TEACHING PLAN: MATHEMATICS GRADE 9 TERM 1 2021

LESSON NO	DATE	TOPIC	MENTAL MATHS	LESSON NAME	DBE WORKBOOK	TEXT BOOK
1		Revision		Grade 8 Work Revision: Diagnostic tests		
2		Revision		Grade 8 work Revision: Diagnostic tests		
3		Revision		Grade 8 work Revision: Diagnostic tests		
4		Whole Numbers 1.1 Pp 119		• **Properties of whole Numbers** Describe the real number system by recognising, defining and distinguishing properties of: • natural numbers, whole numbers, integers, rational numbers, irrational numbers		
5		Whole Numbers 1.1 Pp 119		**Calculations with whole numbers** Calculations using all four operations on whole numbers, estimating and using calculators where appropriate – -Addition and subtraction		
6		Whole Numbers 1.1 Pp 119		**Calculations with whole numbers** Calculations using all four operations on whole numbers, estimating and using calculators where appropriate • Multiplication and division		
7		Whole Numbers 1.1 Pp 119		**Multiples and factors** – Use prime factorisation of numbers to find LCM and HCF		
8		Whole Numbers 1.1 Pp 120		**Solving problems** • Solve problems in contexts involving: – Ratio and rate		
9		Whole Numbers 1.1 Pp 120		**Solving problems** • Solve problems in contexts involving -Direct and indirect proportion		
10		Whole Numbers 1.1 Pp 119		• The commutative; associative; distributive properties of whole numbers • 0 in terms of its additive property (identity element for addition) • 1 in terms of its multiplicative property (identify element for multiplication)		

				– Recognise the division property of 0, whereby any number divided by 0 is undefined		
11		INTEGERS 1.3 Pp121		**Calculations with integers** • Revise: – addition and subtraction with integers		
12		INTEGERS 1.3 Pp121		**Calculations with integers** – Multiplication and division with integers – perform calculations involving all four – operations with integers		
13		INTEGERS 1.3 Pp121		**Calculations with integers** – perform calculations involving all four operations with numbers that involve the squares, cubes, square roots and cube roots of integers		
14		INTEGERS 1.3 Pp121		• **Properties of Integers** – Commutative, associative and distributive properties of addition and multiplication for integers		
15		INTEGERS 1.3 Pp121		**Properties of integers** – Additive and multiplicative inverses for integers		
16		INTEGERS 1.3 Pp121		**Properties of integers** – Perform calculations involving all four operations with numbers that involve squares, cubes, square roots and cube roots of integers		
17		INTEGERS 1.3 Pp121		**Properties of integers** – Calculate the squares, cubes, square roots and cube roots of rational numbers		
18				– Whole numbers and Integers Revision		
19				– FORMAL TASK: ASSIGNMENT: WHOLE NUMBERS & INTEGERS		
20				– Formal task revision and consolidation		
21		**EXPONENTS** **1.2** **Pp 124**		**Calculations using numbers in exponential form** • **Revise** the following general laws of exponents. • **Multiplication** $a^m \times a^n = a^{m+n}$		

22		**EXPONENTS 1.2 Pp 124**		• **Division** – $a^m \div a^n = a^{m-n}$, if $m>n$		
23		**EXPONENTS 1.2 Pp 124**		• **Powers** – $(a^m)^n = a^{m \times n}$		
24		**EXPONENTS 1.2 Pp 124**		• **Brackets** – $(a \times t)^n = a^n \times t^n$		
25		**EXPONENTS 1.2 Pp 125**		• **Any number to power zero** • $a^0 = 1$		
26		**EXPONENTS 1.2 Pp 125**		• **Extend** the general laws of exponents to include: • integer exponents		
27		**EXPONENTS 1.2 Pp 125**		• **Extend** the general laws of exponents to include: $a^{-m} = \frac{1}{a^m}$		
28		**EXPONENTS 1.2 Pp 125**		• Perform calculations involving all four operations using numbers in exponential form		
29		**EXPONENTS 1.2 Pp 125**		– Recognize and use the appropriate laws of numbers involving exponents and square and cube roots		
30				• Exponents revision and consolidation		
31		**NUMERIC AND GEOMETRIC PATTERNS:** 2.1 Pp126		**NUMERIC PATTERNS** **Investigate and extend patterns** • Investigate and extend numeric and geometric patterns looking for relationships between numbers including patterns:		
32		**NUMERIC AND GEOMETRIC PATTERNS:** 2.1 Pp126		**NUMERIC PATTERNS** • represented in physical or diagram form, not limited to sequences involving a constant difference or ratio, of learner's own creation, represented in tables, represented algebraically		
33		**NUMERIC AND GEOMETRIC PATTERNS:** 2.1 Pp126		**NUMERIC PATTERNS** Describe and justify the general rules for observed relationships between numbers in own words or in algebraic language		
34		**NUMERIC AND GEOMETRIC PATTERNS:** 2.1Pp126-7		**NUMERIC PATTERNS** Determine input values, output values and rules for patterns given in input-output diagrams		

