00 each.

   While the pupils are doing the activity, go around and guide/assist the pupils. Ask each group to show their work and give them time to explain their output in class.
3. **Processing the Activities**
   After the activities have been done, let the groups post their created problems in each situation and let them do the tasks below.

   a. Role play the situation. (Call at least 2 groups to do it. Then ask the class to solve the problem.)

   b. Illustrate the problem and make the number sentence. Then solve the problem with the solution.

4. **Reinforcing the Concept**
   **Pair Work Activity**
   Ask the pairs to create/make a problem based on the given situation. Half of the pair will focus on Problem 1, while the other half will focus on Problem 2.

   **Problem 1.** Use multiplication with addition (two-step procedure).

   **Situation:** Eric needs to buy 3 boxes of chocolates.
   Price is PhP200.00 for every box of chocolate.
   Eric has only PhP350.00.

   **Problem 2.** Use multiplication with subtraction (two-step procedure).
   **Situation:** Tom wants to buy a pair of pants.
   He has PhP1000.00.
   Price of pair of pants is PhP700.00.

5. **Summarizing the Lesson**
   What did you do to be able to create a problem given some situations?

   **Steps in creating word problems:**
   a. Familiarize yourself with the concepts in math. Think of the application to every day life situations.
   b. Think of the type of problem you want to create and the operations to be used. Relate the problem to a real-life situation.
   c. Read more on math problem solving. Study the solution in solving the problems.
   d. Make your own styles/strategies to justify the solutions.

6. **Applying to New and Other Situations**
   Let the pupils do Activity 1 in the LM. Discuss their work afterwards.
   (Answers vary)

   **Sample Problem:**
   1) Mother bought 2 boxes of donuts with 12 donuts in each box. How many donuts are there in all?
2) Each cup of soup costs PhP5.00. Edna was not able to sell 4 cups out of the 16 cups. How much was the amount of soup sold?

C. Evaluation
Let pupils do Activity 2 in the LM. Check pupils’ work.
(Answers vary)

Sample Problem:
1) Andoy placed the eggs in three trays. If there are 12 eggs in each tray and there are 5 eggs not placed in any tray, how many eggs are there in all?
2) Joey bought 9 balloons for her 3 sisters. Each balloon costs PhP15.00. If each girl received the same number of balloons, how much did Joey spend for the balloons he gave to each of his sisters?

D. Home Activity
Divide pupils into five groups. Let them do Activity 3 in the LM as homework on their papers.

Answers vary for A and B.

Sample Answers for B:
1) John has 5 pencil cases. There are 12 pencils of different color in each case. How many pencils does he have? 5 x 12 = 60 pencils
2) There are 4 dozens of eggs in a box. One dozen was sold. How many eggs are left in the box? (Hint: one dozen = 12) (4 x 12) – 12 = 48 – 12 = 36 eggs are left in the box
3) In a mathematics class, fourteen pupils are seated in a row and 3 of the pupils were absent. If there are 4 rows in the classroom, how many pupils are present in the Math class? (4 x 14) – 3 = 56 – 3 = 53 pupils are present

Lesson 45 Multiples of 1- to 2-Digit Numbers

Week 6

Objective
State the multiples of 1- to 2-digit numbers

Value Focus
Cooperation

Prerequisite Concepts and Skills
Four fundamental operations

Materials
Flashcards, wooden blocks, number wheel, pictures of different activities of man that destroys the environment
Instructional Procedures

A. Preliminary Activities

1. Drill
   Show division facts written on flash cards. Ask learners by row/group to give the quotient. e.g.

   | 30, 27, 24, 21, 18, 15 | by 3 |
   | 70, 60, 50, 40, 30, 20 | by 5 |
   | 84, 77, 56, 49, 28, 21 | by 7 |
   | 88, 72, 64, 8, 24, 32  | by 8 |

2. Review
   Supply the missing number to complete each number sentence.

   1) ___ ÷ 7 = 4
   2) 35 ÷ ___ = 5
   3) 50 ÷ 10 = ___
   4) 36 ÷ 6 = ___
   5) ___ ÷ 9 = 9

3. Motivation
   Do the opposite of your drill. Give the multiplication facts. Ask other learners by row/group (to give others a chance to participate) to give the answer/product.

   4
   6
   9
   10

   multiply the number by 8, 9, 10, 11, 12, 13
   multiply the number by 6, 7, 8, 9, 10, 11, 12
   multiply the number by 4, 5, 6, 7, 10, 20, 30
   multiply the number by 6, 7, 8, 9, 10, 15, 20
B. Developmental Activities

1. Presenting the Lesson
   Show these numbers.
   Ask: What are the next numbers? Why do you think they are the next numbers?

   a. 2, 4, 6, 8, __, __, __
   b. 3, 6, 9, 12, __, __, __
   c. 10, 20, 30, 40, __, __, __
   d. 12, 24, 36, 48, __, __, __

2. Performing the Activities
   Show the series of numbers. Ask the pupils to observe and determine the pattern.

   a. 2 4 6 8 10 12 14
   b. 3 6 9 12 15 18 21
   c. 10 20 30 40 50 60 70
   d. 12 24 36 48 60 72 84

   Ask: How did you get your answers in each of the number patterns? 
   Note to the teacher: Answers can be any of the following strategies:

   a. Multiplying the first number by 2, 3, 4, 5, ... to get the next 3 missing numbers.

   b. Adding the common difference of the numbers to the next numbers and so forth to get the next 3 missing numbers.
Ask: Extend the number patterns in given activity, give the next 5 multiples for a, b, c, and d using any of the above strategies.

Group Activity
Let each group do Activity 1 in the LM. Let them find the next 6 multiples of the given number. Let them write their answers on their answer sheets.

Discuss the groups’ answers.

<p>| | | | | | |</p>
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>3</td>
<td>6</td>
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<td>12</td>
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<td>15</td>
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<tr>
<td>3</td>
<td>7</td>
<td>14</td>
<td>21</td>
<td>28</td>
<td>35</td>
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<tr>
<td>4</td>
<td>8</td>
<td>16</td>
<td>24</td>
<td>32</td>
<td>40</td>
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<tr>
<td>5</td>
<td>9</td>
<td>18</td>
<td>27</td>
<td>36</td>
<td>45</td>
</tr>
<tr>
<td>6</td>
<td>11</td>
<td>22</td>
<td>33</td>
<td>44</td>
<td>55</td>
</tr>
<tr>
<td>7</td>
<td>13</td>
<td>26</td>
<td>39</td>
<td>52</td>
<td>65</td>
</tr>
<tr>
<td>8</td>
<td>15</td>
<td>30</td>
<td>45</td>
<td>60</td>
<td>75</td>
</tr>
<tr>
<td>9</td>
<td>24</td>
<td>48</td>
<td>72</td>
<td>96</td>
<td>120</td>
</tr>
<tr>
<td>10</td>
<td>33</td>
<td>66</td>
<td>99</td>
<td>132</td>
<td>165</td>
</tr>
</tbody>
</table>

3. Processing the Activities
   Ask each group to present their work and ask them how they were able to get the multiples of a given number.
   Ask them to discuss their answers on the work sheet.

4. Reinforcing the Concept
   Show a number wheel to the class. e.g.

   Call a group and ask a member to spin the number wheel.
   
   a. In the first spin, whichever number will show up all members of the group will state 10 of the multiples of that 1-digit number.
   
   b. In the second spin, whichever number will show up in the first and in the second spin, all members will state 5 multiples of that 2-digit numbers.

5. Summarizing the Lesson
a. Multiplying the first number by 2, 3, 4, 5, and so on will determine the next multiples of number.

b. Adding the common difference of the numbers to the next numbers and so forth will arrive at the next multiples of the number.

6. Applying to New and Other Situations
   a. Show a calendar. Ask pupils what pattern of multiples of numbers they can see in the calendar.
   b. Let pupils answer Activity 2 by pairs.

   **Answer Key:**
   
   ![Diagram showing multiples pattern]

C. Evaluation
   Ask pupils to answer Activities 3 and 4 in the LM individually.

   Key Answer:
   Activity 3: 1) b  2) e  3) d  4) c
   Activity 4:
   1) 21, 24, 27 2) 45, 54, 63 3) 112, 120, 128 4) 135, 150, 165 5) 85, 102, 119

D. Home Activity
   Assign Activity 5 in the LM as pupils’ homework.

   **Answer Key:**
   
<table>
<thead>
<tr>
<th>x</th>
<th>12</th>
<th>23</th>
<th>37</th>
</tr>
</thead>
<tbody>
<tr>
<td>1)</td>
<td>19</td>
<td>228</td>
<td>437</td>
</tr>
<tr>
<td>2)</td>
<td>26</td>
<td>312</td>
<td>598</td>
</tr>
<tr>
<td>3)</td>
<td>37</td>
<td>444</td>
<td>851</td>
</tr>
<tr>
<td>4)</td>
<td>43</td>
<td>516</td>
<td>989</td>
</tr>
</tbody>
</table>

**Lesson 46  Dividing Numbers up to 100 by 6, 7, 8, and 9**

**Week 7**
Objective
Visualize division of numbers up to 100 by 6, 7, 8 and 9

Value Focus
Envisioning the beauty and abundance of nature

Prerequisite Concepts and Skills
Concept on the four fundamental operations

Materials
Activity cards, spin a wheel number, flashcard/smart board, wooden blocks, pictures of different activities of man taking care of the environment

Instructional Procedures

A. Preliminary Activities

1. Drill
Flash cards with basic division facts and ask pupils by row/group to give the answer/quotient.
Examples:

\[
\begin{array}{ccc}
30 & \text{by 3, 5, 6} & 30 \\
20 & \text{by 2, 4, 5} & 16 \\
18 & \text{by 2, 3, 6} & 40 \\
12 & \text{by 2, 3, 4} & 30 \\
\end{array}
\]

2. Review
Call pupils to supply the missing number to complete each sentence.

6) \( \_ \times 7 = 42 \)
7) \( 5 \times \_ = 35 \)
8) \( 6 \times 9 = \_ \)
9) \( \_ \times 8 = 56 \)
10) \( \_ \times 9 = 81 \)

3. Motivation
Ask pupils to read the quotation.

A quote as lovely as my inspiration ...
Let our life in school be like playing an arithmetic...

**JOYS** added,
**FRIENDS** multiplied,
**SORROWS** subtracted,
But note that **LOVE** cannot be divided among our teachers and us, learners.

Ask pupils to explain what they have read. Elaborate or explain further.

B. Developmental Activities

1. Presenting the Lesson
   Present a problem situation and ask pupils to think of the answer. Allow 2 or 3 of them to show their solution/s.

   My older brother and sister wanted to help shoulder our parents’ expenses at home. They plan on how they can help our parents. In our backyard, my brother and sister made a garden plot for planting eggplant seedlings to sell in the market after the harvest. They planted 48 eggplant seedlings equally in 6 rows. How many seedlings were in each row?

   a. Analyze and solve the problem using an illustration:

   ![Diagram of eggplant seedlings]

   Ask: (suggested questions)
   1) Who wanted to help the parents in family expenses at home?
   2) What did they do to help their parents?
   3) Do you want to help your Nanay and Tatay too?
   4) What kind of brother and sister are they? Do you want them?
   5) How many seedlings did they plant in all?
   Show their solutions.

   6) How many seedlings are there in all?
   7) How many rows are there?
   8) How many seedlings are there in each row?
9) Write your mathematical sentence and solve.
   (Hint to teacher: $48 \div 6 = n$)

2. Performing the Activity
   Let pupils do this problem.

   There are 98 pupils in Grade 4. They are assigned in each section equally to the 4 mathematics teachers and the 3 science teachers as the class advisers. How many pupils will be under the class advisory of each teacher?

   Guide questions:
   a. How many pupils are there?
   b. How many are teachers?
   c. What is your dividend?
   d. What is your divisor?
   e. What is missing in the problem?
   f. Write the number sentence.
   g. Solve!

3. Processing the Activity
   Ask:
   1) How did you solve the problem above?
   2) What information/data did you consider to solve the problem?

   Say: Look at the division sentence, $56 \div 8 = 7$. If we use $\underline{\hspace{2cm}}$ instead of $56$, we have $\underline{\hspace{2cm}} \div 8 = 7$. How will you find the value of $\underline{\hspace{2cm}}$? We multiply 8 by 7.

   Explain that in finding the quotient we are finding on the factors. When multiplying the product and divisor we are finding the dividend. Lead the pupils to see that division is opposite of multiplication.

Group Activity
   In your group get your partner and do the activity in pair. Fill in the appropriate data and solve.

<table>
<thead>
<tr>
<th>Number sentence</th>
<th>Dividend</th>
<th>Divisor</th>
<th>Quotient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ex. $56 \div ___ = 7$</td>
<td>56</td>
<td>8</td>
<td>7</td>
</tr>
<tr>
<td>1) $\underline{\hspace{2cm}} \div 6 = 7$</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
2) \[ 81 \div 7 = \_\_ \]
3) \[ 72 \div 9 = \_\_ \]
4) \[ 63 \div \_ = 9 \]
5) \[ 36 \div \_ = 4 \]
6) \[ \_ \div 8 = 16 \]
7) \[ 42 \div 7 = \_\_ \]
8) \[ 99 \div 9 = \_\_ \]
9) \[ 54 \div \_ = 9 \]
10) \[ 78 \div \_ = 13 \]

Discuss pupils’ answers.

4. Reinforcing the Concept
Let the pupils answer Activity 1 in the LM in their notebook. Discuss how they solve the problems.
Answer Key:
1) 8 shelves 2) 8 balls

5. Summarizing the Lesson
a. How do you visualize a problem in division?
b. Name the terms involved in division facts.
c. How do you call the result/answer in dividing two numbers?

6. Applying to New and Other Situations
Think and visualize the problem.
Example 1:
Thirty eggs in a basket were transferred to an egg box. How many rows are there in an egg box, if 6 eggs are placed in each row of an egg box?

