



PROVINCE OF THE  
EASTERN CAPE  
EDUCATION

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DIRECTORATE:  
CURRICULUM FET PROGRAMMES  
LESSON PLANS  
TERM 3  
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 : 9 HOURS**

Context: Mathematical and building

Link with previous lesson: Co-ordinate geometry

KNOWLEDGE (K): Rotation and enlargement of shapes. SKILLS (S): Demonstration, investigative, communication VALUES (V): Respect, appreciation

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		
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				
<b>TEACHING ACTIVITIES</b>	<b>LEARNERS ACTIVITIES</b>	<b>RESOURCES</b>	<b>ASSESSMENT</b>	<b>DATE COMPLETED</b>		
<p>Activity 1 :Rotation</p> <p>Teacher will find out from the learners their understanding of the word <b>Rotation</b>.</p> <p>The teacher will consolidate and come up with common understanding of rotation, using objects available to demonstrate the process.</p> <p>Teacher will issue out a worksheet informing learners what to do in groups. (See learner activity)</p>	<p>Learners will come with different definitions of the word; some will even demonstrate their understanding.</p> <p>Learners will rotate an object until it reaches its original position, and will notice that a circle is formed.</p> <p>Learners will have to rotate a point until a circle is formed.</p> <p>Learners will have to draw a Cartesian plane with its origin</p>	<p>Worksheet</p> <p>Text books</p> <p>Graph paper</p> <p>Mathematical instrument box</p>	<p>Class works</p> <p>Home works</p> <p>Short tests</p> <p>Rubric, memo</p> <p>Educator, peer</p>			

<p>Consolidation of direction (terminology and notation involved) and change of signs in coordinates.</p> <p>Provide a worksheet where learners will rotate a terminal ray clockwise and anticlockwise through an angle of <math>90^{\circ}</math> and <math>180^{\circ}</math>.</p> <p>Teacher to consolidate and give more activities.</p> <p>Teaching Methods</p> <p>Question and answer</p> <p>Demonstration</p> <p>Investigation</p>	<p>at the centre of the circle.</p> <p>Some learners rotating the point to the right others to the left observing the change of coordinates from one quadrant to the next one.</p> <p>Learners will work out the work sheet and they have to come up with conclusions regarding the two different angles.</p>			
<p>Activity 2</p> <p>Enlargement</p> <p>Teacher will provide a worksheet where different polygons are represented on a Cartesian</p>	<p>Learners are to work on worksheet to observe enlargement of the figures and record the conclusions.</p>	<p>Worksheet</p> <p>Text books</p> <p>Graph paper</p> <p>Mathematical instrument box</p>	<p>Class works</p> <p>Home works</p> <p>Short tests</p> <p>Rubric, memo</p>	

<p>plane.</p> <p>Given a scale factor ask learners to enlarge the polygons.</p> <p>Teacher to consolidate the observation in the context of mathematics.</p> <p>Teaching Methods</p> <p>Question and answer</p> <p>Demonstration</p> <p>Investigation</p>			Educator, peer	
Homework: Exercises given from selected textbooks and various resource material				
Enrichment/Expanded Opportunities: Additional question papers given				
Teacher Reflections:				

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**SUBJECT: MATHEMATICS**

**GRADE 11**

**LESSON PLAN 2**

**TIME : 9 HOURS**

Context: Finance, health, mathematical

Link with previous lesson: Completing the square, grade 10 functions

KNOWLEDGE (K): Behavior of different functions and the interpretations. SKILLS (S): Investigation, drawing, comparison, reasoning VALUES (V): appreciation

