

# SUGGESTED PLANNING OF TEACHING and ASSESSMENT

# Grade 11 Mathematics 2022

TERM 1 47 days % completed	Week 1(3) W: 1,4 %	Week 2 W: 4,8 %	Week 3 W: 8,2 %	Week 4 W: 11,6 %	Week 5 W: 15,0%	Week 6 W:19,2%	Week 7 W: 23,3%	Week 8 W:27,5%	Week 9 W:29,2%	Week 10 (4) W: 30,5 %	
<b>CAPS Topic</b>	<b>EXPONENTS AND SURDS</b> CAPS pg. 10, 13 & 30		<b>EQUATIONS AND INEQUALITIES</b> CAPS pg. 10, 13 & 30			<b>EUCLIDEAN GEOMETRY</b> CAPS pg. 10, 14 & 34			<b>TRIGONOMETRY (REDUCTION FORMULAE, EQUATIONS )</b> CAPS pg. 10, 15, 33 & 37		
<b>Topic, concepts, skills and values</b>	1. Simplify expressions and solve equations using laws for rational exponents $x^{\frac{p}{q}} = \sqrt[q]{x^p}$ ; $x > 0 ; q > 0$	2. Add, subtract, multiply and divide simple surds. 3. Solve simple equations involving surds.	Complete the square Solve Quadratic equations by factorization Solving Quadratic equations using the formulae	Solve Quadratic inequalities in one unknown (Interpret solutions graphically.) Equations in two unknowns, one of which is linear and the other quadratic. NB: It is recommended that the solving of equations in two unknowns is important to be used in other equations like hyperbola-straight line as this is normal in the case of graphs	Equations in two unknowns, one of which is linear and the other quadratic Nature of roots	Explore the various Gr 11 Circle Geometry theorems investigative. Formalise the theorems.	Apply the various theorems to geometry sketches where numerical angles are given.  Apply the various theorems to geometry sketches where angles are given in terms of variables.	Proofs to Geometry Theorems.  Integrated application of Geometry Theorems.	1. Derive and use the identities: $\tan \theta = \frac{\sin \theta}{\cos \theta}$ $\theta \neq k \cdot 90^\circ, k$ an odd integer; and $\sin^2 \theta + \cos^2 \theta = 1$ .  2. Derive and use reduction formulae to simplify the following expressions: 2.1. $\sin(90^\circ \pm \theta)$ ; $\cos(90^\circ \pm \theta)$ ; 2.2. $\sin(180^\circ \pm \theta)$ ; $\cos(180^\circ \pm \theta)$ and $\tan(180^\circ \pm \theta)$ ; 2.3. $\sin(360^\circ \pm \theta)$ ; $\cos(360^\circ \pm \theta)$ and $\tan(360^\circ \pm \theta)$ ; 2.4. $\sin(-\theta)$ ; $\cos(-\theta)$ and $\tan(-\theta)$ ;  3. Determine for which values of a variable an identity holds.		
<b>Date Completed</b>											
<b>Requisite pre-knowledge</b>	Exponential laws, BODMAS Writing a number in exponential form, Factorization	Product of binomials Factorization Solving quadratic equations	Products of binomials Factorization quadratic	Products Factorization Substitution BODMAS	Solving linear and quadratic equations. Substitution Number systems	Grade 8 – 10 geometry	Grade 8 – 10 geometry	Grade 8 – 10 geometry	Adjacent, opposite and hypotenuse side of right $\Delta$ . Trig ratios, ASTC rule, Co-functions. Solving a trig. equation in interval $[0^\circ; 360^\circ]$ . Understand the solution graphically		
<b>Siyavula</b>											
<b>Resources to enhance learning</b>	<a href="https://schools.sun.ac.za/">https://schools.sun.ac.za/</a> ; <a href="https://www.mathpapa.com/algebra-calculator.html">https://www.mathpapa.com/algebra-calculator.html</a> ; <a href="https://www.tutonic.org">https://www.tutonic.org</a> ; <a href="https://vodacom.mytopdog.co.za/users/login">https://vodacom.mytopdog.co.za/users/login</a> ; <a href="https://www.khanacademy.org/">https://www.khanacademy.org/</a> ; <a href="https://papervideo.co.za/">https://papervideo.co.za/</a> ; HeyMath App from Playstore ; Casio Calculator App from Playstore; <a href="https://www.geogebra.org/?lang=en">https://www.geogebra.org/?lang=en</a> ; <a href="https://www.padowan.dk/download/">https://www.padowan.dk/download/</a> ; <a href="https://www.desmos.com/">https://www.desmos.com/</a> ; <a href="https://nrich.maths.org/">https://nrich.maths.org/</a> ; National Exemplars ; National Examination Papers ( <a href="http://bit.ly/GR11-MATHS-PAPERS">http://bit.ly/GR11-MATHS-PAPERS</a> ) ; <a href="http://wcedportal.co.za/">http://wcedportal.co.za/</a> ; <a href="https://www.siyavula.com/">https://www.siyavula.com/</a> ;										
<b>Informal assessment</b>	Google form; Cumulative Assignment; Class Activity; Short class test; Class Discussions; Presentation of solutions; Vodacom revision exercises; Khan Academy Revision										
<b>SBA (Formal Ass)</b>	Investigation:							Control Test			