Let the pupils answer Activity 2 in the LM by pairs. Discuss their answers afterwards.
Answer Key: 1) 8 trees 2) 8 pomelos

C. Evaluation
Let the pupils answer Activity 3 in the LM individually.
Answer Key: 1) PhP16 2) 9 daland an

D. Home Activity
Let the pupils answer Activity 4 in the LM individually in their notebook.
Lesson 47  Stating Division Facts of Numbers up to 10

Week 7

Objective
State basic division facts of numbers up to 10

Value Focus
Orderliness and Cooperation

Prerequisite Concepts and Skills
Multiplication

Materials
Flashcards with multiplication and division facts

Instructional Procedures

A. Preliminary Activities

1. Drill
   Multiplication basic facts
   Show flash cards with basic multiplication facts and ask pupils to give the answer.

   \[
   \begin{array}{cc}
   3 \times 6 & 6 \times 9 \\
   4 \times 7 & 7 \times 10 \\
   5 \times 8 & 8 \times 2 \\
   \end{array}
   \]

2. Review
   Flash cards with division sentences (around 4 to 5 sentences).
   Let pupils identify the terms in a division sentence.

Answer Key: 1) 10 pupils   2) 3 star apples
Ask: Which is the dividend? divisor? quotient?

Example: \[ 24 \div 6 = 4 \]

3. Motivation
Play the game “The boat is sinking” for 3 minutes.
Mechanics of the game:
   a. Let the pupils stand and stay in one place altogether.
   b. The teacher/leader says, “The boat is sinking, lifeboats for five.” The pupils will form groups with five members in each group. The pupils who cannot form a group with 5 members will sit down.
   c. The teacher/leader will say again, “The boat is sinking, lifeboats for eight.” The pupils will again form groups with eight members in each group. The pupils who cannot form a group with 8 members will sit down.
   d. Do the activity until only 1-3 pupils are left or until the given time is over.

Ask: How did the class perform the game? (orderly, cooperatively)

B. Developmental Activities

1. Presenting the Lesson
Show a picture of objects grouped equally.
Example:

Ask:
   a. How many boxes are there in all?
   b. How many balls are there in each box?
   c. How many balls are there in all?
   d. What multiplication facts/sentences can we give/write? \((3 \times 5 = 15)\) This means there are 5 balls in each box and there are 3 boxes, so, 15 balls in all.
   e. What division facts/sentences can we give/write? \((15 \div 3 = 5)\) This means 15 balls divided equally in 3 boxes equals 5 balls in each box; or \(15 \div 5 = 3\); this means 15 balls divided equally with 5 balls in each box equals 3 boxes.)
2. **Performing the Activity**
Let pupils study the table below. Call a pupil to show the multiplication and division facts/sentences given in the example. Call more pupils to give 2 or 3 multiplication and division sentences.

Example: \( 6 \times 4 = 24 \) \( 4 \times 6 = 24 \) \( 24 \div 4 = 6 \) \( 24 \div 6 = 4 \)

<table>
<thead>
<tr>
<th></th>
<th>x 1</th>
<th>x 2</th>
<th>x 3</th>
<th>x 4</th>
<th>x 5</th>
<th>x 6</th>
<th>x 7</th>
<th>x 8</th>
<th>x 9</th>
<th>x 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>2</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td>12</td>
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<td>30</td>
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<td>6</td>
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<td>24</td>
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<td>48</td>
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<td></td>
<td></td>
<td>50</td>
<td>90</td>
</tr>
</tbody>
</table>

Divide the class into 5 groups. Let each group complete the table. Let them give/write 5 families of multiplication and division sentences/facts.

3. **Processing the Activity**
Let the groups present their work.
Ask:
- a. What multiplication facts have you given/written?
- b. How were you able to give/write the division facts/sentences? (by knowing the multiplication facts, we can give the division facts)
- c. What can you say about the multiplication facts and the division facts? (The division facts are the inverse of the multiplication facts)

4. **Reinforcing the Concept**
Let pupils answer Activities 1–3 in the LM. Discuss some items in the activities that need to be emphasized.

**Answer Key:**

**Activity 1** - (family of facts can be written in any order)

<table>
<thead>
<tr>
<th></th>
<th>x 7</th>
<th>8 x 7 =</th>
<th>7 x 8 =</th>
<th>56</th>
<th>56 ÷ 7 =</th>
<th>8</th>
<th>56 ÷ 8 =</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>35</td>
<td>8</td>
<td>9</td>
<td>48</td>
<td>35</td>
<td>48 ÷ 8 =</td>
<td>9</td>
<td>48 ÷ 9 =</td>
<td>5</td>
</tr>
<tr>
<td>72</td>
<td>10</td>
<td>70</td>
<td>7 x 10 =</td>
<td>70</td>
<td>70 ÷ 10 =</td>
<td>7</td>
<td>70 ÷ 7 =</td>
<td>10</td>
</tr>
<tr>
<td>35</td>
<td>7</td>
<td>35 ÷ 7 =</td>
<td>5</td>
<td>7 x 5 =</td>
<td>35</td>
<td>5 x 7 =</td>
<td>35</td>
<td></td>
</tr>
</tbody>
</table>

**Activity 2**
1. \( 5 \times 7 = 35 \) 35 ÷ 7 = 5 or 35 ÷ 5 = 7
2. \( 3 \times 9 = 27 \) 27 ÷ 9 = 3 or 27 ÷ 3 = 9
3. \( 8 \times 6 = 48 \) 48 ÷ 8 = 6 or 48 ÷ 6 = 8
4. \( 10 \times 2 = 20 \) 20 ÷ 2 = 10 or 20 ÷ 10 = 2
5. \( 4 \times 8 = 32 \) 32 ÷ 8 = 4 or 32 ÷ 4 = 8

**Activity 3:**
1) 2 2) 3 3) 6 4) 27 5) 6 6) 6 7) 9 8) 2 9) 63 10) 4
5. **Summarizing the Lesson**
   Ask:
   How can we give or state the division facts?
   (We can give or state the division facts by knowing or giving the
   multiplication facts then convert this into division facts.)

6. **Applying to New and Other Situations**
   Let pupils answer Activity 4 in the LM. If necessary, discuss the puzzle. Ask
   pupils how they got their answers.
   Answer Key:

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
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</thead>
<tbody>
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<td>x</td>
<td>7</td>
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<tr>
<td>2</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>÷</td>
<td>2</td>
</tr>
</tbody>
</table>

   \[ 36 \div 6 = 6 \]
   \[ 9 \times 3 = 27 \]
   \[ 8 \times 7 = 56 \]
   \[ 2 \]
   \[ 18 \div 2 = 9 \]

   Answer Key:
   36 ÷ 6 = 6
   9 x 3 = 27
   8 x 7 = 56
   2
   18 ÷ 2 = 9

C. **Evaluation**
   Let pupils do Activity 5 in the LM. Check pupil’s work.
   Answer Key:
   1) 20 ÷ 5 = 4 or 20 ÷ 4 = 5
   2) 18 ÷ 6 = 3 or 18 ÷ 3 = 6
   3) 5 x 4 = 20 or 4 x 5 = 20; 20 ÷ 4 = 5 or 20 ÷ 5 = 4
   4) 3
   5) 40 ÷ 8 = 5

D. **Home Activity**
   For pupils’ homework, let them do Activities 6 and 7 in the LM.
   Answer Key:
   Activity 6

<table>
<thead>
<tr>
<th>Multiplication Sentence</th>
<th>Division Sentence</th>
<th>Division Sentence</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) 2 x 9 = 18</td>
<td>18 ÷ 9 = 2</td>
<td>18 ÷ 2 = 9</td>
</tr>
<tr>
<td>2) 3 x 7 = 21</td>
<td>21 ÷ 7 = 3</td>
<td>21 ÷ 3 = 7</td>
</tr>
<tr>
<td>3) 9 x 7 = 63</td>
<td>63 ÷ 7 = 9</td>
<td>63 ÷ 9 = 7</td>
</tr>
<tr>
<td>4) 6 x 6 = 36</td>
<td>36 ÷ 6 = 6</td>
<td></td>
</tr>
<tr>
<td>5) 8 x 9 = 72</td>
<td>72 ÷ 9 = 8</td>
<td>72 ÷ 8 = 9</td>
</tr>
<tr>
<td>6) 12 x 4 = 48</td>
<td>48 ÷ 12 = 4</td>
<td>48 ÷ 4 = 12</td>
</tr>
</tbody>
</table>

Activity 7: 1) 48 ÷ 11 = 4 r 4; 4 hectares each child, 4 hectares remain
2) 80 ÷ 10 = 8 stacks

**Lesson 48 Dividing 2- to 3-Digit Numbers by 1-Digit Numbers**
Week 8

Objective
Divide 2- to 3-digit numbers by 1-digit numbers without or with remainder.

Value Focus
Sharing

Prerequisite Concepts and Skills
Multiplication and division basic facts

Materials
Flashcards, wooden blocks

Instructional Procedures

A. Preliminary Activities
1. Drill

Flash cards with division facts. Ask pupils to give the quotient.

Example:

\[
\begin{array}{ccc}
24 \div 8 & 18 \div 9 & 24 \div 6 \\
27 \div 9 & 14 \div 2 & 15 \div 5 \\
\end{array}
\]

2. Review
Ask pupils to supply the missing number to complete each sentence.

1) \( \_ \div 7 = 4 \)
2) \( 35 \div \_ = 5 \)
3) \( 50 \div 10 = \_ \)
4) \( 36 \div 6 = \_ \)
5) \( \_ \div 9 = 9 \)

B. Developmental Activities

1. Presenting the Lesson
Post this problem on the board.

Jose and Almar love to share their toys and food with their friends and relatives. Jose has 36 marbles. He wants to share the marbles equally with his brother. Almar has 43 marbles and wants to share these equally with his friend. How many marbles will Jose’s brother and Almar’s friend get?
Ask:
a. What do Jose and Almar love to do?
b. Do you also share your things? Why is it good to share? Cite instances wherein you have shared your food or toys to others.
c. How many marbles does Jose have? How about Almar?
d. After they share their marbles, how many marbles will each of them get?

Guide the pupils in solving the problem in different ways.

Solution 1. Solving the problem using drawing/illustration and by grouping

Present a drawing/illustration of Jose’s and Almar’s marbles (a sample is shown below). Let pupils count Jose’s marbles, then, Almar’s marbles. Ask: Into how many groups will Jose’s marbles be divided? Almar’s marbles? Then call a pupil to group the marbles equally.

<table>
<thead>
<tr>
<th>Jose’s marbles</th>
<th>Almar’s marbles</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Illustration of Jose’s marbles" /></td>
<td><img src="image2.png" alt="Illustration of Almar’s marbles" /></td>
</tr>
</tbody>
</table>

Ask:
- How many marbles are there in each group?
- How many marbles will his brother get?
- Is there any left-over? How many?
- What is the number sentence?

<table>
<thead>
<tr>
<th>Jose’s marbles</th>
<th>Ask: What will we divide?</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Illustration of Jose’s marbles" /></td>
<td>36 ÷ 2 = ___</td>
</tr>
</tbody>
</table>

Ask:
- How many marbles are there in each group?
- How many marbles will his friend get?
- Is there any left-over? How many?
- What is the number sentence?

<table>
<thead>
<tr>
<th>Jose’s marbles</th>
<th>Ask: What will we divide?</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Illustration of Jose’s marbles" /></td>
<td>43 ÷ 2 = ___</td>
</tr>
</tbody>
</table>

Solution 2. Solving the problem using renaming method

Guide pupils in renaming the dividend into a sum of two numbers where the first number is a multiple of 10 that can be divided easily by the divisor.

<table>
<thead>
<tr>
<th>Jose’s marbles</th>
<th>Ask: What will we divide?</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Illustration of Jose’s marbles" /></td>
<td>36 ÷ 2 = ___</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Jose’s marbles</th>
<th>Ask: What will we divide?</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Illustration of Jose’s marbles" /></td>
<td>43 ÷ 2 = ___</td>
</tr>
</tbody>
</table>
\[
\begin{align*}
36 \div 2 &= (20 + 16) \div 2 \\
&= (20 \div 2) + (16 \div 2) \\
&= 10 + 8 \\
&= 18 \\
\end{align*}
\]
Ask:
How many twos are there in 20? in 16? 
Is there any left-over? 
How many? 
How many marbles will his brother get?

\[
\begin{align*}
43 \div 2 &= (40 + 3) \div 2 \\
&= (40 \div 2) + (3 \div 2) \\
&= 20 + 1 \text{ with one left-over} \\
&= 21 \text{ with one left-over} \\
\end{align*}
\]
Ask:
How many twos are there in 40? in 3? 
Is there any left-over? How many? 
How many marbles will his friend get?

Solution 3. Solving the problem using long division

Show the steps in dividing using long division.

1. Write the division sentence using \( \underline{\text{\_\_\_\_\_\_\_}} \). Example: \( 2 \sqrt{36} \)

2. Start from the digit with the highest place value in the dividend. If the digit with the highest place value in the dividend is smaller than the divisor, use also the next digit. Divide the digit/s by the divisor. Write the partial quotient right above the digit.

Example:

\[
\begin{align*}
2 & \quad 36 \\
\underline{-2} & \quad 3 \\
1 & \quad 6 \\
\end{align*}
\]
Ask: How many 2s are there in 3?

3. Multiply the partial quotient and the divisor and write the answer right below the digit.

\[
\begin{align*}
2 & \quad 36 \\
\underline{-2} & \quad 1 \times 2 = 2 \\
1 & \quad 6 \\
\end{align*}
\]

4. Subtract.

\[
\begin{align*}
2 & \quad 36 \\
\underline{-2} & \quad 3 - 2 = 1 \\
1 & \quad 6 \\
\end{align*}
\]
5. Bring down the next or last digit.

\[
\begin{array}{c}
2 \left\lfloor \frac{36}{2} \\
\underline{-2} \\
\frac{18}{16}
\end{array}
\]

6. Repeat the previous steps (division, multiplication and subtraction and bring down) until all the digits in the dividend are used up.

\[
\begin{array}{c}
2 \left\lfloor \frac{36}{2} \\
\underline{-2} \\
\frac{16}{8}
\end{array}
\]

Ask: What will we divide?

\[
36 \div 2 = ____
\]

Ask: Is there any left-over? How many?

How many marbles will Jose and his brother each get?

Ask: What will we divide?

\[
43 \div 2 = ____
\]

Ask: Is there any left-over? How many? How do we write the left-over or remainder?

Explain that \( r 1 \) means “remainder 1” and it should be written outside the bar.

Ask: How many marbles will Almar and his friend each get?

Ask: Did we get the same answer using the three solutions? Which is easier to use? Why?

Do you think it is easier to use the drawing method if we are going to divide bigger numbers say, 196 ÷ 6?

