

Grade

3



ARAL

PROGRAM

MATHEMATICS

Tutor's Guide

ARAL – Math Grade 3 Teacher’s Guide

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GRADE 3 - MATH

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ARAL Summer – Grade 3 Math

Session 1

Missing Number

Lesson Objective:

At the end of the session, the learners are expected to determine the missing term/s in a given combination of continuous and repeating patterns.

Lesson Sample and Explanation:

In determining the missing term in patterns with decreasing components, you can do the following steps:

1. Find the Relationship Between Terms:

- Calculate the differences or ratios between consecutive terms.

Example:

Task: Find the missing number in the sequence.

100, 95, 90, __, 80, 75

64, 32, 16, __, 4

2. Establish a formula or rule.

$100 - 95 = \underline{\hspace{2cm}}$	$64 \div 2 = \underline{\hspace{2cm}}$
$95 - 90 = \underline{\hspace{2cm}}$	$32 \div 2 = \underline{\hspace{2cm}}$
$90 - \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$	$16 \div 2 = \underline{\hspace{2cm}}$
$\underline{\hspace{2cm}} - 80 = \underline{\hspace{2cm}}$	$\underline{\hspace{2cm}} \div 2 = \underline{\hspace{2cm}}$
$80 - 75 = \underline{\hspace{2cm}}$	

3. Solve for the Missing Term.

$100 - 95 = 5$ $95 - 90 = 5$ $90 - \mathbf{85} = 5$ $\mathbf{85} - 80 = 5$ $80 - 75 = 5$ Solution: The numbers are decreasing by 5. So, the missing number is 85 .	$64 \div 2 = 32$ $32 \div 2 = 16$ $16 \div 2 = \mathbf{8}$ $\mathbf{8} \div 2 = 4$ Solution: Each number is divided by 2. The missing term is 8 .
--	--





To determine a missing term in a pattern with increasing components, follow these steps:

1. Identify the Pattern Type: Look for the type of sequence or series.

- **Arithmetic Sequence** (difference between terms is constant)

Example: Find the missing term in the sequence:

2, 5, 8, __, 14, 17

- **Geometric Sequence** (ratio between terms is constant)

Example: Find the missing term in the sequence:

3, 6, 12, __, 48, 96

2. Find the Relationship Between Terms:

- Calculate the differences or ratios between consecutive terms.

2, 5, 8, __, 14, 17

Hint: Identify the common difference between consecutive terms.

2, 5, 8, **11**, 14, 17
 { { { { {
 3 3 3 3 3

$$17 - 14 = 3$$

$$14 - \underline{11} = 3$$

$$11 - 8 = 3$$

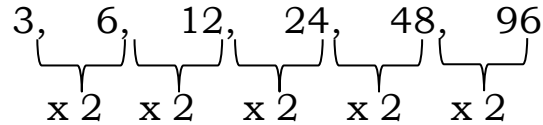
$$8 - 5 = 3$$

$$5 - 2 = 3$$

3, 6, 12, __, 48, 96

Hint: Identify the common ratio between consecutive terms.




$$\begin{array}{l} 3 \times 2 = 6 \\ 6 \times 2 = 12 \\ 12 \times 2 = \underline{\quad} \\ \underline{\quad} \times 2 = 48 \\ 48 \times 2 = 96 \end{array}$$
$$\begin{array}{l} 3 \times 2 = 6 \\ 6 \times 2 = 12 \\ 12 \times 2 = \mathbf{24} \\ \mathbf{24} \times 2 = 48 \\ 48 \times 2 = 96 \end{array}$$

The missing term is **2**



Guided Activities

1. Write the missing term in the following decreasing patterns:

1. 100, 90, 80, **70**, 60
2. 120, 100, 80, **60**, 40
3. 48, 40, 32, **24**, 16
4. 50, 45, 40, **35**, 30
5. 200, 180, 160, **140**, 120

2. Write the missing term in the following increasing patterns:

1. 2, 4, 8, 16, **32**
2. 1, 3, 7, 13, 21 **31**
3. 10, 15, 20, **25**, 30
4. 5, 10, 20, **40**, 80
5. 2, 4, 8, **16**, 32

3. Write the missing term in the following repeating patterns:

1. A, B, C, A, B, C, A, B, C
2. 2, 4, 6, 2, 4, 6, 2, 4, 6
3. X, Y, Z, X, Y, Z, X, Y, Z
4. 10, 20, 30, 10, 20, 30, 10, 20, 30
5. 1, 3, 5, 1, 3, 5, 1, 3, 5





ARAL Summer – Grade 3 Math

Session 2

Addition of Whole Numbers

Lesson Objective:

At the end of the session, the learners are expected to add 3- to 4-digit numbers up to three addends with sums up to 10,000 without and with regrouping.

Lesson Sample and Explanation:

To add **two 3-digit numbers** with sums up to 10,000 with regrouping, follow these steps.

Example:

Add 478 and 564.

Step 1: Arrange the addends (or the numbers to be added) vertically in columns, aligning the digits according to their place value. This means arranging the numbers that belong to their places.

	Hundreds	Tens	Ones
	4	7	8
+	5	6	4
	-----	-----	-----

Step 2: After putting the digits in place, start adding the digits in the **ones** column.

Hundreds	Tens	Ones
1	1	
4	7	8
+ 5	6	4
-----	-----	-----
		2

1. Add $8 + 4$.
2. The result is **12** and 12 is more than 9, so we need to **regroup**.
3. Write down **2** in the ones place and carry over **1** to the tens





Step 3: Add the digits in the **tens** column. Then add the carry over in the tens place.

Hundreds	Tens	Ones
1	1	
4	7	8
+ 5	6	4
-----	-----	-----
	4	2

1. Add $7 + 6 = 13 + 1 = 14$
2. The result is **14** and 14 is more than 9, so we need to **regroup**.
3. Write down **4** in the tens place and carry over **1** to the hundreds place.

Step 4: Add the digits in the **hundreds** column. Then add the carry over in the hundreds place.

Thousands	Hundreds	Tens	Ones
	1	1	
	4	7	8
	+ 5	6	4
-----	-----	-----	-----
1 ,	0	4	2

1. Add $4 + 5 = 9 + 1 = 10$
2. The result is **10** and 110 is more than 9, so we need to **regroup**.
3. Write **0** in the hundreds place and 1 in the thousands place.
4. Do not forget to place a **comma** (,) to separate the thousands digit to the hundreds digit.

The sum of **478 + 564 is 1,042.**





Remember: We regroup or carry over in addition when the sum of the digits in the place value column is more than nine

To add **two 4-digit numbers** with sums up to 10,000 without regrouping, you can follow these steps.

Example:

Add 5,162 and 2,116.

Step 1: Arrange the addends (or the numbers to be added) vertically in columns, aligning the digits according to their place value. This means arranging the numbers that belong to their places.

Thousands Hundreds Tens Ones

5	1	6	2
+2	1	1	6

Step 2: After putting the digits in place, start adding the digits in the ones column.

Thousands Hundreds Tens Ones

5	1	6	2
+2	1	1	6
			8

2 ones + 6 ones = 8ones

Write **8** under the ones column

Step 3: Add the tens digits:

Thousands Hundreds Tens Ones

5	1	6	2
+2	1	1	6
		7	8

Write **7** under the tens column.





Step 4: Add the hundreds digits:

Th	H	T	O
5	1	6	2
+2	1	1	6

2

7

8

1 hundreds + 1 hundreds = 2 hundreds

Write **2** under the hundreds column.

Step 5: Add the thousands digits:

Th	H	T	O
5	1	6	2
+2	1	1	6

7

2

7

8

5 thousands + 2 thousands = 7 thousands

Write **7** under the thousands column.

Step 6: After getting the sum, place a comma (,) in between the thousands and the hundreds digit.

Th	H	T	O
5	1	6	2
+2	1	1	6

7

,

2

7

8

Result: The sum of 5,162 and 2,116 is **7, 278**.





Guided Activity

Directions: Find the sum of the following:

Set A

1. 356 and 479

$$\begin{array}{r} 356 \\ + 479 \\ \hline \mathbf{835} \end{array}$$

2. 584 and 629

$$\begin{array}{r} 584 \\ + 629 \\ \hline \mathbf{1,213} \end{array}$$

3. 762 and 548

$$\begin{array}{r} 762 \\ + 548 \\ \hline \mathbf{1,310} \end{array}$$

4. 423 and 786

$$\begin{array}{r} 423 \\ + 786 \\ \hline \mathbf{1,209} \end{array}$$

5. 891 and 437

$$\begin{array}{r} 891 \\ + 437 \\ \hline \mathbf{1,328} \end{array}$$

Set B

1. 3,251 and 5,204

$$\begin{array}{r} 3,251 \\ + 5,204 \\ \hline \mathbf{8,455} \end{array}$$

2. 7,201 and 1,007

$$\begin{array}{r} 7,201 \\ + 1,007 \\ \hline \mathbf{8,208} \end{array}$$

3. 5,327 and 3,361

$$\begin{array}{r} 5,327 \\ + 3,361 \\ \hline \mathbf{8,688} \end{array}$$

4. 8,102 and 1,437

$$\begin{array}{r} 8,102 \\ + 1,437 \\ \hline \mathbf{9,539} \end{array}$$

5. 4,629 and 4,210

$$\begin{array}{r} 4,629 \\ + 4,210 \\ \hline \mathbf{8,839} \end{array}$$





ARAL Summer – Grade 3 Math

Session 3

Addition of Whole Numbers

Lesson Objective:

At the end of the session, the learners are expected to add 3-digit numbers up to three addends with sums up to 10 000 with regrouping.

Lesson Sample and Explanation:

In adding **three 3-digit numbers** with sums up to 10,000 with regrouping, follow these steps.

Example:

Add 458, 376, and 189.

Step 1: Arrange the addends (or the numbers to be added) vertically in columns, aligning the digits according to their place value. This means arranging the numbers that belong to their places.

	Hundreds	Tens	Ones
	4	5	8
+	3	7	6
	1	8	9

Step 2: After putting the digits in place, start adding the digits in the **ones** column.

	Hundreds	Tens	Ones
		2	
	4	5	8
+	3	7	6
	1	8	9

			3

- $8 + 6 + 9 = 23$
- The result is **23** and 23 is more than 9, so we need to regroup.





- Write down **3** in the ones place and carry over **2** to the tens place.

Step 3: Add the digits in the **tens** column. Then add the carry over in the tens place.

	Hundreds	Tens	Ones
	2	2	
	4	5	8
+	3	7	6
	1	8	9
	2	3	

- $5 + 7 + 8 = 20 + 2 = 22$
- The result is **22** and 22 is more than 9, so we need to regroup.
- Write down **2** in the tens place and carry over **2** to the hundreds place.

Step 4: Add the digits in the **hundreds** column. Then add the carry over in the hundreds place.

	Th	H	T	O
	1	2	2	
		4	5	8
+		3	7	6
		1	8	9
	1 ,	0	2	3

- $4 + 3 + 1 = 8 + 2 = 10$
- The result is **10** and 10 is more than 9, so we need to regroup.
- Write **0** in the hundreds place and **1** in the thousands place.
- Do not forget to place a comma to separate the thousands digit from the hundreds digit.





The sum of **458 + 376 + 189** is **1,023**.

Remember: We regroup or carry over in addition when the sum of the digits in the place value column is more than nine (9).

In adding **three 4-digit numbers** with sums up to 10,000 with regrouping, follow these steps.

Example:

Add 2,745, 4,328, and 1,916.

Step 1: Arrange the addends (or the numbers to be added) vertically in columns, aligning the digits according to their place value. This means arranging the numbers that belong to their places.

