



PROVINCE OF THE
EASTERN CAPE
EDUCATION

DIRECTORATE:
CURRICULUM FET PROGRAMMES
LESSON PLANS
TERM 4
MATHEMATICS
GRADE 11

FOREWORD

The following Grade 10, 11 and 12 Lesson Plans were developed by Subject Advisors during May 2009. Teachers are requested to look at them, modify them where necessary to suit their contexts and resources. It must be remembered that Lesson Plans are working documents, and any comments to improve the lesson plans in this document will be appreciated. Teachers are urged to use this document with the following departmental policy documents: Subject Statement; LPG 2008; SAG 2008; Examination Guidelines 2009 and Provincial CASS Policy / Guidelines.

Lesson planning is the duty of each and every individual teacher but it helps when teachers sometimes plan together as a group. This interaction not only helps teachers to understand how to apply the Learning Outcomes (LOs) and Assessment Standards (ASs) but also builds up the confidence of the teachers in handling the content using new teaching strategies.

It must please be noted that in order to help teachers who teach across grades and subjects, an attempt has been made to **standardise lesson plan templates** and thus the new template might not resemble the templates used in each subject during the NCS training. However, all the essential elements of a lesson plan have been retained. This change has been made to assist teachers and lighten their administrative load.

Please note that these lesson plans are to be used only as a guide to complete the requirements of the Curriculum Statements and the work schedules and teachers are encouraged to develop their own learner activities to supplement and /or substitute some of the activities given here (depending on the school environment, number and type of learners in your class, the resources available to your learners, etc).

Do not forget to build in the tasks for the Programme of Assessment into your Lesson Plans.

Strengthen your efforts by supporting each other in clusters and share ideas. Good Luck with your endeavours to improve Teaching, Learning and Assessment.

SUBJECT: MATHEMATICS

GRADE 11

LESSON PLAN 1

TIME : 4½ HOURS

Context: Building and Construction , Mathematical

Link with previous lesson: General solution of trigonometric equations.

KNOWLEDGE (K): Area rule . **SKILLS (S):** Problem solving, Application, Calculation using technology. **VALUES (V):** Appreciation, sharing.

Learning Outcome 1: Number and Number Relationships <i>When solving problems, the learner is able to recognise, describe, represent and work confidently with numbers and their relationships to estimate, calculate and check solutions.</i>		Learning Outcome 2: Functions and Algebra <i>The learner is able to investigate, analyse, describe and represent a wide range of functions and solve related problems.</i>		Learning Outcome 3: Space, Shape and Measurement <i>The learner is able to describe, represent, analyse and explain properties of shapes in 2-dimensional and 3-dimensional space with justification.</i>		Learning Outcome 4: Data Handling and Probability <i>The learner is able to collect, organise, analyse and interpret data to establish statistical and probability models to solve related problems.</i>	
11.1.1 Understand that not all numbers are real.		11.2.1 (a) Demonstrate the ability to work with various types of functions (b) Recognise relationships between variables in terms of numerical, graphical, verbal and symbolic representations and convert flexibly between these representations		11.3.1 Use the formulae for surface area and volume of right pyramids, right cones, spheres and combinations of these geometric objects.		11.4.1 Calculate and represent measures of central tendency and dispersion	
11.1.2 (a) Simplify expressions using the laws of exponents for rational exponents.(b) Add, subtract, multiply and divide simple surds (c) Demonstrate an understanding of error margins.		11.2.2 Generate as many graphs as necessary, initially by means of point-by-point plotting, supported by available technology, to make and test conjectures about the effect of the parameters k , p , a and q for functions including		11.3.3 Use a Cartesian co-ordinate system to derive and apply:		Represent bivariate numerical data as a scatter plot and suggest intuitively whether a linear, quadratic or exponential function would best fit the data (problems should include issues related to health	
11.1.3 Investigate number patterns (including but not limited to those where there is a constant second difference between consecutive terms in a number pattern, and the general term is therefore quadratic and hence: (a) make conjectures and generalisations b) provide explanations and justifications and attempt to prove conjectures.		11.2.3 Identify characteristics as listed below and hence use applicable characteristics to sketch graphs of functions		11.3.4 Investigate, generalise and apply the effect on the co-ordinates			
11.1.4 Use simple and compound decay formulae to solve problems (including straight line depreciation and depreciation on		11.2.4 Manipulate algebraic expressions: (a) by completing the square; (b)		11.3.5 Derive and use the values of the trigonometric functions			