Let pupils try drawing this. Emphasize that drawing method involves longer time in drawing over a hundred objects or more and counting them.
Ask: How can we find the quotient for $196 \div 6$? Guide the pupils to use the long division method?
Is there a remainder? What is the remainder? How and where do we write the remainder?
How can we check if the answer is correct?
(Multiply the quotient and the divisor. the product should be the same as the dividend. If there is a remainder, add it to the product and the sum will be the same as the dividend.)

2. Performing the Activity

Let pupils work by fours. Give the worksheet for their activity.

Worksheet 1

Use the long division method to find the quotient of the following.

a. $205 \div 5 = ___$

b. $561 \div 9 = ___$

Show your solutions here.

Answer the following questions.

1. How did you get the answer?
2. Which of the division sentence has a remainder?
3. What is the remainder?
4. Which solution is easier to use? Why?

Call some pupils to share their answers.

If the pupils have difficulty in doing the activity, guide them in doing the solutions on the board. Have a discussion on each of the solutions.

Example: Solution using long division method

```
5 \[\overline{205}\] 9 \[\overline{561}\]
-20
-\[05\]
-\[5\]
\[0\]
\[62\] \[r\] \[3\]
-54
-\[21\]
-\[18\]
\[3\]
```

Sample discussion questions:

a. Is it easy to show division by grouping if the objects are more than 100? Why?
b. Do you think it is also easy to use the drawing method in dividing the numbers given to you? Why?
c. What is the quotient of 205 ÷ 5? 561 ÷ 9?
d. Which division sentence has a remainder?
Let the pupils show the solutions for checking.

3. Processing the Activities
Ask:
   a. Which strategy/solution did we use to find the quotient?
   b. Which of the solutions is easier to use in finding the quotient of 2- to 3-digit number by 1-digit numbers? Why?
   c. What is the relationship of the remainder to the divisor?
   d. How can we check if our answer is correct?

4. Reinforcing the Concept

Let pupils work on Activities 1 and 2 in the LM.
Answer Key:
Activity 1: 1) 24   2) r 3   3) 12 garlands in each tray, 3 garlands left
  4) 34 mangoes
Activity 2: 1) r 6   2) no remainder, 3) r 2   4) r 2   5) no remainder   6) r 8

5. Summarizing the Concept
Ask:
   a. What are the different ways of finding a quotient?
   b. What are the steps in dividing 2- to 3-digit numbers by 1-digit numbers using long division method?
   c. When do we have a remainder? (There is a remainder if the dividend could not be divided exactly by the divisor.)
   d. How do we write a quotient with remainder?
   e. What do we do to check if our quotient is correct?

6. Applying to New and Other Situations

Group pupils and let them do Activities 3 and 4 in the LM.
Answer Key:
Activity 3

```
1)  56 ÷ 8 = 7 x 4 = 28
2)  12 x 8 = 96 ÷ 2 = 48
3) 200 ÷ 4 = 50 x 18 = 900
4) 350 ÷ 70 ÷ 5 x 49 = 245
```
Activity 4: 1) 16 r 3  2) 33 r 1  3) 74 r 4

C. Evaluation

Let the pupils work on Activity 5 in the LM.

Answer Key: 1) 23      2) Yes; the remainder is 5.    3) Yes because 258 ÷ 6 = 43.
  4) 88 r 4      5) 95 r 8

D. Home Activity

Let the pupils solve the problems in Activities 6 and 7 in the LM.

Answer Key:
Activity 6: Pupils’ answers vary. Possible answers are as follows:

<table>
<thead>
<tr>
<th>2- or 3-digit Number</th>
<th>Divisor</th>
<th>Quotient</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) 60</td>
<td>4</td>
<td>15</td>
</tr>
<tr>
<td>2) 63</td>
<td>6</td>
<td>10 r 3</td>
</tr>
<tr>
<td>3) 360</td>
<td>7</td>
<td>51 r 3</td>
</tr>
<tr>
<td>4) 706</td>
<td>9</td>
<td>78 r 4</td>
</tr>
</tbody>
</table>

Activity 7
Start  423 ÷ 4 = 105 r 3
Add your remainder to the dividend in station 1 before answering.

Station 1: (319 + 3) ÷ 5 = 64 r 2
Use the quotient as dividend in station 2.

Station 2: 64 ÷ 3 = 21 r 1

Station 3: Add the three remainders: 3 + 2 + 1 = 6
Finish line: Add 91 to the sum of the three remainders: 6 + 91 = 97.

Lesson 49  Dividing 2- to 3-Digit Numbers by 2-Digit Numbers without and with Remainder

Week 8
**Objective**
Divide 2- to 3-digit numbers by 2-digit numbers without and with remainder

**Value Focus**
Love for reading/Care for books

**Prerequisite Concepts and Skills**
1. Basic division facts
2. Concept of repeated subtraction
3. Concept on dividing 2- to 3-digit numbers by 1-digit numbers without and with remainder

**Materials**
Flashcards on basic division facts, problems printed on the board

**Instructional Procedures**

A. **Preliminary Activities**
   1. **Drill**
      Conduct a drill on basic division facts.
   
   2. **Review**
      Ask pupils to solve this problem on the board.
      - I have 50 packs of biscuits and I’m giving them equally among 8 groups of pupils. How many packs of biscuits will be left?
   
   3. **Motivation**
      Show storybook to the pupils.
      Ask: Who among you likes to read books? Why? What kind of books do you read? Do you love your books? How do you take care of your books?

B. **Developmental Activities**
   1. **Presenting the Lesson**
      Post this problem on the chart.
a. Mang Ramon is selling 39 kilograms of lanzones. If each of the 13 customers will buy the same number of kilograms of lanzones, how many kilograms of lanzones will each customer buy?

Ask: How will you solve the problem?

1) Divide 39 by 13 to get the answer.
   Look for the multiples of the divisor 13.
   
   \[
   \begin{align*}
   1 \times 13 &= 13 \\
   2 \times 13 &= 26 \\
   3 \times 13 &= 39
   \end{align*}
   \]
   So \(39 \div 13 = 3\) kilograms of lanzones for each customer

2) Use of repeated subtraction
   Let the pupils subtract 13 from 39 repeatedly until they reach the difference of 0.
   
   \[
   \begin{array}{c}
   39 \quad 1 \\
   - 13 \quad 2 \\
   26 \quad 2 \\
   - 13 \quad 3 \\
   13 \quad 3 \\
   - 13 \quad 0 \\
   0
   \end{array}
   \]
   So, what is the division sentence that we can use to represent the problem? \(39 \div 13 = 3\)

   a) How many times did we subtract 13 from 39?
   b) Is the number of times 13 is subtracted from 39 equivalent to the quotient 3?

b. Collette has PhP48. She wants to buy handkerchiefs for her sister. If each handkerchief costs PhP15, how many handkerchiefs can she buy with her money? How much change will she get?

1) Have the pupils divide 48 by 15 to solve the problem.
   Let them look for the multiples of the divisor 15.
   
   \[
   \begin{align*}
   1 \times 15 &= 15 \\
   2 \times 15 &= 30 \\
   3 \times 15 &= 45
   \end{align*}
   \]
   There are 3 groups of 15 in 48. Since \(3 \times 15 = 45\), subtract 45 from 48.
   \[
   48 - 45 = 3
   \]
   Therefore: \(48 \div 15 = 3 \text{ r } 3\)
   Collette can buy 3 handkerchiefs with her money. Her change would be PhP3.
2. Performing the Activities
Divide the class into three groups.
Have the pupils solve the problem in different ways. Let them present their work to the class.

Cleff has 96 pieces of marbles to be placed equally in 12 boxes. How many marbles will be in each box?

3. Processing the Activities
How do we divide 2-digit numbers by 2-digit divisors?

4. Reinforcing the Concept
Ask pupils to find the quotient in the exercises of Activity 1 in the LM. Let them write their answers on their papers.
Answer Key: 1) 10 r 11  2) 7  3) 20 r 4  4) 6  5) 37 r 4  6) 30 r 1  7) 12

5. Summarizing the Lesson
How are 2- to 3-digit numbers divided by 2-digit numbers?

6. Applying to New and Other Situations
Refer to Activity 2 in the LM. Have the pupils find the quotient. Let them show their solutions on their paper.
Answer Key: 1) 8  2) 3  3) 4 r 4  4) 8 r 12  5) 19

C. Evaluation
Refer to Activity 3 in the LM. Let the pupils fill in the blanks. Ask them to choose the answer from the numbers in the box. Have them write their answers on their papers.
Answer Key: 1) 7  2) 1  3) 20  4) 23  5) 11

D. Home Activity
Refer to Activity 4 in the LM. Ask the pupils to complete the table. Let them copy the activity on their notebooks. Have them work at home.
Answer Key: 1) 2 r 12  2) 4  3) 5  4) 11 r 6  5) 20 r 8

---

**Lesson 50 Dividing 2- to 3-Digit Numbers by 10 and 100**

Week 8

**Objective**
Divide 2- to 3-digit numbers by 10 and 100

**Value Focus**
Helpfulness

**Prerequisite Concepts and Skills**
Division and Multiples of 10 and 100

**Materials**
“Show me” boards

**Instructional Procedures**

A. Preliminary Activities

1. **Drill**
   Skip counting activities: Provide a sample activity for this.
   Give the missing numbers to complete the pattern.

<table>
<thead>
<tr>
<th>Given</th>
<th>Multiply by 10</th>
<th>Multiply by 100</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>20</td>
<td>200</td>
</tr>
</tbody>
</table>

2. **Review**
   Complete each table by following the rule.
3. **Motivation**

Divide the class into three groups. Provide each group a multiplication grid. Example: (6 x 15)

<table>
<thead>
<tr>
<th>Multiplier</th>
<th>Multiplicand</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>

a. First, show partition of larger number to make it easier for them to complete the grid. Example: 15 = 10 + 5

b. Write the sum of the number (10 and 5) under the “multiplicand” column. The larger number (10) should be written first followed by the smaller number 5.

<table>
<thead>
<tr>
<th>Multiplier</th>
<th>Multiplicand</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>

Then, multiply the digit on the top row by the multiplier (10 x 6) = 60. Write the answer on the first row under the “multiplier” column. Repeat the same procedure for the other number (5 x 6 = 30).

c. Finally, add the products of these two number (60 + 30) = 90

<table>
<thead>
<tr>
<th>Multiplier</th>
<th>Multiplicand</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>

Sum: 90

Answer the following using the grid.

Group 1: 4 x 65
B. Developmental Activities

1. Presenting the Lesson
   A civic organization receives a donation of 200 bottles of mineral water for the victims of Typhoon Yolanda in Tacloban City. The bottles of mineral water will be distributed equally among 10 families. How many bottles of mineral water would each family receive? Can you help them find ways on how to distribute the number of bottles equally among them?

Let us find 200 divided by 10.

1. Use of family of multiplication and division facts
   
   \[
   \begin{array}{c|c}
   2 \times 1 & 2 \div 1 = 2 \\
   20 \times 1 & 20 \div 10 = 2 \\
   20 \times 10 & 200 \div 10 = 20 \\
   \end{array}
   \]

   Each Barangay will receive 20 boxes of noodles

2. Cross Out Method/Short cut method
   
   Cross out zeros to make division easier.
   
   \[
   \begin{array}{c|c}
   20 \div 10 & 200 \div 10 = 20 \\
   \end{array}
   \]

   Cross out the same number of zeros in both the dividend and divisor.
   
   \[
   \begin{array}{c|c}
   2 \div 1 & 2 = 2 \\
   \end{array}
   \]

   Think:
   
   2 tens ÷ 2 = 2 tens

3. Long Method:
   
   Step 1
   
   \[
   \begin{array}{c|c}
   2 & 10 \div 200 \\
   \end{array}
   \]

   Divide: 20 ÷ 10 = 2
   Multiply 2 x 10 = 20
   Subtract 20 - 20 = 0

   Step 2
   
   \[
   \begin{array}{c|c}
   20 & 10 \div 20 \\
   \end{array}
   \]

   Divide: 2 ÷ 2 = 1
   Multiply 1 x 10 = 10
   Subtract 10 - 10 = 0

   Step 3
   
   \[
   \begin{array}{c|c}
   0 & 0 \\
   \end{array}
   \]

   bring down zero in the ones place
Ask:
a. Which method would you think is easier to use? Why?
b. As a pupil what can you offer/give to these people who were victims of typhoon Yolanda? Why?

Let us have another example:

\[
\begin{align*}
9000 \div 100 &= \\
\text{Look at the number of zeros in the divisor, then cross-out as many zeros in the dividend as there are in the divisor. What do you get?} \\
900\,000 \div 100 &= \\
90 \div 1 &= 90 \\
\text{So, } 9000 \div 100 &= 90
\end{align*}
\]

Let us have more examples:

<table>
<thead>
<tr>
<th>Let us find 42 ÷ 10.</th>
<th>Let us find 8250 ÷ 100.</th>
</tr>
</thead>
<tbody>
<tr>
<td>[10 \overline{42}]</td>
<td>[100 \overline{8250}]</td>
</tr>
<tr>
<td>4 r 2</td>
<td>8 r 25</td>
</tr>
<tr>
<td>40</td>
<td>800</td>
</tr>
<tr>
<td>2</td>
<td>25</td>
</tr>
<tr>
<td>The answer is 4 remainder 2.</td>
<td>The answer is 8 remainder 25.</td>
</tr>
</tbody>
</table>

2. Performing the Activities

a. Divide the pupils into four groups.
   Group 1 and 2 will find the answer using the family of multiplication and division facts and the remaining groups will be using cross-out method or cancellation.
   Ask the pupils to post their answers on the board and let the group leader explain their work.
b. Have pupils work on Activities 1 and 2 in the LM. Tell them to write their answers on their papers.

Answer Key:
Activity 1:  
A. 1) 65  2) 10  3) 10  4) 48 r 6  5) 9 r 3  
B. 1) 6  2) 25  3) 50  4) 40  5) 78  
Activity 2: 1) a  2) b  3) a  4) a  5) d

3. **Processing the Activities**
What are the methods used in dividing numbers by 10 and 100 without remainder? with remainder?

4. **Reinforcing the Concept**
   a. Group Activity: Form the class into four groups. Let them answer the activity using their answer sheet.  
      Follow the number paths. Write the answer in your answer sheet.
      
      ![Diagram 1](50, x100, +10, ?)
      ![Diagram 2](300, x10, +100, ?)
      ![Diagram 3](367, x100, +100, ?)
      ![Diagram 4](52, x100, +100, +10, ?)