35		**NUMERIC AND GEOMETRIC PATTERNS:** 2.1 Pp126-7		**NUMERIC PATTERNS** Determine equivalence of different descriptions of the same relationship or rule presented verbally, in a flow diagram, by a number sentence.		
36				Revision & consolidation on Numeric Patterns		
37				Whole Numbers Revision		
38				Integers Revision		
39				Exponents revision		
40				FORMAL TASK: TEST		
41				Revision of Test		
42				Revision of test		
43				Revision and consolidation of covered topics		
44				Revision and consolidation of covered topics		
45				Revision and consolidation of covered topics		
46				Revision and consolidation of covered topics		
47				School closure		

Programme of assessment 2021

Term	Assessment Type	Weighting
1	Assignment	80%
	Test	
2	Investigation	
	Test	
3	Project	
	Test	
4	Test	20%

GRADE 9 2021 LESSON PLANS EXEMPLAR TERM 1

<table>
<tr><td colspan="2">DA Y 4
TOPIC: WHOLE NUMBERS</td><td colspan="2">LESSON PLAN 4
DATE:</td><td>GRADE 9</td></tr>
<tr><td>COMPONENTS</td><td>TIME</td><td colspan="2">TASKS/ACTIVITIES</td><td>CAPS CONTENT AREA</td></tr>
<tr><td>WHOLE CLASS ACTIVITY</td><td>3 Min</td><td colspan="2">PSS: Looking after myself during Covid</td><td>Numbers, operations, and relations</td></tr>
<tr><td>MENTAL MATHS</td><td>7 Min</td><td colspan="2">
<table>
<tr><td>N0</td><td>qsn</td><td>Ans</td><td>No</td><td>qsn</td><td>Ans</td></tr>
<tr><td>1</td><td>20+0</td><td>20</td><td>5</td><td>12÷1</td><td>12</td></tr>
<tr><td>2</td><td>12×1</td><td>12</td><td>6</td><td>6-0</td><td>6</td></tr>
<tr><td>3</td><td>0×15</td><td>0</td><td>7</td><td>−4+(-3)</td><td>-7</td></tr>
<tr><td>4</td><td>-8+1</td><td>-7</td><td>8</td><td>−4x-2</td><td>8</td></tr>
</table>
</td><td>CONCEPT AND SKILLS: Properties of whole Numbers
Describe the real number system by recognising, defining and distinguishing properties of:
natural numbers, whole numbers, integers, rational numbers, irrational numbers</td></tr>
<tr><td>HOMEWORK</td><td>10 Min</td><td colspan="2">Revision of homework problems given during last lesson</td><td>KEY WORDS:
Natural numbers, whole numbers, Rational numbers, Irrational numbers</td></tr>
<tr><td>PRIOR KNOWLEDGE</td><td colspan="4">Learners know definitions and can give examples whole numbers, prime numbers, even numbers and integers</td></tr>
<tr><td>LESSON CONTENT/CONCEPT DEVELOPMENT</td><td>20 Min</td><td colspan="3">– Teacher and learners define the properties of numbers, giving examples of each of the following:
– natural numbers, whole numbers, integers, rational numbers, irrational numbers, prime numbers, composite numbers, real and non-real numbers
– Learners identify the name of number from a given description in groups.
Teacher and learners do corrections of work given in groups on the board as a whole class activity.</td></tr>
<tr><td>CLASSWORK ACTIVITY</td><td>20 Min</td><td colspan="3">Learners to draw giving own examples of the real number system venn diagram</td></tr>
<tr><td>HOMEWORK</td><td></td><td colspan="3">Match the numbers to the number type below
<table>
<tr><td></td><td>Number</td><td>Example</td></tr>
<tr><td>1</td><td>1;2;3;4…</td><td>Irrational number(Q’’)</td></tr>
<tr><td>2</td><td>√3;π</td><td>Natural Numbers(N)</td></tr>
<tr><td>3</td><td>0;1;2;3;4….</td><td>Rational numbers(Q)</td></tr>
<tr><td>4</td><td>½;0.25</td><td>Integers (Z)</td></tr>
<tr><td>5</td><td>-4;-3;-2;-1;0;1;2;3</td><td>Whole numbers (No)</td></tr>
</table>
</td></tr>
<tr><td>LESSON REFLECTION</td><td></td><td colspan="3">• Successes: What went well in the lesson?
• Challenges: What did not go well?
• Recommendations: What changes are necessary to improve the lesson?</td></tr>
</table>

