KWAZULU-NATAL PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

MATHEMATICS ANNUAL TEACHING PLAN GRADE 11 – 2024

NAME OF SCHOOL: …….…..………….……….……....

NAME OF TEACHER: …….…..…………………….……

TERM 1									
NUMBER OF DAYS	**DATE STARTED**	**DATE COMPLETED**	**TOPIC**	**CURRICULUM STATEMENT**	**ASSESSMENT**	**F/IF**	**DH: SIGNATURE and DATE**	**% COMPLETED**	
								Term	Year
17/01 – 22/01 (4 days)			**EXPONENTS AND SURDS**	1. Simplify expressions using the laws of exponents for rational exponents where $x^{\frac{p}{q}} = \sqrt[q]{x^p}$; $x > 0$; $q > 0$ 2. Solve equations using the laws of exponents for rational exponents where $x^{\frac{p}{q}} = \sqrt[q]{x^p}$; $x > 0$; $q > 0$				11	3
23/01 – 24/01 (2 days)				3. Add, Subtract, Multiply and Divide Simple Surds.				16	4
25/01 – 26/01 (2 days)				4. Solve simple equations involving surds.				21	6
29/01 – 06/02 (7 days)			**EQUATIONS**	1. Revision of factorisation. 2. Quadratic equations (by factorisation). 3. Complete the square. 4. Quadratic equations (by using the quadratic formula).				39	11
07/02 – 12/02 (4 days)			**INEQUALITIES**	Quadratic inequalities in one unknown (interpret solutions graphically).				50	14
13/02 – 16/02 (4 days)			**SIMULTANEOUS EQUATIONS**	Equations in two unknowns, one of which is linear and the other quadratic. **NB: To apply this skill also in other contexts, e.g. to determine the points of intersection of a straight line and a hyperbola**				61	17
19/02 – 21/02 (3 days)			**NATURE OF ROOTS**	Nature of roots.	**INVESTIGATION SBA Weighting: 15**	**F**		68	19

1

TERM 1 (continued)

NUMBER OF DAYS	DATE STARTED	DATE COMPLETED	TOPIC	CURRICULUM STATEMENT	ASSESSMENT	F/IF	DH: SIGNATURE and DATE	% COMPLETED	
								Term	Year
22/02 – 08/03 (12 days)			**TRIGONOMETRIC IDENTITIES and REDUCTION FORMULAE**	1. Derive and use the identities: • $\tan\theta = \dfrac{\sin\theta}{\cos\theta}; k \neq k.90°$, k an odd integer; and • $\sin^2\theta + \cos^2\theta = 1$ 2. Derive and use reduction formulae to simplify the following expressions: • $\sin(90° \pm \theta); \cos(90° \pm \theta)$ • $\sin(180° \pm \theta); \cos(180° \pm \theta); \tan(180° \pm \theta)$ • $\sin(360° \pm \theta); \cos(360° \pm \theta); \tan(360° \pm \theta)$ and • $\sin(-\theta); \cos(-\theta); \tan(-\theta)$. 3. Proving trigonometric identities 4. Determine for which values of a variable an identity holds.				100	28
11/03 – 20/03 (8 days)			**REVISION and MARCH TEST**	**MARCH TEST to cover the work done during Term 1.**	**MARCH TEST SBA Weighting: 14**	**F**			

TERM 2

NUMBER OF DAYS	DATE STARTED	DATE COMPLETED	TOPIC	CURRICULUM STATEMENT	ASSESSMENT	F/IF	HOD: SIGNATURE and DATE	% COMPLETED	
								Term	Year
03/04 – 08/04 (4 days)			**TRIG EQUATIONS and GENERAL SOLUTIONS**	Determine the general solution and / or specific solutions (given intervals) of trigonometric equations.				10	31
09/04 – 15/04 (5 days)			**EUCLIDEAN GEOMETRY**	1. Accept results established in earlier grades as axioms and also that a tangent to a circle is perpendicular to the radius, drawn to the point of contact. 2. Investigate and prove the following 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 line drawn from the centre of a circle that bisects a chord is perpendicular to 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** • Angles subtended by a chord of the circle, on the same side of the chord, are equal.				23	35
16/04 – 17/04 (2 days)				3. Use the above theorems and their converses, where they exist, to solve circle geometry problems and prove riders.				28	36
18/04 – 22/04 (2 days)				4. Accept results established in earlier grades as axioms and that a tangent to a circle is perpendicular to the radius, drawn to the point of contact. Then investigate and prove the following theorems of the geometry of circles: • **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.**				33	38
23/04 – 25/04 (3 days)				5. Use the above theorems and their converses, where they exist, to solve circle geometry problems and prove riders. **The proofs of the FIVE theorems printed in bold above can be asked in examinations.** (See 2021 Gr. 12 Examination Guidelines, page 7.)				41	40

TERM 2 (continued)