      Answer Key: 1) 500  2) 3  3) 36 r 7  4) 5 r 2

b. Have pupils work on Activity 3 in the LM.
   Answer Key:
   1) 56  2) 8  3) 43  4) 75  5) 62  6) 81  7) 90  8) 10

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c. Have pupils work on Activity 4 in the LM. Have them solve the activity in their notebook.

Answer Key:
1) 56  2) 8   3) 43   4) 75   5) 62   6) 81  7) 40  8) 10  9) 12  10) 9

5. **Summarizing the Concept**
What do you do to divide whole numbers by 10 or 100?
To divide whole numbers by 10 or 100, cancel the same number of zeros from both the dividend and the divisor.

6. **Applying to New and Other Situations**
Solve the following problems. (Four in each group)
1. The 500 pupils of San Isidro Elementary School are going on a field trip. They will be distributed equally among ten buses. How many pupils will be in each bus?
2. The pupils are going to watch the dolphin show which can accommodate 100 pupils per group. How many groups of 100 will there be in 500?
3. Angela and Cathy assist their teacher in arranging books in the library. They have to put 400 books in 10 book shelves. How many books will there be in a bookshelf?
4. There are different kinds of books in the library. If there are 100 books of each kind, how many kinds of books are there in 800?
5. Renz and Angelu help their father pack mangoes to be sold in the market. They have gathered 850 mangoes to be divided equally between 10 baskets. How many mangoes are there in every basket?

Answer Key: 1) 50 buses  2) 5 groups  3) 40 books  4) 8 kinds  5) 85 mangoes

C. **Evaluation**
Have pupils work on Activities 5 and 6 in the LM. Check their answers.

Answer Key:

**Activity 5**

<table>
<thead>
<tr>
<th>Quotient</th>
<th>Number sentence</th>
<th>Divisor: 10</th>
<th>Divisor: 100</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) 9</td>
<td>90 ÷ 10</td>
<td>900 ÷ 100</td>
<td></td>
</tr>
<tr>
<td>2) 7</td>
<td>70 ÷ 10</td>
<td>700 ÷ 100</td>
<td></td>
</tr>
<tr>
<td>3) 36</td>
<td>360 ÷ 10</td>
<td>3 600 ÷ 100</td>
<td></td>
</tr>
<tr>
<td>4) 60</td>
<td>600 ÷ 10</td>
<td>6 000 ÷ 100</td>
<td></td>
</tr>
<tr>
<td>5) 78</td>
<td>780 ÷ 10</td>
<td>7 800 ÷ 100</td>
<td></td>
</tr>
</tbody>
</table>

**Activity 6**

1) 48  2) 56  3) 61  4) 82  5) 95  6) 4  7) 5  8) 6  9) 8  10) 9  11) 4 r 9 12) 7 r 5  13) 1 r 25  14) 3 r 66  15) 95
D. Home Activity
Divide the following by 10 and then by 100. Write the answers in your notebook.

<table>
<thead>
<tr>
<th></th>
<th>120</th>
<th>230</th>
<th>360</th>
<th>225</th>
<th>300</th>
<th>345</th>
<th>500</th>
<th>623</th>
<th>1400</th>
<th>2300</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>10</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>100</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Answer Key:

<table>
<thead>
<tr>
<th>Divisor</th>
<th>120</th>
<th>230</th>
<th>360</th>
<th>225</th>
<th>300</th>
<th>345</th>
<th>500</th>
<th>623</th>
<th>1400</th>
<th>2300</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>10</strong></td>
<td>12</td>
<td>23</td>
<td>36</td>
<td>22</td>
<td>30</td>
<td>34</td>
<td>50</td>
<td>62</td>
<td>140</td>
<td>230</td>
</tr>
<tr>
<td><strong>100</strong></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>5</td>
<td>6</td>
<td>14</td>
<td>23</td>
</tr>
</tbody>
</table>

**Lesson 51 Estimating the Quotient**

**Week 9**

**Objective**
Estimate the quotient of 2- to 3-digit numbers by 1- to 2-digit numbers with reasonable results

**Prerequisite Concepts and Skills**
Rounding off numbers

**Materials**
“Show Me” boards, number wheel

**Instructional Procedures**

A. Preliminary Activities

1. **Drill**
   Show the number wheel to the class. Distribute “Show me” boards to the pupils. Instruct them to round off each number that the pointer indicates.
2. **Review**

Divide the class into five groups. Let them complete the grid for 3 minutes.

Make a table as shown below. Let the pupils divide the numbers along the first row (dividend) with the numbers along the first column (divisor). Write the quotient in the grid. Provide an example.

<table>
<thead>
<tr>
<th>Dividend</th>
<th>90</th>
<th>120</th>
<th>150</th>
</tr>
</thead>
<tbody>
<tr>
<td>÷ 3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**B. Developmental Activities**

1. **Presenting the Lesson**

Present a problem.

Let the pupils analyze the given problem.

A jeepney driver travelled a total distance of 325 km in 31 days. About how many kilometers did he travel in each day? (This is assuming he did not have a day off and the distance covered daily is uniform).

Ask:

a. What process will you use to solve the word problem?
b. How will you represent the problem into a number sentence?
c. Can you think of a possible solution to get the answer?

Look at the given: 325 ÷ 31.

Ask the pupils to estimate 325 ÷ 31.

Lead the pupils in discovering the steps.

Lead them to answer the problem by asking questions. Write the pupils’ response on the chart.
Ask:
d. What is the divisor in the given? How many digits are in the divisor?
e. What about the dividend?
f. What is 31 when you round it off to the nearest tens?

Now, can you think of a compatible number closer to 325 that can be divided by 31?
Explain compatible numbers in math are numbers that are close together in value. They can be used for estimations, or when attempting to do mental math. For example, 21 ÷ 11, the compatible numbers are 20 ÷ 10 because 20 can be easily divided by 10. So the estimated quotient of 21 ÷ 11 is 2.

<table>
<thead>
<tr>
<th>Given</th>
<th>Round the divisor</th>
<th>Think of Compatible Numbers</th>
<th>Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>What are given?</td>
<td>352 ÷ 31</td>
<td>300 ÷ 30</td>
<td>325 ÷ 31</td>
</tr>
<tr>
<td>325 ÷ 31</td>
<td>31 rounds to 30</td>
<td>10</td>
<td>10</td>
</tr>
</tbody>
</table>

(Ask the pupils to give possible answers.)

From your list, which among these numbers is closer to 325 and can be a compatible number to divide?
Now, what is your estimate answer?

How far did the driver travel a day?
Does it mean that the driver travels more or less than 10 kilometers in a day?
Why? (The driver travels more than 10 km in a day because 325 ÷ 31 = 10 r 15, which is greater than 10 km.)

Let us have more examples:

If Karen pours 80 glasses of buko juice into 9 pitchers, about how many glasses of buko juice will be in each pitcher?

Let us estimate the quotient of 80 ÷ 9. Look at the divisor. How many digits do we have in the divisor? What about the dividend?

This time let us analyze the dividend. Can you think of a number which is close to 80?
What is the closest number to 80 that can be divided by 9? (81)
Now, what is $81 \div 9$? (9)

So, there will be 9 glasses of buko juice in each pitcher.

Why is it important to think of the basic facts in estimating the quotient?

Is the quotient of $33 \div 4$ greater than or less than 8?

Now look at 33. This number is close to what number? (32) $32 \div 4 = 8$

To check, let us multiply 8 and 4, and you will have the same answer.

Emphasize that, in estimating quotients, we do not round a 1-digit divisor.

2. Performing the Activities
   a. Present the activity to the class. Let the pupils answer Activity 1 in the LM using their paper.

   Answer Key:

<table>
<thead>
<tr>
<th>Given</th>
<th>Round off the divisor</th>
<th>Think of compatible numbers</th>
<th>Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) $184 \div 11$</td>
<td>10</td>
<td>$180 \div 10$</td>
<td>18</td>
</tr>
<tr>
<td>2) $338 \div 48$</td>
<td>50</td>
<td>$350 \div 50$</td>
<td>7</td>
</tr>
<tr>
<td>3) $508 \div 21$</td>
<td>20</td>
<td>$500 \div 20$</td>
<td>25</td>
</tr>
<tr>
<td>4) $677 \div 56$</td>
<td>60</td>
<td>$660 \div 60$</td>
<td>11</td>
</tr>
<tr>
<td>5) $889 \div 78$</td>
<td>80</td>
<td>$880 \div 80$</td>
<td>11</td>
</tr>
</tbody>
</table>

   b. Divide the class into five groups.
      Provide an activity card for each group to perform.
      Ask somebody from the group to report their output.

   | Group 1 | 1) $25 \div 6$ = __________ |
   |         | 2) $274 \div 9$ = __________ |
   | Group 2 | 3) $41 \div 7$ = __________ |
   |         | 4) $526 \div 12$ = __________ |
   | Group 3 | 5) $65 \div 8$ = __________ |
   |         | 6) $615 \div 28$ = __________ |
   | Group 4 | 7) $74 \div 9$ = __________ |
   |         | 8) $479 \div 18$ = __________ |
   | Group 5 | 9) $85 \div 5$ = __________ |
   |         | 10) $285 \div 5$ = __________ |

c. Activity: Read and answer the activity below. Give this problem one at a time. Let the pupils answer each item for one minute.
   (Present this sample first.)
Ask: What basic division fact can you use to help you estimate the quotient of \(14 \div 5\)? Explain.

Possible answer: \(15 \div 5 = 3\). Since 14 is close to 15, the quotient is about 15.

Ask:
1) Is the quotient of \(49 \div 6\) greater than or less than 8? Explain.
   \(\text{Answer: } 48 \div 6 = 8\), so \(49 \div 6\) is greater than 8
2) Is the quotient of \(53 \div 9\) greater than or less than 6? Explain.
   \(\text{Answer: } 54 \div 9 = 6\), so \(53 \div 9\) is less than 6
3) Is the quotient of \(41 \div 7\) greater than or less than 6? Explain.
   \(\text{Answer: } 42 \div 7 = 6\), so \(41 \div 7\) is less than 6

3. Processing the Activities
   Ask:
   a. How did you do to get the answer?
   b. Why is it important to round off the divisor in estimating quotient?

4. Reinforcing the Concept
   Have pupils answer Activity 2 in the LM. Check pupils’ work.

   Answer Key: Activity 2
   A. 1) 40  2) 36  3) 40  4) 40  5) 36
   B. 1) 20 \div 5 = 4  2) 28 \div 4 = 7  3) 36 \div 4 = 9
   4) 64 \div 8 = 8 or 72 \div 8 = 9  5) 95 \div 5 = 19
   C. 1) 120 \div 20 = 6  2) 320 \div 80 = 4  3) 420 \div 60 = 7
   4) 720 \div 90 = 8 or 800 \div 100 = 8  5) 810 \div 90 = 9

   For additional activity, let the pupils estimate the quotient of the following. Let them write their answers in their notebooks.
   1) \(16 \div 5\)
      a. Write the closest number to 16 that divides 5 evenly ______
      b. Write a new number sentence
      c. \(16 \div 5\) is about ______
   2) \(786 \div 37\)
      a. Write the closest number to 786 that divides 37 evenly ______
      b. Write a new number sentence
      c. \(786 \div 37\) is about ______

5. Summarizing the Lesson
   Ask: How can we estimate the quotient?

   To estimate a quotient, round the divisors.
   Think of the compatible numbers to divide the estimate.
6. **Applying to New and Other Situations**

Have pupils work on Activities 3 and 4 in the LM. Discuss and check pupils’ answers.

**Answer Key:**

**Activity 3:**
1) \(64 \div 8 = 8\), about 8 pupils
2) \(48 \div 3 = 16\), 16 in each group
3) \(700 \div 10 = 70\), about 70 pupils or \(732 \div 12 = 61\), about 61 pupils

**Activity 4**

<table>
<thead>
<tr>
<th>Day</th>
<th>Number of Players</th>
<th>Number of Teams</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td>73</td>
<td>8</td>
</tr>
<tr>
<td>Tuesday</td>
<td>37</td>
<td>4</td>
</tr>
<tr>
<td>Wednesday</td>
<td>82</td>
<td>9</td>
</tr>
<tr>
<td>Thursday</td>
<td>55</td>
<td>6</td>
</tr>
<tr>
<td>Friday</td>
<td>46</td>
<td>5</td>
</tr>
</tbody>
</table>

**C. Evaluation**

Have pupils work on Activity 5 in the LM. Check pupils’ work.

**Answer Key:**

A. 1) \(64 \div 7\)
   \[
   \frac{63}{7} = 9 < 9 \text{ r } 1
   \]

B. 1) exact 2) exact 3) estimate

**D. Home Activity**

Have pupils work on Activity 6 in the LM. Have them estimate the quotient.

**Answer Key:**

A. 1) 5 2) 50 3) \(540 \div 6 = 90\) 4) 9 5) \(440 \div 20 = 22\)

B. Pupils’ answers vary

---

**Lesson 52**  Dividing Mentally 2-Digit Numbers by 1-Digit Numbers without Remainder
Week 9

Objective
Divide mentally 2-digit numbers by 1-digit numbers without remainder

Value Focus
Cooperation

Prerequisite Skills
Division, factors of a given number

Materials
Cut-outs, real objects, flash cards

Instructional Procedures

A. Preliminary Activities

1. Drill
   Contest: “A Step for Victory”

   Mechanics:
   1. Pupils will be grouped into fives. Participants from each group will be called one at a time.
   2. Flash the cards with word problems or mathematical facts such as:

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>7</td>
<td>30</td>
</tr>
<tr>
<td>x 6</td>
<td>+ 8</td>
<td>- 11</td>
</tr>
</tbody>
</table>

   a. I’m thinking of a number. When you divide it by 3 the quotient is 6. What is the number?
   b. The dividend is 10, the quotient is 2, what is the divisor?
   c. The divisor is 5, the quotient is 9, what is the dividend?
   d. The divisor is 7, the dividend is 21, what is the quotient?
   e. The dividend is 81, the divisor is 9, what is the quotient?

   3. The first pupil to give the correct answer will make a step forward together with his/her group mates. The first set of pupils from each group will then go at the back of their other group mates.
   4. Another set of pupils from each group will answer another mathematical problem. The first pupil to give the correct answer will make a step forward together with his/her group mates. This set of pupils from each group will also go at the back of their other group mates.
   5. Do this activity until one group reaches the finish line and will be declared the winner.
2. **Review**  
Find the missing numbers.

