ENGLISH MATHEMATICS 2022 WEEKLY TEACHING PLAN GRADE 8

TERM 1	Week 1 3 days	Week 2 5 days	Week 3 5 days	Week 4 5 days	Week 5 5 days	Week 6 5 days	Week 7 5 days	WEEK 8, 9, 10 13 days
Hours per week	**2.5 hrs**	**4.5 hrs**	**4.5 hrs**	**4.5 hrs**	**4.5 hrs**	**9 hrs**		**12 hrs**
Hours per topic	**2.5 hrs.**	**9 hrs.**		**4,5 hrs**	**4,5 hrs.**	**1 hrs.**	**3.5 hrs** / **4.5 hrs**	**12 hrs**
Topic, concepts, skills and values	**Orientation**	**WHOLE NUMBERS** **Calculations using whole numbers** **Revise:** • Calculations using all four operations on whole numbers, estimating and using calculators where appropriate **Properties of numbers:** Know and use: • commutative, distributive and associative; • Inverse operations; • Identity elements; **Multiples and factors** **Revise:** • Prime factors of numbers to at least 3-digit whole numbers • LCM and HCF of whole numbers, by inspection or factorisation **Solving problems:** • rate and ratio; • sharing in given ratio • extend to increasing or decreasing of a number in a given ratio **Solving problems** • Solve problems that involve whole numbers, percentages and decimal fractions in financial contexts:	**COMMON FRACTIONS** **Calculations with fractions** • Divide whole numbers and common fractions by common fractions • Calculate the squares, cubes, square roots and cube roots of common fractions • Calculate amounts if given percentage increase or decrease • Calculations and solving problems **Calculation techniques** • Use knowledge of reciprocal relationships to divide common fractions **Percentage** • Calculate amounts if given percentage increase or decrease **Solving problems** • Solve problems in contexts involving common fractions and mixed numbers, including grouping, sharing and finding fractions of whole numbers • Solve problems in contexts involving percentages	**DECIMAL FRACTIONS** **Calculations with decimal fractions** • Multiplication of decimal fractions by decimal fractions • Division of decimal fractions by decimal fractions • Calculate the squares, cubes, square roots and cube roots of decimal fractions **Calculation techniques** • Use knowledge of place value to estimate the number of decimal places in the result before performing calculations • Use rounding off **and a calculator t**o check results where appropriate **Solving problems** • Solve problems in context involving decimal	**FORMAL ASSESS-MENT** **ASSIGNMENT** • **Whole numbers** • **Fractions**	**INTEGERS** **Calculations with integers** **Revise** addition and subtraction with integers • Multiply and divide with integers • Perform calculations involving all four operations with integers • Perform calculations involving all four operations with numbers that involve squares, cubes, square roots and cube roots of integers **Properties of integers** • Recognise and use commutative, associative and distributive properties of addition and multiplication for integers • Recognize and use additive and multiplicative inverses for integers	**REVISION AND FORMAL ASSESSMENT** **CONTROL TEST**
Prerequisite skill/ pre-knowledge		• Multiplication of whole numbers to at least 12×12 • Order and compare prime numbers to at least 100 • Calculations using all four operations on whole numbers, estimating and using calculators where appropriate • Prime factors of numbers to at least 3-digit	• Addition and subtraction to fractions where one denominator is not a multiple of the other • Multiplication of common fractions, including mixed numbers, not limited to fractions where one	• Compare and order decimal fractions • Rounding off decimal fractions • Addition and subtraction of decimal • fractions of at least three decimal places		• Count forwards and backwards in integers for any interval • Recognize, order and compare integers • Add and subtract with integers • Recognize and use	

TERM 1	Week 1 3 days	Week 2 5 days	Week 3 5 days	Week 4 5 days	Week 5 5 days	Week 6 5 days	Week 7 5 days	WEEK 8, 9, 10 13 days
Hours per week	**2.5 hrs**	**4.5 hrs**	**4.5 hrs**	**4.5 hrs**	**4.5 hrs**	**9 hrs**		**12 hrs**
Hours per topic	**2.5 hrs.**	**9 hrs.**		**4,5 hrs**	**4,5 hrs.**	**1 hrs.**	**3.5 hrs** **4.5 hrs**	**12 hrs**
		whole numbers • LCM and HCF of numbers to at least 3-digit whole numbers, by inspection or factorisation • Solve problems involving whole numbers, including: - Comparing two or more quantities of the same kind (ratio) - Comparing two quantities of different kinds (rate) -Sharing in a given ratio where the whole is given		denominator is a multiple of another • Converting mixed numbers to common fractions • Use knowledge of multiples and factors to write fractions in the simplest form before or after calculations • Use knowledge of equivalent fractions to add and subtract common fractions in order to perform calculations with them • Calculate the percentage of part of a whole • Calculate percentage increase or decrease of whole numbers	• Multiplication of decimal fractions by whole numbers and decimals • Division of decimal fractions by whole numbers • Use knowledge of Place value to estimate the number of decimal places in the result before performing calculations • Use rounding off and a calculator to check results where appropriate		commutative and associative properties of addition and multiplication for integers Solve problems in contexts involving addition and subtraction of integers	