a reducing balance) (<i>link to Learning Outcome 2</i>).		simplifying algebraic fractions with binomial denominators				
11.1.5 Demonstrate an understanding of different periods of compounding growth and decay		11.2.5 Solve: a) quadratic equations (b) equations in two unknowns		11.3.6 Solve problems in two dimensions by using the sine, cosine and area rule and by contracting and interpreting geometric and trigonometric models.	√	
11.1.6 Solve non-routine, unseen problems.		11.2.6 Use mathematical models to investigate problems that arise in real-life contexts:				
		11.2.7 Investigate numerically the average gradient				
		11.2.8 Solve linear programming problems				

TEACHING ACTIVITIES	LEARNERS ACTIVITIES	RESOURCES	ASSESSMENT	DATE COMPLETED
<p>Activity 1</p> <p>Teacher designs a worksheet to revise trigonometric rules and the application covered in grade 10.</p> <p>Teacher to clarify area rule against $\frac{1}{2}$ base x height.</p> <p>Area Rule:</p> <p>Area = $\frac{1}{2}$ a b sin C</p> <p>= $\frac{1}{2}$ b c sin A</p>	<p>Learners use worksheet and workout exercises given.</p> <p>Learners also solve problems from various other sources to show their understanding of the Area Rule.</p>	Textbook, Calculators and Worksheets. Exemplar papers	<p>Method: Class works</p> <p>Tool: memo, observation list</p> <p>Form: Teacher, Peer and Self</p>	

$=\frac{1}{2} a c \sin B$ Teacher prepare worksheet on application of area rule.				
Activity 2 Interpretation of 2D diagrams Teacher designs different types of diagrams with known and unknown values.	Learners use the given information to find unknown values.	Colored Pencils, Calculators, Worksheets	. Method: Class works Tool: memo, observation list Form: Teacher, Peer and Self	
Homework: Exercises taken from various sources like Textbooks, Worksheets, and Study guides.				
Enrichment/Expanded Opportunities: Additional activities from Exemplar Question Papers.				
Teacher Reflections:				

SIGNATURES:

TEACHER

DATE

HOD / SMT

DATE

SUBJECT: MATHEMATICS**GRADE 11****LESSON PLAN 2****TIME : 4½ HOURS**

Context: Building and Construction and Mathematical

Link with previous lesson: General solution of trigonometric equations and Area Rule.

KNOWLEDGE (K): Sine Rule. SKILLS (S) :Problem solving, Application, Calculation using technology, Communication

