**First Grading Period**

**Lesson 4: Using divisibility rules for 2, 5, and 10 to find the common factors of numbers.**

**Week 2**

**Objective**: Uses divisibility rules for 2, 5, and 10 to find the common factors of numbers.

|  |
| --- |
| **Value Focus:**Following rules |

**Prerequisite Concept and Skills**

* Basic Division Facts of numbers 2, 5 and 10
* Odd and even number
* Skip Counting

**Materials:** Charts, flash cards

**Reference:** K to 12 Curriculum for Grade 5 (M5NS-Ib-58.1); Lesson Guide in Elementary Math 5, pp. 48-51

**Instructional Procedure**

1. **Preliminary Activities**
2. **Drill**

Have an oral drill on the division facts. Use flashcards or games.

1. **Review**

Conduct a review on odd and even numbers. Provide examples and exercises for this activity.

1. **Motivation**

Ask the pupils to enumerate the classroom rules and basic rules to be followed in school. Ask what the probable causes is if they did not follow the rules. Emphasize that rules are made to maintain peace and order and it makes working on things easier.

1. **Developmental Activities**
2. **Presentation**

Present the problem.

|  |
| --- |
| Mr. Santos has 200 pens. If each pupil of his class have the same number of pens, how many pupils could there be in each class? |

1. If there are 200 pupils, every pupil has 1 pen.
2. If there are 100 pupils, every pupil has\_\_\_\_\_\_ pens.
3. If there are 40 pupils, every pupil has\_\_\_\_\_\_\_ pens.
4. If there are 20 pupils, every pupil has \_\_\_\_\_\_\_ pens.

Have the pupils read the problem. Then, ask them to solve for answers to the given problem. Check if each pupil is doing the activity correctly.

1. **Performing the Activities**

Ask the question, “Can you help Mr Santos to distribute the pens to his pupils equally?”

Call some pupils to show their solution on the board. Then, show the correct answer to each item.

1. If there are 100 pupils, every pupil has \_\_\_\_\_\_ pens.

Solution: 200 ÷ 100 = 2 pens

1. If there are 40 pupils, every pupil has \_\_\_\_\_\_\_ pens.

Solution: 200 ÷ 40 = 5 pens

1. If there are 20 pupils, every pupil has \_\_\_\_\_\_ pens.

Solution: 200 ÷ 20 = 10 pens

 Ask them to explain their answers.

1. **Processing the Activities**

 **Say:** How we will know if 200 is easily divided by 2, 5 and 10?

|  |
| --- |
| The given number in the problem which is 200 is divisible by 2 because it is an even number. Take note, **all even numbers are divisible by 2** |
| 200 is divisible by 5 because it ends in 0. **Any numbers that ends either in 0 or 5 is divisible by 5.** |
| 200 is divisible by 10 because it ends in 0. **Any number that ends in 0 is divisible by 10.** |
| *A whole number is divisible by a number if the whole number can be exactly divided by the number.* |

1. **Reinforcing the Concept and Skill**

After processing the skills, let the pupils answer the following exercise.

 Encircle the number that is divisible by 2, 5 and 10.

|  |  |
| --- | --- |
| Numbers divisible by: | Given numbers |
| 2 | 10 | 25 | 33 | 148 | 600 | 126 |
| 5 | 35 | 98 | 140 | 235 | 231 | 156 |
| 10 | 18 | 20 | 170 | 136 | 230 | 400 |

1. **Summarizing the Lesson**

Lead the pupils to master the divisibility rules by 2, 5 and 10.

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

* 1. Give all the number between 51 and 100 that are divisible by 2, 5 and 10.

|  |  |
| --- | --- |
| Numbers divisible by: | Given Numbers |
| 2 |  |
| 5 |  |
| 10 |  |

1. **Assessment**

Write **YES** on the blank if the number is divisible by 2, 5 and 10 and write **NO** if the number is not divisible by 2, 5 and 10.

|  |  |
| --- | --- |
| \_\_\_\_\_\_\_\_\_\_\_1. 25 | \_\_\_\_\_\_\_\_\_\_\_4. 40 |
| \_\_\_\_\_\_\_\_\_\_\_2. 50 | \_\_\_\_\_\_\_\_\_\_\_5. 88 |
| \_\_\_\_\_\_\_\_\_\_\_3. 75 |  |

1. **Home Activity**

**Remediation**

In each, write the number/s that is divisible by the number on the left.