1. \(3 \times 3 = \)  
4. \(4 \times 4 = \)  
2. \(30 \times \) = 90  
5. \(5 \times \) = 200  
3. \(\) \(\times 3 = 900\)

What multiplication pattern did you use to find the missing number?

3. **Motivation**  
Say:
Get 9 counters, e.g. popsicle sticks. Suppose you will give these counters equally to your 3 friends for your science activity, how many counters will each of your friends receive? Using your “Show me” boards, draw how you will group these counters equally.

1. Into how many groups did you divide the counters? Why?
2. How many counters will be given to each of your friends?
3. Using your show cards, draw different ways of grouping 12 equally.
4. What is the basic fact that you used in the problem? \((9 \div 3) = 3\)
5. Do you also share your toys? Why?
6. How do you feel when you share your toys?

B. **Developmental Activities**

1. **Presenting the Lesson**  
Present a word problem.

Miss Hilario has 90 books in mathematics. She wants to divide these books equally among 3 sections. How many books will each section receive?

Ask:
   a. How many books does Miss Hilario have?
   b. What does she want to do with the books?
   c. How shall she solve the problem?
   d. What is the number sentence? \((90 \div 3 = n)\)

Let us analyse the given in the problem:  
Say: Let’s answer 90 ÷ 3 mentally.  
Ask: Look at the dividend. Is it divisible by 10?  
Since 90 is a multiple of 10, you can simply use the basic fact to divide 90 by 3 mentally

\(90 \div 3 = 9\) tens divided by 3 equals 3 tens.  
So, \(90 \div 3 = 30\)

Each section will have 30 books.  
What strategy did you use to get the answer? *(Family fact/basic division fact)*
If Miss Hilario will distribute the 90 books to 30 schools in Manila, how many books will each school receive?

What process will you use to solve the problem?
Look at the number of zeros in both the dividend and divisor.
Can we cross out the same number of zeros in both the dividend and divisor?
(Write the equation on the board.)

\[ 90 \div 30 = 3 \]

Now think \( 9 \div 3 = 3 \)

So, what is \( 90 \div 30 = 3 \)

Each school will receive 3 books.

What do you call this strategy, when you cancelled the same number of zeros both in dividend and in divisor? **(Cross-out method)**

Can you divide 95 by 5 without using paper and pencil?
Let us find the answer:
Can you rename the dividend 95?
Write the pupils’ response on the board

By renaming:

\[ 95 \div 5 = (60 \div 5) + (35 \div 5) \]
\[ 12 + 7 = 19 \]

So, \( 95 \div 5 = 19 \)

In this example, what did you do to divide mentally? (rename the dividend)
What do you call this strategy? **(Renaming)**

Let us use 95 ÷ 5 in dividing mentally using another strategy:
Ask: What is the divisor? (5)
If the divisor is 5, multiply it by 2 to make it 10.
Multiply also the dividend by 2 to compensate and divide its product by 10.

\[ 95 \div 5 = (95 \times 2) \div (5 \times 2) \]
\[ 190 \div 10 = 19 \]

What strategy did you use to divide? \( 95 \div 5 \)? **(Compensation)**

2. **Performing the Activity**
   a. Divide the following mentally using any method. Use your show me board.
      The teacher will read the given. When she says “stop” the pupils will raise their show me board.

      1. \( 45 \div 5 \)
      6. \( 76 \div 4 \)

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2. 54 ÷ 3  
3. 60 ÷ 2  
4. 68 ÷ 4  
5. 70 ÷ 5  
7. 72 ÷ 3  
8. 85 ÷ 5  
9. 90 ÷ 6  
10. 98 ÷ 7

b. Group Activity

Divide the class into four groups. Ask a representative from each group to serve as guard in the other group. The guard will insure that the group members are not using paper and pencil to get the correct answer. The fastest group with the most number of correct answers wins.

Let them do Activity 1 in the LM.

Answer Key: 1) 15  2) 19  3) 38  4) 17  5) 16

3. Processing the Activity

Ask:
- How did you get the answers in the activity?
- How many digits are there in the divisors? the divisor?
- Can we get the answer without using our paper and pencil? How?
- What strategies did you use in dividing mentally?
- Which among the strategies given is the easiest for you to divide mentally? Why?

4. Reinforcing the Concept

a. Prepare cards with mathematical problems. Instruct one pupil to pick one card from the box. Then ask the pupil to read the question and give the correct answer. (The teacher should have ready-made questions before the activity.)

Examples:

1. 45 ÷ 3 = _____
2. _____ ÷ 10 = 5
3. 60 ÷ _____ = 30
4. 75 ÷ _____ = 25
5. How many tens are there in 60?
6. How many fives are there in 75?
7. What is 46 ÷ 2?
8. How many 15s are there in 60?

b. Refer pupils to Activity 2 in the LM. Have them use mental division to complete each table.
c. Choose one dividend from house A and one divisor from house B to make a division sentence. You may use each number more than once.

<table>
<thead>
<tr>
<th>Dividend A</th>
<th>Divisor B</th>
</tr>
</thead>
<tbody>
<tr>
<td>32 27 56</td>
<td>5 8 6</td>
</tr>
<tr>
<td>63 48 24</td>
<td>3 4 2</td>
</tr>
<tr>
<td>72 81</td>
<td>9 7</td>
</tr>
</tbody>
</table>

5. **Summarizing The Concept**
How do we divide mentally 2-digit numbers by 1-digit numbers without remainder?

To divide mentally, rename the dividend to numbers that are easy to divide, then add their quotient.

When the divisor is 5, use compensation method to divide mentally. This means, multiply the divisor 5 by 2 to make it 10. Then multiply the dividend by 2 and divide its product by 10.

6. **Applying to New and Other Situations**
   a. Let the pupils solve the following problems mentally.
      1. There are 36 mangoes on the table. If Rina will put 4 mangoes in each box, how many boxes will be used?
      2. Mang Tomas sells rice in the market. He wants to pack 75 kilos of rice into 5-kilo bags. How many bags will he need?
      3. Mrs. Padilla’s class is 60 minutes. She wants to divide her class time into 3 equal periods. How many minutes will each period be?
      4. Mother buys 36 meters of cloth for her dress shop. She has to distribute it to her 3 sewers equally.
         a. How many meters will each sewer receive?
         b. How could you use a basic fact to find the answer?
b. Give Activity 3 in the LM to pupils. Have them construct division sentences mentally using the given number as dividend.

C. Evaluation

1. Provide the activity below and let the pupils solve mentally then compare the quotients using greater than, less than or equal to.
   1) \(35 \div 7 \, \text{_____} \, 16 \div 4\)
   2) \(48 \div 6 \, \text{_____} \, 63 \div 7\)
   3) \(56 \div 7 \, \text{_____} \, 24 \div 3\)
   4) \(88 \div 4 \, \text{_____} \, 60 \div 5\)
   5) \(90 \div 3 \, \text{_____} \, 96 \div 3\)

2. Have pupils work on Activity 4 in the LM. Have them explain the method they used to solve the problem.
   Pupils’ answers vary. Check the reasonableness of pupils’ answers.
   Possible answer:
   \((10 \text{ pieces of pencils } \times \text{ PhP6.00}) + (1 \text{ pad paper } \times \text{ PhP15.00}) = \text{ PhP75.00}\)

D. Home Activity

Assign Activity 5 in the LM as homework. Let pupils write their answers in their notebooks. (Pupils’ answers vary)

Lesson 53 Solving Problems involving Division without or with any other Operations of Whole Numbers

Week 10

Objective
Solve routine and non-routine problems involving division of 2- to 4-digit numbers by 1- to 2-digit numbers without or with any other operations of whole number including money using appropriate problem strategies and tools

Value Focus
Resourcefulness, Helpfulness

Prerequisite Concepts and Skills
Division and multiplication facts

Materials
Flashcards
Instructional Procedures

A. Preliminary Activities

1) Drill
   Flash cards with the division facts and let the pupils solve mentally.

   1. 18 ÷ 3 = 6. 63 ÷ 7 = 9
   2. 24 ÷ 4 = 7. 70 ÷ 5 =
   3. 32 ÷ 8 = 8. 80 ÷ 4 =
   4. 49 ÷ 7 = 9. 81 ÷ 9 =
   5. 56 ÷ 9 = 10. 90 ÷ 10 =

2) Review
   Shows a flash card with illustration and ask the pupils to write the division and fact family using their “show me” board one at a time.
   Example:

   Number sentence: M 2 x 6 = 12 \(\rightarrow\) D 12 ÷ 6 = 8

   1. \[ \begin{array}{c}
       \text{M} \\
       \text{D}
     \end{array} \] 

   2. \[ \begin{array}{c}
       \text{M} \\
       \text{D}
     \end{array} \]

   3. \[ \begin{array}{c}
       \text{M} \\
       \text{D}
     \end{array} \]

3) Motivation
   Ask:
   What have you seen in the picture?
   What can you say about the current price of rice in the market?
   Why do you think most of us like to eat rice?
B. Developmental Activities

1. Presenting the Lesson
   Present a problem.
   Mang Ramon packed 96 kilos of rice into 12-kilo bags. A bag of rice was sold for PhP400 each. If he paid his helper PhP500, how much did he earn?

   Let us analyze the problem. Use the following steps:

<table>
<thead>
<tr>
<th>Steps</th>
<th>Questions</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solving problem requires understanding and analysis of the problem.</td>
<td>What do you need to find out in the problem? What does the problem tell? What information do you have? What are the hidden questions?</td>
<td>The amount the owner earned 96 kilos of rice packed into 12-kilo bags. A bag of rice was sold at PhP400 each. Salary of helper PhP500, How many 12-kilo bags of rice were sold?</td>
</tr>
<tr>
<td>Plan: Knowing all the needed information and data, determining what operations to use.</td>
<td>What operations to use? Write a number sentence.</td>
<td>Division and multiplication and subtraction ((96÷ 12) x PhP400) - PhP500 = ______</td>
</tr>
<tr>
<td>Solve</td>
<td>Perform the operations. Do the operation inside the ( ) first.</td>
<td>96÷ 12 =8  PhP400 x 8 = PhP3,200  PhP3,200 – 500= PhP2,700</td>
</tr>
<tr>
<td>Answer:</td>
<td></td>
<td>The vendor earned PhP270</td>
</tr>
</tbody>
</table>

Let’s have more examples:
1. Annie is using plastic string to make key chains. Initially, she had 175 cm of plastic string. She used 30 cm for one key chain. Is Annie going to have enough plastic string for five more key chains of the same size?

Do you have any idea on how to solve this problem? Let’s figure out!
2. Jenny has 15 pieces of stars. She wants to share them equally with her 3 friends, how many stars will each of them receive? Can you think of different ways to solve this?

Provide cut-outs of 15 pieces of stars. Ask the pupils to group the stars to demonstrate equal sharing.

Ask: Can we group the stars into 3 equally?

Ask two pupils to demonstrate the groupings.

Possible Answers:
- Pupil 1 will give the stars one at a time to her friends until all the stars are given.
- Pupil 2 will give 5 stars at once to each of her friends.

So, each of them will receive 5 stars.

### 2. Performing the Activities

a. Work in pairs.

<table>
<thead>
<tr>
<th>Understand</th>
<th>What facts do you know?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• The roll of string is 175 cm long.</td>
</tr>
<tr>
<td></td>
<td>• Each keychain is 30 cm long.</td>
</tr>
<tr>
<td></td>
<td>• She has already used 40 cm of string.</td>
</tr>
<tr>
<td>What do you need to find?</td>
<td>Does Annie have enough string to make 6 more key chains?</td>
</tr>
</tbody>
</table>

| Plan | (The teacher should bring the following to facilitate the learning process. Use the act it out strategy with a piece of string that is 175 cm long. Mark off the amount used for the first keychain, 30 cm, and continue marking off lengths of 30 cm until there are six more key chains or no more string left. |

| Solve | Notice that there is only enough string for 4 more key chains. So, there is not enough plastic string for 5 more key chains. |

| Check | Look back. Is the answer reasonable? Check by multiplying. Since \(30 \times 5 = 150\) and \(30 \times 6 = 180\), there is only enough string for 5 key chains in all, not 6. |

<table>
<thead>
<tr>
<th>0</th>
<th>30 cm</th>
<th>60 cm</th>
<th>90 cm</th>
<th>120 cm</th>
<th>150 cm</th>
<th>175 cm</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 cm</td>
<td>30 cm</td>
<td>30 cm</td>
<td>30 cm</td>
<td>30 cm</td>
<td>25 cm</td>
<td></td>
</tr>
</tbody>
</table>
Instruct the pupils to work in pair. The teacher will post a question on the board. Ask them to draw a picture to illustrate the sharing of 6 pieces of 50-peso bills equally distributed among 5 friends. How much will each receive? Let the pupils explain their work.

b. Have pupils read and answer Activity 1 in the LM. Have them use different strategies in finding the answer. Let them explain their answer. (Pupils’ strategies may vary.)
   Answer Key: (possible answers)
   1) Yes, 60 – (7 x 7) = 60 – 49 = 11 sandwiches left
   2) PhP850 ÷ 120 = 7 r 10; 10 pesos would be left after 7 days
   3) 2 161 ÷ 200 = 10 r 161, 10 baskets with 200 mangoes and 161 mangoes will be put in one basket

3. Processing the Activities
   Ask: What are the different strategies in finding the answer?

4. Reinforcing the Concept
   Group Activity
   Divide the class into six groups. Distribute the activity cards. Ask them to show their solution and post their work after answering the activity.

   Groups 1 and 2
   Jovie saves PhP 225.00. She would like to buy identical gifts for her 3 friends. How much is the cost of gift that she would give to them?

   Groups 3 and 4
   Look at the table below.
   1. Helper A can carry 10 boxes of rambutan
   2. Helper B can carry 8 boxes of rambutan
   3. Helper C can carry 6 boxes of rambutan

   How many different ways could the three helpers divide the boxes of rambutan? How do you know that you have shown all the possible ways of grouping 24?

   Groups 5 and 6
   There are 225 pupils in Grade 3. If the pupils are divided equally into 5 sections, how many pupils are there in each section?

