

GAUTENG PROVINCE
MATHEMATICS – ANNUAL TEACHING PLAN – GRADE 10
2017

DATE	TOPIC	CONTENT	F	ASSESSMENT	DATE Completed	% Compl eted
TERM 1				2 TASKS FOR TERM 1		
11/1 – 13/1 (3 days)	Algebraic expressions	<ul style="list-style-type: none"> Understand that real numbers can be rational or irrational. Establish between which two integers a given simple surd lies. 				3%
16/1 – 20/1	Algebraic expressions	<ul style="list-style-type: none"> Round real numbers to an appropriate degree of accuracy Revise multiplication of a binomial by a binomial. Multiplication of a binomial by a trinomial. Factorisation: Difference of two squares Common factors. 				6%
23/1 – 27/1	Algebraic expressions	<ul style="list-style-type: none"> Factorisation: Trinomials Grouping in pairs. Sum and difference of two cubes. Algebraic fractions: Denominator with monomial, binomial and trinomial terms. (limited to sum & difference of cubes). 				9%
30/1 – 03/2	Algebraic expressions	<ul style="list-style-type: none"> Algebraic fractions: Denominator with monomial, binomial and trinomial terms. (limited to sum & difference of cubes). 	F	TEST SBA marks: 10		12%
06/2 – 10/2	Exponents	<ul style="list-style-type: none"> Revise laws of exponents where $x, y > 0$ and $m, n \in \mathbb{Z}$. <ul style="list-style-type: none"> $x^m \times x^n = x^{m+n}$ $x^m \div x^n = x^{m-n}$ $(x^m)^n = x^{mn}$ $x^m \times y^m = (xy)^m$ Also by definition: <ul style="list-style-type: none"> $x^{-n} = \frac{1}{x^n}, x \neq 0$, and $x^0 = 1, x \neq 0$. Use the laws of exponents to simplify expressions and solve equations, accepting that the rules also hold for, $n \in \mathbb{Q}$. 				15%
13/2 – 17/2	Exponents	<ul style="list-style-type: none"> Use the laws of exponents to simplify expressions and solve equations, accepting that the rules also hold for, $n \in \mathbb{Q}$ Exponential equations. 				18%
20/2 – 24/2	Number patterns	<ul style="list-style-type: none"> Investigate number patterns leading to those where there is a constant difference between consecutive terms, and the general term is therefore linear. WITHOUT USING A FORMULA 				21%
27/2 – 03/3	Equations	<ul style="list-style-type: none"> Linear equations. Quadratic equations (by factorisation). 				24%
06/3 – 10/3	Equations and Inequalities	<ul style="list-style-type: none"> Literal equations (change the subject of the formula). Simultaneous linear equations in two unknowns. Solve linear inequalities (show solutions graphically). 	F	TEST SBA marks: 10		27%
13/3 – 17/3	Equations and Inequalities	<ul style="list-style-type: none"> Solve linear inequalities (show solutions graphically). Interval notation must be known. Word problems involving linear, quadratic or simultaneous linear equations. 				30%
20/3 – 24/3 (3 days)	Euclidean Geometry	<ul style="list-style-type: none"> Revise basic results established in earlier grades: lines, angles, congruency, similarity. Revise theorem of Pythagoras and properties of Quadrilaterals 				33%
27/3 – 31/3	Euclidean Geometry	<ul style="list-style-type: none"> Define the following special quadrilaterals: the kite, parallelogram, rectangle, rhombus, square and trapezium. Investigate and make conjectures about the properties of 				36%

		the sides, angles, diagonals and areas of these quadrilaterals. Prove these conjectures. <ul style="list-style-type: none"> The opposite sides and angles of a parallelogram are equal The diagonals of a parallelogram bisect each other If one pair of opposite sides of a quadrilateral are equal and parallel the quadrilateral is a parallelogram 				
TERM 2			2 TASKS FOR TERM 2			
18/4 – 21/4 (4 days)	Trigonometry	<ul style="list-style-type: none"> Definitions of the trigonometric ratios $\sin \theta$, $\cos \theta$ and $\tan \theta$ in a right-angled triangles. Extend the definitions of $\sin \theta$, $\cos \theta$ and $\tan \theta$ to $0^\circ \leq \theta \leq 360^\circ$. 				39%
24/4 – 28/4 (3 days)	Trigonometry	<ul style="list-style-type: none"> Extend the definitions of $\sin \theta$, $\cos \theta$ and $\tan \theta$ to $0^\circ \leq \theta \leq 360^\circ$. Define the reciprocals of the trig ratios $\operatorname{cosec} \theta$, $\sec \theta$ and $\cot \theta$ using right-angled triangles. 		MATHS WEEK		42%
01/5 – 05/5 (4 days)	Trigonometry	<ul style="list-style-type: none"> Derive and use values of the trigonometric ratios (without using a calculator for the special angles $\theta \in \{0^\circ; 30^\circ; 45^\circ; 60^\circ; 90^\circ\}$). Solve simple trig equations for $\theta \in \{0^\circ; 90^\circ\}$. 				45%
08/5 – 12/5	Functions	<ul style="list-style-type: none"> Relationships and conversions between variables: numerical, graphical, verbal and symbolical. Difference between a relation and a function. Investigate basic graphs to discover shape, domain, range, and intercepts with axes, turning points and axes of symmetry. Investigate the effect of a and q on each graph Straight line: $y = a(x) + q$ Parabola: $y = a(x)^2 + q$ 	F	ASSIGNMENT/ TEST SBA marks: 10		48%
15/5 – 19/5	Functions	<ul style="list-style-type: none"> Hyperbola: $y = \frac{a}{x} + q$ Exponential graph: $y = a.b^x + q$; $b > 0$ 				51%
22/5 – 26/5	Functions	<ul style="list-style-type: none"> Finding equations of functions. Interpretation of functions. 				54%
29/5 – 02/6	Trig Functions	<ul style="list-style-type: none"> Trig graphs $[a \sin x + q, a \cos x + q, a \tan x + q]$. Basic graphs and the effect of a and q on the graphs. 				57%
05/6 – 09/6	JUNE EXAMS					
12/6 – 16/6 (4 days)	JUNE EXAMS		F	JUNE EXAM SBA marks: 30		
19/6 – 23/6	JUNE EXAMS					
20/6 – 24/6	Exam corrections	<ul style="list-style-type: none"> Remediation of June examination 				