	Thousands	Hundreds	Tens	Ones
	2	7	4	5
	4	3	2	8
+	1	9	1	6

Step 2: After putting the digits in place, start adding the digits in the **ones** column.

Thousands Hundreds Tens Ones

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

			9	

- $5 + 8 + 6 = 19$
- The result is **19**, and 19 is more than 9, so we need to regroup.
- Write down **9** in the ones place and **9** carry over **1** to the tens place.

Step 3: Add the digits in the **tens** column. Then add the carry over in the tens place.





Thousands Hundreds Tens Ones

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

- $4 + 2 + 1 + 1 = 8$
- The result is **8** and 8 is less than 9, so we do not need to regroup.
- Write down **8** in the tens place

Step 4: Add the digits in the **hundreds** column. Then add the carry over in the hundreds place.

	Th	H	T	O
	1		1	
	2	7	4	5
	4	3	2	8
+	1	9	1	6
		9	8	9

- $7 + 3 + 9 = 19$
- The result is **19**, and 19 is more than 9, so we need to regroup.
- Write down **9** in the hundreds place and carry over **1** to the thousands place.

Step 5: Add the digits in the **thousands** column. Then add the carry over in the thousands place.

	Th	H	T	O
	1		1	
	2	7	4	5
	4	3	2	8
+	1	9	1	6
	8	9	8	9





- $2 + 4 + 1 + 1 = 8$
- The result is **8** and 8 is less than 9, so we do not need to regroup.
- Write down **8** in the thousands place.
- Do not forget to place a comma to separate the thousands digit from the hundreds digit

The sum of **2,745 + 4,328 + 1,916 is 8,989.**

Remember: We regroup or carry over in addition when the sum of the digits in the place value column is more than nine.

Guided Activity

Directions: Find the sum of the following:

1. 824, 565, and 437

$$\begin{array}{r} 824 \\ + 565 \\ \hline 437 \\ \hline \mathbf{1,826} \end{array}$$

2. 824, 565, and 437

$$\begin{array}{r} 824 \\ + 565 \\ \hline 437 \\ \hline \mathbf{1,826} \end{array}$$

3. 739, 428, and 365

$$\begin{array}{r} 739 \\ + 428 \\ \hline 365 \\ \hline \mathbf{1,532} \end{array}$$

4. 243, 587, and 478

$$\begin{array}{r} 243 \\ + 587 \\ \hline 478 \\ \hline \mathbf{1,308} \end{array}$$

5. 459, 283, and 647

$$\begin{array}{r} 459 \\ + 283 \\ \hline 647 \\ \hline \mathbf{1,389} \end{array}$$





(Dice Addition Game by Group)

[The teacher will prepare the dice to be given to the learners.]

Directions: Roll the 3 dice and then add the numbers appearing on the face of the dice

Note: The numbers on the dice are the following:

Dice 1: 2,428, 1,896, 3,652, 3,921, 2,843, and 1,265

Dice 2: 4,387, 2,709, 2,598, 3156, 2,074, and 2,561

Dice 3: 2,435, 3,862, 1,394, 3,642, 5,197, and 6,089





ARAL Summer – Grade 3 Math

Session 4

Addition of Whole Numbers

Lesson Objective:

At the end of the session, the learners are expected to add 3- to 4-digit numbers with 2 to 3 addends with sums up to 10 000, without and with regrouping.

Lesson Sample and Explanation:

To add **two 3-digit numbers** with sums up to 10,000 **without regrouping**, you can follow these steps.

Example:

Add 234 and 561.

Step 1: Arrange the addends (or the numbers to be added) vertically in columns, aligning the digits according to their place value. This means arranging the numbers that belong to their places

	Hundreds	Tens	Ones
	2	3	4
+	5	6	1

Step 2: After putting the digits in place, start adding the digits in the ones column.

	Hundreds	Tens	Ones
	2	3	4
+	5	6	1

			5

4 ones + 1 ones = 5ones
Write **5** under the ones column

Step 3: Add the tens digits:

	Hundreds	Tens	Ones
	2	3	4
+	5	6	1

		9	5

3 tens + 6 tens = 9 tens
Write **9** under the tens column





Step 4: Add the hundreds digits:

Hundreds Tens Ones

2	3	4	
+	5	6	1
7	9	5	

2 hundreds + 5 hundreds = 7 hundreds
Write **7** under the hundreds column

Result: The sum is **795**.

In adding **two 4-digit numbers** with sums up to 10,000 with **regrouping**, follow these steps.

Example:

Add 2,847 and 7,695.

Step 1: Arrange the addends (or the numbers to be added) vertically in columns, aligning the digits according to their place value. This means arranging the numbers that belong to their places.

Thousands Hundreds Tens Ones

	2	8	4	7
+	7	6	9	5

Step 2: After putting the digits in place, start adding the digits in the **ones** column.

Thousands Hundreds Tens Ones

			1	
	2	8	4	7
+	7	6	9	5
				2

- $7 + 5 = 12$
- The result is **12** and 12 is more than 9, so we need to regroup.
- Write down **2** in the ones place and carry over **1** to the tens place.





Step 3: Add the digits in the **tens** column. Then add the carry over in the tens place.

	Thousands	Hundreds	Tens	Ones
		1	1	
		8	4	7
+		6	9	5
		4	2	

- $4 + 9 + 1 = 14$
- The result is **14**, and 14 is more than 9, so we need to regroup.
- Write down **4** in the tens place and carry over **1** to the hundreds place

Step 4: Add the digits in the **hundreds** column. Then add the carry over in the hundreds place.

	Thousands	Hundreds	Tens	Ones
	1	1	1	
	2	8	4	7
+	7	6	9	5
	5	4	2	

- $8 + 6 + 1 = 15$
- The result is **15**, and 15 is more than 9, so we need to regroup.
- Write down **5** in the hundreds place and carry over **1** to the thousands place.

Step 5: Add the digits in the **thousands** column. Then add the carry over in the thousands place.

	Thousands	Hundreds	Tens	Ones
	1	1	1	
	2	8	4	7
+	7	6	9	5
	1 0	5	4	2





- $2 + 7 + 1 = 10$
- The result is **10**, and 10 is more than 9, so we need to regroup.
- Write down **0** in the thousands place and **1** to the ten thousands place.

Do not forget to place a comma to separate the thousands digit to the hundreds digit.

The sum of **2,847 + 7,695 is 10,542.**

Remember: We regroup or carry over in addition, when the sum of the digits in the place value column is more than nine.

Lesson Sample and Explanation:

To add three 4-digit numbers without regrouping and with sums up to 10,000, follow these steps:

Example:

Add 1,564, 2,301, and 6,123.

Step 1: Arrange the addends (or the numbers to be added) vertically in columns, aligning the digits according to their place value. This means arranging the numbers that belong to their places.

Thousands Hundreds Tens Ones

1	5	6	4
+2	3	0	1
6	1	2	3

Step 2: After putting the digits in place, start adding the digits in the ones column.

Thousands Hundreds Tens Ones

1	5	6	4
+ 2	3	0	1
6	1	2	3

8





- 4 ones + 1 ones + 3 ones = 8 ones
- Write **8** under the ones column.

Step 3: Add the tens digits:

Thousands Hundreds Tens Ones

1	5	6	4
+2	3	0	1
6	1	2	3
		8	8

- 6 tens + 0 tens + 2 tens = 7tens
- Write **8** under the tens column.

Step 4: Add the hundreds digits:

Th H T O

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

- 5 h+ 3 h + 1 h = 9 h
- Write **9** under the hundreds column.

Step 5: Add the thousands digits:

Th H T O

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

- 1 th + 2 th + 6 th = **9** th
- Write **9** under the thousands column





Step 6: After getting the sum, place a comma (,) in between the thousands and the hundreds digit.

Th	H	T	O
1	5	6	4
+2	3	0	1
6	1	2	3
9	,	9	8

Result: The sum of 1,564, 2,301, and 6,123 is **9,988**.

Guided Activity (Race to Finish)

Directions: Let us all finish the race. Add the numbers assigned to your color group.

START

234
123

543
314

568
421

768
131

452
326

346
523

714
235

527
462

394
404

652
245

FINISH

352
534

426
531

395
402

518
361

427
452

Note: Answers of each color group will be written in the star.

Yellow Star

1. 357
2. 857
3. 989
4. 899

Orange Star

1. 869
2. 949
3. 989
4. 798

Green Star

1. 879
2. 879
3. 797
4. 957





5. 778

5. 897

5. 886

Directions: The class will be divided into three groups. Group 1 will answer Set A, Group 2 will answer Set B, and Group 3 will answer Set C.

Set A Activity (Tic-Tac-Toe)

The teacher will ask the learners to play the “Rock, Paper, Scissors” game. The winners will answer Exercise 1 on the tic-tac-toe board, while the losers will answer Exercise 2.

E. 1						
	3	6	1	5		
	2	5	8	6		
	4	7	2	4		

E. 2

E. 1						
	4	2	5	3		
	6	9	6	7		
	2	7	4	5		

E. 2

E. 1						
	5	3	2	6		
	3	8	9	5		
	6	7	4	5		

E. 2

Directions: Solve for the sum of the following numbers.

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

5	3	2	6
3	8	9	5
9,	2	2	1





11,	2	2	0
6	9	6	7
2	7	4	5
9,	7	1	2

2	5	8	6
4	7	2	4
7,	3	1	0
3	8	9	5
6	7	4	5
10,	6	4	0

Set B Activity

Directions: Add the numbers in Column A. Then, draw a line to connect its sum in Column B.

Column A	Column B
1. $\begin{array}{r} 2,785 \\ +3,296 \\ \hline \end{array}$ 6,081	A. 6,713
2. $\begin{array}{r} 3,945 \\ +2,768 \\ \hline \end{array}$ 6,713	B. 6,081
3. $\begin{array}{r} 4,873 \\ +3,945 \\ \hline \end{array}$ 8,818	C. 9,011
4. $\begin{array}{r} 7,213 \\ +1,798 \\ \hline \end{array}$ 9,011	D. 8,041
5. $\begin{array}{r} 5,645 \\ +1,976 \\ \hline \end{array}$ 7,621	E. 8,818
	F. 7,621

Set C Activity

Directions: Find the sum of the following:

1. 6,892 and 3,754

$$\begin{array}{r} 6,892 \\ +3,754 \\ \hline \end{array}$$

10,646





2. 4,728 and 5,689

$$\begin{array}{r} 4,728 \\ + 5,689 \\ \hline 10,417 \end{array}$$

3. 8,356 and 4,974

$$\begin{array}{r} 8,356 \\ + 4,974 \\ \hline 13,330 \end{array}$$

4. 9,124 and 6,285

$$\begin{array}{r} 9,124 \\ + 6,285 \\ \hline 15,409 \end{array}$$

5. 4,567 and 7,389

$$\begin{array}{r} 4,567 \\ + 7,389 \\ \hline 11,956 \end{array}$$

Set D Activity

Directions: Find the sum of the following:

1. 7,223, 1,635, and 1,141

$$\begin{array}{r} 7,223 \\ + 1,635 \\ + 1,141 \\ \hline 9,999 \end{array}$$

2. 1,503, 4,216, and 3,150

$$\begin{array}{r} 1,503 \\ + 4,216 \\ + 3,150 \\ \hline 8,869 \end{array}$$

3. 2,455, 4,324, and 3,210

$$\begin{array}{r} 2,455 \\ + 4,324 \\ + 3,210 \\ \hline 9,989 \end{array}$$

4. 3,197, 3,322, and 3,150

$$\begin{array}{r} 3,197 \\ + 3,322 \\ + 3,150 \\ \hline 9,669 \end{array}$$

5. 5,428, 3,361, and 1,210

$$\begin{array}{r} 5,428 \\ + 3,361 \\ + 1,210 \\ \hline 9,999 \end{array}$$





ARAL Summer – Grade 3 Math

Session 5

Subtraction of Whole Numbers

Lesson Objective:

At the end of the session, the learners are expected to subtract 3- to 4-digit numbers from 3- to 4-digit numbers without regrouping.

