

WEEK 7

Date: 4 TH MARCH, 2022	Period:	Subject: Mathematics
Duration:		Strand: Number
Class: B7	Class Size:	Sub Strand: Number Operations
Content Standard: B7.1.2.3 Demonstrate understanding and the use of powers of natural numbers in solving problems		Indicator: B7.1.2.3.2 Express a given number as a product of a given number or numbers, as well as, in the form of a power or two such numbers as product of powers
Performance Indicator: Learners can express a given number as a product of a given number or numbers		Lesson:
References: Mathematics Curriculum Pg.13		Core Competencies:
Keywords: prime numbers, prime factors,		
Phase/Duration	Learners Activities	Resources
PHASE 1: STARTER	Using blackboard illustrations, review learners understanding in the previous lesson. Share performance indicators and introduce the lesson.	
PHASE 2: NEW LEARNING	Revise with learners to list the factors of numbers on the board. Example: $27 = \{1, 3, 9, 27\}$ Ask a learners to describe prime numbers in his/her own words. Guide learners to distinguish between factors and prime factors of natural numbers. Engage learners to express a given number as a product of a given number or numbers. E.g. i. $32 = 2 \times 2 \times 2 \times 2 \times 2 = 2^5$ ii. $81 = 3 \times 3 \times 3 \times 3 = 3^4$ iii. $49 = 7 \times 7 = 7^2$ iv. $16 \times 27 = 2 \times 2 \times 2 \times 2 \times 3 \times 3 \times 3 = 2^4 \times 3^3$ Assist pupils to write a natural number as powers of a product of its prime factors. E.g. 72 You can find the prime factors by repeatedly diving by prime numbers. $72 = 2 \times 36$ $= 2 \times 2 \times 18$ $= 2 \times 2 \times 2 \times 9$	Counters, bundle and loose straws base ten cut square, Bundle of sticks

	$= 2 \times 2 \times 2 \times 3 \times 3$ $= 2^3 \times 3^2$ <p><u>Assessment</u> Express the following as a product of their prime factors 1) 180 2) 72 3) 81 4) 49 5) 16</p>	
PHASE 3: REFLECTION	<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>	

Date: 4 TH FEB, 2022		Period:	Subject: Mathematics
Duration:		Strand: Number	
Class: B7	Class Size:	Sub Strand: Number Operations	
Content Standard: B7.1.2.3 Demonstrate understanding and the use of powers of natural numbers in solving problems		Indicator: B7.1.2.3.3 Show that the value of any natural number with zero as its exponent or index is 1 and use it to solve problems	Lesson:
Performance Indicator: Learners can explain the fact that the value of any natural number with zero as exponent or index is 1		Core Competencies:	
References: Mathematics Curriculum Pg.14			
Keywords: exponent, index			
Phase/Duration	Learners Activities		Resources
PHASE 1: STARTER	Using blackboard illustrations, review learners understanding in the previous lesson. Share performance indicators and introduce the lesson.		
PHASE 2: NEW LEARNING	<p>Perform activities with pupils to discover that for any natural number a, $a^0 = 1$</p> <p>Example:</p> <p>i.e. (i) $\frac{24}{24} 24 \div 24 = 1$ 2222 2222</p> <p>(ii) $24 \div 24 = 24 \cdot 4 = 20 = 1$</p> <p>Guide learners to verify why the value of any natural number with exponent zero is 1.</p> <p>Verification: $\frac{x}{x} = 1$, but from indices, $\frac{x}{x} = x^0$, hence $x^0 = 1$ for any natural number</p> <p>Thus: if we have $\frac{4}{4}$, the result is 1. This can also be done using powers of numbers. That is, $\frac{4}{4} = 2^2 \div 2^2 = 2^{2-2} = 2^0 = 1$. Therefore, any natural number with an exponent of 0 is 1.</p> <p>Also, if we have $\frac{27}{27}$, the result is 1. This can also be done using powers of numbers. That is, $\frac{27}{27} = 3^3 \div 3^3 = 3^{3-3} = 3^0 = 1$.</p>		Counters, bundle and loose straws base ten cut square, Bundle of sticks

	<p>Therefore, any natural number with an exponent of 0 is 1.</p> <p>Let learners practice with more examples to verify that any natural number with zero as exponent or index is 1.</p> <p><u>Assessment</u> Simplify the following</p> <ol style="list-style-type: none"> 1) $2^3 \times 2^{-4}$ 2) $2^2 \times 2^4 \times 2^{-3}$ 3) $5^6 \times 5^{-2} \times 5^{-3}$ 4) $2^4 \times 2^{-3}$ 5) $5^3 \times 5^{-3}$ 	
<p>PHASE 3: REFLECTION</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>	