TERM 2 (53) % completed	Week 1 (4) W:31,9 %	Week 2 (4) W: 33,2 %	Week 3 (4) W: 36,5%	Week 4 (4) W:39,9 %	Week 5 (4) W: 43,2%	Week 6 W: 47,4%	Week 7 W: 51,6%	Week 8 W:55,4 %	Week 9 W: 59,1%	Week 10 W:62,9%	Week 11 (3) W:65.2%	Week 12 W:68,9%
<b>CAPS Topic</b>	<b>TRIG – EQUATIONS CAPS</b> pg. 10, 15, 33 & 37		<b>ANALYTICAL GEOMETRY</b> CAPS pg. 10, 15 & 31			<b>NUMBER PATTERNS</b> CAPS pg. 10, 12 & 30		<b>FUNCTIONS:</b> CAPS pg. 10, 12 & 32				
<b>Topic, concepts, skills and values</b>	Derive and use reduction formulae to simplify the following expressions: 2.1. $\sin(90^\circ \pm \theta)$ ; $\cos(90^\circ \pm \theta)$ ; 2.2. $\sin(180^\circ \pm \theta)$ ; $\cos(180^\circ \pm \theta)$ and $\tan(180^\circ \pm \theta)$ ; 2.3. $\sin(360^\circ \pm \theta)$ ; $\cos(360^\circ \pm \theta)$ and $\tan(360^\circ \pm \theta)$ ; 2.4. $\sin(-\theta)$ ; $\cos(-\theta)$ and $\tan(-\theta)$ ;  3. Determine for which values of a variable an identity holds.  Determine the general solutions of trigonometric equations.  Also, determine solutions in specific intervals  Consolidation of content on Trigonometry. Examination Type questions. Learners must focus on reading with understanding and time management.	Revise 1. distance between the two points; 2. gradient of the line segment connecting the two points (and from that identify parallel and perpendicular lines); and 3. Coordinates of the mid-point of the line segment joining the two points.  <b>Derive and apply:</b> 1. the equation of a line through two given points;	<b>Derive and apply:</b> 2. the equation of a line through one point and parallel or perpendicular to a given line; and 3. The inclination ( $\theta$ ) of a line, where $m = \tan \theta$ is the gradient of the line $(0^\circ \leq \theta \leq 180^\circ)$	Consolidation of content on Analytical Geometry. Examination Type questions. Learners must focus on reading with understanding and time management.	Revise: Linear Patterns  Quadratic Patterns General term	Quadratic Patterns General term  Consolidation of content on Patterns. Examination Type questions. Learners must focus on reading with understanding and time management.	Revise the effect of parameters $a$ and $q$ : The effect of parameters $p$ : $f(x) = a(x+p)^2 + q$ Rewrite parabola into standard form, $x$ -intercept form. Sketch parabola, find equation of parabola. Domain & Range. Analyse & interpret parabola	Revise the effect of parameters $a$ and $q$ : The effect of parameters $p$ $f(x) = \frac{a}{x+p} + q$ & $f(x) = a \cdot b^{x+p} + q$ Sketch the functions, find equation of functions. Domain & Range. Analyse & interpret the functions	Examination questions integrating the functions below: $f(x) = a(x+p)^2 + q$ $f(x) = \frac{a}{x+p} + q$ $f(x) = a \cdot b^{x+p} + q$	<b>FUNCTIONS:</b> The effect of parameters $a$ ; $p$ and $k$ on $y = a \sin k(x+p)$ $y = a \cos k(x+p)$ $y = a \tan k(x+p)$  The focus of trigonometric graphs is on the relationships, simplification and determining points of intersection by solving equations, although characteristics of the graphs should not be excluded.		
<b>Date Completed</b>												
<b>Requisite pre-knowledge</b>	Adjacent, opposite and hypotenuse side of right $\Delta$ . Trig ratios, ASTC rule, Co-functions. Solving a trig. equation in interval $[0^\circ; 360^\circ]$ . Understand the solution graphically	Gradient formula, standard form of a line. Gradients of // lines AND $\perp$ lines. Properties of quadrilaterals.	Solving a trigonometric equation.			Determine terms and the $n$ 'th term of a pattern with a common difference.	Solving two linear equations simultaneously.	Functional Notation. Shape of parabola. Impact of "a and q". What is an Axis of symmetry.	Functional Notation Shape of the given functions. Impact of "a and q". What is an Asymptote.	Impact of different parameters. Domain & Range. How to sketch any of the graphs.	Functional Notation Shape of Sine, Cos & tan. Impact of "a" and "q" Asymptote for tan graph.	
<b>Siyavula</b>												
<b>Resources to enhance learning</b>	<a href="https://www.mathpapa.com/algebra-calculator.html">https://www.mathpapa.com/algebra-calculator.html</a> ; <a href="https://www.tutonic.org">https://www.tutonic.org</a> ; <a href="https://vodacom.mytopdog.co.za/users/login">https://vodacom.mytopdog.co.za/users/login</a> ; <a href="https://www.khanacademy.org/">https://www.khanacademy.org/</a> ; <a href="https://papervideo.co.za/">https://papervideo.co.za/</a> ; HeyMath App from Playstore ; Casio Calculator App from Playstore; <a href="https://www.geogebra.org/?lang=en">https://www.geogebra.org/?lang=en</a> ; <a href="https://www.padowan.dk/download/">https://www.padowan.dk/download/</a> ; <a href="https://www.desmos.com/">https://www.desmos.com/</a> ; <a href="https://nrich.maths.org/">https://nrich.maths.org/</a> ; National Exemplars ; National Examination Papers ( <a href="http://bit.ly/GR11-MATHS-PAPERS">http://bit.ly/GR11-MATHS-PAPERS</a> ) ; <a href="http://wcedportal.co.za/">http://wcedportal.co.za/</a> ; <a href="https://www.siyavula.com/">https://www.siyavula.com/</a> ; <a href="https://schools.sun.ac.za/">https://schools.sun.ac.za/</a>											
<b>Informal assessment</b>	Google form; Cumulative Assignment; Class Activity; Short class test; Class Discussions; Presentation of solutions; Vodacom revision exercises; Khan Academy Revision											
<b>SBA (Formal Ass)</b>	Assignment						Control Test					