Lesson Sample and Explanation:

We subtract **3-digit numbers from 3-digit** numbers without regrouping through:

- Concrete/Model
- Expanded Form Method
- Standard Form Method

Developing Lesson through using concrete/ Model	Developing Lesson through using Expanded Form Method	Developing Lesson through using Standard Form Method												
Study the following pictures. Each picture has its equivalent value.  = 100  = 10  = 1 Subtract the equivalent value of box B from box A. A <!-- Representing 453 -->    453 B <!-- Representing 332 -->    332 - - Answer: 	Example: $367 - 235 = \underline{\hspace{2cm}}$ $ \begin{array}{r} 300 + 60 + 7 \\ - 200 + 30 + 5 \\ \hline 100 + 30 + 2 \end{array} $ Ans. 132 Steps: - Expand the minuend: $367 = 300 + 60 + 7$ - Expand the subtrahend: $235 = 200 + 30 + 5$ and write vertically underneath the minuend.	Subtract 243 from 589. <table border="1" style="margin: 10px auto; text-align: center;"> <tr> <th>hund reds</th><th>tens</th><th>ones</th></tr> <tr> <td>5</td><td>8</td><td>9</td></tr> <tr> <td>2</td><td>4</td><td>3</td></tr> <tr> <td>3</td><td>4</td><td>6</td></tr> </table> $ \begin{array}{r} 589 \\ - 243 \\ \hline 346 \end{array} $ Steps: Place the subtrahend below the minuend so that the ones place numbers fall in the same column.	hund reds	tens	ones	5	8	9	2	4	3	3	4	6
hund reds	tens	ones												
5	8	9												
2	4	3												
3	4	6												





121	3. Then subtract and add the answer. Answer: $100+30+2=$ 132	2. Subtract each column separately and in order, starting with the ones place column, followed by tens, then hundreds.
---	---	---

We subtract **3-digit numbers from 4-digit** numbers without regrouping through:

Developing Lesson through using concrete/ Model	Developing Lesson through using Expanded Form Method	Developing Lesson through using Standard Form Method																
Study the following pictures. Each picture has its equivalent value.  = 1000  = 100  = 10  = 1 Subtract the equivalent value of box B from box A A B Answer: 	Example: 6576-255= _____ 6000+500+60+6 - 200+50+5 6000+300+10+1 Ans. 6311 Steps: 1. Expand the minuend: 6567= 6000+500+60+7 2. Expand the subtrahend: 255=200+50+5 and write vertically underneath the minuend. 3. Then subtract and add the answer. Answer:	Subtract 243 from 7589. <table><tr><td>tho us an ds</td><td>hu ndr eds</td><td>ten s</td><td>one s</td></tr><tr><td>7</td><td>5</td><td>8</td><td>9</td></tr><tr><td></td><td>2</td><td>4</td><td>3</td></tr><tr><td>7</td><td>3</td><td>4</td><td>6</td></tr></table> $\begin{array}{r} 7589 \\ - \quad 243 \\ \hline 7346 \end{array}$ Steps: 1. Place the subtrahend below the minuend so that the ones place numbers fall in the same column. 2. Subtract each column separately	tho us an ds	hu ndr eds	ten s	one s	7	5	8	9		2	4	3	7	3	4	6
tho us an ds	hu ndr eds	ten s	one s															
7	5	8	9															
	2	4	3															
7	3	4	6															



3222 3433- 211= 3222	6000+300+10+1=6311	and in order, starting with the ones place column, followed by tens, hundreds, then thousands.																
We subtract 4-digit numbers from 4-digit numbers without regrouping through:																		
Developing Lesson through using concrete/ Model	Developing Lesson through using Expanded Form Method	Developing Lesson through using Standard Form Method																
Study the following pictures. Each picture has its equivalent value. =1000 =100 = 10 = 1 Subtract the equivalent value of box B from box A A B Answer:	Example: 5566-1253= _____ 5000+500+60+6 - 1000+200+50+3 4000+300+10+3 Answer: 4313 Steps: 1. Expand the minuend: 5566= 5000+500+60+6 2. Expand the subtrahend: 1253=1000+200+50+3 and write vertically underneath the minuend. 3. Then subtract and add the answer. Answer:	Subtract 4243 from 8589. <table><tr><td>thousands</td><td>hundreds</td><td>tens</td><td>ones</td></tr><tr><td>8</td><td>5</td><td>8</td><td>9</td></tr><tr><td>4</td><td>2</td><td>4</td><td>3</td></tr><tr><td>4</td><td>3</td><td>4</td><td>6</td></tr></table> 8589 - 4243 4346 Steps: 1. Place the subtrahend below the minuend so that the ones place numbers fall in the same column. 2. Subtract each column separately and in order, starting with the	thousands	hundreds	tens	ones	8	5	8	9	4	2	4	3	4	3	4	6
thousands	hundreds	tens	ones															
8	5	8	9															
4	2	4	3															
4	3	4	6															





$3433 - 3211 = 1222$	$4000 + 300 + 10 + 3 = 4313$	ones place column, followed by tens, hundreds, then thousands.
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Guided Activity

Directions: Find the difference

Set A Activity

Set 1: Subtract the following number using expanded form.

$$\begin{array}{r} 1) \quad 200 + 40 + 9 \\ - 100 + 10 + 5 \\ \hline 100 + 30 + 4 = 134 \end{array} \qquad \begin{array}{r} 2) \quad 200 + 30 + 7 \\ - 100 + 20 + 3 \\ \hline 100 + 10 + 4 = 114 \end{array}$$

Set 2: Find the difference using standard form.

1. $363 - 251 = 112$
2. $578 - 354 = 224$
3. $456 - 135 = 321$

Set B Activity

Set 1: Subtract the following numbers using expanded form.

$$\begin{array}{r} 1) \quad 2000 + 700 + 40 + 9 \\ - 400 + 10 + 5 \\ \hline 2000 + 300 + 30 + 4 = 2334 \end{array} \qquad \begin{array}{r} 2) \quad 3000 + 800 + 30 + 7 \\ - 200 + 20 + 3 \\ \hline 3000 + 600 + 10 + 4 = 3614 \end{array}$$

Set 2: Subtract the following numbers using standard form.

1. $4567 - 351 = 4216$
2. $3978 - 154 = 3824$
3. $2867 - 144 = 2723$

Set C Activity

Set 1: Subtract the following number using expanded form.

$$\begin{array}{r} 1) \quad 2000 + 700 + 40 + 9 \\ - 1000 + 400 + 10 + 5 \\ \hline 1000 + 300 + 30 + 4 = 1334 \end{array} \qquad \begin{array}{r} 2) \quad 3000 + 800 + 30 + 7 \\ - 1000 + 200 + 20 + 3 \\ \hline 2000 + 600 + 10 + 4 = 2614 \end{array}$$

Set 2: Find the difference using standard form.

1. $4567 - 3251 = 1316$
2. $3978 - 1654 = 2324$
3. $2867 - 1344 = 1523$





ARAL Summer – Grade 3 Math

Session 6

Subtraction of Whole Numbers

Lesson Objective:

At the end of the session, the learners are expected to subtract 3 to 4-digit numbers from 3 to 4-digit numbers without and with regrouping.

Subtract 3-Digit Numbers by 3-Digit Numbers with Regrouping

Sample 1: Subtract 574-358

Step 1: Arrange the numbers vertically.

Step 2: Subtract the ones column. Since 8 is greater than 4 and we cannot subtract 8 from 4. We regroup 7 tens and 4 ones. Now 7 tens + 4 ones = 6 tens and 14 ones. **14-8=6.**

Step 3: Subtract the tens column. **6-5 = 1 tens**

Step 4: Subtract the hundreds column. **5-3= 2 hundreds.**

The answer is 216.

Sample 2: Subtract 747-489

Step 1: Arrange the numbers vertically.

Step 2: Subtract the ones column. Since 9 is greater than 7 and we cannot subtract 9 from 7. We regroup 4 tens and 7 ones. Now 4 tens + 7 ones = 3 tens and 17 ones. **17-9 = 8.**

Step 3: Subtract the tens column.
Since 1 ten is regrouped by ones column
So, we are left with **4-1=3 tens.**
We cannot subtract 8 from 3, so we regroup





7 hundreds and 3 tens.

Now, 7 hundreds + 3 tens = 6 hundreds and 13 tens.

13-8 =5.

Step 4: Subtract the hundreds.

6 hundreds – 4 hundreds = 2 hundreds

Write 2 in the hundreds place

The difference is 258.

The sum of **2,847 + 7,695 is 10,542.**

Remember: We regroup or carry over in addition when the sum of the digits in the place value column is more than nine.

Subtract 3-Digit Numbers from 4-Digit Numbers with Regrouping

Sample 1: Subtract 3763- 675

Step 1: Arrange the numbers vertically.

Step 2: Subtract the ones column. Since 5 is greater than 3 and we cannot subtract 5 from 3, we regroup 6 tens and 3 ones. Now 6 tens + 3 ones = 5 tens and 13 ones. **13-5=8.**

Step 3: Subtract the tens column.
Since 1 ten is regrouped by ones column
So, we are left with **6-1=5 tens.**
We cannot subtract 7 from 5. So we regroup 7 hundreds and 5 tens.
Now, 7 hundreds + 5 tens = 6 hundreds and 15 tens.

Step 4: Subtract the hundreds column. **6-6=0**

Step 5: Subtract the number in thousands in the subtrahend from the thousands in the minuend
Since there is no number in thousands in the subtrahend, bring down or copy the number in the minuend.





The answer is 3088.

Sample 2: Subtract 4534- 765

Step 1: Arrange the numbers vertically.

Step 2: Subtract the ones column.

Since 5 is greater than 4 and we cannot subtract 5 from 4.

We regroup 3 tens and 4 ones.

Now 3 tens + 4 ones = 2 tens and 14 ones.

(14-5 = 9)

Step 3: Subtract the tens column.

Since 1 ten is regrouped by ones column

So, we are left with **3-1=2 tens.**

We cannot subtract 6 from 2.

So, we regroup 5 hundreds and 2 tens.

Now, 5 hundreds + 2 tens = 4 hundreds and 12 tens. **12-6 =6.**

Step 4: Subtract the hundreds.

Since 1 hundred is regrouped by tens column.

So, we are left with 5-1=4 hundreds.

We cannot subtract 7 from 4, so we regroup 4 thousands and 4 hundreds.

Now, 4 thousands + 4 hundreds = 3 thousands and 14 hundreds. **14 - 7 = 7**

Step 5: Subtract the number in thousands in the subtrahend from the thousands in the minuend. Since there is no number in thousands in the subtrahend, bring down or copy the number in the minuend.

The difference is 3769.

Subtract 4-Digit Numbers from 4-Digit Numbers with Regrouping

Sample 1: Subtract 6785- 3597

Step 1: Arrange the numbers vertically.





Step 2: Subtract the ones column.

Since 7 is greater than 5 and we cannot subtract 7 from 5, we regroup 8 tens and 5 ones.

Now 8 tens + 5 ones = 7 tens and 15 ones. **$15-7=8$.**

Step 3: Subtract the tens column.

Since 1 ten is regrouped by ones column

So, we are left with **$8-1=7$ tens.**

We cannot subtract 9 from 7, so we regroup 7 hundreds and 7 tens.

