

2023/24 ANNUAL TEACHING PLANS: MATHEMATICS: GRADE 10 (TERM 1)

TERM 1	WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6	WEEK 7	WEEK 8	WEEK 9	WEEK 10	WEEK 11
TOPICS	Algebraic expressions				Exponents, equations and inequalities				Trigonometry		
DATE COMPLETED											
SBA	Investigation or project & test (content of Term 1)										

2023/24 ANNUAL TEACHING PLANS: MATHEMATICS: GRADE 10 (TERM 2)

TERM 2	WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6	WEEK 7	WEEK 8	WEEK 9	WEEK 10	WEEK 11
TOPICS	Euclidean Geometry				Analytical Geometry		Functions (including trigonometric functions)				
DATE COMPLETED											
SBA	Assignment & mid-year exam										

2023/24 ANNUAL TEACHING PLANS: MATHEMATICS: GRADE 10 (TERM 3)

TERM 3	WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6	WEEK 7	WEEK 8	WEEK 9	WEEK 10	WEEK 11
TOPICS	Trigonometry (2D)		Statistics			Probability			Finance and growth		
DATE COMPLETED											
SBA	Test					Test					

2023/24 ANNUAL TEACHING PLANS: MATHEMATICS: GRADE 10 (TERM 4)

TERM 4	WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6	WEEK 7	WEEK 8	WEEK 9	WEEK 10	EXAM	
TOPICS	Measurement		Number patterns	Revise Algebra	Revise Trigonometry & Geometry	Revise functions	Examination			Admin	PAPER 1	
DATE COMPLETED											Algebra	30
SBA	Test										Number patterns	15
TOTAL NUMBER OF SBA TASKS 7											Finance, growth	10
TERM 1 INVESTIGATION/PROJECT (15%) AND TEST (14%)											Functions and graphs	30
TERM 2 ASSIGNMENT (15%) AND MID-YEAR EXAM (14%)											Probability	15
TERM 3 TEST (14%) AND TEST (14%)											PAPER 2	
TERM 4 TEST (14%)											Statistics	15
											Analytical Geometry	15
											Trigonometry	40
											Euclidean Geometry & measurement	30

2023/24 ANNUAL TEACHING PLANS: MATHEMATICS: GRADE 10 (TERM 1)

TERM 1	WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6	WEEK 7	WEEK 8	WEEK 9	WEEK 10	WEEK 11
TOPICS	ALGEBRAIC EXPRESSIONS				EXPONENTS, EQUATIONS AND INEQUALITIES				TRIGONOMETRY		
	<ol style="list-style-type: none"> Understand that real numbers can be rational or irrational Establish between which two integers a given simple surd lies Round real numbers to an appropriate degree of accuracy Multiplication of a binomial by a trinomial Factorisation to include types taught in Grade 9 and: <ul style="list-style-type: none"> Trinomials Grouping in pairs Sum and difference of two cubes Simplifying, adding and subtracting algebraic fractions using factorisation with denominators of cubes (limited to sum and difference of cubes) 				<ol style="list-style-type: none"> Revise laws of exponents learnt in Grade 9 where $x, y > 0; m, n \in \mathbb{Z}$: <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: $x^{-n} = \frac{1}{x^n}, x \neq 0$ 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 $m, n \in \mathbb{Q}$ <ol style="list-style-type: none"> Revise the solution of linear equations Solve quadratic equations (by factorisation) Solve simultaneous linear equations in two unknowns Solve word problems involving linear, quadratic or simultaneous linear equations Solve literal equations (changing the subject of a formula) Solve linear inequalities (and show solution graphically) Interval notation must be known 				<ol style="list-style-type: none"> Define the trigonometric ratios $\sin \theta, \cos \theta$ and $\tan \theta$ Using the right – angled triangle Extend the definitions of $\sin \theta, \cos \theta$ and $\tan \theta$ for $0^\circ \leq \theta \leq 360^\circ$ Define the reciprocal of the trigonometric ratios $\operatorname{cosec} \theta, \sec \theta$ and $\cot \theta$, using the right-angled triangles (these three reciprocals should be examined in Grade 10 only) Derive values of the trigonometric ratios for the special cases (without using a calculator) $\theta \in \{0^\circ, 30^\circ, 45^\circ, 60^\circ, 90^\circ\}$ Solve two-dimensional problems involving right-angled triangle Solve simple trigonometric equations for angles between 0° and 90° Use a diagram to determine the numerical values of ratios for angles from 0° to 360° 		
DATE COMPLETED											
SBA	Investigation or project								Test (content of Term 1)		

2023/24 ANNUAL TEACHING PLANS: MATHEMATICS: GRADE 10 (TERM 2)