GRADE 9 2021 LESSON PLANS EXEMPLAR TERM 1

DA Y 5	**LESSON PLAN 5**	**GRADE 9**
TOPIC: WHOLE NUMBERS :ADDITION AND SUBTRACTION		**Date:**
COMPONENTS	**TIME**	**TASKS/ACTIVITIES**	**CAPS CONTENT AREA**
WHOLE CLASS ACTIVITY	**3 Min**	PSS: Caring for the sick: What should I do?	Numbers, operations, and relations
MENTAL MATHS	**7 Min**	Estimate the following answers 1.10x30 2.50x½ 3,2456÷1000 4.200÷0.5 5.102+29 6.2169-200	**CONCEPT AND SKILLS: Calculations with whole numbers** Calculations using all four operations on whole numbers, estimating and using calculators where appropriate
HOMEWORK	**10 Min**	Teacher and learners revise homework given. Solutions: 1.Natural numbers;2. Irrational numbers; 3. Whole numbers;4. Rational numbers;5. integers	**KEY WORDS:** Estimation, Rounding off, compensation, calculator
PRIOR KNOWLEDGE	Learners are able to round off numbers, add and subtract as well as using calculator from Grade 8		
LESSON CONTENT/CONCEPT DEVELOPMENT	**20 Min**	– Teacher and learners discuss the meaning of estimating and rounding off and how it can be used to simplify calculations – Revise rounding off rules – Examples on rounding off numbers to the nearest 10; 100 and 1000 e.g. round off 6782 to nearest 10 (**=6780)**; nearest 100(**=6800)**;to nearest 1000(**=7000)** Solve **45678+12654** by rounding off and compensating: 46 000+13 000=59 000 46 000-45678=322 and 13 000-12 654=346 322+346=668 Therefore **59 000-668=58 332**	
CLASSWORK ACTIVITY	**20 Min**	Solve the following using rounding off and compensating 1. 245 898 +241 134 2. 998 432-654 004	
HOMEWORK		1.Estimate the value of 815-341 by rounding off to the nearest 10	
LESSON REFLECTION		• **Successes:** What went well in the lesson? • **Challenges:** What did not go well? • **Recommendations:** What changes are necessary to improve the lesson?	