<table>
<tr><td>TERM 2
2022</td><td colspan="2">Week 1 & 2
8 days</td><td colspan="2">Week 3 & 4 & 5
12 days</td><td>Week 6
5 days</td><td>Week 7
5 days</td><td>Week 8
5 days</td><td>Week 9
5 days</td><td>Week 10 - 12
13 days</td></tr>
<tr><td>Hours per week</td><td>3.5 hrs</td><td>4 hrs.</td><td colspan="2">11,5 hrs.</td><td>4.5 hrs.</td><td>4.5 hrs.</td><td>4.5 hrs.</td><td>4.5 hrs.</td><td>3.5 hrs.</td></tr>
<tr><td>Hours per topic</td><td colspan="2">7,5 hrs.</td><td>9,5 hrs</td><td>2 hr</td><td colspan="2">9 hrs.</td><td colspan="2">9 hrs</td><td>4.5 hrs.</td></tr>
<tr><td>Topic, concepts, skills and values</td>
<td colspan="2">EXPONENTS

Comparing and representing numbers in exponential form
• Revise compare and represent whole numbers in exponential form
• Compare and represent integers in exponential form
• Compare and represent numbers in scientific notation, limited to positive exponents

Calculations using numbers in exponential form
• Establish general laws of exponents, limited to:
- $a^m \times a^n = a^{m+n}$
- $a^m \div a^n = a^{m-n}$ if $m > n$
- $(a^m)^n = a^{m \times n}$
- $(a \times t)^n = a^n \times t^n$
- $a^0 = 1$

• Recognise and use the appropriate laws of operations using numbers involving exponents and square and cube roots
• Perform calculations involving all four operations with numbers that involve squares, cubes, square and cube roots of integers
• Calculate the squares, cubes, square and cube roots of rational numbers

Solving problems

• Solve problems in contexts involving numbers in exponential form</td>
<td colspan="2">NUMERIC AND GEOMETRIC PATTERNS
Investigate and extend patterns
• Revise investigate and extend numeric and geometric patterns looking for relationships between numbers, including 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
• Investigate and extend numeric and geometric patterns looking for relationships between numbers, including patterns represented algebraically

• Describe and justify the general rules for observed relationships between numbers in own words or in algebraic language</td>
<td>FORMAL ASSESSMENT

INVESTI-GATION
• Exponents
• Patterns</td>
<td colspan="2">FUNCTIONS AND RELATIONSHIPS

Input and output values
• Revise, determine input values, output values or rules for patterns and relationships using:
- flow diagrams
- tables
- formulae
• Determine input values, output values or rules for patterns and relationships using equations

Equivalent forms

• Revise: determine, interpret and justify equivalence of different descriptions of the same relationship or rule presented:
- verbally
- in flow diagrams
- in tables
- by formulae
- by number sentences
• Extend determine, interpret and justify equivalence of different descriptions of the same relationship or rule presented by equations</td>
<td colspan="2">ALGEBRAIC EXPRESSIONS

Algebraic language
• Recognize and identify conventions for writing algebraic expressions
• Identify and classify like and unlike terms in algebraic expressions
• Recognize and identify coefficients and exponents in algebraic expressions

Expand and simplify algebraic expressions
• Use commutative, associative and distributive laws for rational numbers
and laws of exponents to:
• Add and subtract like terms in algebraic expressions</td>
<td>REVISION