TERM 2	WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6	WEEK 7	WEEK 8	WEEK 9	WEEK 10	WEEK 11
TOPICS	EUCLIDEAN GEOMETRY				ANALYTICAL GEOMETRY		FUNCTIONS AND GRAPHS (INCLUDING TRIGONOMETRIC FUNCTIONS)				
	<ol style="list-style-type: none"> Revise basic results established in earlier grades regarding lines, angles and triangles, especially the similarity and congruence of triangles Define the following special quadrilaterals: The kite, parallelogram, rectangle, rhombus, square and trapezium. Investigate and make conjectures about the properties of the sides, angles, diagonals and areas of these quadrilaterals. Prove these conjectures Investigate line segment joining the midpoints of two sides of a triangle Solve problems and prove riders using the properties of parallel lines, triangles, quadrilaterals and midpoint theorem 				<ol style="list-style-type: none"> Represent quadrilaterals amongst other geometric figures on a Cartesian co-ordinate system. Derive and apply for any two points (x_1, y_1) and (x_2, y_2) the formulae for calculating the: <ul style="list-style-type: none"> Distance between the two points Gradient of the line segment connecting the two points (and from that identify parallel and perpendicular lines) Coordinates of the mid-point of the line segment joining the two points 		<ol style="list-style-type: none"> The concept of a function, where a certain quantity (output value) uniquely depends on another quantity (input value). Work with relationships between variables using tables, graphs, words and formulae. Convert flexibly between these representations Note: That the graph defined by $y = x$ should be known from Grade 9 Point by point plotting of basic graphs defined by $y = x^2$, $y = \frac{1}{x}$ and $y = b^x$; $b > 0$ and $b \neq 1$ to discover shape, domain (input values), range (output values), asymptotes, axes of symmetry, turning points and intercepts on the axes (where applicable) Investigate the effect of a and q on the graphs defined by, $y = a \cdot f(x) + q$, where $f(x) = x$, $f(x) = x^2$, $f(x) = \frac{1}{x}$ and $f(x) = b^x$, $b > 0$, $b \neq 1$ Point by point plotting of basic graphs defined by $y = \sin \theta$, $y = \cos \theta$ and $y = \tan \theta$ for $\theta \in [0^\circ, 360^\circ]$ Study the effect of a and q on the graphs defined by: $y = a \sin \theta + q,$ $y = a \cos \theta + q, \text{ and}$ $y = a \tan \theta + q \text{ where } a \text{ and } q \in Q \text{ and } \theta \in [0^\circ, 360^\circ]$ Sketch graphs, find the equations of given graphs and interpret graphs <p>Note: Sketching of the graphs must be based on the observation of the effect number 3 and number 5</p>				
DATE COMPLETED											
SBA	Assignment & mid-year exam										

2023/24 ANNUAL TEACHING PLANS: MATHEMATICS: GRADE 10 (TERM 3)

TERM 3	WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6	WEEK 7	WEEK 8	WEEK 9	WEEK 10	WEEK 11
TOPICS	TRIGONOMETRY (2D)		STATISTICS			PROBABILITY			FINANCE AND GROWTH		
	1. Solve two-dimensional problems involving right- angled triangle 2. Problems in two dimensional		1. Measures of central tendency in ungrouped data. Calculate the mean. Determine the median and the mode 2. Measures of central tendency in grouped data: Calculation of mean estimate of grouped data and identification of modal interval and interval in which the median lies 3. Range as a measure of dispersion and extension to include percentiles, quartiles, inter-quartile and semi-inter-quartile range 4. Five number summary (maximum, minimum and quartiles) and box and whisker diagram 5. Use the statistical summaries (measures of central tendency and dispersion), and graphs to analyse and make meaningful comments on the context associated with the given data 6. Histogram			1. The use of probability models to compare the relative frequency of events with the theoretical probability 2. The use of Venn diagrams to solve probability problems, deriving and applying the following for any two events in a sample space S: <ul style="list-style-type: none"> • $P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$ • A and B are mutually exclusive if $P(A \text{ and } B) = 0$, • A and B are complementary if they are, <ul style="list-style-type: none"> ➤ mutually exclusive and $P(A) + P(B) = 1$ Then $P(B) = P(\text{not } A) = 1 - P(A)$ 			1. Use the simple and compound growth formulae [$A = P(1 + in)$ and $A = P(1 + i)^n$] to solve problems, including interest, hire purchase, inflation, population growth and other real-life problems Understand the implication of fluctuating foreign exchange rates (e.g., on the petrol price, imports, exports, overseas travel)		
DATE COMPLETED											
SBA	Test					Test					

2023/24 ANNUAL TEACHING PLANS: MATHEMATICS: GRADE 10 (TERM 4)

TERM 4	WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6	WEEK 7	WEEK 8	WEEK 9	WEEK 10	EXAM	
TOPICS	MEASUREMENT		NUMBER PATTERNS	REVISE ALGEBRA	REVISE TRIGONOMETRY & GEOMETRY	REVISE FUNCTIONS	EXAMINATION			ADMIN	PAPER 1	
	1. Revise the volume and surface areas of right-prisms and cylinders 2. Study the effect on volume and surface area when multiplying any dimension by a constant factor k 3. Calculate the volume and surface areas of spheres, right pyramids, right cones and combination of those objects (figures)		Patterns: Investigate number patterns leading to those where there is a constant difference between consecutive terms, and the general term (without using a formula – see content overview) is therefore linear								Algebra	30
											Number patterns	15
											Finance, growth	10
											Functions and graphs	30
											Probability	15
DATE COMPLETED											PAPER 2	
											Statistics	15
SBA	TEST										Analytical Geometry	15
TOTAL NUMBER OF SBA TASKS 7											Trigonometry	40
TERM 1 INVESTIGATION/PROJECT (15%) AND TEST (14%)											Euclidean Geometry & Measurement	30
TERM 2 ASSIGNMENT (15%) AND MID-YEAR EXAM (14%)												
TERM 3 TEST (14%) AND TEST (14%)												
TERM 4 TEST (14%)												