# SUGGESTED PLANNING of TEACHING and ASSESSMENT

# Grade 11 Mathematics 2022

TERM 3 52 days % completed	Week 1 (4) W: 70,9%	Week 2 W: 73,5%	Week 3 W: 76,0%	Week 4 (3) W: 77,5%	Week 5 W: 79,6%	Week 6 W: 81,7%	Week 7 W: 83,9 %	Week 8 W: 86,2%	Week 9 W: 88,4%	Week 10 W: 90,8%	11: Week 11 W: 93,2%
CAPS Topic	TRIGONOMETRY CAPS pg. 10, 15, 33 & 37							STATISTICS CAPS pg. 10, 15 & 39		PROBABILITY CAPS pg. 10, 14 & 38	
Topic, concepts, skills and values	TRIGONOMETRY (Area & Sine rules) Prove and apply rules	TRIGONOMETRY (sine & cosine) Prove and apply rules  TRIGONOMETRY Solve problems in two dimensions applying sine, cosine & area rules				MEASUREMENT <ul style="list-style-type: none"> <li>Revise the volume and surface areas of right-prisms and cylinders.</li> <li>Study the effect on volume and surface areas when multiplying any dimension by a constant factor k.</li> <li>Calculate volume and surface areas of spheres, right prisms, right cones and combination of those objects (figures).</li> </ul>	1. Revise measures of central tendency in ungrouped data. 2. Measures of central tendency in grouped data: calculation of mean estimate of grouped and ungrouped data and identification of modal interval and interval in which the median lies. 3. Revision of 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. Histograms 7. Frequency polygons 8. Ogives (cumulative frequency curves) 9. Variance and standard deviation of ungrouped data 10. Symmetric and skewed data 11. Identification of outliers.			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: $P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$ ;  A and B are Mutually exclusive if, $P(A \text{ and } B) = 0$ ; A and B are complementary if they are mutually exclusive; and $P(A) + P(B) = 1$ ; then $P(B) = P(\text{not}(A)) = 1 - P(A)$ 3. Revise the addition rule for mutually exclusive events: $P(A \text{ or } B) = P(A) + P(B)$ The complementary rule: $P(\text{not } A) = 1 - P(A)$ and the identity $P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$ 4. Identify dependents and independents events and the product rule for independent events: $P(A \text{ and } B) = P(A) \times P(B)$ The use of Venn diagrams to solve probability problems, deriving and applying formulae for any three events A, B and C in a sample space S.	
Date Completed											
Requisite pre-knowledge	Simplifying an algebraic fraction. Using a scientific calculator to determine unknown side/ angle. Pythagoras	BODMAS. Simplifying an algebraic fraction. Using a scientific calculator to determine unknown side/ angle. Area of right angled $\Delta$ .  Sine, cosine and area rules.			Volume and surface area of right angles, right prisms, cylinders, spheres, pyramids and cones		Five Number summary.	Five Number summary.	Five Number summary.	What is probability. Probability Notation	What is probability. Probability Notation
Siyavula											
