THIRD TERM
WEEKLY LESSON NOTES
WEEK 4

Week Ending: 21-07-2023	DAY:		Subject: Mathematics
Duration: 60MINS			Strand: Number
Class: B8	Class Size:		Sub Strand: Algebraic Expressions
Content Standard: B8.2.1.1 Demonstrate the ability to draw table of values for a linear relation	Indicator: B8.2.2.1.3 Substitute values to evaluate algebraic expressions including fractions and use these to solve problems.		Lesson: 1 of 2
Performance Indicator: Learners can substitute values to evaluate algebraic expressions including fractions and use these to solve problems		Core Competencies: Communication and Collaboration (CC) Critical Thinking and Problem solving (CP)	
References: Mathematics Curriculum Pg. 119			

Phase/Duration	Learners Activities	Resources
PHASE 1: STARTER	Revise with learners on the previous lesson. Share performance indicators with learners and introduce the lesson.	

PHASE 2: NEW LEARNING	Guide learners to substitute values to evaluate algebraic expressions including fractions and use these to solve problems.
	
	Take learners through the steps in substituting values into algebraic expressions.
	
	To substitute values to evaluate algebraic expressions including fractions:
	
	1. Identify the variables in the expression that you want to substitute values for.
	2. Replace each variable with the corresponding value.
	3. Simplify the expression by performing any necessary arithmetic operations, such as addition, subtraction, multiplication, and division.
	
	Example, Evaluate the expression (3x - 2)/(x + 1) when x = 4.
	1. The variable in this expression is x.
	2. We replace x with the value 4:
	  (3x - 2)/(x + 1) = (3(4) - 2)/(4 + 1)
	3. Simplify the expression by performing the arithmetic operations:
	  (3(4) - 2)/(4 + 1) = (10/5) = 2
	
	Therefore, when x = 4, the value of the expression (3x - 2)/(x + 1) is 2.
	
	Example 2: Evaluate the expression $\frac{(2x+3)}{(x-4)}$ when x = 5.
		Counters, bundle and loose straws base ten cut square, Bundle of sticks

	1. Identify the variable in the expression: x. *2. Replace x with the value 5:* $\frac{(2x+3)}{(x-4)}$ *= (2(5) + 3)/(5 - 4)* *3. Simplify the expression by performing the arithmetic operations: (2(5) + 3)/(5 - 4) = (13/1) = 13* *Therefore, when x = 5, the value of the expression (2x + 3)/(x - 4) is 13.* Example 3: Evaluate the expression (5y - 2)/(2y + 1) when y = -3. *1. Identify the variable in the expression: y.* *2. Replace y with the value -3:* *(5y - 2)/(2y + 1) = (5(-3) - 2)/(2(-3) + 1)* *3. Simplify the expression by performing the arithmetic operations: (5(-3) - 2)/(2(-3) + 1) = (-17/-5) = 3.4* *Therefore, when y = -3, the value of the expression (5y - 2)/(2y + 1) is 3.4.* Example 4: Evaluate the expression $(4a^2 - 3b)/(2a - b)$ when a = 2 and b = 1. *1. Identify the variables in the expression: a and b.* *2. Replace a with the value 2 and b with the value 1:* *(4a² - 3b)/(2a - b) = (4(2)² - 3(1))/(2(2) - 1)* *3. Simplify the expression by performing the arithmetic operations: (4(2)² - 3(1))/(2(2) - 1) = (13/3)* *Therefore, when a = 2 and b = 1, the value of the expression (4a^2 - 3b)/(2a - b) is 13/3.*	
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.	

Week Ending: 21-07-2023	DAY:		Subject: Mathematics	
Duration: 60MINS			Strand: Algebra	
Class: B8	Class Size:		Sub Strand: Algebraic Expressions	
Content Standard: B8.2.2.1 Solve problems involving algebraic expressions	Indicator: B8.2.2.1.4 Factorize given expressions involving the four operations and use the experiences gained to solve problems			Lesson: 1 of 2
Performance Indicator: Learners can factorize given expressions involving the four operations and use the experiences gained to solve problems			Core Competencies: Communication and Collaboration (CC) Critical Thinking and Problem solving (CP)	
References: Mathematics Curriculum Pg. 120				

Phase/Duration	Learners Activities	Resources
PHASE 1: **STARTER**	Revise with learners on the previous lesson. Share performance indicators with learners and introduce the lesson.	
PHASE 2: **NEW LEARNING**	Revise with learners of the concept of algebraic expressions and their role in solving mathematical problems. Recap the basic operations of addition, subtraction, multiplication, and division in algebraic expressions. Explain the concept of factorization and its importance in simplifying algebraic expressions. Introduce the technique of factorizing using common factors by identifying the greatest common factor (GCF) of the terms in an expression. Demonstrate the step-by-step process of factorization using common factors with examples. *Example 1:* *Factorize the expression: 3x + 6y* *Solution:* *Step 1: Identify the greatest common factor (GCF) of the terms. In this case, the GCF is 3.* *Step 2: Factor out the GCF from each term:* *3x + 6y = 3(x + 2y)* *Answer: 3(x + 2y)* *Example 2:* *Factorize the expression: 4ab + 8b* *Solution:* *Step 1: Identify the GCF of the terms. In this case, the GCF is 4b.* *Step 2: Factor out the GCF from each term:* *4ab + 8b = 4b(a + 2)* *Answer: 4b(a + 2)*	Counters, bundle and loose straws base ten cut square, Bundle of sticks

	Provide practice problems for learners to solve individually or in pairs.	
	Introduce the technique of factorizing by grouping when common factors are not evident.	
	Explain how to group terms in pairs and factor out the GCF from each pair.	
	Guide learners through the step-by-step process of factorization by grouping with examples.	
	Example 4: *Factorize the expression: $6a^2 - 12ab + 3a - 6b$* *Solution:* *Step 1: Group the terms in pairs:* *$(6a^2 - 12ab) + (3a - 6b)$* *Step 2: Factor out the GCF from each pair:* *$6a(a - 2b) + 3(a - 2b)$* *Step 3: Notice that both terms have a common factor of $(a - 2b)$.* *Factor out the common factor:* *$(a - 2b)(6a + 3)$* *Answer: $(a - 2b)(6a + 3)$*	
	Example 5: *Factorize the expression: $9x^2 + 12xy + 4y^2$* *Solution:* *Step 1: Notice that the expression is a perfect square trinomial. Rewrite it as the square of a binomial.* *$9x^2 + 12xy + 4y^2 = (3x + 2y)^2$* *Answer: $(3x + 2y)^2$*	
	Provide practice problems for learners to solve individually or in pairs.	
	Guide learners in identifying the key information and translating it into algebraic expressions.	
	Learners to apply the factorization techniques learned to solve the problems.	
	Encourage learners to show their step-by-step work and provide answers with proper units if applicable.	

	<u>Assessment</u>
	 1. Factorize the expression: $4p - 8q$
	    Answer: $4(p - 2q)$
	
	 2. Factorize the expression: $7mn + 14m$
	    Answer: $7m(n + 2)$
	
	 3. Factorize the expression: $10x^2 - 20xy$
	    Answer: $10x(x - 2y)$	

	4. Factorize the expression: $3a^2 - 6ab + 9a - 18b$
	   Answer: $(a - 2b)(3a + 9)$
	
	5. Factorize the expression: $16x^2 + 32xy + 16y^2$
	   Answer: $(4x + 4y)^2$	

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.	