GAUTENG PROVINCE
MATHEMATICS − ANNUAL TEACHING PLAN −GRADE 11
2017

DATE	TOPIC	CONTENT	F	ASSESSMENT	DATE Completed	% Completed
TERM 1				**2 TASKS FOR TERM 1**		
11/1 – 13/1 (3 days)	Exponents and Surds	• **Simplify expressions** using the laws of exponents for rational exponents where $x^{\frac{p}{q}} = \sqrt[q]{x^p} : x > 0; q > 0$.				3%
16/1 – 20/1	Exponents and Surds	• **Solve equations** using the laws of exponents for rational exponents where $x^{\frac{p}{q}} = \sqrt[q]{x^p} : x > 0; q > 0$. • Add, subtract, multiply, divide simple surds.				6%
23/1 – 27/1	Exponents and Surds	• Add, subtract, multiply, divide simple surds. • Solve simple equations involving surds.				9%
30/1 – 03/2	Equations	• Revision of factorization. • Quadratic equations (by factorisation). • Complete the square.				12%
06/2 – 10/2	Equations and Inequalities	• Quadratic equations (by using the quadratic formula). • k - method • Quadratic inequalities in one unknown (Interpret solutions graphically).	F	PROJECT/ INVESTIGATION SBA marks: 20		15%
13/2 – 17/2	Simultaneous equations Nature of roots	• Equations in two unknowns, one of which is linear and the other quadratic. • Nature of roots.				18%
20/2 – 24/2	Number patterns	• Revise linear number patterns. • Investigate number patterns leading to those where there is a constant second difference between consecutive terms, and the general term is therefore quadratic.				21%
27/2 – 03/3	Number patterns	• Investigate number patterns leading to those where there is a constant second difference between consecutive terms, and the general term is therefore quadratic.	F	TEST SBA marks: 10		24%
06/3 – 10/3	Analytical Geometry	• The equation of a line through two points. • The equation of a line through one point and parallel or perpendicular to a given line. • Collinear lines				27%
13/3 – 17/3	Analytical Geometry	• The inclination(θ) of a given line. • Applications.				30%
20/3 – 24/3 (3 days)	Euclidian Geometry	• Revision of grade 10 geometry (1 day) • Investigate and prove theorems of the geometry of circles assuming results from earlier grades, • The line drawn from the centre of a circle perpendicular to a chord bisects the chord; • The perpendicular bisector of a chord passes through the centre of the circle; • The angle at the centre of a circle is double the size of the angle at the circle .				33%
27/3 – 31/3	Euclidian Geometry	• Angles subtended by a chord of the circle, on the same side of the chord, are equal. • Solve circle geometry problems, providing reasons for statements.				36%
TERM 2				**2 TASKS FOR TERM 2**		
18/4 – 21/4 (4 days)	Functions	• Revise the effect of a and q and investigate the effect of p on the graphs of the functions defined by: • $y = f(x) = a(x + p) + q$ • $y = f(x) = a(x + p)^2 + q$				39%

24/4 – 28/4 (3 days)	Functions	• Revise the effect of *a* and *q* and investigate the effect of p on the graphs of the functions defined by: • $y = f(x) = a(x+p)^2 + q$ • $y = f(x) = \dfrac{a}{x+p} + q$ • **NB: Apply nature of roots with functions**		**MATHS WEEK**		42%
01/5 – 05/5 (4 days)	Functions	• $y = f(x) = \dfrac{a}{x+p} + q$ • $y = f(x) = ab^{x+p} + q;\ b>0\ ;\ b \neq 1$ • **NB: Apply nature of roots with functions**				45%
08/5 – 12/5	Functions	• Average gradient and gradient of a curve at a point. • Interpretations, applications and Practical problems. • **NB: Apply nature of roots with functions**	F	**ASSIGNMENT/ TEST** **SBA marks: 10**		48%
15/5 – 19/5	Trig functions and revision grade 10 trigonometry	• Basic graphs defined by $y = a\sin x$, $y = a\cos x$ and $y = \tan x$ for $\theta \in [-360^0 ; 360^0]$ • Investigate the effect of *k* and *p* on the graphs of the functions defined by: $y = \sin(kx)$, $y = \cos(kx)$ and $y = \tan(kx)$ $y = \sin(x+p)$, $y = \cos(x+p)$, $y = \tan(x+p)$)				51%
22/5 – 26/5	Identities Reduction formula	• Derivation and use of the identities $\tan\theta = \dfrac{\sin\theta}{\cos\theta}$ and $\sin^2\theta + \cos^2\theta = 1$ • Determine for which values of a variable an identity holds. • Derivation and use of reduction formulae for $\sin(90^0 \pm \theta)$, $\cos(90^0 \pm \theta)$, $\sin(180^0 \pm \theta)$, $\cos(180^0 \pm \theta)$, $\tan(180^0 \pm \theta)$, $\sin(360^0 \pm \theta)$, $\cos(360^0 \pm \theta)$, $\tan(360^0 \pm \theta)$ • $\sin(-\theta)$, $\cos(-\theta)$, $\tan(-\theta)$				54%
29/5 – 02/6	Trig equations and general solutions	• Determine the general solution and / or specific solutions (given intervals) of trigonometric equations.				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**					
26/6 – 30/6	Exam corrections	• Remediation of June examination				

TERM 3			**2 TASKS FOR TERM 3**			
24/7 – 28/7	Measurements	• Revision of grade 10 work.				60%
31/7 – 04/8	Euclidian Geometry	• The opposite angles of a cyclic quadrilateral are supplementary; • Two tangents drawn to a circle from the same point outside the circle are equal in length; • The angle between the tangent to a circle and the chord drawn from the point of contact is equal to the angle in the alternate segment.				63%
07/8 – 11/8 (4 days)	Euclidian Geometry	• Solve circle geometry problems, providing reasons for statements.	F	**TEST SBA marks: 10**		66%

14/8 – 18/8	Euclidian Geometry	• Solve circle geometry problems, providing reasons for statements.			69%
21/8 – 25/8	Trigonometry Sin/Cos/Area rules	• Prove and apply the sine, cosine and area rules.			72%
28/8 – 01/9	Trigonometry Sin/Cos/Area rules	• Solve problems in two dimensions using the sine, cosine and area rules.			75%
04/9 – 08/9	Financial Maths	• Simple and compound decay formulae.	**F**	**TEST SBA marks: 10**	78%
11/9 – 15/9	Financial Maths	• Different periods of compound growth and decay. Effective and nominal interest rates.			81%
18/9 – 22/9	Probability	• Dependent and independent events. • Two-way contingency tables. • the product rule for independent events: P(A and B) = P(A).P(B).			84%
25/9 – 29/9 (4 days)	Probability	• Venn diagrams, tree diagrams and other techniques to solve probability problems (where events are not necessarily independent.			87%
TERM 4				**1 TASK FOR TERM 4**	
09/10 –13/10	Statistics	• Histograms. • Frequency polygons.			90%
16/10 –20/10	Statistics	• Variance and standard deviation of ungrouped data • Ogives (cumulative frequency curves).			93%
23/10 –27/10	Statistics	• Symmetric and skewed data. • Identification of outliers.	**F**	**TEST SBA marks: 10**	96%
30/10 – 3/11	Geometry / Trigonometry	• Application of geometry / trigonometry.			100%
06/11 –10/11	Revision	• 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**