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TERM 3				2 TASKS FOR TERM 3		
24/7 – 28/7	Euclidean Geometry	Prove conjectures. <ul style="list-style-type: none"> The diagonals of a rectangle are equal The diagonals of a rhombus bisect each other at right angles and bisect the interior angles of the rhombus The line segment joining the midpoints of two sides of a triangle is parallel to the third side and equal to half the length of the third side 				60%
31/7 – 04/8	Euclidean Geometry	<ul style="list-style-type: none"> Solve problems and prove riders using the properties of parallel lines, triangles and quadrilaterals. 				63%
07/8 – 11/8 (4 days)	Analytical Geometry	<ul style="list-style-type: none"> Distance between two points. Gradient of the line segment joining the points (identify parallel and perpendicular lines). 				66%
14/8 – 18/8	Analytical Geometry	<ul style="list-style-type: none"> Gradient of the line segment joining the points (collinear lines). Co-ordinates of the mid-point of the line segment joining the points. 	F	TEST SBA marks: 10		69%
21/8 – 25/8	Financial Maths	<ul style="list-style-type: none"> Simple and compound growth formula to solve problems. Annual interest, hire purchase, inflation, population growth and other real life problems. 				72%

28/8 – 01/9	Financial Maths	<ul style="list-style-type: none"> Annual interest, hire purchase, inflation, population growth and other real life problems. Fluctuating foreign exchange rates. 				75%
04/9 – 08/9	Statistics	<ul style="list-style-type: none"> Collect, organise and interpret univariate numerical data in order to determine: measures of central tendency(mean, median, mode in ungrouped and grouped data) five number summary; 	F	PROJECT/ INVESTIGATION SBA marks: 20		78%
11/9 – 15/9	Statistics	<ul style="list-style-type: none"> box and whisker diagrams measures of dispersion (range, percentiles, quartiles) 				81%
18/9 – 22/9	2D Trig	<ul style="list-style-type: none"> Revision of trig. Problems in two dimensions. 				84%
25/9 – 29/9 (4 days)	2D Trig	<ul style="list-style-type: none"> Problems in two dimensions. 				87%
TERM 4			2 TASKS FOR TERM 4			% Compl eted
09/10 –13/10	Measurement	<ul style="list-style-type: none"> Revise area of circles, quadrilaterals and triangles. Revise the volume and surface areas of right-prisms and cylinders. Study the effect on volume and surface area when multiplying any dimension by a constant factor k. Calculate the volume and surface areas of spheres, right pyramids and right cones. 				90%
16/10 –20/10	Probability	<ul style="list-style-type: none"> Compare the relative frequency of an experimental outcome with the theoretical probability of the outcome. Venn diagrams as an aid to solving probability problems. 				93%
23/10 –27/10	Probability	<ul style="list-style-type: none"> Mutually exclusive events and complementary events. The identity for any two events A and B: $(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$. 	F	TEST SBA marks: 10		96%
30/10 – 3/11	Geometry OR Functions	<ul style="list-style-type: none"> Solve problems and prove riders using the properties of parallel lines, triangles and quadrilaterals. Interpretation of graphs 				100%
06/11 –10/11	Revision	<ul style="list-style-type: none"> Exposure to exam type questions. 				
13/11 –17/11	FINAL EXAMINATIONS			25 % SBA		
20/11 -24/11	FINAL EXAMINATIONS			75 %		
27/11 - 01/12	FINAL EXAMINATIONS			Final exam		

Mark distribution for Mathematics NCS end-of-year papers: Grades 10 - 12			
PAPER 1 : Grades 12: bookwork: maximum 6 marks			
Description	Grade 10	Grade 11	Grade. 12
Algebra and equations (and inequalities)	30 ± 3	45 ± 3	25 ± 3
Patterns and sequences	10 ± 3	25 ± 3	25 ± 3
Finance and growth	15 ± 3		
Finance, growth and decay	15 ± 3	15 ± 3	15 ± 3
Functions and graphs	30 ± 3	45 ± 3	35 ± 3
Differential Calculus			35 ± 3
Probability	15 ± 3	20 ± 3	15 ± 3
TOTAL	100	150	150
PAPER 2 : Grades 11 and 12: theorems and/or trigonometric proofs: maximum 12 marks			
Description	Grade 10	Grade 11	Grade 12
Statistics	15 ± 3	20 ± 3	20 ± 3
Analytical Geometry	15 ± 3	30 ± 3	40 ± 3
Trigonometry	40 ± 3	50 ± 3	40 ± 3
Euclidean Geometry and Measurement	30 ± 3	50 ± 3	50 ± 3
TOTAL	100	150	150