1. 2 : 125, 254, 968, 621 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. 5 : 300, 564, 546, 745 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. 10: 680, 651, 500, 644 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Enrichment**

Without actual computation, determine the divisibility of the following numbers. Put a check (/) in the appropriate box/es.

|  |  |
| --- | --- |
|  | Divisible by |
|  | 2 | 5 | 10 |
| 155 |  |  |  |
| 250 |  |  |  |
| 900 |  |  |  |
| 630 |  |  |  |

**FIRST GRADING PERIOD**

**Lesson 5: Using divisibility rules for 3, 6, and 9 to find the common factors**

**Week 2**

**Objective**: Uses divisibility rules for 3, 6, and 9 to find the common factors of numbers.

|  |
| --- |
| **Value Focus:**Honesty  |

**Prerequisite Concept and Skills**

* Basic Division Facts of numbers 3, 6 and 9
* Odd and even number
* Skip Counting
* Divisibility Rules by 2

**Materials:** Charts, flash cards, 3 dices

**Reference: K to 12 Curriculum for Grade 5 (M5NS-Ib-58.2)**

**Instructional Procedure**

1. **Preliminary Activities**
2. **Drill**

Have an oral drill on the division facts. Use flashcards or games.

1. **Review**

Conduct a review on skip counting by 3, 6 and 9. Provide examples and exercises for this activity.

1. **Motivation**

The teacher will present cards as shown below

5

3

1

 Set A:

5

6

7

 Set B:

Tell the pupils to form a number as many as they can using the numbers in each card per set without repeating the number.

1. **Developmental Activities**
2. **Presentation**

Base on the previous problem, ask them to write the possible numbers on board.

SET A- 135, 153, 315, 351, 513, 531

SET B: 567, 576, 657, 675, 756, 765

Ask: How many numbers did you form in Set A? Set B?

 What is the smallest number you form in Set A? Set B?

 What is the highest number you form in Set A? Set B?

 Which number/s in Set A that is/are can be divided by 3? by 6? by 9?

 Which number/s in Set B that is/are can be divided by 3? by 6? by 9?

1. **Performing the Activities**

The pupils will prove their answers on board if the numbers that they formed is either divisible by 3, 6 and 9 using the long division method. (Trial and Error method)

1. **Processing the Activities**

 Say: How we will know if a given number is easily divided by 3, 6 and 9?

|  |
| --- |
| A number is divisible by 3 when it sum of its digit is divisible by 3. |
| A number is divisible by 6 if the number is both divisible by 2 and 3. |
| A number is divisible by 9m, if the sum of the digits of a number is divisible by 9. |
| *A whole number is divisible by a number if the whole number can be exactly divided by the number.* |

1. **Reinforcing the Concept and Skill**

After processing the skills, let the pupils answer the following exercise.

 Encircle the number that is divisible by 3, 6 and 9.

|  |  |
| --- | --- |
| Numbers divisible by: | Given numbers |
| 3 | 21 | 55 | 69 | 84 | 91 | 95 |
| 6 | 24 | 33 | 36 | 72 | 64 | 88 |
| 9 | 27 | 45 | 61 | 81 | 99 | 85 |

1. **Summarizing the Lesson**

Lead the pupils to master the divisibility rules by 3, 6 and 9.

|  |
| --- |
| A number is divisible by 3 when it sum of its digit is divisible by 3. |
| A number is divisible by 6 if the number is both divisible by 2 and 3. |
| A number is divisible by 9m, if the sum of the digits of a number is divisible by 9. |
| *A whole number is divisible by a number if the whole number can be exactly divided by the number.* |

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

Write **YES** on the blank if the number is divisible by 3, 6 and 9 and write **NO** if the number is not divisible by 3, 6 and 9.

|  |  |
| --- | --- |
| \_\_\_\_\_\_\_\_\_\_\_1. 72 | \_\_\_\_\_\_\_\_\_\_\_4. 144 |
| \_\_\_\_\_\_\_\_\_\_\_2. 84 | \_\_\_\_\_\_\_\_\_\_\_5. 300 |
| \_\_\_\_\_\_\_\_\_\_\_3. 36 |  |

1. **Assessment**

Write TRUE if the statement is correct and FALSE if it is not.

 \_\_\_\_\_\_\_\_\_1. All numbers divisible by 2 and 3 are also divisible by 6.