VALUES (V): Appreciation, sharing

Learning Outcome 1: Number and Number Relationships <i>When solving problems, the learner is able to recognise, describe, represent and work confidently with numbers and their relationships to estimate, calculate and check solutions.</i>		Learning Outcome 2: Functions and Algebra <i>The learner is able to investigate, analyse, describe and represent a wide range of functions and solve related problems.</i>		Learning Outcome 3: Space, Shape and Measurement <i>The learner is able to describe, represent, analyse and explain properties of shapes in 2-dimensional and 3-dimensional space with justification.</i>		Learning Outcome 4: Data Handling and Probability <i>The learner is able to collect, organise, analyse and interpret data to establish statistical and probability models to solve related problems.</i>	
11.1.1 Understand that not all numbers are real.		11.2.1 (a) Demonstrate the ability to work with various types of functions (b) Recognise relationships between variables in terms of numerical, graphical, verbal and symbolic representations and convert flexibly between these representations		11.3.1 Use the formulae for surface area and volume of right pyramids, right cones, spheres and combinations of these geometric objects.		11.4.1 Calculate and represent measures of central tendency and dispersion	
11.1.2 (a) Simplify expressions using the laws of exponents for rational exponents.(b) Add, subtract, multiply and divide simple surds (c) Demonstrate an understanding of error margins.		11.2.2 Generate as many graphs as necessary, initially by means of point-by-point plotting, supported by available technology, to make and test conjectures about the effect of the parameters k , p , a and q for functions including		11.3.3 Use a Cartesian co-ordinate system to derive and apply:		Represent bivariate numerical data as a scatter plot and suggest intuitively whether a linear, quadratic or exponential function would best fit the data (problems should include issues related to health	
11.1.3 Investigate number patterns (including but not limited to those where there is a constant second difference between consecutive terms in a number pattern, and the general term is therefore quadratic and hence: (a) make conjectures and generalisations b) provide explanations and justifications and attempt to prove conjectures.		11.2.3 Identify characteristics as listed below and hence use applicable characteristics to sketch graphs of functions		11.3.4 Investigate, generalise and apply the effect on the co-ordinates			
11.1.4 Use simple and compound decay formulae to solve problems (including		11.2.4 Manipulate algebraic expressions:		11.3.5 Derive and use the values of the trigonometric functions			

straight line depreciation and depreciation on a reducing balance) (<i>link to Learning Outcome 2</i>).		(a) by completing the square; (b) simplifying algebraic fractions with binomial denominators				
11.1.5 Demonstrate an understanding of different periods of compounding growth and decay		11.2.5 Solve: a) quadratic equations (b) equations in two unknowns		11.3.6 Solve problems in two dimensions by using the sine, cosine and area rule and by contracting and interpreting geometric and trigonometric models.	√	
11.1.6 Solve non-routine, unseen problems.		11.2.6 Use mathematical models to investigate problems that arise in real-life contexts:				
		11.2.7 Investigate numerically the average gradient				
		11.2.8 Solve linear programming problems				

TEACHING ACTIVITIES	LEARNERS ACTIVITIES	RESOURCES	ASSESSMENT	DATE COMPLETED
<p>Activity 1</p> <p>Teacher explains the Sine Rule</p> <p>Teacher designs a worksheet for learners, the exercise will involve questions in 2D</p> <p>Teachers will constantly monitor learner's progress</p>	<p>Learners will work out the worksheet individually or in groups.</p> <p>Learners will do additional exercises from exemplars to sharpen their problem solving skills.</p>	<p>Textbook, Calculators and Worksheets .Exemplar papers.</p>	<p>Method: Class works</p> <p>Tool: memo, observation list</p> <p>Form: Teacher, Peer and Self</p>	
Homework: Exercises given from selected textbooks and various resource material				
Enrichment/Expanded Opportunities: Home works and Tutorials				
Teacher Reflections:				

SIGNATURES:

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SUBJECT: MATHEMATICS

GRADE 11

LESSON PLAN 3

TIME : 4½ HOURS

Context: Building and Construction, Mathematical

Link with previous lesson: General solution of trigonometric equations and Area Rule KNOWLEDGE (K): Cosine Rule

SKILLS (S): Problem Solving, Application, Calculate using technology, Communication