Now, 7 hundreds + 7 tens = 6 hundreds and 17 tens. **$17-9=8$**

Step 4: Subtract the hundreds column. **$6-5=1$**

Step 5: Subtract the number in thousands in the subtrahend from the thousands in the minuend.

$6-3=3$

The answer is 3188.

Sample 2: Subtract 6745- 1867

Step 1: Arrange the numbers vertically.

Step 2: Subtract the ones column. Since 7 is greater than 5 and we cannot subtract 7 from 5, we regroup 4 tens and 5 ones.

Now 4 tens + 5 ones = 3 tens and 15 ones.

$15-7 = 8$.

Step 3: Subtract the tens column.

Since 1 ten is regrouped by ones column

So, we are left with **$4-1=3$ tens.**

We cannot subtract 6 from 3, so we regroup 7 hundreds and 3 tens.

Now, 7 hundreds + 3 tens = 6 hundreds and 13 tens.

$13-6 =7$.





Step 4: Subtract the hundreds.

Since 1 hundred is regrouped by the tens column so we are left with $7-1=6$ hundreds.

We cannot subtract 8 from 6, so we regroup 6 thousands and 6 hundreds.

Now, 6 thousands + 6 hundreds = 5 thousands and 16 hundreds.

$$16 - 8 = 8$$

Step 5: Subtract the number in thousands in the subtrahend from the thousands in the minuend. $5-1=3$

The difference is 4878.

Guided Activity

Direction: Find the difference.

Set A Activity

- 1.) $456 - 267 = 189$
- 2.) $334 - 145 = 189$
- 3.) $562 - 283 = 279$
- 4.) $365 - 275 = 90$
- 5.) $475 - 286 = 189$

Set B Activity

- 1.) $3,456 - 567 = \underline{\hspace{2cm}}$
- 2.) $5,334 - 645 = \underline{\hspace{2cm}}$
- 3.) $4,562 - 783 = \underline{\hspace{2cm}}$
- 4.) $6,365 - 475 = \underline{\hspace{2cm}}$
- 5.) $4,475 - 686 = \underline{\hspace{2cm}}$

Set C Activity

- 1.) $3,543 - 2879 = \underline{\hspace{2cm}}$
- 2.) $6,421 - 3645 = \underline{\hspace{2cm}}$
- 3.) $4,562 - 1783 = \underline{\hspace{2cm}}$
- 4.) $8,345 - 5775 = \underline{\hspace{2cm}}$
- 5.) $4,475 - 1686 = \underline{\hspace{2cm}}$





ARAL Summer – Grade 3 Math

Session 7

Addition and Subtraction of Whole Numbers

Lesson Objective:

At the end of the session, the learners are expected to solve routine and non-routine problems involving subtraction with or without addition of whole numbers, including money, using appropriate strategies and tools.

Lesson Sample and Explanation:

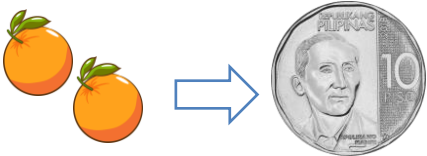
We solve routine problems involving subtraction with the addition of whole numbers including money through:

- Visualize the Problem
- Break Apart Method
- GRESA Method

Developing Lesson through Visualizing the Problem	Developing Lesson through using Break Apart Method	Developing Lesson through GRESA Method
Sample Problem: Rodolfo has ₱50 in his wallet. On his way home, he buys an apple for ₱10 and two oranges for ₱10. How much money is left in his wallet? Amount of Rodolfo's money = 50 pesos  Cost of 1 apple = 10 pesos	Sample Problem: Rodolfo has ₱50 in his wallet. On his way home, he buys an apple for ₱10 and two oranges for ₱10. How much money is left in his wallet? Separate the problem into sub-problems. - Solve first the problem sentence that will give you enough information to lead you to the answer. In	Sample Problem: Rodolfo has ₱50 in his wallet. On his way home, he buys an apple for ₱10 and two oranges for ₱10. How much money is left in his wallet? Step 1: List down what is given. - Amount of Rodolfo's money = ₱ 50 - Cost of one apple = ₱ 10 - Cost of two oranges = ₱ 10





 Cost of 2 pieces of oranges = 10 pesos  Add the cost of 1 apple and 2 pieces of oranges = ₱10.00 + ₱10.00 = ₱20.00  Then, subtract from Rodolfo's money 	this case, sentence number 2. Sentence 2: On his way home, he buys an apple for ₱10 and two oranges for ₱10. How much money is left in his wallet? $₱ 10.00 + ₱ 10.00 = ₱ 20.00$ After this, proceed to solve the final answer using the clue on the rest of the word problem. Sentence 1: Rodolfo has 50 pesos in his wallet. $₱ 50.00 - ₱ 20.00 = ₱ 30.00$	Step 2: Identify what is required. - The amount of money left in Rodolfo's wallet Step 3: Identify the equation or operation to be used. - Addition and Subtraction Step 4: Solve the problem. - Add first the total amount of apple and oranges $₱ 10.00 + ₱ 10.00 = ₱ 20.00$ - Then, subtract this amount from the amount of money Rodolfo has. $₱ 50.00 - ₱ 20.00 = ₱ 30.00$ Step 5: Provide the answer. - Therefore, Rodolfo has ₱ 30.00 left in his wallet.
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We solve non-routine problems involving subtraction with addition of whole numbers through:





- Visualize the Problem - Break Apart Method - GRESA		
Developing Lesson through Visualizing the Problem	Developing Lesson through using Break Apart Method	Developing Lesson through GRESA Method
Sample Problem: Angela picked 25 flowers from her garden. She gave 10 flowers to her elder sister, Angeline, and 8 flowers to her younger brother, Ben. How many flowers are left for Angela? Number of flowers picked by Angela = 25   Number of flowers Angela gave to her sister = 10   Number of flowers Angela gave to her brother = 8  	Sample Problem: Angela picked 25 flowers from her garden. She gave 10 flowers to her elder sister, Angeline, and 8 flowers to her younger brother, Ben. How many flowers are left for Angela? Separate the problem into sub-problems. - Solve first the problem sentence that will give you enough information to lead you to the answer. In this case, sentence number 2. Sentence 2: She gave 10 flowers to her elder sister, Angeline and 8 to her younger brother Ben. $10 + 8 = 18$ flowers After this, proceed to solve the final answer	Sample Problem: Angela picked 25 flowers from her garden. She gave 10 flowers to her elder sister, Angeline, and 8 flowers to her younger brother, Ben. How many flowers are left for Angela? Step 1: List down what are given. -Total number of flowers Angela picked = 25 flowers - Number of flowers given to her sister = 10 flowers - Number of flowers given to her brother = 8 flowers Step 2: Identify what is required. - The number of flowers left for Angela Step 3: Identify the equation or operation to be used.





Count the flowers left = 7 flowers	using the clue on the rest of the word problem. Sentence 1: Angela picked 25 flowers in her garden. $25 - 18 = 7$ flowers	- Addition and Subtraction Step 4: Solve the problem. - Add first the total number of flowers given by Angela. $10 + 8 = 18$ flowers - Then subtract to the total number of flowers Angela picked. $25 - 18 = 7$ flowers Step 5: Provide the answer. - Therefore, 7 flowers were left for Angela.
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Guided Activity

Directions: Solve the following word problems.

Set A Activity

1. May had saved ₱ 100.00 from her weekly allowance. She gave ₱ 30.00 to April and ₱ 40.00 to June. How much money is left with her?
2. Claire wants to buy a book which costs ₱150.00 and a marker for ₱ 25.00. She gave the cashier ₱ 200.00. How much is her change?
3. Lily plans to save ₱ 50.00 in 3 days. She put ₱10.00 in her piggy bank yesterday and ₱15.00 today. How much more money will she need to save?





4. Oscar had ₱180.00. He buys a ribbon for her sister for ₱28.00 and a belt for her brother for ₱42.00. How much money does he have now?
5. Annabeth ordered one serving of sinigang for ₱60.00 and one cup of rice for ₱12.00. She gave the cashier ₱100.00. How much is her change?

Set B Activity

1. Diane bought 12 bananas. On her way home, she ate 3 bananas and gave 6 bananas to her friends. How many bananas are left for Diane?
2. Regina has 10 pencils in her case. She lost 3 of her pencils and broke the other 2. How many pencils are left for Regina?
3. Zoey wants to collect 30 marbles. Her older brother, Levi, gave her 9 marbles while her younger brother, Dan, gave her 12 marbles. How many more marbles will Zoey have to collect?
4. There were 6 crayons on the table. Mica found 8 more on the floor. Her friend borrowed 7 crayons. How many crayons are left for Mica?
5. Gwen got 5 gifts from her *ninong* and 12 gifts from her *ninang*. She opened 7 gifts before Christmas. How many gifts can Gwen still open on Christmas Day?





ARAL Summer – Grade 3 Math

Session 8

Multiplication of Whole Numbers

Lesson Objective:

At the end of the session, the learners are expected to multiply 2 to 3-digit numbers by 1- to 2-digit numbers without or with regrouping.

Lesson Sample and Explanation:

We multiply **2-digit numbers by 1-digit numbers** with regrouping:

- Traditional Method
- Simplifying through Place Value
- Round-Off Method

Traditional Method	Simplifying through Place Value	Round-Off Method
Sample problem: $99 \times 3 = ?$ <i>Step 1. Write the equation in the traditional column format.</i> $\begin{array}{r} 99 \\ \times 3 \\ \hline \end{array}$ <i>Step 2. Multiply the first digit from the right (ones place) by the multiplier. Write the ones place of the product below and carry over the tenths into the next number.</i>	Sample Problem: $83 \times 7 = ?$ <i>Step 1. Simplify the multiplicand into place values.</i> $\begin{array}{l} 80 \times 7 = 560 \\ 3 \times 7 = 21 \end{array}$ <i>Step 2. Add the results.</i> $560 + 21 = 581$ So, $83 \times 7 = 581$	Sample Problem: $25 \times 7 = ?$ <i>Step 1. Round-off the larger number to the nearest highest place value and multiply.</i> $20 \times 7 = 140$ <i>Step 2. Subtract the rounded-off value to the original value and multiply the difference by the multiplier.</i> $\begin{array}{l} 25 - 20 = 5 \\ 5 \times 7 = 35 \end{array}$





$\begin{array}{r} 2 \\ 99 \\ \times 3 \\ \hline 7 \end{array}$ Step 3. Multiply the second number from the right (tenths place) by the multiplier. Add the carried-over value on the obtained product. Write the number below. $\begin{array}{r} 2 \\ 99 \\ \times 3 \\ \hline 297 \end{array}$ Thus, $99 \times 3 = 297$		Step 3. If the number is rounded up, add the numbers obtained from step 1 and step 2. Otherwise, subtract. $140 + 35 = 175$ Thus, $25 \times 7 = 175$
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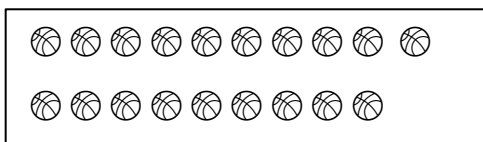
We can multiply **2 -digit numbers by 1-digit number** through:

- A. Mental method
- B. Written method

A. Mental Method

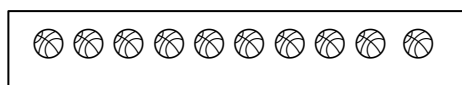
Sample:

Multiply 19 by 5



$$19 \times 5$$

Strategy 1: Group the numbers into 2.
Group 1 by 10, multiply it by 5

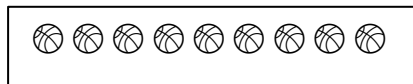


$$10 \times 5 = 50$$





Group 2 by 9, multiply it to 5

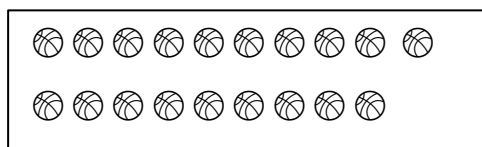


$$9 \times 5 = 45$$

Then add the product: $50 + 45 = 95$

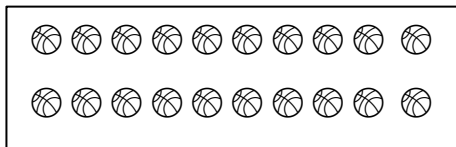
Answer: 9

Strategy 2:



$$19 \times 5$$

- Add 1 to 19 to make it 20.



$$19 + 1 = 20$$

- Next multiply the product by 5. $20 \times 5 = 100$
- Then subtract 5 from the product.
 $100 - 5 = 95$

Answer: 95

Strategy 3: Breaking down the number

Example: What is 6×40 ?