   Illustrate the sentences below and write the number sentence.
   1. PhP3 200 is given to 80 pupils.
   2. Mario bought 3 kilos of rice worth PhP112.
   3. 32 pieces of pandesal given to 4 pupils
   4. 60 goats owned equally by 6 farmers
5. **How many 50’s are there in 6 000?**

5. **Summarizing the Concept**
   Ask: What are the different strategies /methods in solving word problems?

6. **Applying to New and Other Situations**
   a. Have pupils work on Activity 2 in the LM. Have them illustrate or show the different ways of grouping/answering the given problems.
      Answer Key:
      1) 4 cupcakes
      2) Yes, because PhP750 ÷ (5 + 2) = PhP107 with PhP1 remaining
      3) 3 packs of noodles, 4 kilos of rice and 1 bar of laundry soap for each household
      4) Yes, because 35 x PhP50 = PhP1 750. PhP1 750 is less than PhP6 000.
      5) Pupils answers may vary
   b. Have them work on Activity 3 in the LM.
      Answer Key: Strategies of pupils’ may vary.
      Possible solutions:
      1) Pupils may draw 76 objects and group them into 12 sets of 6. The number of objects left is 4.
      2) PhP920 ÷ 20 = 46 twenty-pesos
      3) 15 4) 25 5) 6 groups of 100
   c. Let the pupils answer the following questions by pairs. Let them show their solutions in their notebook
      1) A baker bakes 1 720 cookies. He placed 25 pieces in each plastic bag. How many plastic bags of cookies were there in all?
      2) Seven boys ate their lunch at the canteen. The meal cost PhP238. They agreed to share equally the expenses. What was the share of each boy?
      Answer Key:
      1) 68 plastic bags with 25 cookies and 20 remaining cookies
      2) PhP34 share of each boy

C. **Evaluation**
   Let the pupils answer the problems below on their paper.

   Direction: Read and answer the problems.
   1) A sampaguita vendor gathered 800 sampaguita flowers. She used 10 flowers to make a garland. How many garlands did she make?
   2) Mr Reyes’s store had 144 pairs of socks. The socks were sold in packages of 12 pairs. How many packages were there?
   3) Mrs. Abellardo withdrew PhP2 500 from the bank. She bought grocery items worth PhP1 375 and the remaining amount would be given equally among
her 3 children as their weekly allowance. How much would each child receive? Explain your answer.
Answer Key: 1) 80 garlands 2) 12 packages 3) PhP375 per child

D. Home Activity
Let pupils answer Activity 4 in the LM.
(Pupils’ answers may vary.)

Lesson 54 Creating Problems involving Divisions or with any of the other Operations of Whole Numbers

Week 10

Objective
Create problems involving division or with any of the other operations of whole numbers including money with reasonable answers

Value Focus
Sharing

Prerequisite Concepts and Skills
Multiplication, Addition and Subtraction of numbers including money

Materials
Flashcards, smartboard, pictures, guava fruits, plastic knives, cutouts, play money, coins

Instructional Procedures

A. Preliminary Activities

1. Drill
Use the operation of multiplication and division to fill in the empty boxes.

a.

\[
\begin{array}{ccc}
6 & x & 48 \\
\times & \\
72 & & \\
\end{array}
\]

b.

\[
\begin{array}{ccc}
5 & 10 & 50 \\
\times & 1/2 & \\
30 & & 150 \\
\end{array}
\]

2. Review
Have the pupils complete some number sentences on the board.

1) 3 2) 4 3) 5 4) 6 5) 7

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3. **Motivation**
   What steps do you follow in problem-solving?
   - Understand the problem
   - Plan the solution
   - Solve
   - Check for review

   What do you do to understand a problem?
   - Read and reread

   How do you decide what to do?
   - By noting how the quantities are related to each other

   How do you check your answer?
   - Do the problem over again, do the problem in a different way

B. **Developmental Activities**

1. **Presentation**

   Post the story on the board. (also found in LM)

   Six children were playing in the backyard. Two more children came to join. Then they picked 24 guavas.

   Ask pupils to make questions that can be answered using division or with other operations. Then let them solve the created problem.

   Examples:
   - How many guavas will each of the six children receive if they divide the guavas equally among them?
   - How many guavas will all the children receive if they divide the guavas equally among them?

2. **Performing the Activities**

   Ask: Can you also create your own problem like the one given, where you can involve division or any other operations?

   Divide the class into groups. Let each group answer the different situations.

   **Situation 1:**
   Read the story and make a problem involving division.

   A shirt company made 475 shirts last week. The workers only work from Monday to Friday.
Situation 2:
Write a problem involving division and with any of the other operations using
the information in the box.

\[
\text{afternoon snacks for your classmates,}
\text{PhP1 000, banana, brown sugar, gulaman, tube ice}
\]

Situation 3:
Make a problem using the table below.

<table>
<thead>
<tr>
<th>Animal</th>
<th>Number of Animals</th>
<th>Number of Cages</th>
</tr>
</thead>
<tbody>
<tr>
<td>bird</td>
<td>20</td>
<td>2</td>
</tr>
<tr>
<td>dog</td>
<td>9</td>
<td>4</td>
</tr>
<tr>
<td>rabbit</td>
<td>18</td>
<td>3</td>
</tr>
</tbody>
</table>

3. Processing the Activities
Divide the class into groups of five.
Post the two best problems in each situation and let them do the tasks below.

a. Ask each group to role play the situation and report on how many ideas
   they generated:
   In how many ways can come up with PhP1 000 using 8 pieces of paper
   bills? List the combinations.
   What is the least number of paper bills equivalent to PhP1 000?
   What is the most number of paper bills equivalent to PhP1 000?

b. Have the pupils share strategies that they can use to write problems in
   which the remainder is 3.
   (Possible answer: Add 3 to the product of a multiplication fact that
   uses 3 as a factor, such as 4 x 3=12. Divide the sum by the other factor,
   12 + 3 = 15, 15 ÷ 4 = 3 r 3)

4. Reinforcing the Concept
Let the pupils answer Activity 1 in the LM. Ask the pupils to work with a partner
and make a problem with reasonable answer based on the given situation.
Answer Key: Pupils’ answers may vary.
Possible answers:
1) There are 45 pupils in a class. They are given 100 packs of powdered milk.
   If each pupil will be given equal number of powdered milk, how many
   packs will each of them receive? 100 ÷ 45 = 2 r 10; two packs of
   powdered milk per pupil
2) Teresa counted 100 feet of chickens and goats in their farm. If the
   number of goats is one more than the number of chickens, how many
   chickens and goats are there? 17 goats and 16 chickens
17 goats x 4 = 68 feet; 16 chickens x 2 feet = 32 feet

5. **Summarizing the Lesson**
How do you create a problem on a given situation?

- Familiarize with the concepts in math. Think of the application to everyday life situations.
- Think of the type of problem you want to make and the operations involved. Relate the problem to a real-life situation.
- Read more math problems. Study the solution in solving the problems.
- Make your own styles in generating ideas.

6. **Applying to New and Other Situations**
a. Let the pupils answer Activity 2 in LM.
   
   Encourage the pupils to exchange and solve each other’s riddles.
   Answer for the sample riddle:
   5 children, because the 4 daughters has only one brother

b. Divide the class into groups. Let the pupils answer Activity 3 in the LM.
   (Pupils’ answers may vary.)

C. **Evaluation**
Let the pupils make problems and give their reasonable answers to each data in Activity 4 in the LM.
(Pupils’ answers may vary.)

D. **Home Activity**
Let the pupils answer Activity 5 in the LM.

Possible Answers:
1) Three friends planted 84 pechay. Each plot has 14 pechay. How many garden plots does each boy have?
2) No, at the rate of learning 2 words in 6 days, he will learn only 12 words (2 \times 6 = 12) not 15.

3) 13 \div 6 = 2 \text{ r } 1; \text{ each person will get two glasses of pineapple juice}
Lesson 55  Odd and Even Numbers

Week 1

Objective
Identify odd and even numbers

Value Focus
Alertness

Prerequisite Concepts and Skills
Skip counting by 2s

Materials
Printed exercises, counters

Instructional Procedures

A. Preliminary Activities

1. Drill
   Have the children name which number is greater and which number is less.
   
   5 and 7
   23 and 21
   424 and 426
   1 330 and 1 329

2. Review
   Have children discuss any pattern they see.
   Add:

   2 + 3 =  
   2 + 4 =  
   3 + 4 =  

   3 + 5 =  
   4 + 5 =  
   3 + 5 =  

3. Motivation
   Let pupils play a game “Open the Basket.”
   1. Five pairs of pupils will hold hands to form a basket. The rest of the pupils will go inside the baskets.
   2. Say, “Open the basket three pupils can go inside a basket”. Only three pupils should be inside one basket. The pupil/s who was/were not able to go inside any one of the baskets will sit down.
e.g. 30 pupils - 5 pairs of pupils to be in the baskets (10 pupils), 20 pupils can go inside the basket; so if the teacher says, three pupils can go inside the basket (3 x 5 = 15 pupils), 5 pupils will sit down

* Number of pupils who can go inside the basket may vary.

3. Remove one pair of the pupils who form a basket. Say again, “Open the basket two pupils can go inside a basket”. Only two pupils should be inside one basket. The pupil/s who was/were not able to go inside any one of the baskets will sit down.

4. Repeat the game until only one pair of basket remains and only one pupil is inside the basket.

Ask: What happens to pupils who were not able to find an empty basket? What should you do so you will not sit down?

How many makes a pair?

B. Developmental Activities

1. Presenting the Lesson
   Talk with pupils about things that come in pairs.
   Let pupils work in fours.
   - Provide each group 50 counters/objects. Tell them to count 20 counters/objects and group these in pairs.
   - Next, tell the groups to count 19 counters/objects. Let them arrange their objects again in pairs.
   - Ask the pupils to compare the two groups of objects. Let them describe how the 2 groups differ. Let them identify 20 as an even number and 19 as an odd number. Tell them that a number is even when all the objects come in pairs and it is odd when there is an object without pair.
   - Repeat with several other numbers, always identify the numbers as even or odd. Have a pupil tell how it is decided that the number is even or odd.
   - Let the pupils study the underlined digits of the following numbers: 40, 56, 72, 174 and 7958.
     What kind of numbers are they? Why?
   - Do the same procedure with these odd numbers. 47, 23, 165, 821 and 6429.

2. Performing the Activities
   Present this story problem to pupils.

   Mrs. Ching’s class is going to join the school program, so the pupils are lining up in pairs. Today she has 24 pupils in class. Does each pupil
have a partner? Why? What if there are only 23 pupils, will all the pupils have a partner? Why?
Let the pupils solve the problem using their counters.
Ask them to show 24 and 23 in pairs.

<table>
<thead>
<tr>
<th>Show 24 in pairs.</th>
<th>Show 23 in pairs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Pair of 24]</td>
<td>![Pair of 23]</td>
</tr>
</tbody>
</table>

24 is even. 23 is odd.

All even numbers make pairs. All odd numbers have one without pair.

Even numbers end in 0, 2, 4, 6 or 8.
Odd numbers end in 1, 3, 5, 7, or 9.

Since 24 ends in 4, it is an even number.
So, each pupil in Mrs. Ching’s class has a partner.

Talk about it:
- Can each person in your classroom have a partner? How can you find out?

You can also find odd or even number patterns in sums.

Give these examples to pupils.
Ask:

| 6 + 6 = 12 | What kind of numbers are the addends. What is the sum of 2 even numbers? |
| 2 + 6 = 8  |

| 2 + 7 = 9  | What is the sum of an even number and an odd number? |
| 6 + 1 = 7  |

| 3 + 5 = 8  | What is the sum of 2 odd numbers? |
| 5 + 9 = 14 |

3. **Processing the Activities**
Ask: How did you find out whether a number is odd or even?
4. **Reinforcing the Concept**
   Refer to Activity 1 in LM. Ask the pupils to copy the numbers on their paper. Let them write whether the number is odd or even.
   
   **Answer Key:**
   
   1) even  2) even  3) odd  4) odd  5) odd  6) odd  7) even  8) even  
   9) even  10) odd  11) odd  12) even  13) even  14) even  15) odd

5. **Summarizing the Lesson**
   When is a number even?
   When is it odd?

   Even numbers are numbers that can be divided exactly by 2. Even numbers end in 0, 2, 4, 6 or 8.

   Odd numbers are those numbers that cannot be exactly divided by 2. Odd numbers end in 1, 3, 5, 7, or 9.

6. **Applying to New and Other Situations**
   Refer to Activity 2 in LM. Have the pupils identify the number asked for on their paper.
   
   **Answer Key:**
   
   1) 79  2) 123  3) 599  4) 1 398  5) 2 204

C. **Evaluation**
   Refer to Activity 3 in LM. Have the pupils work on the puzzle on their paper. Ask them to color the odd numbers red and the even numbers green.

D. **Home Activity**
   Refer to Activity 4 in LM. Ask the pupils to answer the questions in their notebooks.
   
   **Answer Key:**
   
   1) 16  2) 4 193  3) 9 + 8 = 17  4) 210  
   5) even numbers  6) even numbers  7) odd numbers  
   8) 1 009 or 1 011  9) 12 and 14  10) 975

---

**Lesson 56  Fractions Equal to One and Greater than One**

**Week 1**

**Objective**
Visualize fractions that are equal to one and greater than one

**Value Focus**
Sharing
Prerequisite Concepts and Skills
Fractions less than one

Materials
Illustration of fractions less than one, cake model, cut-outs of figures, number lines

Instructional Procedures

A. Preliminary Activities

1. Drill
   Let the pupils give the fractions for the shaded parts and unshaded parts. Write their answer on the board.

2. Review
   Game – “Climbing the Ladder”
   a. Call on 2 pupils.
   b. Engage them in a race in climbing the ladder by checking out all fractions less than one. (The ladder should have the same fractions).
c. The first pupil to come up with the most number of correct answers wins the game. (Give some safety reminders like: Do not push each other.

Ask: When is a fraction less than one? A fraction is less than one when the numerator is less than the denominator.

3. **Motivation**
Show a cake model.

On Ena’s birthday, her mother baked her a cake. Ena divided it into 8 equal parts to be shared among her friends.

Ask: How did Ena divide the cake? Into how many equal parts was the cake divided? What will Ena do with the cake?

B. **Developmental Activities**

1. **Presenting the Lesson**
Present the following regions with all the parts shaded (cut-outs)

![Diagram of fractions]

A  B  C
Ask: Into how many equal parts is figure A divided? Figure B? Figure C?
What fractional parts are shaded?