VALUES (V): Appreciation, sharing

Learning Outcome 1: Number and Number Relationships <i>When solving problems, the learner is able to recognise, describe, represent and work confidently with numbers and their relationships to estimate, calculate and check solutions.</i>		Learning Outcome 2: Functions and Algebra <i>The learner is able to investigate, analyse, describe and represent a wide range of functions and solve related problems.</i>		Learning Outcome 3: Space, Shape and Measurement <i>The learner is able to describe, represent, analyse and explain properties of shapes in 2-dimensional and 3-dimensional space with justification.</i>		Learning Outcome 4: Data Handling and Probability <i>The learner is able to collect, organise, analyse and interpret data to establish statistical and probability models to solve related problems.</i>	
11.1.1 Understand that not all numbers are real.		11.2.1 (a) Demonstrate the ability to work with various types of functions (b) Recognise relationships between variables in terms of numerical, graphical, verbal and symbolic representations and convert flexibly between these representations		11.3.1 Use the formulae for surface area and volume of right pyramids, right cones, spheres and combinations of these geometric objects.		11.4.1 Calculate and represent measures of central tendency and dispersion	
11.1.2 (a) Simplify expressions using the laws of exponents for rational exponents.(b) Add, subtract, multiply and divide simple surds (c) Demonstrate an understanding of error margins.		11.2.2 Generate as many graphs as necessary, initially by means of point-by-point plotting, supported by available technology, to make and test conjectures about the effect of the parameters k , p , a and q for functions including		11.3.3 Use a Cartesian co-ordinate system to derive and apply:		Represent bivariate numerical data as a scatter plot and suggest intuitively whether a linear, quadratic or exponential function would best fit the data (problems should include issues related to health	
11.1.3 Investigate number patterns (including but not limited to those where there is a constant second difference between consecutive terms in a number pattern, and the general term is therefore quadratic and hence: (a) make conjectures and generalisations b) provide explanations and justifications and attempt to prove conjectures.		11.2.3 Identify characteristics as listed below and hence use applicable characteristics to sketch graphs of functions		11.3.4 Investigate, generalise and apply the effect on the co-ordinates			
11.1.4 Use simple and compound decay formulae to solve problems (including straight line depreciation and depreciation on a reducing balance) (<i>link to Learning Outcome 2</i>).		11.2.4 Manipulate algebraic expressions: (a) by completing the square; (b) simplifying algebraic fractions with binomial denominators		11.3.5 Derive and use the values of the trigonometric functions			
11.1.5 Demonstrate an understanding of different periods of compounding growth and decay		11.2.5 Solve: a) quadratic equations (b) equations in two unknowns		11.3.6 Solve problems in two dimensions by using the sine, cosine and area rule and by contracting and interpreting geometric and trigonometric models.			

					√		
11.1.6 Solve non-routine, unseen problems.		11.2.6 Use mathematical models to investigate problems that arise in real-life contexts:					
		11.2.7 Investigate numerically the average gradient					
		11.2.8 Solve linear programming problems					

TEACHING ACTIVITIES	LEARNERS ACTIVITIES	RESOURCES	ASSESSMENT	DATE COMPLETED
<p>Activity 1: Cosine Rule:</p> <p>Teacher explains the Cosine Rule:</p> $a^2 = b^2 + c^2 - 2bc \cos A$ $b^2 = a^2 + c^2 - 2ac \cos B$ $c^2 = a^2 + b^2 - 2ab \cos C$ <p>Teacher designs a worksheet for learners, the exercise will involve questions in 2D</p> <p>Teachers will constantly monitor learner's progress.</p>	<p>Learners will work out the worksheet individually and in groups.</p> <p>Learners will do additional exercises from exemplars to sharpen their problem solving skills</p>	<p>Textbook, Calculators and Worksheets</p>	<p>Method: Class works</p> <p>Tool: memo, observation list</p> <p>Form: Teacher, Peer and Self</p>	

Homework: Exercises given from selected textbooks and various resource material
Enrichment/Expanded Opportunities: More challenging exercises
Teacher Reflections:

SIGNATURES:

TEACHER

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DATE

SUBJECT: MATHEMATICS**GRADE 11****LESSON PLAN 4****TIME : 4½ HOURS**

Context: Building and Construction

Link with previous lesson: General solution of trigonometric equations, Area Rule, Sine Rule and Cosine Rule

KNOWLEDGE (K): Application of the Area Rule, Sine Rule and Cosine Rule.

SKILLS (S): Problem Solving, Calculations using technology, Communication

VALUES (V): Appreciation, Sharing, Self Management.