6×40 is equal to $6 \times 4 \times 10$

$$6 \times 4 = 24$$

- Now you can multiply 24 by 10.





- When you multiply by 10, all the digits move one space to the left and a zero is placed in the ones column to represent the number increasing in value.

$$24 \times 10 = 240$$

The product is 240.

B. Written Method

Example : What is 48×6 ?

- Make sure the digits are written in their correct place value.
- Place **4 in the tens column** and **8 in the ones column**.

		4	8
x			6

Step 1:

- Just like in column addition and subtraction, you start with the digit in the ones place. $8 \times 6 = 48$
- Since 48 is 4 tens and 8 ones you have to place the value in the correct

		4	8
x			6
			8
		4	

Step 2:

- $40 \times 6 = 240$
- Then add the **4** tens you carry over.
 $240 + 40 = 280$
- Again, make sure everything is in the correct place value column.

$$48 \times 6 = 288$$

		4	8
x			6
	2	8	8
		4	





The product is 288.

We multiply **2-digit numbers by 2-digit** numbers with regrouping through:

- Traditional Method
- Using Multiples of 10
- Table Method

Traditional Method	Using Multiples of 10	Table Method																		
Sample problem: $75 \times 22 = ?$ <i>Step 1: Write the equation in the traditional column format.</i> $\begin{array}{r} 75 \\ \times 22 \\ \hline \end{array}$ <i>Step 2: Multiply the first digit from the right (ones place) by the corresponding digit of the multiplier. Write the ones digit of the product below and carry over the tens digit to the next place. Align the product with the ones place of the multiplier.</i> $\begin{array}{r} 1 \\ 75 \\ \times 22 \\ \hline 0 \end{array}$	Sample Problem: $54 \times 13 = ?$ <i>Step 1: Simplify the multiplicand to the nearest multiple of 10.</i> $54 \rightarrow 50$ <i>Step 2: Multiply the obtained multiple of 10 by the multiplier.</i> $50 \times 13 = 650$ <i>Step 3: Subtract the obtained multiplicand from the original number, then multiply the difference by the multiplier.</i> $54 - 50 = 4$	Sample Problem: $28 \times 66 = ?$ <i>Step 1: Create a 3-by-3 table with the product cells divided by diagonal lines. Place the multiplicand in the columns and the multiplier in the rows.</i> <table border="1"> <tr> <td></td><td>2</td><td>8</td></tr> <tr> <td>6</td><td></td><td></td></tr> <tr> <td>6</td><td></td><td></td></tr> </table> <i>Step 2: Fill in the table by multiplying numbers accordingly.</i> <table border="1"> <tr> <td></td><td>2</td><td>8</td></tr> <tr> <td>6</td><td>12</td><td>48</td></tr> <tr> <td>6</td><td>12</td><td>48</td></tr> </table>		2	8	6			6				2	8	6	12	48	6	12	48
	2	8																		
6																				
6																				
	2	8																		
6	12	48																		
6	12	48																		





Step 3: Multiply the tens digit of the multiplicand by the ones digit of the multiplier and add the carry-over. Write the product beside the first digit obtained.

$$\begin{array}{r}
 \overset{1}{7}5 \\
 \times 22 \\
 \hline
 150 \quad \begin{array}{l} 7 \times 2 = 14 \\ 14 + 1 = 15 \end{array}
 \end{array}$$

Step 4: Repeat the same steps using the tens place of the multiplier. Align the products accordingly.

$$\begin{array}{r}
 \overset{1}{7}5 \\
 \times 22 \\
 \hline
 150 \\
 150
 \end{array}$$

Step 5. Add the obtained products.

$$\begin{array}{r}
 \overset{1}{7}5 \\
 \times 22 \\
 \hline
 150 \\
 150 \\
 + \hline
 1650
 \end{array}$$

Thus, $75 \times 22 = 1650$

$$4 \times 13 = 52$$

Step 4: If the number is rounded down, add the value obtained in Step 3 to the value obtained in Step 1. Otherwise, subtract it.

$$650 + 52 = 702$$

Thus, $54 \times 13 = 702$

Step 3: Add the numbers diagonally, starting from the bottom right. Carry the numbers to succeeding diagonals to the top if necessary.

	2	8
6	1	1
	7	1
6	1	1
	2	8
		4

Carry one to next diagonal

Step 4. Put the numbers together, starting from the upper-left diagonal.

$$\text{Thus, } 28 \times 66 = 1848.$$





Guided Activities

A. Directions: Multiply the following numbers.

1. $82 \times 5 = 410$

2. $74 \times 2 = 288$

3. $98 \times 3 = 294$

4. $37 \times 7 = 259$

5. $86 \times 5 = 430$

B. Directions: Give the product. -

1. $20 \times 3 = 60$

2. $32 \times 2 = 64$

3. $15 \times 3 = 45$

4. $42 \times 5 = 210$

5. $13 \times 3 = 39$

C. Direction: Multiply the following numbers.

1. $92 \times 15 = 1380$

2. $64 \times 28 = 1792$

3. $58 \times 37 = 2146$

4. $37 \times 72 = 2664$

5. $86 \times 50 = 4300$





ARAL Summer – Grade 3 Math

Session 9

Multiplication of Whole Numbers

Lesson Objective:

At the end of the session, the learners are expected to multiply 2- to 3-digit numbers by 1-digit numbers with or without regrouping.

Lesson Sample and Explanation

We multiply **3-digit numbers by 1-digit numbers** with regrouping through:

- Traditional Method
- Simplifying through Place Value
- Round-Off Method

Traditional Method	Simplifying through Place Value	Round-Off Method
Sample problem: $275 \times 3 = ?$ <i>Step 1: Write the equation in the traditional column format.</i> $\begin{array}{r} 275 \\ \times 3 \\ \hline \end{array}$ <i>Step 2: Multiply the rightmost digit (ones place) by the multiplier. Write the ones digit of the product below and carry over the tens digit to the next place value.</i>	Sample Problem: $831 \times 7 = ?$ <i>Step 1: Simplify the multiplicand into place values.</i> $\begin{aligned} 800 \times 7 &= 5600 \\ 30 \times 7 &= 210 \\ 1 \times 7 &= 7 \end{aligned}$ <i>Step 2: Add the results.</i> $5600 + 210 + 7 = 5817$ So, $83 \times 7 = 5817$	Sample Problem: $225 \times 7 = ?$ <i>Step 1: Round off the larger number to the nearest highest place value, then multiply.</i> $200 \times 7 = 1400$ <i>Step 2: Subtract the rounded-off value from the original value, then multiply the difference by the multiplier.</i> $\begin{aligned} 225 - 200 &= 25 \\ 25 \times 7 &= 175 \end{aligned}$





$ \begin{array}{r} 275 \\ \times 3 \\ \hline 5 \end{array} $ Step 3: Multiply the second digit from the right (tens place) by the multiplier. Add the carried-over value to the product, then write the result below. $ \begin{array}{r} 275 \\ \times 3 \\ \hline 5 \end{array} $ Step 3. Do the same for the hundreds place. $ \begin{array}{r} 275 \\ \times 3 \\ \hline 5 \end{array} $ Thus, $275 \times 3 = 825$		Step 3: If the number is rounded up, add the values obtained in Steps 1 and 2. Otherwise, subtract them. $1400 + 175 = 1575$ Thus, $225 \times 7 = 1575$
We multiply 3-digit numbers by 1-digit numbers without regrouping through: - Simplifying through Place Value - Round-Off Method - Table Method		





Simplifying through Place Value	Round-Off Method	Table Method																
Sample Problem: $124 \times 2 = ?$ <i>Step 1: Simplify the multiplicand into place values.</i> $100 \times 2 = 200$ $20 \times 2 = 40$ $4 \times 2 = 8$ <i>Step 2: Add the results.</i> $200 + 40 + 8 = 248$ So, $124 \times 2 = 248$	Sample Problem: $220 \times 4 = ?$ <i>Step 1: Round the larger number to the nearest higher place value, then multiply.</i> $200 \times 4 = 800$ <i>Step 2: Subtract the rounded-off value from the original value, then multiply the difference by the multiplier.</i> $220 - 200 = 20$ $20 \times 4 = 80$ <i>Step 3: If the number is rounded up, add the values obtained in Steps 1 and 2. Otherwise, subtract them.</i> $800 + 80 = 880$ $800 + 80 = 880$ Thus, $220 \times 4 = 880$	Sample Problem: $313 \times 3 = ?$ <i>Step 1: Create a 4-by-1 table. Place the multiplicand in the columns and the multiplier in the row.</i> <table border="1"><tr><td></td><td>3</td><td>1</td><td>3</td></tr><tr><td>3</td><td></td><td></td><td></td></tr></table> <i>Step 2: Fill in the table by multiplying numbers accordingly.</i> <table border="1"><tr><td></td><td>3</td><td>1</td><td>3</td></tr><tr><td>3</td><td>9</td><td>1</td><td>9</td></tr></table> Thus, $313 \times 3 = 919$		3	1	3	3					3	1	3	3	9	1	9
	3	1	3															
3																		
	3	1	3															
3	9	1	9															





Guided Activities

Direction: Multiply the following numbers.

Set A Activity

1. $812 \times 5 = 4,060$

2. $724 \times 2 = 1,448$

3. $938 \times 3 = 2,814$

4. $347 \times 7 = 2,429$

5. $856 \times 5 = 4,280$

Set B Activity

1. $111 \times 5 = 555$

2. $214 \times 2 = 428$

3. $301 \times 3 = 903$

4. $311 \times 2 = 622$

5. $202 \times 4 = 808$





ARAL Summer – Grade 3 Math

Session 10

Multiplication of Whole Numbers

Lesson Objective:

At the end of the session, the learners are expected to multiply 2- to 3-digit numbers by multiples of 10 and 100.