FORMAL ASSESSMENT TEST

All Term 1 and Term 2 topics</td></tr>
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TERM 2 2022	**Week 1 & 2 8 days**		**Week 3 & 4 & 5 12 days**		**Week 6 5 days**	**Week 7 5 days**	**Week 8 5 days**	**Week 9 5 days**	**Week 10 - 12 13 days**
Hours per week	**3.5 hrs**	**4 hrs.**	**11,5 hrs.**		**4.5 hrs.**	**4.5 hrs.**	**4.5 hrs.**	**4.5 hrs.**	**3.5 hrs.**
Hours per topic	**7,5 hrs.**		**9,5 hrs**	**2 hr**	**9 hrs.**		**9 hrs**		**4.5 hrs.**
Prerequisite skill/ pre-knowledge	• Compare and represent whole numbers in exponential form: $a^b = a \times a \times a \times ...$ for b number of factors • Recognise and use the appropriate laws of operations with numbers involving exponents and square and cube roots • Perform calculations involving all four operations using numbers in exponential form, limited to exponents up to 5, and square and cube roots Solve problems in contexts involving numbers in exponential form		• • Investigate and extend numeric and geometric patterns looking for relationships between numbers, including 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 Describe and justify the general rules for observed relationships between numbers in own words		• Determine input values, output values or rules for patterns and relationships using: - flow diagrams - tables - formulae • Determine, interpret and justify equivalence of different descriptions of the same relationship or rule presented: - verbally - in flow diagrams - in tables - by formulae by number sentences		• Recognize and interpret rules or relationships represented in symbolic form Identify variables and constants in given formulae and/or equations		

TERM 3	Week 1 4 days	Week 2 5 days	Week 3 5 days	Week 4 3 days	Week 5 4 days	Week 6 5 days	Week 7 5 days	Week 8 5 days	Week 9 – 11 14 days
Hours per week	**3.5 hrs.**	**4.5 hrs.**	**4.5 hrs.**	**3 hrs.**	**3.5 hrs.**	**4.5 hrs**	**4.5 hrs.**	**4.5 hrs.**	**4.5 hrs.**
Hours per topic	**3.5 hrs.**	**4.5 hrs.**	**4,5 hrs.**	**3 hrs**	**3.5 hrs.**	**4.5 hrs.**	**3.5 hrs**	**4.5 hrs.**	**13.5 hrs.**
Topic, concepts, skills and values	**ALGEBRAIC EXPRESSIONS** **Expand and simplify algebraic expressions**Use commutative, associative and distributive laws for rational numbers and laws of exponents to: • Add and subtract like terms in algebraic expressions • Multiply integers and monomials by: – monomials – binomials – trinomials • Divide the following by integers or monomials: – monomials – binomials – trinomials • Simplify algebraic expressions involving the above operations • Determine the squares, cubes, square roots and cube roots of single algebraic terms or like algebraic terms • Determine the numerical value of algebraic expressions by substitution		**ALGEBRAIC EQUATIONS** **Equations** • Use substitution in equations to generate tables of ordered pairs • Extend solving equations to include: – using additive and multiplicative inverses – using laws of exponents		**GEOMETRY OF STRAIGHT LINES** **Angle relationships** • Recognize and describe pairs of angles formed by: – perpendicular lines – intersecting lines – parallel lines cut by a transversal **Solving problems** • Solve geometric problems using the relationships between pairs of angles described above		**GEOMETRY OF 2D SHAPES** **Classifying 2D shapes** • Identify and write clear definitions of triangles in terms of their sides and angles, distinguishing between: – equilateral triangles – isosceles triangles – right-angled triangles **CONSTRUCTIONS** **PROVIDE LEARNERS WITH ACCURATELY CONSTRUCTED FIGURES TO INVESTIGATE THE PROPERTIES OF TRIANGLES** **Investigating properties of geometric figures** • Investigate the angles in a triangle, focusing on: – the sum of the interior angles of triangles – the size of angles in an equilateral triangle – the sides and base angles of an isosceles triangle **Solving problems** • Solve geometric problems involving unknown sides and angles in triangles, using known properties and definitions. **Similar and congruent 2D shapes** • Identify and describe the properties of congruent shapes • Identify and describe the properties of similar shapes **Solving problems** • Solve geometric problems involving unknown sides and angles in triangles, using known properties and definitions.		**REVISION** **FORMAL ASSESSMENT** **FAT: PROJECT** **FAT: END OF TERM TEST** All topics