Learning Outcome 1: Number and Number Relationships <i>When solving problems, the learner is able to recognise, describe, represent and work confidently with numbers and their relationships to estimate, calculate and check solutions.</i>		Learning Outcome 2: Functions and Algebra <i>The learner is able to investigate, analyse, describe and represent a wide range of functions and solve related problems.</i>		Learning Outcome 3: Space, Shape and Measurement <i>The learner is able to describe, represent, analyse and explain properties of shapes in 2-dimensional and 3-dimensional space with justification.</i>		Learning Outcome 4: Data Handling and Probability <i>The learner is able to collect, organise, analyse and interpret data to establish statistical and probability models to solve related problems.</i>	
11.1.1 Understand that not all numbers are real.		11.2.1 (a) Demonstrate the ability to work with various types of functions (b) Recognise relationships between variables in terms of numerical, graphical, verbal and symbolic representations and convert flexibly between these representations		11.3.1 Use the formulae for surface area and volume of right pyramids, right cones, spheres and combinations of these geometric objects.		11.4.1 Calculate and represent measures of central tendency and dispersion	
11.1.2 (a) Simplify expressions using the laws of exponents for rational exponents. (b) Add, subtract, multiply and divide simple surds (c) Demonstrate an understanding of error margins.		11.2.2 Generate as many graphs as necessary, initially by means of point-by-point plotting, supported by available technology, to make and test conjectures about the effect of the parameters k , p , a and q for functions including		11.3.3 Use a Cartesian co-ordinate system to derive and apply:		Represent bivariate numerical data as a scatter plot and suggest intuitively whether a linear, quadratic or exponential function would best fit the data (problems should include issues related to health)	
11.1.3 Investigate number patterns (including but not limited to those where there is a constant second difference between consecutive terms in a number pattern, and the general term is therefore quadratic and hence: (a) make conjectures and generalisations b) provide explanations and justifications and attempt to prove conjectures.		11.2.3 Identify characteristics as listed below and hence use applicable characteristics to sketch graphs of functions		11.3.4 Investigate, generalise and apply the effect on the co-ordinates			

11.1.4 Use simple and compound decay formulae to solve problems (including straight line depreciation and depreciation on a reducing balance) (<i>link to Learning Outcome 2</i>).		11.2.4 Manipulate algebraic expressions: (a) by completing the square; (b) simplifying algebraic fractions with binomial denominators		11.3.5 Derive and use the values of the trigonometric functions			
11.1.5 Demonstrate an understanding of different periods of compounding growth and decay		11.2.5 Solve: a) quadratic equations (b) equations in two unknowns		11.3.6 11.3.6 Solve problems in two dimensions by using the sine, cosine and area rule and by contracting and interpreting geometric and trigonometric models .			
11.1.6 Solve non-routine, unseen problems.		11.2.6 Use mathematical models to investigate problems that arise in real-life contexts:					
		11.2.7 Investigate numerically the average gradient					
		11.2.8 Solve linear programming problems					

TEACHING ACTIVITIES	LEARNERS ACTIVITIES	RESOURCES	ASSESSMENT	DATE COMPLETED
<p>Activity 1</p> <p>Application of area, sine and cosine rules.</p> <p>Teacher summarizes the above rules and shows how they can be interlinked.</p> <p>Teacher designs a worksheet for learners, the exercise will involve questions in 2D.</p> <p>Teachers will constantly monitor</p>	<p>Learners complete the worksheet individually and in groups.</p> <p>Learners will do additional exercises from exemplars to sharpen their problem solving skills</p>	<p>Textbook, Calculators and Worksheets</p>	<p>Method: Class works , short test, tutorials</p> <p>Tool: memo, observation list</p> <p>Form: Teacher, Peer and Self</p>	

learner's progress.				
Homework: Exercises given from selected textbooks and various resource material				
Enrichment/Expanded Opportunities: Home works, Tutorial				
Teacher Reflections:				

SIGNATURES:

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REVISION FOR FINAL EXAMINATION (PAPER 1)