\_\_\_\_\_\_\_\_\_2. All numbers divisible by 2 and 3 are also divisible by 9.

\_\_\_\_\_\_\_\_\_3. All numbers divisible by 3 are also divisible by 9.

\_\_\_\_\_\_\_\_\_4. All numbers divisible by 9 are also divisible by 3.

 \_\_\_\_\_\_\_\_\_5. All numbers divisible by 3 and 6 are also divisible by 9.

1. **Home Activity**

**Remediation**

Provide the missing digit/s on the blank in each item

1. 6 \_\_\_ 4 so that the resulting number is divisible by 9.
2. \_\_\_ 55 so that the resulting number is divisible by 3
3. 45\_\_\_ so that the resulting number is divisible by 6

**Enrichment**

Without actual computation, determine the divisibility of the following numbers. Put a check (/) in the appropriate box/es.

|  |  |
| --- | --- |
|  | Divisible by |
|  | 3 | 6 | 9 |
| 360 |  |  |  |
| 549 |  |  |  |
| 6513 |  |  |  |
| 5418 |  |  |  |

**FIRST GRADING PERIOD**

**Lesson 6: Using divisibility rules for 4, 8, 12 and 11 to find the common factors**

**Week 2**

**Objective**: Uses divisibility rules for 4, 8, 12 and 11 to find the common factors.

|  |
| --- |
| **Value Focus:**Cooperation |

**Prerequisite Concept and Skills**

* Basic Division Facts of numbers 4, 8, 12 and 11
* Divisibility Rules
* Factors

**Materials: Charts, flash cards, dice**

**Reference: K to 12 Curriculum for Grade 5 (M5NS-Ib-58.3)**

**Instructional Procedure:**

1. **Preliminary Activities**
2. **Drill**

Have an oral drill on the division of facts. Use flashcards or games.

1. **Review**

Conduct a review on Divisible by 2, 3, 5, 6 9 and 10. Provide examples and exercises for this activity.

1. **Motivation**

Game: Group the class into group of threes. The teacher will post a number and they will write it on their paper as shown below. They need to put a check (/) if the number is divisible by 2, 3, 5, 6, 9 and 10. They will place an (x) if the number is not divisible by the said numbers. To know the score, check the correct answers

|  |  |
| --- | --- |
| GIVEN |  DIVISIBLE BY |
| 2 | 3 | 5 | 6 | 9 | 10 |
| 50 | / | x | / | x | x | / |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

1. **Developmental Activities**
2. **Presentation**

Present the problem.

|  |
| --- |
| John is teaching 48 dancers for the Dance Festival 2016. He wants to form a dance position that is 4, 8, 11 and 12 dancers in front respectively. Do you think it is possible to form the number of dancers on the dance position he wants? How many formation that he can make? |

Have the pupils read the problem. Then, ask them to solve for the given problem. Check if each pupil is doing the activities correctly.

1. **Performing the Activities**

To answer the question try the divisibility test find all the factors given in the problem.

|  |  |  |
| --- | --- | --- |
| Divisible by | Test | He can make |
| 4? | Yes, 48 $÷4=12$, it is divisible by 4 |

|  |  |  |  |
| --- | --- | --- | --- |
| 12 |  |  |  |
| 11 |  |  |  |
| 10 |  |  |  |
| 9 |  |  |  |
| 8 |  |  |  |
| 7 |  |  |  |
| 6 |  |  |  |
| 5 |  |  |  |
| 4 |  |  |  |
| 3 |  |  |  |
| 2 |  |  |  |
| 1 | 2 | 3 | 4 |

 |
| 8? | Yes, 48 $÷8=6$, it is divisible by 8 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 6 |  |  |  |  |  |  |  |
| 5 |  |  |  |  |  |  |  |
| 4 |  |  |  |  |  |  |  |
| 3 |  |  |  |  |  |  |  |
| 2 |  |  |  |  |  |  |  |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

 |
| 11? | 48 ÷ 11 = 4 R4. No, because the quotient is not a whole number. |  |
| 12? | Yes, 48 ÷ 12= 4, it is divisible by 12 |

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 4 |  |  |  |  |  |  |  |  |  |  |  |
| 3 |  |  |  |  |  |  |  |  |  |  |  |
| 2 |  |  |  |  |  |  |  |  |  |  |  |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |

 |

 We can find the factors of large number easily and mentally by using some of the rules of divisibility for whole numbers.