Lesson Sample and Explanation:

We multiply **2-digit numbers by multiples of 10** through:

- Zero as a Value Holder
- Distributive Property
- Simplification using Place Value

Zero as a Value Holder	Distributive Property	Simplification using Place Value
Sample problem: $15 \times 10 = ?$ <i>Step 1: Ignore the zero in the multiplier and multiply 15 by 1.</i> $15 \times 1 = 15$ <i>Step 2: Add the zero at the end of the product to get the final answer.</i> So, $15 \times 10 = 150$	Sample problem: $37 \times 20 = ?$ <i>Step 1: Rewrite the equation in a manner that the multiplier is distributed into tens.</i> $37 \times 2 \times 10 = ?$ <i>Step 2: Multiply step by step.</i> $37 \times 2 = 74$ $74 \times 10 = 740$ So, $37 \times 20 = 740$	Sample problem: $59 \times 40 = ?$ <i>Step 1: Break down the multiplicand into tens and ones, then multiply by 40.</i> $50 \times 40 = 2000$ $9 \times 40 = 360$ <i>Step 2: Add the obtained values.</i> $2000 + 360 = 2360$ So, $59 \times 40 = 2360$
We multiply 2-digit numbers by multiples of 100 through:		





Zero as a Value Holder	Distributive Property	Simplification using Place Value
Sample problem: $15 \times 100 = ?$ <i>Step 1: Ignore the zero on the multiplier and multiply 15 by 1.</i> $15 \times 1 = 15$ <i>Step 2: Add the zeros at the end of the product to obtain the final answer.</i> So, $15 \times 100 = 1500$	Sample problem: $24 \times 200 = ?$ <i>Step 1: Rewrite the equation in a manner that the multiplier is distributed into hundreds.</i> $24 \times 2 \times 100 = ?$ <i>Step 2: Multiply step by step.</i> $24 \times 2 = 48$ $48 \times 100 = 4800$ So, $24 \times 200 = 4800$	Sample problem: $39 \times 400 = ?$ <i>Step 1: Break down the multiplicand into tens and ones, then multiply by 40.</i> $30 \times 400 = 12000$ $9 \times 400 = 3600$ <i>Step 2: Add the obtained values.</i> $12000 + 3600 = 15600$ So, $39 \times 400 = 15600$
We multiply 3-digit numbers by multiples of 10 through:		
Zero as a Value Holder	Distributive Property	Simplification using Place Value
Sample problem: $152 \times 10 = ?$ <i>Step 1: Ignore the zero in the multiplier and multiply 152 by 1.</i> $152 \times 1 = 152$ <i>Step 2: Add the zero at the end of the product to get the final answer.</i>	Sample problem: $123 \times 20 = ?$ <i>Step 1: Rewrite the equation by expressing the multiplier as a multiple of ten.</i> $123 \times 2 \times 10 = ?$	Sample problem: $227 \times 40 = ?$ <i>Step 1. Break down the multiplicand into ones, tens, and hundreds, then multiply by 40.</i> $200 \times 40 = 8000$ $20 \times 40 = 800$ $7 \times 40 = 280$





So, $152 \times 10 = 1520$	<i>Step 2: Multiply step by step.</i> $123 \times 2 = 246$ $246 \times 10 = 2460$ So, $37 \times 20 = 2460$	Step 2: Add the obtained values. $800 + 800 + 280 = 9080$ So, $227 \times 40 = 9080$
We multiply 3-digit numbers by multiples of 100 through:		
Zero as a Value Holder	Distributive Property	Simplification using Place Value
Sample problem: $152 \times 100 = ?$ <i>Step 1: Ignore the zero in the multiplier and multiply 152 by 1.</i> $152 \times 1 = 152$ <i>Step 2: Add the zeros at the end of the product to obtain the final answer.</i> So, $152 \times 100 = 1500$	Sample problem: $113 \times 200 = ?$ <i>Step 1: Rewrite the equation in a manner that the multiplier is distributed into hundreds.</i> $113 \times 2 \times 100 = ?$ <i>Step 2: Multiply step by step.</i> $113 \times 2 = 226$ $226 \times 100 = 22600$ So, $113 \times 200 = 22600$	Sample problem: $795 \times 400 = ?$ <i>Step 1: Break down the multiplicand into ones, tens, and hundreds, then multiply by 400.</i> $700 \times 400 = 280000$ $90 \times 400 = 36000$ $5 \times 400 = 2000$ Step 2: Add the obtained values. $280000 + 36000 + 2000$ So, $39 \times 400 = 318000$





Guided Activities

Directions: Multiply the following numbers.

Set A Activity

1. $36 \times 10 = 360$
2. $45 \times 20 = 900$
3. $27 \times 30 = 810$
4. $55 \times 40 = 2200$
5. $12 \times 50 = 600$

Set B Activity

1. $95 \times 100 = 9,500$
2. $33 \times 200 = 6,600$
3. $27 \times 300 = 8,100$
4. $11 \times 400 = 4,400$
5. $56 \times 500 = 28,000$

Set C Activity

1. $131 \times 10 = 1,310$
2. $229 \times 20 = 4,580$
3. $442 \times 30 = 13,260$
4. $365 \times 40 = 14,600$
5. $297 \times 50 = 14,850$

Set D Activity

1. $333 \times 100 = 33,300$
2. $176 \times 200 = 35,200$
3. $675 \times 300 = 202,500$
4. $845 \times 400 = 338,000$
5. $115 \times 500 = 57,500$





ARAL Summer – Grade 3 Math

Session 11

Division of Whole Numbers

Lesson Objective:

At the end of the session, the learners are expected to visualize and state basic division facts of numbers up to 100 by 6, 7, 8, and 9 (multiplication tables of 6, 7, 8, and 9).

Lesson Sample and Explanation

Developing Lesson through:

1. Using the number line:



There are 24 children in a row. The teacher wants to group them into sets of 8. How many groups of children are formed?

24 divided by **8** equals **3**, or **$24 \div 8 = 3$**

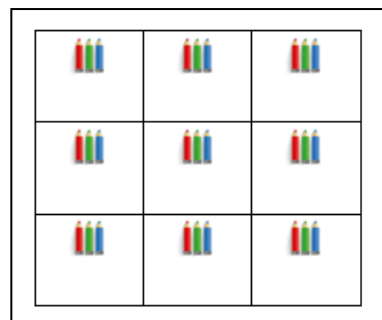
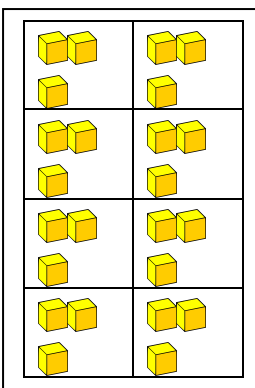
24-dividend 8- divisor 3- quotient

There are **3** groups made.

2. Using objects:

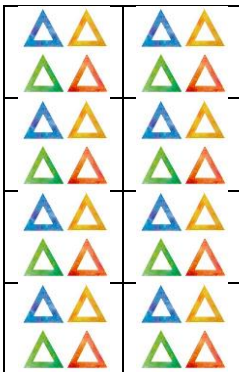
$$24 \div 8 = \underline{\quad} 3$$

$$27 \div 9 = \underline{\quad} 3$$

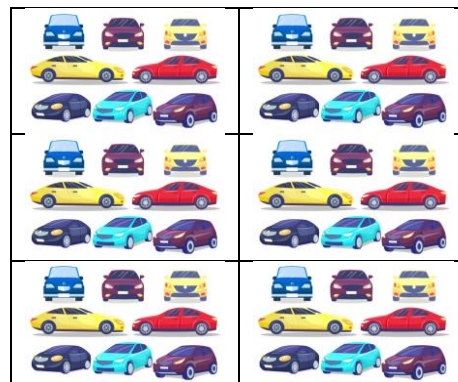




$$32 \div 8 = \underline{\quad} \quad \mathbf{4}$$



$$48 \div 6 = \underline{\quad} \quad \mathbf{8}$$



Question: How do you find the quotient of two numbers?

Answer: Divide the dividend by the divisor.

Remember: Multiplication is the inverse of division. So, check your answer by multiplying the divisor and the quotient.

Learning the multiplication tables of 6, 7, 8, and 9 is an easy way to find the quotient in a division process.

Lesson Sample and Explanation:

Developing Lesson through Guide Questions and Illustrations

Example:

Miss Lopez has 24 pencils on the table. She wants to put them into boxes, with 6 pencils in each box. How many boxes does Miss Lopez need?

Answer the following questions:

How many pencils does Miss Lopez have? **24**

Where does she want to put the pencils? **into boxes**

How many pencils does she want to put in each box? **6**

How will you solve the number of boxes that she needs? **Divide 24 by 6**

Solution:

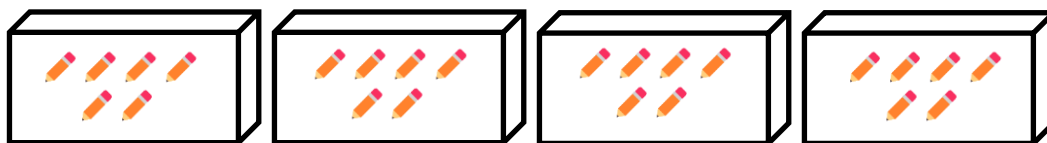
$$24 \div 6 = 4$$

Miss Lopez needs 4 boxes.





Explanation:



Lesson Sample and Explanation:

Developing Lesson through Guide Questions

Example:

The family went on a reunion in the province. They met relatives, ate together, and participated in fun games and relays. During the program, the host wanted to arrange 54 boys into 6 equal rows for a balloon-popping game. How many boys were in each row?"

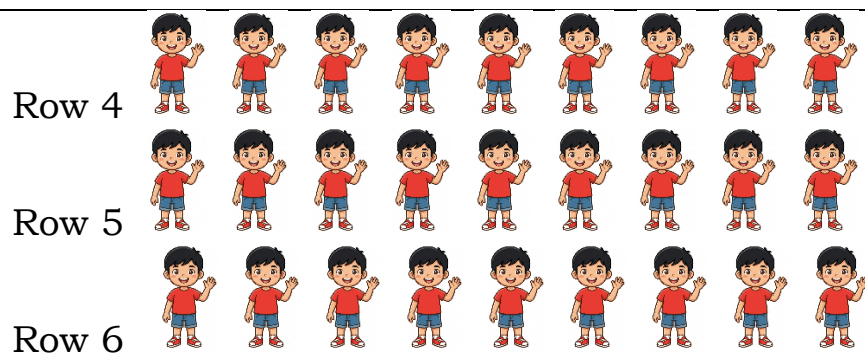
Analyze and solve the problem.

Ask:

1. Who went to the province?
2. What did they do in the province?
3. What kind of family do they have?
4. Have you experienced attending a family reunion?
5. Have you tried playing balloon popping in a relay?
6. How many boys are there in the reunion?
7. How many rows did the host distribute all the boys to play the relay?
8. How many boys are there in each row?

Study the illustration:





Question: What operation should be used? What is the mathematical sentence for the problem?

54 divided by 6 = 9 boys in each row

Explanation:

- In a division sentence, we are finding the factors.
- A quotient is the result when a dividend is divided by a divisor.

$$54 \div 6 = 9$$

$$6 \times 9 = 54$$

Division is the opposite of multiplication.
(Recite the multiplication table of 6)

Lesson Sample and Explanation:

Example:

There are 42 learners in a Grade 3 class. The new teacher arranges them into 7 groups to perform the different activities. How many learners will be there in each group?



$$42 \div 7 = 6$$





Explanation: When dividing numbers, we are finding the factors of the dividend. The **dividend** is the number being divided. The **divisor** is the number that divides the dividend. The **quotient** is the result of the division.

Division is the opposite of multiplication.

In this sample, the dividend is 42, and the factors are 7 and 6. The divisor is 7, and the quotient is 6.

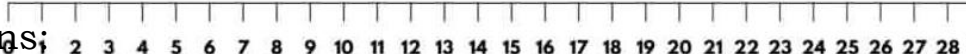
Guided Activity

Set A

Directions: Read each problem. Draw a curved line on the number line to show division, then answer the questions that follow.