NUMBER OF DAYS	DATE STARTED	DATE COMPLETED	TOPIC	CURRICULUM STATEMENT	ASSESSMENT	F/IF	HOD: SIGNATURE and DATE	% COMPLETED	
								Term	Year
26/04 – 29/04 (2 days)			ANALYTICAL GEOMETRY	1. Revise: • Distance between the two points • Gradient of the line segment connecting the two points (and from that identify parallel lines); and • Coordinates of the midpoint of the line segment joining the two points.				46	41
30 /04 – 10/05 (8 days)				2. Derive and apply: • The equation of a line through two given points. • The equation of a line through one point and parallel or perpendicular to a given line. • Collinear points. 3. The inclination (θ) of a given line, where $m = \tan\theta$ is the gradient of the line $(0° \le \theta \le 180°)$. 4. Applications.				67	47
13/05 – 16 /05 (4 days)			FUNCTIONS	1. Revise the effect of the parameters a and q and investigate the effect of p on the graph of the function defined by $y = f(x) = a(x+p)^2 + q$				77	50
17/05 – 22/05 (3 days)				2. Revise the effect of the parameters a and q and investigate the effect of p on the graph of the function defined by $y = f(x) = \dfrac{a}{x+p} + q$				85	52
23/05 – 28/05 (4 days)			FUNCTIONS	3. Revise the effect of the parameters a and q and investigate the effect of p on the graph of the function defined by $y = f(x) = a.b^{x+p} + q$, where $b > 0$ and $b \ne 1$.	ASSIGNMENT SBA Weighting: 15	F		95	55
29/05 – 30/05 (2 days)				4. Investigate numerically the average gradient between two points on a curve. 5. Develop an intuitive understanding of the concept of the gradient of a curve at a point. 6. Interpretations, applications and practical problems. **NB: Integration between Nature of roots and Functions.**				100	57
31/05 – 14/06 (11 days)			REVISION and JUNE EXAM	**JUNE TEST to cover the work done during Term 2.**	JUNE EXAM SBA Weighting: 14	F			

TERM 3

NUMBER OF DAYS	DATE STARTED	DATE COMPLETED	TOPIC	CURRICULUM STATEMENT	ASSESSMENT	F/IF	DH: SIGNATURE and DATE	% COMPLETED	
								Term	Year
09/07 – 17/07 (7 days)			**TRIGONO-METRIC FUNCTIONS**	7. Investigate the effect of the parameter k on the graphs of the functions defined by, $y = \sin(kx)$, $y = \cos(kx)$ and $y = \tan(kx)$ 8. Investigate the effect of the parameter p on the graphs of the functions defined by, $y = \sin(x + p)$, $y = \cos(x + p)$ and $y = \tan(x + p)$ 9. Draw sketch graphs defined by: • $a \sin k(x + p)$ • $a \cos k(x + p)$ and • $a \tan k(x + p)$ at most two parameters at a time				18	62
18/07 – 23/07 (4 days)			**TRIGONO-METRY**	1. Prove and apply the sine, cosine and area rules.				28	65
24/07 – 30/07 (3 days)				2. Solve problems in two dimensions using the sine, cosine and area rules.				35	67
31/07 – 08/08 (7 days)			**STATISTICS**	1. Revise Grade 10 statistics 2. Histograms • Frequency polygons • Variance and standard deviation of ungrouped data • Ogives (cumulative frequency curves). • Symmetric and skewed data. • Identification of outliers	**TERM 3 TEST SBA Weighting: 14**	F		53	72
12/08 – 21/08 (8 days)			**PROBABILITY**	1. Revise Grade 10 Probability. 2. Identify dependent and independent events and the product rule for independent events: $P(A \text{ and } B) = P(A) \times P(B)$ 3. The use of Venn diagrams to solve probability problems, 4. deriving and applying formulae for any three events A, B and C in a sample space S. 5. Use tree diagrams for the probability of consecutive or simultaneous events which are not necessarily independent. 6. Use contingency tables to solve probability problems.				73	78

5

TERM 3 (continued)

NUMBER OF DAYS	DATE STARTED	DATE COMPLETED	TOPIC	CURRICULUM STATEMENT	ASSESSMENT	F/IF	DH: SIGNATURE and DATE	% COMPLETED Term	% COMPLETED Year
22/08 – 27/08 (4 days)			**FINANCE, GROWTH AND RATES OF CHANGE.**	1. Use the simple and compound growth formulae to solve problems, including interest, hire purchase, inflation, population growth and other real-life problems. 2. Understand the implication of fluctuating foreign exchange rates (e.g. on petrol price, imports, exports, overseas travel).				83	81
28/08 – 05/09 (7 days)			**FINANCE, GROWTH AND DECAY**	3. Use the simple and compound decay formulae, $A = P(1-ni)$ and $A = P(1-i)^n$, to solve problems (including straight line depreciation and depreciation on a reducing balance). 4. Different periods of compound growth and decay. 5. Effective and nominal interest rates.				100	886
06/09 – 20/09 (11 days)			**REVISION and SEPTEMBER TEST**	**SEPTEMBER TEST to cover the work done during Term 3.**	**SEPTEMBER TEST SBA Weighting: 14**	**F**			

								% COMPLETED	
NUMBER OF DAYS	**DATE STARTED**	**DATE COMPLETED**	**TOPIC**	**CURRICULUM STATEMENT**	**ASSESSMENT**	**F/IF**	**DH: SIGNATURE and DATE**	**Term**	**Year**
01/10 – 07/10 (5 days)			**NUMBER PATTERNS**	1. Revise linear number patterns.				26	90
08/10 – 18/10 (9 days)				2. Investigate number patterns leading to those where there is a constant second difference between consecutive terms, and the general term is therefore quadratic.				74	96
21/10 – 25/10 (5 days)			**MEASUREMENT**	1. Revise the volume and surface areas of right-prisms and cylinders. 2. Study the effect on volume and surface areas when multiplying any dimension by a constant factor k. 3. Calculate volume and surface areas of spheres, right prisms, right cones and combination of those objects (figures).	**TERM 4 TEST SBA Weighting: 14**			100	100
28/10 – 01/11 (5 days)			**REVISION OF ALGEBRA**	Revision					
04/11 – 08/11 (5 days)			**REVISION OF TRIGONO-METRY**	Revision					
(23 days)			**REVISION and NOVEMBER EXAM**	**NOVEMBER EXAMINATION to cover all the work done during Terms 1, 2, 3 and 4.**	**NOVEMBER EXAMI-NATION**	**F**			

TERM 4

7