1. **Processing the Activities**

 Say: How we will know if 48 is easily divided by 4, 8, 11 and 12?

|  |  |  |
| --- | --- | --- |
| **Divisible by** | **Method of using the numbers** | **Examples** |
| 4 | The last two digits is divisible by 4. A number ending in two zeros is also divisible by 4 | 348 -> ÷ 4 = 12The last two digits which is 24 is divisible by 4. |
| 8 | A number is divisible by 8 when the number formed by the last three digits of a number is divisible by 8. A number ending in three zeros is also divisible by 8, | 6368 -> 368 ÷ 8= 46The last three digits which is 368 is divisible by 8. |
| 11 | Any number is divisible by 11 when the difference between the sum of the odd positioned digits and the sum of the even-positioned digits is divisible by 11 or the difference is 0. | 6215 -> (6+1) – (2 +5) = 7The number 6215 is divisible by 11. |
| 12 | Any number that is divisible by both 3 and 4 is divisible by 12. | 612 -> 6 + 1 + 2 = 9 9 is divisible by 3612 -> The last two digits which is 12 is divisible by 4.Therefore, 612 is divisible by 12. |

1. **Reinforcing the Concept and Skill**

After processing the skills, let the pupils answer the following exercise.

 Encircle the number that is divisible by 2, 5 and 10.

|  |  |
| --- | --- |
| Numbers divisible by: | Given numbers |
| 4 | 64 | 124 | 254 | 631 | 548 | 600 |
| 8 | 124 | 800 | 2301 | 6540 | 6872 | 6345 |
| 11 | 2453 | 6581 | 9801 | 5658 | 3658 | 6984 |
| 12 | 724 | 688 | 600 | 854 | 1021 | 6249 |

1. **Summarizing the Lesson**

Lead the pupils to master the divisibility rules by 4, 8, 11 and 12.

|  |  |  |
| --- | --- | --- |
| **Divisible by** | **Method of using the numbers** | **Examples** |
| 4 | The last two digits is divisible by 4. A number ending in two zeros is also divisible by 4 | 348 -> ÷ 4 = 12The last two digits which is 24 is divisible by 4. |
| 8 | A number is divisible by 8 when the number formed by the last three digits of a number is divisible by 8. A number ending in three zeros is also divisible by 8, | 6368 -> 368 ÷ 8= 46The last three digits which is 368 is divisible by 8. |
| 11 | Any number is divisible by 11 when the difference between the sum of the odd positioned digits and the sum of the even-positioned digits is divisible by 11 or the difference is 0. | 6215 -> (6+1) – (2 +5) = 7The number 6215 is divisible by 11. |
| 12 | Any number that is divisible by both 3 and 4 is divisible by 12. | 612 -> 6 + 1 + 2 = 9 9 is divisible by 3612 -> The last two digits which is 12 is divisible by 4.Therefore, 612 is divisible by 12. |

1. **Applying to New and Other Situations**
	1. Give all the number between 20 and 150 that are divisible by 4, 8, 11 and 12.

|  |  |
| --- | --- |
| Numbers divisible by: | Given Numbers |
| 4 |  |
| 8 |  |
| 11 |  |
| 12 |  |

1. **Assessment**

Choose from the number below all the numbers that apply to each column in the table. Write the numbers in the corresponding box.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 264 | 800 | 361 | 121 | 8624 | 1000 | 3604 | 7845 | 6718 | 3210 |

|  |
| --- |
| Numbers Divisible by |
| 4 | 8 | 11 | 12 |
|  |  |  |  |

1. **Home Activity**

**Remediation**

The last digit of the given number are missing. Fill in the largest digit to make the numbers divisible by the numbers on the left. On the second line, give all the possible numbers.

1. 4 : 65\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. 8 : 20 \_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. 11: 658\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. 12: 128\_\_\_\_

**Enrichment**

Without actual computation, determine the divisibility of the following numbers. Put a check (/) in the appropriate box/es.

|  |  |
| --- | --- |
| Given | Divisible by |
| 4 | 8 | 11 | 12 |
| 3256 |  |  |  |  |
| 5800 |  |  |  |  |
| 6622 |  |  |  |  |
| 1848 |  |  |  |  |
| 8000 |  |  |  |  |