1. There are 28 students in a classroom. They are divided into 7 groups.

Number Line:

Questions: 

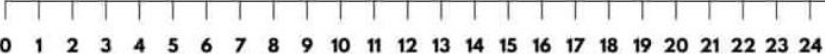
How many students are in each group? 4

What is the mathematical sentence? $28 \div 7 =$

What operation did you use to solve this? division

2. A farm has 24 cows that are placed equally into 8 barns.

Number Line:

Questions: 

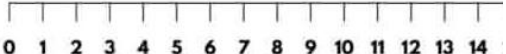
How many cows are in each barn? 3

What is the mathematical sentence? $24 \div 8 =$

What operation did you use to solve this? division

3. There are 14 marbles, and they are divided equally into 7 jars.

Number Line:

Questions: 

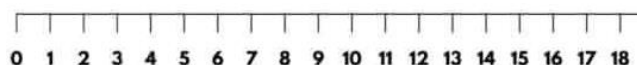
How many marbles are in each jar? 2

What is the mathematical sentence? $14 \div 7 =$

What operation did you use to solve this? division

4. A teacher has 18 pencils to give to 6 students.

Number Line:







Questions:

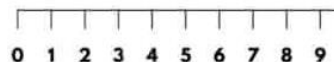
How many pencils will each student get? _____ **3**

What is the mathematical sentence? _____ **$18 \div 6 =$**

What operation did you use to solve this? _____ **division**

5. You have 9 candies that need to be shared among 9 friends.

Number Line:



Questions:

How many candies does each friend get? _____ **1**

What is the mathematical sentence? _____ **$9 \div 9 =$**

What operation did you use to solve this? _____ **division**

Set B

Direction: Understand each problem and answer the questions that follow.

1. Mrs. Cruz has 25 candies. She wants to put 5 candies in each bag.



Questions:

How many candies does Mrs. Cruz have? _____ **25**

How many candies will go into each bag? _____ **5**

What is the Mathematical sentence? _____ **$25 \div 5 = 5$**

2. Mr. Garcia is arranging 18 marbles into boxes, putting 6 marbles in each box.



Questions:

How many marbles does he have? _____ **18**

How many marbles go into each box? _____ **6**

What is the mathematical sentence? _____ **$18 \div 6 = 3$**





3. There are 30 cookies, and Miss Diaz wants to put 5 cookies in each jar.



Questions:

How many cookies are there? _____ **30**

How many cookies will be in each jar? _____ **5**

What is the mathematical sentence? _____ **$30 \div 5 = 6$**

4. Miss Perez has 12 pencils and wants to divide them equally into 3 cups.



Questions:

How many pencils does she have? _____ **12**

How many pencils will go into each cup? _____ **4**

What is the mathematical sentence? _____ **$12 \div 4 = 3$**

5. There are 40 crayons in the box. Miss Santos is putting 8 crayons into each bag.



Questions:

How many crayons are in the box? _____ **40**

How many crayons are in each bag? _____ **8**

What is the mathematical sentence? _____ **$40 \div 8 = 5$**





Set C

Directions: Understand each problem and answer the questions that follow.

1. There are 18 cookies, and you want to share them equally among 6 friends. How many cookies will each friend get?

Questions:

How many cookies are there? _____ **18**

How many friends are sharing the cookies? _____ **6**

How can we divide the cookies evenly among the friends? _____
 $18 \div 6 = 3$

2. There are 48 students, and we need to divide them into 6 teams. How many students will be in each team?

Questions:

How many students do we have? _____ **48**

How many teams will there be? _____ **6**

What operation do we use to find out how many in each team?
 _____ **$48 \div 6 = 8$**

3. There are 36 lemons, and 6 baskets. We want to put the lemons in the baskets equally. How many lemons will go in each basket?

Questions:

How many lemons are there? _____ **36**

How many baskets do we have? _____ **6**

What will the division sentence be? _____ **$36 \div 6 = 6$**

4. The teacher wants to arrange 30 chairs in 6 rows. How many chairs will be in each row?

Questions:

How many chairs are there? _____ **30**

How many rows will we make? _____ **6**

What is the division sentence? _____ **$30 \div 6 = 5$**





5. There are 42 ice cream cones, and 6 friends want to share them.
How many cones will each friend get?

Questions:

How many cones are there? _____ **42**

How many friends are sharing? _____ **6**

What is the answer? _____ **7**

Set D

Direction: Understand each problem. Study the pictures or objects and answer.

1. The teacher arranges the 35 chairs into 7 rows. How many chairs are in each row? _____ **5**

2. Aunt Minda prepared 56 cups of coffee. She divided them into 7 trays. How many paper cups of coffee were there in each tray?
_____ **8**

3. The clerk prepared 49 paper clips and grouped them into 7. How many paper clips were in each group? _____ **7**

4. You have 21 popsicle sticks, and you bundle them equally into 7. How many are in each bundle? _____ **3**

5. Poly made 63 ribbons. She divided them equally among her 7 friends. How many did each friend have? _____ **9**





ARAL Summer – Grade 3 Math

Session 12

Division of Whole Numbers

Lesson Objective:

At the end of the session, the learners are expected to visualize and state basic division facts of numbers up to 100 by 6, 7, 8, and 9 (multiplication tables of 6, 7, 8, and 9).

Lesson Sample and Explanation:

Division of numbers up to 100 by 8 (multiplication table of 8).

Example:

The farmer had 64 tomatoes to be divided equally into 8 packs.
How many tomatoes will be in each pack?



$$64 \div 8 = 8$$

Explanation:

- When dividing numbers, we are determining how many equal parts a number can be split into.
- The **dividend** is the number being divided.
- The **divisor** is the number used to divide the dividend.
- The **quotient** is the result of the division.
- Division is the opposite of multiplication.





- In this example, the dividend is 64, and the factors are 8 and 6. 8 is called the divisor, and 6 is called the quotient.

Division of numbers up to 100 by 9 (multiplication table of 9).

Example:

There are 81 eggs in a container. These are packed equally into 9 packs for the workers of a hatchery farm. How many eggs are in each pack?



$$81 \div 9 = 9$$

Explanation:

- When dividing numbers, we find how many equal parts a number can be split into or how many are in each group.
- The **dividend** is the number being divided.
- The **divisor** is the number used to divide the dividend.
- The **quotient** is the result of the division.
- Division is the opposite of multiplication.
- $9 \times 9 = 81$
- In this example, the dividend is 81, and the factors are 9 and 9. 9 is called the divisor, and the other 9 is called the quotient.



Guided Activity

Set A

Direction: Understand each problem and use the objects to get the answer.

1. A baker has 72 cookies. He wants to put them equally into 8 boxes. How many cookies are there in each box?

Answer _____ **$72 \div 8 = 9$**

2. Nestor sells 48 flowers. He wants to put them equally into 8 vases. How many flowers will each vase have?

Answer _____ **$48 \div 8 = 6$**

3. A total of 64 erasers are packed into 8 pencil cases equally. How many erasers are in each pencil case?

Answer _____ **$64 \div 8 = 8$**

4. There are 56 notebooks that need to be placed equally into 8 bags. How many notebooks will be in each bag?

Answer _____ **$56 \div 8 = 7$**

5. Ramon displayed 40 watches in his store. He wants to sell them equally to his 8 business partners. How many watches will each business partner get?

Answer _____ **$40 \div 8 = 5$**





Set B

Direction: Study the picture of objects below each problem and solve for the correct answer.

1. There are 72 notebooks on the teacher's table. These are packed equally into 9. Find the number of notebooks in each pack.

Answer: _____ **8**

2. A farmer harvested 45 tomatoes and gave them equally to his 9 farm workers. How many tomatoes did each worker receive?

Answer: _____ **5**

3. There are 72 eggplants in a farm. The owner needs to divide them equally among his 8 workers. How many eggplants will each of his workers get?

Answer: _____ **9**

4. A baker has 63 pandesal, and he divides them equally into 9 baskets. How many pandesal are in each basket?

Answer: _____ **7**

5. Josie gathered 54 ampalaya from her garden. She gave them equally to her 9 neighbors. How many ampalaya did each neighbor receive?

Answer: _____ **6**





ARAL Summer – Grade 3 Math

Session 13

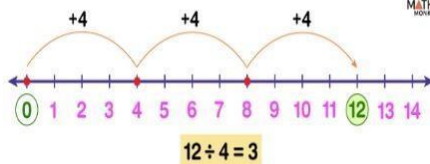
Division of Whole Numbers

Lesson Objective:

At the end of the session, the learners are expected to divide 2- to 3-digit numbers by 1-digit numbers without remainder.

Lesson Sample and Explanation:

This topic connects with the current lesson, as understanding multiplication is fundamental in grasping division. For example, knowing that 24 divided by 3 equals 8 helps students realize that 3 multiplied by 8 gives them back the original number (24). In dividing 2-digit numbers, work on the digits one by one. If this is not possible, get the next number. We always have to divide ($\div$), multiply ($\times$), and subtract ($-$) to get the quotient.

Developing Lesson through Concrete Objects	Developing Lesson through Visuals	Developing Lesson through using short division
Candy Division  12 candies $\div$ 4 baskets = 3 candies in each basket Explanation: This activity helps students visualize division by physically distributing items.	Number Line Division Example:  Explanation: Helps students understand division through visualization	Think-Pair-Share $\begin{array}{r} 3 \\ 4 \overline{) 12} \\ \underline{12} \\ 0 \end{array}$ Explanation: 12 divided by 4 equals 3, which helps students realize that 4 multiplied by 3 gives them back the original number, which is 12.





This topic connects with the current lesson, as understanding multiplication is fundamental in grasping division. For example, knowing that 128 divided by 8 equals 16 helps students realize that 8 multiplied by 16 gives them back the original number (128). In dividing 3-digit numbers, work on the digits one by one. If this is not possible, get the next number. We always have to divide ($\div$), multiply ($\times$), and subtract ($-$) to get the quotient.

Developing Lesson through Concrete Objects

Stick Division



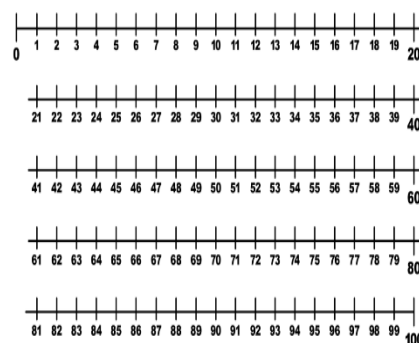
$126 \text{ sticks} \div 6 \text{ baskets} = 21 \text{ sticks in each basket}$

Explanation: This activity helps students visualize division by physically distributing items.

Developing Lesson through Visual

Number Line Division

Example:



$$126 \div 6 = 21$$

Explanation: Helps students understand division through visualization

Developing Lesson through using short division

Think-Pair-Share

$$\begin{array}{r} 21 \\ 6 \overline{) 126} \\ \underline{12} \\ 06 \\ \underline{6} \\ 0 \end{array}$$

Explanation: 126 divided by 6 equals 21 helps students realize that 6 multiplied by 21 gives them back the original number, which is 126.





Guided Activity

Set A Activity

Directions: Do the activity in pairs. Answer the questions afterwards.

