FIRST TERM
WEEKLY LESSON NOTES
WEEK 2

Week Ending: 13-10-2023	DAY:		Subject: Mathematics
Duration: 60MINS			Strand: Number
Class: B9	Class Size:		Sub Strand: Number and Numeration System
Content Standard: B9.1.1.2 Demonstrate an understanding of the relationship between members of the rational number system and solve real life problems involving union and intersection of three sets	Indicator: B9.1.1.2.1 Solve problems on relationship between members of the rational number system using knowledge and understanding of the concept of union and intersection of two sets		Lesson: 1 of 2
Performance Indicator: Learners can demonstrate the relationship between members of the rational number system using the concepts of union and intersection of sets.	Core Competencies: Communication and Collaboration (CC) Critical Thinking and Problem solving (CP)		
References: Mathematics Curriculum Pg. 165			
New words: Rational numbers, Union, Intersection, Venn diagram, Sets			

Phase/Duration	Learners Activities	Resources
PHASE 1: **STARTER**	Present learners with two sets: one containing even numbers up to 10 and the other containing prime numbers up to 10. Ask, "Which numbers belong to both sets?" and "Which numbers belong to just one set?" Share performance indicators and introduce the lesson.	

PHASE 2: **NEW LEARNING**	Begin with a discussion on what constitutes a real number, and then break it down further into rational and irrational numbers.
	
	Draw a series of nested sets to represent the relationship between N, W, Z, Q, and QI.
	
	Label each set and give examples of numbers that fall into each category.
	
	1. Irrational Numbers (QI)
	Numbers that cannot be expressed as a fraction a/b where a and b are integers, and b≠0. Their decimal expansions are non-repeating and non-terminating.
	  - Examples:
	    - $\sqrt{2}$ (the square root of 2)
	    - π (pi, the ratio of the circumference of a circle to its diameter)
	    - e (the base of the natural logarithm)
	
	2. Rational Numbers (Q)
		Counters, bundle and loose straws base ten cut square, Bundle of sticks

	Numbers that can be expressed as a fraction a/b where a and b are integers, and b≠0. Their decimal expansions are either terminating or repeating.	
	- Examples: {7/3, 1.25, 0}	

3. Integers (Z)
  All whole numbers, both positive and negative, including zero.
  - Examples: {-3,-2,-1,0,1,2,3,4}

4. Whole Numbers (W)
All non-negative integers. This includes 0 and all positive integers but does not include any negative numbers.
  - Examples: {0,1,100,210,350,800}

5. Natural or Counting Numbers (N)
 *All positive integers. They do not include zero or any negative numbers.*
  - Examples: {1,2,3,4,5,6,7,8,9}

Discuss the concept of union (the combination of two sets) and intersection (the common elements of two sets).

Begin with a quick review of factors and provide examples.
Divide the class into pairs or small groups and give each a pair of numbers (e.g., 12 and 15).

12={1, 2, 3, 4, 6, 12} 15={1, 3, 5, 15}

12		15
1, 2, 4, 6, 12	3	1, 5, 15
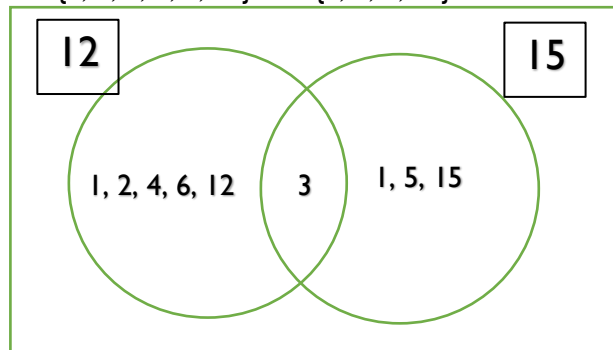
Their task is to list out the factors of each number and represent them on a Venn diagram, showing the intersection of common factors.

Have a few groups share their Venn diagrams with the class.

Assessment
Write the factors of these numbers and represent them on a Venn diagram.
1. 10 and 20
2. 18 and 24
3. 14 and 28
4. 8 and 16

PHASE 3: **REFLECTION**	Use peer discussion and effective questioning to find out from learners what they have learnt during the lesson.	

| | Take feedback from learners and summarize the lesson. | |

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Class: B9	Class Size:	Sub Strand: Number and Numeration System

Content Standard: B9.1.1.2 Demonstrate an understanding of the relationship between members of the rational number system and solve real life problems involving union and intersection of three sets	Indicator: B9.1.1.2.2 Apply the concept of sets to solve problems on relationship between members of rational number system and solve real life problems involving union and intersection of two sets	Lesson: 2 of 2
Performance Indicator: Learners can	Core Competencies: Communication and Collaboration (CC) Critical Thinking and Problem solving (CP)	

References: Mathematics Curriculum Pg. 166

Phase/Duration	Learners Activities	Resources
PHASE 1: **STARTER**	Present two seemingly unrelated groups of items (e.g., types of fruits and colors). Ask learners how they might sort these into different categories or "sets." Introduce the idea that in mathematics, we use sets to categorize and understand relationships between different types of numbers. Share performance indicators and introduce the lesson.	
PHASE 2: **NEW LEARNING**	Discuss what sets are in a mathematical context. Use Venn diagrams to illustrate the basic ideas of union (everything in both sets) and intersection (only what's common in both sets). Display a Venn diagram with two overlapping circles, one for integers and one for fractions. Ask learners to place various numbers (provided on cards or written on the board) into the correct part of the Venn diagram. Discuss the concept of rational numbers being the "union" of integers and fractions. Have learners break into small groups. Each group gets a real-life scenario where they have to identify two sets and then determine the union and intersection. Example: "At a music concert, 50 people like pop music, 40 like rock music, and 20 like both. Represent these fans in a Venn diagram and determine how many people like only rock, only pop, and both types of music." Groups present their scenarios and Venn diagrams. As a class, discuss the conclusions derived from each Venn diagram. Assessment 1. If Set A contains all even numbers below 10 and Set B contains all odd numbers below 10, what is the intersection of Sets A and B?	Counters, bundle and loose straws base ten cut square, Bundle of sticks

	2. In a survey, 30 learners liked chocolate ice cream, 25 learners liked vanilla, and 10 liked both. How many learners only liked vanilla? 3. What is the union of Set A = {1, 2, 3} and Set B = {3, 4, 5}? 4. There are 80 farmers in a certain village who grow either maize or beans. Fifty of them grow beans while sixty grow maize. If each farmer grows at least one of the two crops, represent the information on a Venn diagram and hence find the number of farmers who grow: a. both crops. b. only one crop.	
PHASE 3: **REFLECTION**	Use peer discussion and effective questioning to find out from learners what they have learnt during the lesson. Take feedback from learners and summarize the lesson.	