

## SECOND TERM WEEKLY LESSON NOTES

## WEEK 7

<b>Date:</b> 24 <sup>th</sup> JUNE, 2022	<b>DAY:</b>	<b>Subject:</b> Mathematics
<b>Duration:</b>		<b>Strand:</b> Algebra
<b>Class:</b> B7	<b>Class Size:</b>	<b>Sub Strand:</b> Algebraic Expressions
<b>Content Standard:</b> B7.2.2.1 Simplify algebraic expressions involving the four basic operations and substituting values to evaluate algebraic expressions.	<b>Indicator:</b> B7.2.2.1.4 Substitute values to evaluate algebraic expressions.	<b>Lesson:</b> 1 of 2
<b>Performance Indicator:</b> Learners can substitute values to evaluate algebraic expressions		<b>Core Competencies:</b> Communication and Collaboration (CC) Critical Thinking and Problem solving (CP)
<b>References:</b> Mathematics Curriculum Pg. 39-40		
<b>Phase/Duration</b>	<b>Learners Activities</b>	<b>Resources</b>
<b>PHASE 1: STARTER</b>	Using questions and answers, review to find out what learners already know about Algebraic Expressions.  Share learning indicators and introduce the lesson.	
<b>PHASE 2: NEW LEARNING</b>	Guide learners to substitute values to evaluate algebraic expressions..  Let learners note the following rules when substituting values. <i>ab means the product of a and b. That is <math>a \times b</math>.</i> <i>2a means the product of the quantities 2 and a. That is <math>2 \times a</math>.</i> <i><math>a^2</math> means the square of a. That is <math>a \times a</math>.</i> <i>3a means the product of the quantities 3 and a. that is <math>3 \times a</math>.</i> <i><math>a^3</math> means the third power of a. that is <math>a \times a \times a</math>.</i> <i>- d means <math>-1 \times d</math> or <math>-1d</math>.</i> <i><math>3ab^2</math> means <math>3 \times a \times b^2</math> or <math>3 \times a \times b \times b</math>.</i>  <b>Example:</b> Simplify the following expressions and substitute the values to evaluate them, if $x = 2, y = 4, p = 3$ and $z = -1$ ,  I. $3xy \times 5y$ $= (3 \times 2 \times 4) \times (5 \times 4)$ $= 24 \times 20$ $= 480$  II. $7xy + 5x - 4x + 2xy - 3$ $= (7 \times 2 \times 4) + (5 \times 2) - (4 \times 2) + (2 \times 2 \times 4) - 3$ $= 56 + 10 - 8 + 16 - 3$ $= 71$	Counters, bundle and loose straws base ten cut square, Bundle of sticks, rectangular cut out, bottle tops, algebra tiles

Have learners practice with more examples.

Guide learners to simplify the following expressions and substitute the values to evaluate them, if  $x = 2$ ,  $y = 4$ ,  $a = 3$ ,  $b = 2$ ,  $z = 1$  and  $c = -1$ ,

i.  $\frac{8xyz}{16xy}$

to solve this, we first simplify the expression.

$$\frac{8xyz}{16xy} = \frac{1}{2} * (x - x) * (y - y) * z$$

Now substitute the values

$$= \frac{1}{2} * z = \frac{1}{2} * 1 = \frac{1}{2}$$

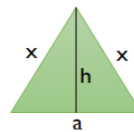
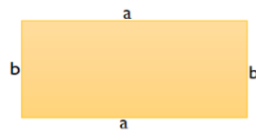
Let learners practice with more examples.

Assessment

Simplify the following expressions and substitute the values to evaluate them,

If  $x = 2$ ,  $y = 4$ ,  $p = 4$  and  $z = -1$

1.  $4p \times 8z^2$
2.  $5x + 4 - 9y + 3x + 2y - 7$
3.  $7xy + 5x - 4x + 2xy - 3$
4.  $\frac{18xp^3}{24xz}$
5.  $\frac{12x^3y^2}{16xy^4}$
6.  $\frac{-30abp}{6ab^3c^2}$
7. If  $x = 5$ ,  $a = 8$ ,  $b = 3$ ,  $h = 6$ , find the perimeter and area of the following shapes.