Set 1:

Divide the 18 sticks equally among the 2 baskets. How many apples did each basket receive? Answer: 9 sticks

Set 2:

Divide the 15 ballpens equally among the 3 pencil cases. How many ballpens did each pencil case receive? Answer: 5 ballpens

Set 3:

Place 10 books equally into 2 bags. How many books are in each bag? Answer: 5 books

Set 4:

Arrange the 16 flowers evenly among the 4 vases. How many flowers did each vase have? Answer: 4 flowers

Set 5:

Share 30 spoons equally among the 5 glasses. How many spoons did each glass have? Answer: 6 spoons





Set B Activity

Set 1:

Divide the 115 stones equally among the 5 plates. How many stones did each plate have? Answer: 23 stones

Set 2: Divide the 208 marbles equally among the 8 boxes. How many marbles did each box receive? Answer: 26 marbles

Set 3:

There are 164 sticks on the table. Aling Maria would like to arrange them equally among 4 vases. How many sticks will be in each vase? Answer: 41 sticks

Set 4: Joy and Liza have 303 popsicle sticks. They want to share them equally among their 3 friends by putting them in the jar. How many popsicle sticks will each jar receive? Answer: 101 popsicle sticks

Set 5: The Grade 3 class collected 345 bottle caps after the school fair. They wanted to place them equally in 5 bowls. How many bottle caps will be in each bowl? Answer: 69 bottle caps





ARAL Summer – Grade 3 Math

Session 14

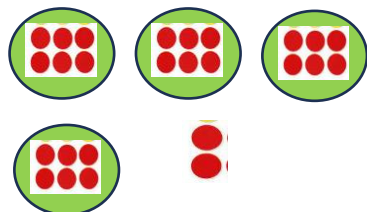
Division of Whole Numbers

Lesson Objective:

At the end of the session, the learners are expected to divide 2- to 3-digit numbers by 1-digit numbers with remainder.

Lesson Sample and Explanation:

Dividing numbers is not always exact. Some numbers are left. The number left after forming equal groups is called the remainder. The remainder is always smaller than the divisor.

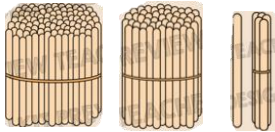
Developing Lesson through Concrete Objects	Developing Lesson through Pictorial	Developing Lesson through using short division
Cupcake Division Challenge  26 cupcakes ÷ 4 plates = 6 cupcakes in each plate with 2 leftover cupcakes Explanation: This activity helps students visualize division by physically distributing items.	Visualize Division through counters Example:  26 ÷ 4 = 6 r.2 Explanation: Helps students understand division through visualization	Think-Pair-Share $\begin{array}{r} 6 \text{ r. } 2 \\ 4 \overline{)26} \\ \underline{24} \\ 2 \end{array}$ Explanation: 26 divided by 4 equals 6 with remainder 2





Dividing numbers is not always exact. Some numbers are left. The numbers left after making the equal groups are called remainders. It is always smaller than the divisor.

Developing Lesson through Concrete Objects



156 sticks $\div$ 5 groups =
31 sticks in each group with 1
leftover stick

Explanation: This activity helps students visualize division by physically distributing items.

Developing Lesson through using short

$$\begin{array}{r} 31 \text{ r. } 1 \\ 5 \overline{)156} \\ \underline{15} \\ 06 \\ \underline{5} \\ 1 \end{array}$$

Explanation: 156 divided by 5 equals 31 with a remainder of 1.

Guided Activity

Set A

Directions: Do the activity and answer the question.

Set 1:

Divide the 23 dry leaves into 5 groups. How many groups of 5 did you make? Answer: 4 groups. How many leftover dry leaves? Answer: 3 dry leaves left

Set 2:

Divide the 19 stones into 3 groups. How many groups of 3 did you make? Answer: 6 groups. How many leftover stones? Answer: 1 stone left

Set 3:

Mrs. Atienza's class gathered 34 plastic bottles. She wants to arrange them into 6 groups. How many groups of 6 can she make? Answer: 5 groups. How many leftover plastic bottles? Answer: 4 plastic bottles left





Set 4:

Using skip counting by 7, how many groups of 7 counters can you make from 41 counters? Answer: 5 skips. How many counters are left? Answer: 6 counters left

Set 5:

Use a number line to divide 64 plastic spoons into groups of 3. How many groups of 3 can you make? Answer: 21 groups. How many spoons are left over? Answer: 1 leftover spoon

Set B

Direction: Perform the activity and answer the following questions.

Set 1:

Divide the 256 sticks into 3 groups. How many groups of 3 did you make? Answer: 85 groups How many leftover sticks? Answer: 1 stick left

Set 2:

Divide the 286 sticks into 5 groups. How many groups of 5 did you make? Answer: 57 groups How many leftover sticks? Answer: 1 leftover stick

Set 3:

Split the 339 straws into 6 equal portions. How many full sets of 6 did you create? Answer: 56 sets How many straws remain? Answer: 3 straws remain

Set 4:

Separate 443 bottle caps into 2 equal groups. How many complete sets of 2 were formed? Answer: 221 sets How many bottle caps left? Answer: 1 bottle cap left

Set 5:

Distribute 568 leaves into 5 equal parts. How many full sets were formed? Answer: 113 sets How many leaves are left over? Answer: 3 leftover leaves





ARAL Summer – Grade 3 Math

Session 15

Division of Whole Numbers

Lesson Objective:

At the end of the session, the learners are expected to divide 2- to 4-digit numbers by 10 and 100.

Lesson Sample and Explanation:

When **dividing larger numbers that are multiples of 10**, especially those with zeros, you can simplify by canceling the same number of zeros in both the dividend and the divisor, then dividing the remaining numbers.

Any number divided by 1 is equal to the same number.

For 3-digit numbers with two zeros, such as 100, 200, 300, and the like, you may cancel one zero from the dividend and one zero from the divisor, then divide the remaining numbers.

Example:

$$100 \div 10 = 10 \quad \text{or} \quad \begin{array}{r} 10 \\ 10 \overline{) 100} \end{array}$$

Explanation:

Cancel the zero (0) from the dividend 100 and the divisor 10. Then divide 10 by 1. The quotient will be 10.

When **dividing larger numbers that are multiples of 100**, especially those with zeros, you can simplify by canceling the same number of zeros in both the dividend and the divisor, then divide the remaining numbers.

Any number divided by 1 is equal to the same number.

For 4-digit numbers with two to three zeros, such as 100, 200, 300, and the like, you may cancel the same number of zeros from both the dividend and the divisor, then divide the remaining numbers.

After dividing, you may add back the appropriate zeros to the quotient.





Example:

$$\overline{)3600} \div \overline{)300} = 12 \quad \text{or} \quad \begin{array}{r} 12 \\ 3 \overline{)3600} \\ \underline{36} \\ 00 \\ \underline{00} \\ 00 \\ \underline{00} \\ 00 \\ \underline{00} \\ 00 \\ \underline{00} \\ 00 \end{array}$$

Explanation:

Cancel the zeros (0) from the dividend 3600 and the divisor 300. Then divide 36 by 3. The quotient will be 12. No zeros to add back.

When **dividing larger numbers that are multiples of 100**, especially those with zeros, you can simplify by canceling the same number of zeros in both the dividend and the divisor, then dividing the remaining numbers.

Any number divided by 1 is equal to the same number.

For 3-digit numbers with two zeros, such as 100, 200, 300, and the like, you may cancel one zero from both the dividend and the divisor, then divide the remaining numbers.

$$\overline{)200} \div \overline{)200} = 1 \quad \text{or} \quad \begin{array}{r} 1 \\ 2 \overline{)200} \\ \underline{200} \\ 000 \end{array}$$

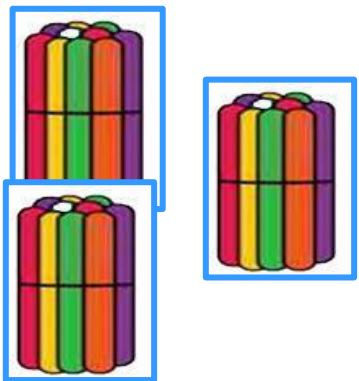
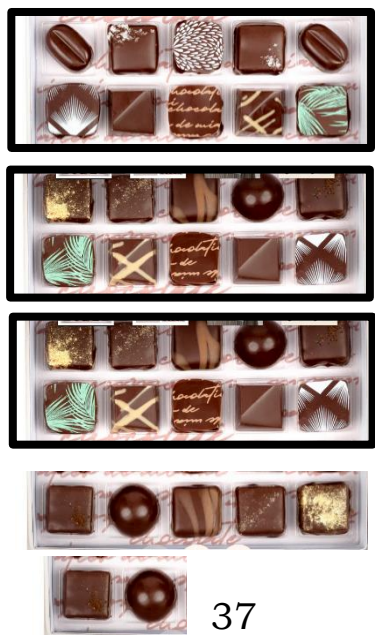
Explanation:

Cancel the zeros (0) from the dividend 200 and the divisor 200. Then divide 2 by 2. The quotient will be 1.

This topic helps develop the understanding that dividing a two-digit number by 10 follows a pattern: the quotient is the tens digit of the number, and the remainder, if there is any, is the ones digit. For example, $40 \div 10 = 4$, and $52 \div 10 = 5$, remainder 2.





Developing Lesson through Concrete Objects	Developing Lesson through Visuals	Developing Lesson through number symbol
Popsicle Stick Division  $30 \text{ popsicle stick} \div \text{boxes of } 10 = 3 \text{ boxes}$ Chocolate Division  $37 \text{ chocolates} \div \text{boxes of } 10 = 3 \text{ boxes and } 7 \text{ remainder}$	Skip-Counting-by-Tens  10 Division $30 \text{ objects} \div \text{groups of } 10 = 3 \text{ groups}$ (For illustration: skip counting by 10 from 1 to 37) $37 \text{ units} \div \text{skip counting by } 10 = 3 \text{ skips, remainder } 7$ Explanation: Helps students understand division through the visualization of skip counting.	Think-Pair-Share $30 \div 10 = 3$ Explanation: 30 divided by 10 equals 3. When dividing a two-digit number by 10 without remainder, the quotient is always the same as the tens digit of the number being divided. $37 \div 10 = 3, \text{ remainder } 7$ Explanation: 37 divided by 10 equals 3, remainder 7. When dividing a two-digit number by 10 with remainder, the quotient is always the same as the tens digit, and the remainder is the ones digit of the number being divided.





10 = 3 boxes,
remainder 7
chocolates

Explanation: This activity helps students visualize division by physically grouping items.

Guided Activity

Direction: Find the quotient.

Set A

1. $150 \div 30 = \underline{5}$
2. $120 \div 60 = \underline{2}$
3. $230 \div 10 = \underline{23}$

4. $350 \div 50 = \underline{7}$
5. $460 \div 20 = \underline{23}$

Set B

1. $2500 \div 50 = \underline{50}$
2. $3000 \div 10 = \underline{300}$
3. $2000 \div 200 = \underline{10}$

4. $3500 \div 350 = \underline{10}$
5. $4000 \div 50 = \underline{80}$

Set C

1. $250 \div 250 = \underline{1}$
2. $300 \div 100 = \underline{3}$
3. $400 \div 200 = \underline{2}$

4. $200 \div 100 = \underline{2}$
5. $350 \div 350 = \underline{1}$





Set D

Directions: Do the activity in pairs and answer the question afterwards.

Set 1:

Divide the 20 sticks equally among the 10 baskets. How many sticks did each basket receive? Answer: 2 sticks

Set 2:

Divide the 30 ballpens equally among the 10 pencil cases. How many ballpens did each pencil case receive?

Answer: 3 ballpens

Set 3: There are 33 Grade 3 books in the school library. Teacher Lisa wants to distribute them equally into 10 bags. How many books will each bag contain? Answer: 3 books How many books will be left over in the school library? Answer: 3 books left

Set 4: Mr. Owen picks 60 flowers in the school garden. He arranges them equally among the 10 vases. How many flowers will each vase have? Answer: 6 flowers

Set 5: Aling Carina harvested 96 patola in her garden. She places them equally among the 10 baskets. How many patolas will each basket contain? Answer: 9 patola How many were left to Aling Carina? Answer: 6 patola left