Learning Outcome 1: Number and Number Relationships <i>When solving problems, the learner is able to recognise, describe, represent and work confidently with numbers and their relationships to estimate, calculate and check solutions.</i>		Learning Outcome 2: Functions and Algebra <i>The learner is able to investigate, analyse, describe and represent a wide range of functions and solve related problems.</i>		Learning Outcome 3: Space, Shape and Measurement <i>The learner is able to describe, represent, analyse and explain properties of shapes in 2-dimensional and 3-dimensional space with justification.</i>		Learning Outcome 4: Data Handling and Probability <i>The learner is able to collect, organise, analyse and interpret data to establish statistical and probability models to solve related problems.</i>	
11.1.1 Understand that not all numbers are real.	√	11.2.1 (a) Demonstrate the ability to work with various types of functions (b) Recognise relationships between variables in terms of numerical, graphical, verbal and symbolic representations and convert flexibly between these representations	√	11.3.1 Use the formulae for surface area and volume of right pyramids, right cones, spheres and combinations of these geometric objects.		11.4.1 Calculate and represent measures of central tendency and dispersion	
11.1.2 (a) Simplify expressions using the laws of exponents for rational exponents.(b) Add, subtract, multiply and divide simple surds (c) Demonstrate an understanding of error margins.	√	11.2.2 Generate as many graphs as necessary, initially by means of point-by-point plotting, supported by available technology, to make and test conjectures about the effect of the parameters k , p , a and q for functions including	√	11.3.3 Use a Cartesian co-ordinate system to derive and apply:		Represent bivariate numerical data as a scatter plot and suggest intuitively whether a linear, quadratic or exponential function would best fit the data (problems should include issues related to health	
11.1.3 Investigate number patterns (including but not limited to those where there is a constant second difference between consecutive terms in a number pattern, and the general term is therefore quadratic and hence: (a) make conjectures and generalisations b) provide explanations and justifications and attempt to prove conjectures.	√	11.2.3 Identify characteristics as listed below and hence use applicable characteristics to sketch graphs of functions	√	11.3.4 Investigate, generalise and apply the effect on the co-ordinates			
11.1.4 Use simple and compound decay formulae to solve problems (including straight line depreciation and depreciation on a reducing balance) (<i>link to Learning Outcome 2</i>).	√	11.2.4 Manipulate algebraic expressions: (a) by completing the square; (b) simplifying algebraic fractions with binomial denominators	√	11.3.5 Derive and use the values of the trigonometric functions			
11.1.5 Demonstrate an understanding of different periods of compounding growth and decay	√	11.2.5 Solve: a) quadratic equations (b) equations in two unknowns	√	11.3.6 Solve problems in two dimensions			
11.1.6 Solve non-routine, unseen problems.	√	11.2.6 Use mathematical models to	√				

		investigate problems that arise in real-life contexts:				
		11.2.7 Investigate numerically the average gradient	√			
		11.2.8 Solve linear programming problems	√			

TEACHING ACTIVITIES	LEARNERS ACTIVITIES	RESOURCES	ASSESSMENT	DATE COMPLETED
<p>ACTIVITY 1</p> <p>Teacher makes use of exemplars and previous question papers to reinforce different topics that are examinable:</p> <p>Number systems and exponents Patterns and Sequences Annuities and Finance , Functions and Graphs , Algebra and Equations, Linear Programming</p>	<p>Learners do exercises from various question papers, individually or in groups.</p> <p>Learners will do additional exercises from exemplars to sharpen their problem solving skills</p>	<p>Study Guides, Maths 911, Study mates, Exemplars, previous exam question papers, calculators.</p>	<p>Method: Tutorials</p> <p>Tool: Memo</p> <p>Form: Peer, Self</p>	
Homework: Extra activities are given from the resources				
Enrichment/Expanded Opportunities: Learners work on their paces in answering the questions.				
Teacher Reflections:				