TERM 3	Week 1 4 days	Week 2 5 days	Week 3 5 days	Week 4 3 days	Week 5 4 days	Week 6 5 days	Week 7 5 days	Week 8 5 days	Week 9 – 11 14 days
Hours per week	**3.5 hrs.**	**4.5 hrs.**	**4.5 hrs.**	**3 hrs.**	**3.5 hrs.**	**4.5 hrs**	**4.5 hrs.**	**4.5 hrs.**	**4.5 hrs.**
Hours per topic	**3.5 hrs.**	**4.5 hrs.**	**4,5 hrs.**	**3 hrs**	**3.5 hrs.**	**4.5 hrs.**	**3.5 hrs**	**4.5 hrs.**	**13.5 hrs.**
Prerequisite skill/ pre-knowledge	• Recognize and interpret rules or relationships represented in symbolic form Identify variables and constants in given formulae and/or equations		• Write number sentences to describe problem situations • Analyse and interpret number sentences that describe a given situation • Solve and complete number sentences by: – inspection – trial and improvement • Determine the numerical value of an expression by substitution. • Identify variables and constants in given formulae or equations		• Definitions of: – Line segment – Straight lines – Parallel lines Perpendicular lines		• Describe, sort, name and compare triangles according to their sides and angles, focusing on: – equilateral triangles – isosceles triangles – right-angled triangles • Describe, sort, name and compare quadrilaterals in terms of: – length of sides – parallel and perpendicular sides – size of angles (right-angles or not) • Describe and name parts of a circle • Recognize and describe similar and congruent figures by comparing: – shape size		

N.B. BY THE END OF TERM 3, LEARNERS SHOULD HAVE COMPLETED A PROJECT AND A TEST. SEE NOTES ON PROJECT FROM ABRIDGED SECTION 4 OF CAPS.

TERM 4	Week 1 4 days	Week 2 5 days	Week 3 5 days	Week 4 5 days	Week 5 5 days	Week 6 5 days	Week 7- 10 18 days
Hours per week	**3.5 hrs.**	**4.5 hrs.**	**4.5 hrs.**	**4.5 hrs.**	**4.5 hrs.**	**4.5 hrs.**	**16.5 hrs.**
Hours per topic	**8 hrs.**		**4.5 hrs.**	**4,5 hrs**	**4.5.hrs**	**4.5 hrs.**	**16,5 HRS**
Topic, concepts, skills and values	**GRAPHS** **Interpreting graphs** • **Revise**: Analyse and interpret global graphs of problem situations, with special focus on the following trends and features: – linear or non-linear – constant, increasing or decreasing • Analyse and interpret global graphs of problem situations, with a special focus on the following trends and features: – maximum or minimum – discrete or continuous **Drawing graphs** • Draw graphs from given descriptions of a problem situation, identifying features listed above • Use tables or ordered pairs to plot points and draw graphs on the Cartesian plane		**TRANSFORMATION GEOMETRY** **Transformations** • Recognize, describe and perform transformations with points on a co-ordinate plane, focusing on: – reflecting a point in the X-axis or Y-axis – translating a point within and across quadrants • Recognize, describe and perform transformations with triangles on a co-ordinate plane, focusing on the co-ordinates of the vertices when: – reflecting a triangle in the X-axis or Y-axis – translating a triangle within and across quadrants	**THEOREM OF PYTHAGORAS** **Develop and use the Theorem of Pythagoras** • Investigate the relationship between the lengths of the sides of a right-angled triangle to develop the Theorem of Pythagoras • Determine whether a triangle is right-angled triangle or not if the lengths of the three sides of the triangle is known • Use the Theorem of Pythagoras to calculate the missing length in a right-angled triangle, leaving irrational answers in surd form.	**AREA AND PERIMETER OF 2-D SHAPES** **Area and perimeter** • Use appropriate formulae to calculate perimeter and area of: circles • Calculate the areas of polygons, to at least 2 decimal places, by decomposing them into rectangles and/or triangles • Use and describe the relationship between the radius, diameter and circumference of a circle in calculations • Use and describe the relationship between the radius and area of a circle in calculations **Calculations and solving problems** • Solve problems, with or without a calculator, involving perimeter and area of polygons and circles to at least 2 decimal places • Use and describe the meaning of the irrational number Pi (π) in calculations involving circles • Use and convert between appropriate SI units, including: $mm^2 \leftrightarrow cm^2 \leftrightarrow m^2 \leftrightarrow km^2$		**REVISION** **FORMAL ASSESSMENT**
Prerequisite skill/ pre-knowledge	• Analyse and interpret graphs of problem situations, with special focus on the following trends and features: – linear or non-linear – constant, increasing or decreasing • Draw graphs from given descriptions of a problem situation, identifying features listed above		• Recognise, describe and perform translations, reflections and rotations with geometric figures ad shapes on squared graph paper • Identify and draw lines of symmetry in geometric figures	• Knowledge of squares and square roots of whole numbers	• Geometry of 2-D shapes • Algebraic equations • Calculate the squares, cubes, square roots and cube roots of rational numbers		