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<table>
<tr><td colspan="4">DA Y 6 LESSON PLAN 6 GRADE 9
TOPIC: WHOLE NUMBERS: MULTIPLICATION AND DIVISION Date:</td></tr>
<tr><td>COMPONENTS</td><td>TIME</td><td>TASKS/ACTIVITIES</td><td>CAPS CONTENT AREA</td></tr>
<tr><td>WHOLE CLASS ACTIVITY</td><td>3 Min</td><td>PSS: Caring for others</td><td>Numbers, operations, and relations</td></tr>
<tr><td>MENTAL MATHS</td><td>7 Min</td><td>Write each of the following as a single number
1.3000+400+50+6
2.40 000+3000+200+10+8
3.500 000+50 000+4000+600+60+1
4.60000+9000+400+0+3</td><td>CONCEPT AND SKILLS
Calculations with whole numbers
Calculations using all four operations on whole numbers, estimating and using calculators where appropriate</td></tr>
<tr><td>HOMEWORK</td><td>10 Min</td><td>Revise work given previous day</td><td>KEY WORDS:
Addition.Multiplication, Division, Halving. Doubling</td></tr>
<tr><td>PRIOR KNOWLEDGE</td><td colspan="3">Learners know multiplication and long division from Grade 8</td></tr>
<tr><td>LESSON CONTENT/CONCEPT DEVELOPMENT</td><td>20 Min</td><td colspan="2">Teacher demonstrate multiplication method using
1.doubling and halving and
2.column methods

Teacher revises long division with learners
e.g 13 455 ÷9
<table>
<tr><td></td><td>0</td><td>1</td><td>4</td><td>9</td><td>5</td><td></td></tr>
<tr><td>9</td><td>1</td><td>3</td><td>4</td><td>5</td><td>5</td><td></td></tr>
<tr><td></td><td>-</td><td>9</td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td>4</td><td>4</td><td></td><td></td><td></td></tr>
<tr><td></td><td>-</td><td>3</td><td>6</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td>8</td><td>5</td><td></td><td></td></tr>
<tr><td></td><td></td><td>-</td><td>8</td><td>1</td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td></td><td>4</td><td>5</td><td></td></tr>
<tr><td></td><td></td><td></td><td>-</td><td>4</td><td>5</td><td></td></tr>
<tr><td></td><td></td><td></td><td></td><td>0</td><td>0</td><td></td></tr>
</table>
Thus 13 455÷9=1 495</td></tr>
<tr><td>CLASSWORK ACTIVITY</td><td>20 Min</td><td colspan="2">Learners to do the following in groups where possible
Simplify the following
1.44 252 x32
2.54 762÷22</td></tr>
<tr><td>HOMEWORK</td><td></td><td colspan="2">Simplify :1. 15 623x12 2.64 246÷31</td></tr>
<tr><td>LESSON REFLECTION</td><td></td><td colspan="2">• Successes: What went well in the lesson?
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GRADE 9 2021 LESSON PLANS EXEMPLAR TERM 1

<table>
<tr><td colspan="4">DA Y 7 LESSON PLAN 7 GRADE 9
TOPIC: WHOLE NUMBERS: MULTIPLES AND FACTORS Date:</td></tr>
<tr><td>COMPONENTS</td><td>TIME</td><td>TASKS/ACTIVITIES</td><td>CAPS CONTENT AREA</td></tr>
<tr><td>WHOLE CLASS ACTIVITY</td><td>3 Min</td><td>PSS: Healthy eating during Covid</td><td>Numbers, operations, and relations</td></tr>
<tr><td>MENTAL MATHS</td><td>7 Min</td><td>Match column A and column B<table><tr><td>Column A</td><td>Column B</td></tr><tr><td>LCM</td><td>A number that gets into a bigger number without remainder</td></tr><tr><td>Factor</td><td>Product of one number and another number</td></tr><tr><td>Multiples</td><td>Highest common Factor</td></tr><tr><td>HCF</td><td>Lowest common Multiple</td></tr><tr><td></td><td></td></tr></table></td><td>CONCEPT AND SKILLS
Use prime factorisation of numbers to find LCM and HCF</td></tr>
<tr><td>HOMEWORK</td><td>10 Min</td><td>Revise work given previous day solutions
1.15623x12=187476
2.64 246÷31=2072 rem 14</td><td>KEY WORDS:
Factors; prime factor, HFC, LCM,Factorisation</td></tr>
<tr><td>PRIOR KNOWLEDGE</td><td colspan="3">Learners know how to find HCF and LCM from Grade 8</td></tr>
<tr><td>LESSON CONTENT/CONCEPT DEVELOPMENT</td><td>20 Min</td><td colspan="2">Teacher defines the key words with the learners
Learners express numbers as products of their prime factors using the method of dividing the number by the prime factors.
Example 1. Express the following numbers as products of their prime numbers
(a)28 (b)124 (c)135<table><tr><td>2</td><td>28</td><td></td><td>2</td><td>124</td><td></td><td>3</td><td>135</td><td></td></tr><tr><td>2</td><td>14</td><td></td><td>2</td><td>62</td><td></td><td>3</td><td>45</td><td></td></tr><tr><td>7</td><td>7</td><td></td><td>31</td><td>31</td><td></td><td>3</td><td>15</td><td></td></tr><tr><td></td><td>1</td><td></td><td></td><td>1</td><td></td><td>5</td><td>5</td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>1</td><td></td></tr></table>28=2x2x7
124=2x2x31
135=3x3x3x5
Example 2. Find the HCF and LCM of 28 and 124
Solution:
For Highest common factors we take each common factor and multiply
28=2x2x7
124=2x2x31
HCF=2x2=4
For LCM we take the greatest number of each factor and multiply
28=2x2x7
124=2x2x31
LCM=2x2x7x31=868</td></tr>
</table>