**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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<b>Duration:</b>		<b>Strand:</b> Algebra
<b>Class:</b> B7	<b>Class Size:</b>	<b>Sub Strand:</b> Algebraic Expressions
<b>Content Standard:</b> B7.2.2.1 Simplify algebraic expressions involving the four basic operations and substituting values to evaluate algebraic expressions.	<b>Indicator:</b> B7.2.2.1.5 Use properties of the four operations to simplify algebraic expressions with rational coefficients	<b>Lesson:</b> 2 of 2
<b>Performance Indicator:</b> Learners can simplify algebraic expressions using properties of the four operations.		<b>Core Competencies:</b> Communication and Collaboration (CC) Critical Thinking and Problem solving (CP)
<b>References:</b> Mathematics Curriculum Pg. 39-40		

Phase/Duration	Learners Activities	Resources
<b>PHASE 1: STARTER</b>	<p>Revise with learners on the previous lesson. Call volunteer learners to the board to solve sample questions.</p> <p>Introduce the lesson by sharing performance indicators.</p>	
<b>PHASE 2: NEW LEARNING</b>	<p>Guide learners to simplify algebraic expressions involving the four operations. When working problems involving algebraic expressions which have more than one of the following signs; 'of', x, +, - and ÷. The following steps should be taken. <i>Deal with anything in Brackets first. i.e. '()'</i> <i>Deal with 'of' if there is any. i.e. of = x</i> <i>Deal with any division if there is any. i.e. '÷'.</i> <i>Deal with any multiplication. i.e. 'x'</i> <i>Deal with any addition if there is any. i.e. '+'.</i> <i>Deal with any subtraction if there is any. i.e. '-'.</i></p> <p><b>Example: i.</b> <math>3xy \times 2 + \frac{6x^2y^3}{2y^2}</math></p> <p><i>Since there is no bracket, we move to the next operation sign. So we put the two factors into brackets since they are multiplying. i.e. 3xy and 2</i></p> $= (3xy \times 2) + \frac{6x^2y^3}{2y^2}$ $= 6xy + \frac{6x^2y^3}{2y^2}$ $= 6xy + 3x^2$ <p><b>ii.</b> <math>3x^2y + 2xy^2 - 4x^2y - 6xy^2</math> we begin by grouping like terms. <math>= 3x^2y - 4x^2y + 2xy^2 - 6xy^2</math> <math>= -x^2y - 4xy^2</math></p> <p><b>iii.</b> <math>(15p^3q^2 \times 12x^5y^3) \div (36pq \times 45xy)</math> we begin by solving what is in the brackets.</p>	Counters, bundle and loose straws base ten cut square, Bundle of sticks, rectangular cut out, bottle tops, algebra tiles

	$= (180 p^3 q^2 x^5 y^3) \div (1620 p q x y)$ <p>We then write it in fraction</p> $= \frac{180 p^3 q^2 x^5 y^3}{1620 p q x y}$ $= 9 p^2 q x^4 y^2$ <p>Guide learners to practice with more examples.</p> <p><u>Assessment</u></p> <ol style="list-style-type: none"> <li>1. <math>8xyz \div 16xy \times 2</math></li> <li>2. <math>5ab^2 \times 3a^2b \div ab</math></li> <li>3. <math>4x + 7 - 2x + 4 \times 7x</math></li> <li>4. <math>(h + 7) - (h - 8)</math></li> <li>5. <math>(e + f + g) - (e - f + g)</math></li> </ol>	
<p><b>PHASE 3:</b> <b>REFLECTION</b></p>	<p>Use peer discussion and effective questioning to find out from learners what they have learnt during the lesson.</p> <p>Take feedback from learners and summarize the lesson.</p>	