What do you call the fractions $\frac{2}{2}$, $\frac{4}{4}$ and $\frac{8}{8}$?

Let the pupil discover that fractions equal to one have the same numerator and denominator.

Pose the problem story.

Mother came home with 2 egg pies. She cut each into 4 equal parts. She gave her five children one piece each. What part of the pies did mother give?

Illustrate the problem models of 2 egg pies cut into 4 equal parts. Have the pupils act out the problem situation and post the model showing the given parts.

Ask: What do you call each part? How many parts are there? How many wholes were formed using the parts? How many parts were there with the whole? Lead them to see through the model posted on the board that these parts are equal to one and $\frac{1}{4}$, a fraction more than a whole.

Write this as a fraction more than one. (\(\frac{5}{4}\))

Have the pupils compare the numerator and the denominator of the fraction. Ask which of the two is greater.

Show this other way of presenting the lesson

\[
\begin{align*}
0 & \quad \frac{1}{2} & \quad 1 \text{ whole} & \quad \frac{2}{2} & \quad \frac{3}{2} \\
\frac{1}{3} & \quad \frac{2}{3} & \quad 1 \text{ whole} & \quad \frac{3}{3} & \quad \frac{4}{3}
\end{align*}
\]
For each number line, have the pupils figure out the number of equally divided pieces needed to be equal to one. Have them express their answers as fractions. Also, have them locate the fractions greater than one in each number line. To increase their understanding, ask them to compare the length represented by the fractions.

2. **Performing the Activities**
   a. What kind of fractions are the following:

   Ask: What kind of fractions are in A? in B? Why?
   What do you notice about their numerators and denominators?

   b. Play a game. “Look for Partners”
      1. Distribute different cut-outs of region divided into equal parts
      2. Let them look for partners with shapes similar to theirs
      3. When everybody has found his/her partner, let them form the model of a whole and name it along with other parts.

3. **Processing the Activities**
   How do we visualize fractions equal to one? More than one?

4. **Reinforcing the Concept**
   Refer to Activity 1 in LM. Let the pupils copy the activity on their paper. Ask them to encircle the fractions that are equal to one in each set of fractions. Box the fractions that are more than one.
5. **Summarizing the Lesson**

When are fractions equal to one? more than one?

Fractions are called “fractions equal to one” when their numerators and denominators are the same.
Fractions are called “fractions more than one” when the numerators are greater than the denominators.

6. **Applying to New and Other Situations**

Refer to Activity 2 in LM. Have the pupils write FE = 1 before fractions equal to one, FM > 1 before fractions more than one on their papers.

Answer Key: 1) FE = 1  2) FM > 1  3) FM > 1  4) FM > 1  5) FE = 1  6) FE = 1  7) FM > 1  8) FE = 1  9) FM > 1  10) FE = 1

C. **Evaluation**

Refer to Activity 3 in the LM in answering “Who Am I?” activity.

Answer Key:

1) \( \frac{5}{5} \)  2) \( \frac{9}{8} \)  3) \( \frac{9}{4} \)  4) fractions equal to one  5) \( \frac{10}{10} \)

D. **Home Activity**

Refer to Activity 4 in LM. Ask the pupils to copy the exercise in their notebooks. Let them fill up the table with fractions.

**Answer Key:**

<table>
<thead>
<tr>
<th>Fraction Less than One</th>
<th>Fraction Equal to One</th>
<th>Fraction More than One</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \frac{5}{6} )</td>
<td>( \frac{10}{10} )</td>
<td>( \frac{3}{2} )</td>
</tr>
<tr>
<td>( \frac{5}{11} )</td>
<td>( \frac{3}{6} )</td>
<td>( \frac{8}{4} )</td>
</tr>
<tr>
<td>( \frac{5}{12} )</td>
<td>( \frac{5}{7} )</td>
<td>( \frac{9}{4} )</td>
</tr>
<tr>
<td>( \frac{8}{15} )</td>
<td>( \frac{7}{7} )</td>
<td>( \frac{8}{4} )</td>
</tr>
<tr>
<td>( \frac{9}{11} )</td>
<td>( \frac{9}{9} )</td>
<td>( \frac{9}{2} )</td>
</tr>
</tbody>
</table>
Lesson 57  Reading and Writing Fractions Greater than One

Week 2

Objective
Read and write fractions that are greater than one in symbols and in words

Value Focus
Sharing, Fairness

Prerequisite Concepts and Skills
Reading and writing unit fractions in symbols and in words

Materials
Cut-outs of different shapes, cards with fractions and shapes

Instructional Procedures

A. Preliminary Activities

1. Drill
   Give the fractions for the shaded parts.

2. Review
   Have a review on fractions equal to one and greater than 1. Write A if the fraction is equal to one and B if the fraction is more than one.
   \[
   \begin{array}{cccc}
   \frac{6}{6} & \frac{9}{3} & \frac{9}{9} & \frac{11}{4} & \frac{10}{10} \\
   \end{array}
   \]

3. Motivation
   Ask the class to read the problem. Let the pupils act it out. Have them answer the questions below.

   Jojo cut a bibingka into 8 equal parts. He gave 2 pieces to each of his 3 brothers and ate the rest. What part did each one get?

   Ask: To whom did Jojo give the 3 parts of the bibingka?
How did he divide the bibingka?
What kind of a boy is he?
What value does he possess?
Do you want to be like him? Why?

B. Developmental Activities

1. Presenting the Lesson
   a. Talk about the story problem.
      Ask: Who cut a whole bibingka?
      Into how many parts did he cut the bibingka?
      What do you call each part?
      How do you write the fraction in words? in symbols?
      What parts were eaten by Jojo and his brothers?
      Write the fraction in symbol and in words.

   b. Conduct a game.
      - Make several pairs of cards like the one shown below.
      - Shuffle the cards and place them on the pocket chart or taped on the board facing down.
      - Divide the class into 2 groups. At the teacher's signal, a player from each group chooses 2 cards and match them, the player keeps the matched cards. Otherwise, the player puts back the cards to their original position. The group with the most number of matched cards wins.

2. Performing the Activities
   Ask the class to read this problem.

   Some pupils of Mrs. Molina’s class colored game-squares. How many game-squares did the pupils color?

   We see:

   We read: \( \frac{5}{2} \)
   We write: five-halves
Ask: How many game-squares did they color?  
What part of third game-square did they color?  
How do you write the total number of game-squares the  
pupils colored?

3. **Processing the Activities**  
What do you call the number above the bar line?  
How about the number below the bar line?  
How do you write a fraction in symbol? in words?  
What can you say about the numerator and the denominator of a  
fraction greater than one?

4. **Reinforcing the Concept**  
Ask pupils to answer Activity 1 in the LM.

Answer Key: 1) five-fourths, \( \frac{5}{4} \), h  
2) eight-sixths, \( \frac{8}{6} \), e  
3) three-halves, \( \frac{3}{2} \), c  
4) five-thirds, \( \frac{5}{3} \), b  
5) nine sixths, \( \frac{9}{6} \), g  
6) seven-fifths, \( \frac{7}{5} \), d  
7) eight-fourths, \( \frac{8}{4} \), a  
8) twelve-ninths, \( \frac{12}{9} \), f

5. **Summarizing the Lesson**  
Can fractions greater than one be read and written in symbols and in  
words? How are they read? Written?  
What is the relationship between the numerator and the denominator  
of a fraction that is greater than 1?

A fraction greater than one can be written in symbols and in words. The numerator is greater than the denominator.

6. **Applying to New and Other Situations**  
Refer to Activity 2 in LM. Have the pupils write the number fractions on  
their papers.

Answer Key:

1) \( \frac{4}{3} \)  
2) \( \frac{10}{8} \)  
3) \( \frac{8}{7} \)  
4) \( \frac{9}{6} \)  
5) \( \frac{11}{7} \)  
6) \( \frac{6}{5} \)  
7) \( \frac{12}{9} \)  
8) \( \frac{13}{10} \)  
9) \( \frac{12}{11} \)  
10) \( \frac{15}{3} \)
C. Evaluation
Refer to Activity 3 in LM. Ask the pupils to write the fractions for the names on their papers.
Answer Key: 1) eight-sevenths  2) four-thirds  3) ten-eighths  
4) six-fourths  5) nine-sixths  6) five-halves  7) nine-eighths  
8) twelve-tenths  9) six-halves  10) seven-fifths

D. Home Activity
Refer to Activity 4 in LM. Let the pupils work on the activity on their notebooks at home. Ask them to write the fraction in symbols and in words.

Lesson 58 Representing Fractions using Regions, Sets, and Number Lines

Week 2

Objective
Represent fractions using regions, sets, and number lines

Value Focus
Equality

Prerequisite Concepts and Skills
Identifying, writing and reading unit fractions

Materials
Number cards of fractions, square cards, connecting cubes, box with strips of paper on which fractions are written

Instructional Procedures

A. Preliminary Activities

1. Drill
Prepare some cut-out shapes like the ones below. Show a variety of shapes, each divided into two. Prepare similar cards for thirds and fourths. Explain that each figure should be shaded to show the fraction flashed by the teacher.

[Diagram of shapes]
2. **Review**
   Name the fractional part with an X in each given figure.

   1)  
   2)  
   3)  

3. **Motivation**
   Let pupils work in pairs. Provide each pair with one square card. Ask one group of pairs to divide their squares into three and shade a part to show one-third. Another group of pairs will divide their squares into four and shade a part to show one-fourth. And another group of pairs will divide their squares into two and shade a part to show one-half.

   Ask pupils to name the fractional part of each square that is shaded.

   Ask: What would you do if you and two friends had to share one rectangular cassava cake? How will you divide the cassava cake? If you divide it equally, what trait do you demonstrate?

**B. Developmental Activities**

1. **Presenting the Lesson**
   a. Representing fractions using regions

   Distribute a graphing paper or a grid paper (as shown) and crayons to groups of 3. Let each group draw the following regions in the graphing or grid paper and color the parts asked for.
   - Draw a 3 x 3 square region. Color 3 squares. Ask: What fractional part of the region is colored. Call some groups to show their work. Let them write the fraction form of the shaded portion.
   - Draw a 1 x 5 rectangular region. Color 2 squares. Ask: What part of the rectangular region is not shaded or colored? Call some groups to show their work. Let them write the fraction form of the unshaded portion.
   - Draw a region with 24 squares. (The groups may draw a 4 x 6, a 3 x 8, a 2 x 12 or a 1 x 24 rectangular region). Ask: If you color one-half of the region, how many squares are colored or shaded? Why? Let the groups explain their answer using their drawing.
b. Representing fractions using sets
Post the following illustrations on the board.
Let pupils study the sets of objects. Let them identify/name the objects in each set. Ask them to count the objects in each set.

Ask:
In Set A, how many ampalaya are shaded? What part of the set is shaded? not shaded? Write the fraction for the shaded part, unshaded part. How many more ampalaya should we shade to show ½? Explain their answer.
In set B, how many butterflies are shaded? What part of the set is shaded? not shaded? Write the fraction for the shaded part, unshaded part. Are we going to shade more butterflies or unshade some butterflies to show 1/3 of the set? How many do we need to add or subtract? Why?
In set C, what is the fraction for the whole set? Let them write the fraction. How many frogs should we color to show two-sevenths? Let them color the frogs.

Call some pupils to draw the following sets on the board.
e.g. set of 10 balls, show 3/10; set of 16 pencils, show 1/2

c. Representing fractions using number line

Show this other way of representing the fractions using the number line.
Let the pupils equally divide the number line as described.

Figure A  
\[\text{4 equal parts}\]

Figure B  
\[\text{6 equal parts}\]

Figure B  
\[\text{8 equal parts}\]

Ask: Into how many parts is each of the number lines divided?
What do we call one part of figure A? B? C?
Let the pupils name and write the fractional part of each number line on their chalkboards.

2. Performing the Activities

Have the class work in pairs.
- Distribute two squares of the same size to each pair.
- Let pupils find two different ways to divide the squares into 4 equal parts and draw lines that illustrate the ways they found.
- When all the squares have been divided by the pairs, compare all the ways found to divide the same figure into equal parts.
- Let pupils give the fraction for one part, two parts, etc.
(Possible ways to divide a square into 4 equal parts)

- Distribute more squares of the same size to each pair. Repeat the activity by asking for different numbers of equal parts, e.g. 3 equal parts, 5 equal parts
- Ask pupils to give the fraction for one part, two parts, etc. of the given figure.
3. **Processing the Activities**
   Ask: How are fractions represented? How should you divide a region, a set and a numberline?

4. **Reinforcing the Concept**
   Refer to Activity 1 in LM. Ask the pupils to name the fractional part of each figure. Let them write their answers on their papers.
   Answer Key: 1) 2/12  2) 4/8  3) 1/4  4) 2/4  5) 2/6

5. **Summarizing the Lesson**
   How can fractions be represented?
   Fractions can be represented by the use of regions, sets and segments of numberlines.

6. **Applying to New and Other Situations**
   Refer to Activity 2 in the LM. Let the pupils write the fraction for the part of each group that is shaded on their papers.
   Answer Key: 1) 2/5  2) 4/5  3) 6/10  4) 3/9  5) 3/6

C. **Evaluation**
   Refer to Activity 3 in the LM. Have the pupils write the fraction that names the part of the group described on their papers.
   Answer Key: 1) 1/3  2) 2/5  3) 3/10  4) 3/7  5) 4/9

D. **Home Activity**
   Refer to Activity 4 in the LM. Ask the pupils to copy the activity in their notebooks. Let them do this at home.
   Answer Key: A. 1) 3/8  2) 5/6  3) 7/10  4) 3/5  5) 4/7
   B. 1) 1/6  2) 3/3  3) 5/8  4) 3/9  5) 4/7

**Lesson 59 Visualizing Dissimilar Fractions**

**Week 3**

**Objective**
Visualize dissimilar fractions

**Value Focus**
Cooperation

**Prerequisite Concepts and Skills**
Unit fractions, fractions less than one and more than one and similar fractions
Materials
Activity sheets, flash cards, charts

Instructional Procedures

A. Preliminary Activity

1. Drill
Name the fraction represented by the shaded part.

Examples:

\[
\begin{array}{ccc}
\frac{1}{2} & \frac{1}{3} & \frac{2}{4} & \frac{3}{8}
\end{array}
\]

2. Review
A. Parts of a Fraction
1. What does 1 mean in \(\frac{1}{2}\)? What does 1 mean in \(\frac{1}{3}\)? What does 2 mean in \(\frac{2}{4}\)? What does 3 mean in \(\frac{3}{8}\)? What do we call these numbers written above the fraction bar?
2. What does 2 mean in \(\frac{1}{2}\)? What does 3 mean in \(\frac{1}{3}\)? What does 8 mean in \(\frac{3}{8}\)? What do you call these numbers written below the fraction bar?