SIGNATURES: _____
TEACHER

DATE

HOD / SMT

DATE

REVISION OF FINAL EXAMINATION (PAPER 2)

Learning Outcome 1: Number and Number Relationships <i>When solving problems, the learner is able to recognise, describe, represent and work confidently with numbers and their relationships to estimate, calculate and check solutions.</i>		Learning Outcome 2: Functions and Algebra <i>The learner is able to investigate, analyse, describe and represent a wide range of functions and solve related problems.</i>		Learning Outcome 3: Space, Shape and Measurement <i>The learner is able to describe, represent, analyse and explain properties of shapes in 2-dimensional and 3-dimensional space with justification.</i>		Learning Outcome 4: Data Handling and Probability <i>The learner is able to collect, organise, analyse and interpret data to establish statistical and probability models to solve related problems.</i>	
11.1.1 Understand that not all numbers are real.		11.2.1 (a) Demonstrate the ability to work with various types of functions (b) Recognise relationships between variables in terms of numerical, graphical, verbal and symbolic representations and convert flexibly between these representations		11.3.1 Use the formulae for surface area and volume of right pyramids, right cones, spheres and combinations of these geometric objects.	√	11.4.1 Calculate and represent measures of central tendency and dispersion	√
11.1.2 (a) Simplify expressions using the laws of exponents for rational exponents.(b) Add, subtract, multiply and divide simple surds (c) Demonstrate an understanding of error margins.		11.2.2 Generate as many graphs as necessary, initially by means of point-by-point plotting, supported by available technology, to make and test conjectures about the effect of the parameters k , p , a and q for functions including		11.3.3 Use a Cartesian co-ordinate system to derive and apply:	√	Represent bivariate numerical data as a scatter plot and suggest intuitively whether a linear, quadratic or exponential function would best fit the data (problems should include issues related to health	√
11.1.3 Investigate number patterns (including but not limited to those where there is a constant second difference between consecutive terms in a number pattern, and the general term is therefore quadratic and hence: (a) make conjectures and generalisations b) provide explanations and justifications and attempt to prove conjectures.		11.2.3 Identify characteristics as listed below and hence use applicable characteristics to sketch graphs of functions		11.3.4 Investigate, generalise and apply the effect on the co-ordinates	√		
11.1.4 Use simple and compound decay formulae to solve problems (including straight line depreciation and depreciation on a reducing balance) (<i>link to Learning Outcome 2</i>).		11.2.4 Manipulate algebraic expressions: (a) by completing the square; (b) simplifying algebraic fractions with binomial denominators		11.3.5 Derive and use the values of the trigonometric functions	√		
11.1.5 Demonstrate an understanding of different periods of compounding growth and decay		11.2.5 Solve: a) quadratic equations b) equations in two unknowns		11.3.6 Solve problems in two dimensions			

11.1.6 Solve non-routine, unseen problems.		11.2.6 Use mathematical models to investigate problems that arise in real-life contexts:				
		11.2.7 Investigate numerically the average gradient				
		11.2.8 Solve linear programming problems				

TEACHING ACTIVITIES	LEARNERS ACTIVITIES	RESOURCES	ASSESSMENT	DATE COMPLETED
<p>ACTIVITY 1</p> <p>Teacher makes use of exemplars and previous question papers to reinforce different topics that are examinable:</p> <p>Mensuration, Coordinate Geometry, Transformation Geometry, Trigonometry, Data Handling:</p>	<p>Learners do exercises from various question papers, individually or in groups.</p> <p>Learners will do additional exercises from exemplars to sharpen their problem solving skills</p>	<p>Study Guides, Maths 911, Study mates, Exemplars, previous exam question papers, calculators and Examination Guideline</p>	<p>Method: Tutorials</p> <p>Tool: Memo</p> <p>Form: Peer, Self, teacher</p>	
Homework: Extra activities are given from the resources				
Enrichment/Expanded Opportunities: Learners work on their paces in answering the questions.				
Teacher Reflections:				

SIGNATURES:

TEACHER

DATE

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DATE