CLASSWORK ACTIVITY	**20 Min**	Find the HCF and LCM of the following: 1. 50 and 80 2. 36 and 60 3. 56 and 52
HOMEWORK		Find the HCF and LCM of 15 and 40 ;18 and 24
LESSON REFLECTION		• **Successes:** What went well in the lesson? • **Challenges:** What did not go well? **Recommendations:** What changes are necessary to improve the lesson?

GRADE 9 2021 LESSON PLANS EXEMPLAR TERM 1

DA Y 8	**LESSON PLAN 8**	**GRADE 9**
TOPIC: WHOLE NUMBERS: RATIO, RATE AND PROPORTION	**Date:**	

COMPONENTS	**TIME**	**TASKS/ACTIVITIES**	**CAPS CONTENT AREA**
WHOLE CLASS ACTIVITY	**3 Min**	PSS: Need for aerobics	Numbers, operations, and relations
MENTAL MATHS	**7 Min**	Simplify the following: 1.4:2 2.20%:50% 3.30/60	**CONCEPT AND SKILLS** **Solving problems** Solve problems in contexts involving: -Ratio and rate Direct and indirect proportion
HOMEWORK	**10 Min**	Revise work given previous day	**KEY WORDS:** Ratio, Rate, proportion
PRIOR KNOWLEDGE	Learners have idea of rates and ratio from Grade 8		
LESSON CONTENT/CONCEPT DEVELOPMENT	**20 Min**	Teacher asks learners to explain their meaning of Ratio, giving own examples. Demonstrates to learners the ratio of blue chalk stick/ blocks to red chalk sticks/blocks Define ratio as a way of comparing 2 or more quantities of same kind, written as **a: b** where a and b are quantities. Ratio have no units and order is important. Teacher asks learners to state the ratio of boys to girls in the class. Ratios are always expressed in simpler form e.g12:4 =3:1 Ratios can be expressed as % e.g. 3:6 =3/6x!00%=50% Rate is a special ratio in which the two terms are in different units eg km/hr Where we are comparing distance covered in a certain time period. Rate normally uses the word per eg, US$ per Rand or Price per litre Example :10 litres of petrol cost R150, what is the price of petrol per litre? Answer: price per litre = 150/10 =R15/ltre	
CLASSWORK ACTIVITY	**20 Min**	1. Simplify the following ratios (a) 6:12, (b) 9:12:15 2. Express 3:2 as a percentage 3. A boy can run 100m in 6mins, how far can he run in an Hour/	
HOMEWORK		1.Simplify (a) 12:48 (b) 6:15:90 2, Express 4:5 as a percentage	
LESSON REFLECTION		• **Successes:** What went well in the lesson? • **Challenges:** What did not go well? • **Recommendations:** What changes are necessary to improve the lesson?	