B. Recall the concept of similar fractions.
Present exercises like:
1) 2/5, 3/5, 4/5, ____
2) 3/8, 4/8, ____ , 6/8
3) 1/7, ____ , 3/7, 4/7

Ask: What do you notice with the fractions? Why do you call them similar fractions?

3. Motivation
Group Work
1. Divide the class into 3 groups. Group 1 will be “rectangle group”. Group 2 will be “circle group”. Group 3 will be “square group”.

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2. Give each group 3 pieces of cut-outs of the shape the group is named after.

3. Ask each group to get a shape and fold it into three equal parts. Let them darken the creases. The “rectangle group” will shade 1 part, the “circle group” will shade 2 parts and the “square group” 3 parts.

4. Ask them again to get another shape and fold it into four equal parts. Let them darken the creases again. The “rectangle group” will shade 1 part, the “circle group” will shade 2 parts and the “square group” 3 parts.

5. Ask them to get the last shape, fold the shape into 8 equal parts. Darken the creases. Let the “rectangle group” shade only one part; the “circle group”, 3 parts; and the “square group”, 5 parts.

(Note: Give the importance of cooperation while doing the group activity)

B. Developmental Activities

1. Presenting the Lesson
   Ask each group to post their work on the board.

<table>
<thead>
<tr>
<th>Rectangle Group</th>
<th>Circle Group</th>
<th>Square Group</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Rectangle Group" /></td>
<td><img src="image2" alt="Circle Group" /></td>
<td><img src="image3" alt="Square Group" /></td>
</tr>
</tbody>
</table>

   (Note: The folding style may vary for rectangle and square)

2. Performing the Activities
   Ask one pupil to get the picture of 1/8, 3/8 and 5/8 and name the shaded part.
Ask another pupil to get the picture of 2/3, 1/8 and 3/4.

Set A

\[
\begin{array}{ccc}
\frac{1}{8} & \frac{3}{8} & \frac{5}{8} \\
\end{array}
\]

Ask: Into how many equal parts were the shapes in Set A divided? What part of the fraction does it represent? (denominator) What have you noticed with the denominators? How about set B? What are the denominators? Are they all the same? Do you know the name of fractions with the same denominators? (Tell the pupils that the fractions with the same denominators are called similar fractions.) How about the fractions in Set B? Do they have the same denominators? What do you call these fractions that have different denominators? (Tell the pupils that the fractions with the different denominators are called dissimilar fractions.) Have them give other examples of dissimilar fractions and draw their representations.

3. Processing the Activities

Ask:
When are fractions called dissimilar?
What part of the fractions are you going to compare?
If you are given shapes to represent dissimilar fractions, how are you going to do it?
What characteristic did you find with dissimilar fractions?
What can you say with their denominators?
4. **Reinforcing the Concept**  
   a. Class Activity  
   Have the 5 sets of fractions below be written on 1/2 of cartolina.  
   Divide the class in 5 groups and give each group one set of fractions.  
   
   Say: Here is an activity in Ms. Ann’s class. Can you help her pupils do this?  
   Which fraction will be crossed out to make each set dissimilar fractions a better one. Give your reason for crossing it out.  
   
   1) \(\frac{4}{5}, \frac{2}{4}, \frac{1}{5}, \frac{3}{8}, \frac{1}{4}\)  
   2) \(\frac{2}{4}, \frac{7}{8}, \frac{5}{5}, \frac{3}{8}, \frac{1}{9}\)  
   3) \(\frac{5}{4}, \frac{6}{8}, \frac{5}{6}, \frac{1}{4}\)  
   4) \(\frac{6}{8}, \frac{5}{7}, \frac{3}{2}, \frac{2}{5}\)  
   5) \(\frac{4}{8}, \frac{9}{5}, \frac{4}{1}, \frac{1}{10}, \frac{6}{6}, \frac{3}{6}\)  
   
   (Note: Any of the fractions to be crossed out is correct. But to make it a better set of dissimilar fractions **no denominators should be the same in each set**.)  
   
   b. Pair Activity  
   Refer to Activity 1 in the LM. Let the pupils do the activity by pair.  
   Answer Key: 1) \(\times\)  
   2) \(\checkmark\)  
   3) \(\times\)  
   4) \(\times\)  
   5) \(\checkmark\)  
   
   c. Individual Activity  
   Refer to Activity 2 in the LM. Let the pupils write their answer in their notebook.  
   Answer Key:  
   
   ![Diagram](image1)  
   
   ![Diagram](image2)  
   
   ![Diagram](image3)  
   
   ![Diagram](image4)  
   
   5. **Summarizing the Lesson**  
   When do we say that fractions are dissimilar?  
   Fractions are dissimilar if they have different denominators.
6. Applying to New and Other Situations
   a. Group Activity
   Have the pairs of fractions below be written in 5 strips of cartolina. Divide the class into 5 groups. Give each group a strip of cartolina. Let them write their answer on 1/4 sheet of manila paper to be posted later on the board.

   Direction: Illustrate the pair of fractions. Then write dissimilar, if the set is dissimilar fractions and similar, if these are not dissimilar.

   1) \(\frac{5}{8}\), \(\frac{3}{6}\)
   2) \(\frac{2}{4}\), \(\frac{6}{8}\)
   3) \(\frac{3}{4}\), \(\frac{2}{4}\)
   4) \(\frac{4}{5}\), \(\frac{4}{6}\)
   5) \(\frac{2}{3}\), \(\frac{3}{8}\)

   b. Pair Activity
   Refer to Activity 3 in the LM. Let the pupils do the activity by pair.

   Answer Key: 1) dissimilar fractions 2) \(\frac{3}{4}\); example of another fraction is \(\frac{1}{2}\)

   3) No, because \(\frac{3}{4}\) and \(\frac{3}{8}\) are dissimilar fractions

C. Evaluation
   Refer to Activity 4 in the LM. Pupils are to write D on their paper if the given sets of fraction are dissimilar.

   Answer Key: 1) D 2) D 4) D

D. Home Activity
   Refer to Activity 5 in the LM. Pupils are to put a check mark on the blank if the fractions are dissimilar.

   Answer Key: 1)x 2) √ 3) √ 4) √ 5) √ 6) x 7) x 8) √ 9) x 10) √  

Lesson 60 Comparing Dissimilar Fractions

Week 4

Objective
Compare dissimilar fractions

Pre-requisite Concepts and Skills
1. Fraction and dissimilar fractions
2. Fraction more than and less than one
3. Meaning of relation symbols

**Value Focus**
Equality

**Materials**
Cut-outs, activity sheets, real objects, flash cards, pocket chart, diagrams

**Instructional Procedures**

**A. Preliminary Activities**

1. **Drill**
   Use flash cards. Engage pupils in a race by telling whether the fractions are similar or dissimilar. Two pupils stand on the aisle. Teacher flashes cards. Each will take one step every time s/he gets the answer correctly. The first pupil to reach the finish line wins.
   Example of flash cards:
   
   \[
   \begin{array}{ccccccccc}
   2 & 4 & 1 & 5 & 3 & 4 & 1 & 4 & 4 & 4 & 5 & 4 & 3 & 4 & 2 & 4 & 1 & 2 \\
   3 & 7 & 2 & 8 & 5 & 5 & 8 & 8 & 9 & 5 & 3 & 3 & 9 & 3 & 7 & 7 & 3 & 3 \\
   \end{array}
   \]

2. **Review**
   Recall the meaning of relation symbols. Review the concept of comparing numbers.
   Write >, < or = in the box.
   
   1) 234 [ ] 546  2) 563 [ ] 301  3) 543 [ ] 500+40+3  4) 81 tens [ ] 810
   5) 102 [ ] 431  6) 626 [ ] 616  7) 600+12 [ ] 642  8) 539 ones [ ] 58 tens

3. **Motivation**
   Tell this story.
   Yesterday, these children had these snacks:
   - Angela = 1/8 of pie
   - Angelu = 1/4 of pie
   - Renz = 1/5 of pie
   Guess. Who do you think ate the biggest piece?
B. Developmental Activities

1. Presenting of Lesson
   Present these strips of paper. Ask what kind of fractions these are.

   ![Fraction Strips]

   Let them take a look at the rectangles.
   Ask what they observe.
   Let them note that the fractions have the same numerators but different denominators.
   Ask: What do you call this kind of fractions? (Dissimilar fractions)
   How will you classify these fractions in comparison with one whole? (They are fractions less than one.)
   What do you notice with the fractions as their denominator gets bigger?

2. Performing the Activities
   How will you compare 1/2 and 1/5?
   Look at their value part in the illustration.
   Which one is bigger or lesser?
   How will you write the comparison using relational symbol?
   \[ \frac{1}{2} > \frac{1}{5} \text{ or } \frac{1}{5} < \frac{1}{2} \]
   Compare 1/4 and 1/3. (1/4 < 1/3)
   Compare 1/3 and 1/5. (1/3 > 1/5)
   Let the pupils write the correct comparison sentence on the board.
   Ask: When you have the same numerators but different denominators, how will you know which one is bigger? lesser?
   (If the numerators are the same but the denominators are different, the lesser the denominator, the bigger is the value.)
Let us have another pair of fractions.

Compare $\frac{5}{3}$ and $\frac{5}{4}$.

\[
\frac{5}{3} \quad > \quad \frac{5}{4}
\]

Observe the above examples.
Ask:
What do you notice with their numerators? denominators?
What kind of fractions are these? (Dissimilar Fractions)
How will you classify these fractions in comparison to one whole? (They are fractions with more or less than 1.)
How do you compare these sets of fractions?
What do you notice with the fractions as their denominator gets bigger?

Now, let us have another set of fractions
Present these other set of fractions.

Compare $\frac{3}{5}$ and $\frac{3}{4}$.

What do you notice with their numerators? denominators?
Ask: What do you call this kind of fractions? (Dissimilar fractions)
How will you classify these fractions in comparison with one whole? (They are fractions less than one.)
How do you compare these sets of fractions?

Have an easier way to compare fractions without illustrating them.

**Have them see this short way of comparing fractions.**

Example: Compare \( \frac{3}{4} \) and \( \frac{2}{5} \)

Let us do the Cross Product Method

Step 1: Multiply the numerator of the first fraction with denominator of the second fraction. Place the product on top of the first fraction.

\[ 3 \times 5 = 15 \]

Step 2: Multiply the denominator of the first fraction with numerator of the second fraction. Place the product on the top of the second fraction.

\[ 2 \times 4 = 8 \]

Step 3: The fraction with the greater/bigger product on top has the greater/bigger value.

\[ \frac{15}{3} > \frac{8}{2} \]

So, \( \frac{3}{4} \) is greater than \( \frac{2}{5} \).

Let’s have another example,

\[ \frac{3}{1} < \frac{4}{2} \]

So, \( \frac{1}{2} \) is less than \( \frac{2}{3} \).

Have the pupil compare again the pairs of fractions they have compared earlier using the cross product method.

Ask: Did you come up with the same answers?

3. **Processing the Activities**

How do we compare:

a.) dissimilar fractions which are less than one having the same numerators?

b.) dissimilar fractions which are more than one having also the same numerators?
c.) dissimilar fractions which have different numerator and denominator with illustrations? without illustrations? Which do you think is the most convenient way to compare fractions? Why?

If you compare pair of fractions using the illustration and cross product method, did you find the same answers?

4. Reinforcing the Concept
   a. Group Activity
   Have one group of pupils fold the rectangular cut-outs (same in sizes) to show 2/4, 2/3; 1/3, 2/4; and 1/6, 3/5. Have them compare the fractions in each set.
   Have another group compare the numbers using the short way.

   b. Individual Activity
   Have the pupils do Activity 1 in their LM individually.
   Answer Key: 1) < 2) > 3) > 4) >

   c. Pair Activity
   Have the pupils do Activity 2 in their LM by pair.
   Answer Key: 1) 4/8 = 2/4 2) ½ > 2/6 3) ¼ < 2/5 4) 3/5 > 1/3

5. Summarizing the Lesson
   What symbols of relation do we use in comparing fractions?
   To compare fractions, we use the symbols of relation such as:
   > read as “is greater than”
   < read as “is less than”
   = read as “is equal to” or “equals”

   How do you compare dissimilar fractions?
   For fractions with the same numerators, look at the denominators, the fraction with the smaller denominator is the larger fraction.
   For fractions with unlike denominators, cross multiplication may be used.
   For fractions with the same denominators, look at the numerators, the larger fraction is the one with the greater numerator.

6. Applying to New and Other Situations
   a. Class Activity
   Go back to the question in the motivation, who do you think ate biggest the piece? Explain your answer.
   What method of comparison did you use? Give reason why you use that method.
b. Pair Activity
Tell the pupils to find a partner. One pupil will write a pair of fractions and the other will compare it. If the comparison is correct then it will be his/her turn to make a pair of fractions to be compared by his/her partner. This will take several rounds. The pupil who gives the most number of correct answers wins.

c. Pair Activity
Refer to Activity 3 in the LM. Have the pupils do it by pair.
Answer Key: Fractions > 2/3 – 4/5, 7/8, 5/6, and 6/7
Fractions < 2/3 – ¼, 3/8, 3/7, and 6/10

C. Evaluation
Refer to Activity 4 in the LM. Have them write their answers in their notebooks.
Answer Key: A. 1) < 2) > 3) = 4) = 5) <
B.1) False 2) False 3) True 4) False 5) True

D. Home Activity
Refer to Activity 5 in the LM. Have them write their answers in their notebooks.
Answer Key: 1) > 2) < 3) < 4) < 5) < 6) > 7) < 8) < 9) > 10) >

Lesson 61  Arranging Dissimilar Fractions

Week 4
Objective
Arrange dissimilar fractions in increasing or decreasing order

Value Focus
Helpfulness, Industriousness

Prerequisite Concepts and Skills
1. Reading and writing fractions
2. Fractions less than one, more than one and equal to one
3. Similar and dissimilar fractions
4. Equivalent fractions
5. Changing dissimilar fractions to similar

Materials
Flash cards, pocket chart, diagrams, fraction chart, show-me-board