Resources to enhance learning	<a href="https://www.mathpapa.com/algebra-calculator.html">https://www.mathpapa.com/algebra-calculator.html</a> ; <a href="https://www.tutonic.org">https://www.tutonic.org</a> ; <a href="https://vodacom.mytopdog.co.za/users/login">https://vodacom.mytopdog.co.za/users/login</a> ; <a href="https://www.khanacademy.org/">https://www.khanacademy.org/</a> ; <a href="https://papervideo.co.za/">https://papervideo.co.za/</a> ; HeyMath App from Playstore; Casio Calculator App from Playstore; <a href="https://www.geogebra.org/?lang=en">https://www.geogebra.org/?lang=en</a> ; <a href="https://www.padowan.dk/download/">https://www.padowan.dk/download/</a> ; <a href="https://www.desmos.com/">https://www.desmos.com/</a> ; <a href="https://nrich.maths.org/">https://nrich.maths.org/</a> ; National Exemplars; National Examination Papers ( <a href="http://bit.ly/GR11-MATHS-PAPERS">http://bit.ly/GR11-MATHS-PAPERS</a> ); <a href="http://weedeportal.co.za/">http://weedeportal.co.za/</a> ; <a href="https://www.siyavula.com/">https://www.siyavula.com/</a> ; <a href="https://schools.sun.ac.za/">https://schools.sun.ac.za/</a>										
Informal assessment	Google form; Cumulative Assignment; Class Activity; Short class test; Class Discussions; Presentation of solutions; Vodacom revision exercises; Khan Academy Revision										
SBA (Formal Ass)	Control Test:						Control Test:				

TERM 4 47 days % completed	Week 1 (4) W:95,1%	Week 2. W:96,7%	Week 3. W:98,3%	Week 4 W: 100%	Week 5						
CAPS Topic	PROBABILITY	FINANCE, GROWTH AND DECAY CAPS pg. 10, 12 & 37			Revision						
Topic, concepts, skills and values	Use tree diagrams for the probability of consecutive or simultaneous events which are not necessarily independent	FINANCE, GROWTH and DECAY Simple and compound growth and decay	The effect of different periods on compound growth and decay	The effect of different periods on compound growth and decay Nominal and effective rate	Examination Techniques Mixed Revision Paper 1 & 2	Paper 1: 3 hours		Paper 2: 3 hours			
Date Completed						Algebraic expressions and equations (and inequalities)	45	Euclidean Geometry and measurement	50		
Requisite pre-knowledge	What is probability. Probability Notation	Simple and compound growth	Simple and compound growth	Simple and compound growth		Number patterns	25	Analytical Geometry	30		
Siyavula						Functions and graphs	45	Trigonometry	50		
Resources to enhance learning	Google form; Cumulative Assignment; Class Activity; Short class test; Class Discussions; Presentation of solutions; Vodacom revision exercises; Khan Academy Revision										
Informal assessment	Khan Academy Revision										
SBA (Formal Assessment)				Control Test							
SBA Weighting	TOTAL NUMBER OF SBA TASKS 7										
	Term 1 Investigation / Project (15%) and Test (14%)										
	Term 2 Assignment (15%) and Test (14%)										
	Term 3 Test (14%) and Test (14%)										
	Term 4 Test (14%)										
						Finance, growth and decay	15	Statistics	20		
						Probability	20				
						<b>TOTAL MARK</b>	<b>150</b>	<b>TOTAL MARK</b>	<b>150</b>		