SECOND TERM
WEEKLY LESSON NOTES
WEEK 9

Week Ending:	**DAY:**	**Subject:** Mathematics	
Duration: 60MINS		**Strand:** Algebra	
Class: B9	**Class Size:**	**Sub Strand:** Variables and Equations	
Content Standard: B9.2.3.1 Demonstrate understanding of single variable linear inequalities with rational coefficients		**Indicator:** B9.2.3.1.3 Solve real-life problems involving linear equations and inequalities	**Lesson:** 1 of 1
Performance Indicator: Learners can translate word problems into mathematical equations and inequalities.		**Core Competencies:** Communication and Collaboration (CC) Critical Thinking and Problem solving (CP)	
References: Mathematics Curriculum Pg. 193			
New words:			

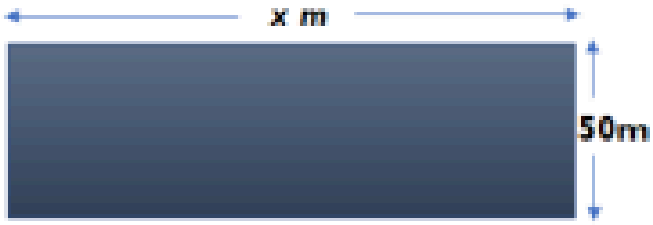
Phase/Duration	Learners Activities	Resources
PHASE 1: **STARTER**	Engage learners with a "guess the mystery number" game. Give clues that lead to an equation, and let learners solve for the unknown number. Discuss real-life examples where they might use math in their daily lives (e.g., budgeting, cooking, sports). Ask them if they ever encounter situations where equations or inequalities might be helpful. Share performance indicators and introduce the lesson.	
PHASE 2: **NEW LEARNING**	Present several scenario-based word problems involving linear equations and inequalities. Examples could include: ● Planning a movie night with popcorn and drinks on a limited budget. ● Calculating the distance traveled based on speed and time. ● Determining the age range eligible for a school bus pass. Guide learners through analyzing each problem, identifying key information, and recognizing which mathematical concepts apply.	manipulatives like counters or algebra tiles

Break down each scenario into simpler components. Show learners how to translate words like "total cost," "speed," or "age range" into mathematical variables and expressions.

Demonstrate how relationships between variables can be written as equations with equal signs or inequalities with comparison signs.

Example 1: A man has 260metres of fencing which he is going to put around a rectangular field which is 50metres wide. How long is the field?

Solution:
Since we need to find the length of the field, let x meters be the length.



$x + 50 + x + 50$ *or* $2(x + 50)$

But this expression is given as 260m ∴
$2(x + 50) = 260$
$x + 50 = 130$
$x = 80$m

Example 2: A man paid GH₵ 290 for 11 books. Some of the books were geography books, and the rest were history books. If each geography book cost GH₵ 30 and each history book cost GH₵20, how many geography books did he buy?

Solution:
i. Total cost of the books is GH₵290; total number of books is 11.
ii. 1 geography book costs GH₵30; 1 history book costs GH₵20,
Total cost of all the books is $30xx + 20(11 - x) = 290$
∴ $30x + 20\ (11 - x) = 290$
$30x + 220 - 20x = 290$
$10x + 220 = 290$
$x = 77$

Hence the number of geography books bought is 7.

	Example 3: Two sides of a triangle have lengths 6 cm and 8 cm. What is the length of the third side? Note: The sum of the lengths of the two sides of a triangle is greater than the length of the third side If the third side is $x$cm long then, 6 + 8 > x giving x < 14 Also, 6 + x < 8 giving x > 2. Also, 8 + x > 6 which gives x > -2h Hence, 2 < x < 14. That is, the third side has length between 2cm and 14cm. Example 4: Encourage learners to ask questions and clarify any confusion before moving on. Guide learners through the process of solving their mathematical equations or inequalities. Emphasize proper steps like isolating variables, combining like terms, and using appropriate operations. Encourage the use of manipulatives or visuals to aid understanding when necessary. Celebrate finding the solutions and discuss their meaning in the context of the original problem. <u>Assessment</u> A student scores 70 and 76 marks in two tests. How many marks must she score in the third test to be put in Grade A if all learners scoring an average of 80 or higher in three tests are put in grade A?	
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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PHASE 2: **NEW LEARNING**	Guide learners through analyzing each problem, identifying key information, and recognizing which mathematical concepts apply. Break down each scenario into simpler components. Show learners how to translate words like "total cost," "speed," or "age range" into mathematical variables and expressions. Demonstrate how relationships between variables can be written as equations with equal signs or inequalities with comparison signs. Example 1: If a student needs an average of 85 in four tests to get Grade A, and their scores in the first three tests are 80, 90, and 88, what must they score in the fourth test?	manipulatives like counters or algebra tiles

Solution
(a) Total needed marks: 85 * 4 = 340 marks.
(b) Existing marks: 80 + 90 + 88 = 258 marks.
(c) Marks needed in fourth test: 340 - 258 = 82 marks.

Example 2: In a class, Grade A requires an average of 75 or higher in two tests. A student scored 72 on the first test. What is the minimum score needed on the second test to get Grade A?

Solution
(a) Minimum average for Grade A: 75.
(b) Minimum total marks needed: 75 * 2 = 150 marks.
(c) Marks needed in second test: 150 - 72 = 78 marks (minimum).

Example 3: A school gives Grade A to learners who score an average of 82 or higher, or a total of 250 marks or more in three tests. A student scored 85 and 80 on the first two tests. What is the minimum score needed for the third test to get Grade A?

Solution
(a) Option 1: Minimum average needed: 82.
(b) Option 1: Minimum total marks needed: 82 * 3 = 246 marks.
(c) Option 1: Marks needed in third test: 246 - 85 - 80 = 81 marks (minimum).
(d) Option 2: Minimum total needed: 250 marks.
(e) Option 2: Marks needed in third test: 250 - 85 - 80 = 85 marks (minimum).
(f) Comparing options: Either 81 or 85 can secure Grade A, depending on whether the student wants to meet the minimum average or minimum total.

Example 4: A bakery offers a discount if the total bill reaches ₵50 or more. You already purchased items for ₵32. How much more do you need to spend to get the discount?

Solution
(a) Total needed for discount: ₵50.
(b) Amount needed to spend further: ₵50 - ₵32 = ₵18.

Assessment
1. A bookstore offers a 15% discount if you buy more than 3 fiction books. Each fiction book costs ₵10, and each non-fiction book

	costs ₵15. If you spend ₵85 without exceeding the discount limit, how many fiction books did you buy? 2. A library charges different fees for fiction and non-fiction books. Fiction books cost ₵2 each, and non-fiction books cost ₵3 each. A student borrowed 7 books in total and paid ₵17. How many fiction and non-fiction books did they borrow? 3. At a school fundraiser, you sell homemade cookies for ₵1.50 each and cupcakes for ₵2.00 each. Your goal is to raise ₵60. If you only sold 40 items in total, how many of each type did you sell? 4. A toy store offers a special pricing structure where the price of a toy is equal to the child's age multiplied by ₵3. If a child with 7 years old and another child with 9 years old spend ₵54 together, how many toys did they buy in total? 5. Five friends decide to buy a used textbook together. The book costs ₵30, and they want to split the cost equally. However, one friend forgets to pay their share. How much does each of the remaining friends need to pay now?	
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