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					
<b>TEACHING ACTIVITIES</b>	<b>LEARNERS ACTIVITIES</b>	<b>RESOURCES</b>	<b>ASSESSMENT</b>	<b>DATE COMPLETED</b>			
<p>Activity 1 Parabola</p> <p>Teacher gives prior knowledge quiz on functions.</p> <p>Teacher to provide guidance on learner activity.</p> <p>Teacher to help learners to identify the effects of <b>a</b>, <b>p</b> and <b>q</b> and introduces terminology involved.</p> <p>Teaching Methods</p>	<p>Learners to sketch parabola by point by point plotting and shifting it to both left and right , up and down until they associate their understanding with the form <math>y=a(x-p)^2+q</math> and completing the square.</p> <p>Learners to sketch the more graphs.</p>	<p>Text books</p> <p>Mathematical set</p>	<p>Class work Home work Short tests</p> <p>Memo</p> <p>Teacher, peer</p>				

<p>Question and answer</p> <p>Discussion</p> <p>Demonstration</p>					
<p>Activity 2 Hyperbola</p> <p>Teacher provides a worksheet where learners will draw a hyperbola in the form:</p> <p><math>y=k/x</math>; <math>y=(k/x)+q</math>; <math>y=k/(x+p)+q</math> using table method.</p> <p>Teacher consolidates the activity.</p> <p>Teaching Methods</p> <p>Question and answer</p> <p>Discussion</p> <p>Demonstration</p>	<p>Learners to draw graphs and observe the effect of p and q in shifting of the graph and even notice the change of asymptotes.</p>	<p>Text books</p> <p>Mathematical set</p>	<p>Class work</p> <p>Home work</p> <p>Short tests</p> <p>Memo</p> <p>Teacher, peer</p>		
<p>Activity 3 Exponential graph</p> <p>Revise grade 10 graphs.</p> <p>Teacher to prepare a worksheet where learners will draw exponential graphs in the form:</p>	<p>Learners to draw graphs and observe the effect of p and q in the shifting of the graph and change of asymptotes.</p>	<p>Text books</p> <p>Mathematical set</p>	<p>Class work Home work Short tests</p> <p>Memo</p> <p>Teacher, peer</p>		

$y=ab^x+q$ $y=ab^{x+p}+q$ Teaching Methods Question and answer Discussion Demonstration				
Homework: Exercises given from selected textbooks and various resource material				
Enrichment/Expanded Opportunities: Home works and Tutorials				
Teacher Reflections:				

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**SUBJECT: MATHEMATICS**

**GRADE 11**

**LESSON PLAN 3**

**TIME : 9 HOURS**

Context: Painting,

Link with previous lesson: Area

KNOWLEDGE (K): Understanding and calculating surface areas and volumes

SKILLS (S): Calculation, measurement

VALUES (V): appreciation

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		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			

the general term is therefore quadratic and hence: (a) make conjectures and generalisations b) provide explanations and justifications and attempt to prove conjectures.						
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	$\sqrt{\quad}$	
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				
<b>TEACHING ACTIVITIES</b>	<b>LEARNERS ACTIVITIES</b>	<b>RESOURCES</b>	<b>ASSESSMENT</b>	<b>DATE COMPLETED</b>		
Activity 1 : Surface area  Teacher provides an exercise to learners to work out surface areas  Teacher to clarify the difference between area and surface area.  Teaching Methods  Discussion Question and answer Group work	Learners are expected to use the pre-existing knowledge to calculate the surface area of different shapes and later of combined shapes.	Textbook, 2 D Models , 3D models  Mathematical sets, Calculators	Class work  Home work  Teacher, peer			
Activity 2 : Volume	Learners to link area and volume.	Textbook, 2 D Models , 3D models	Class work			

<p>Teacher to find out from learners the difference between area and volume.</p> <p>An activity to be designed for learners to calculate volumes of different/combined shapes.</p> <p>Teaching Methods</p> <p>Discussion Question and answer Group work</p>		<p>Mathematical sets, Calculators</p>	<p>Home work</p> <p>Teacher, peer</p>	
<p>Homework: Exercises given from selected textbooks and various resource material</p>				
<p>Enrichment/Expanded Opportunities: More challenging exercises</p>				
<p>Teacher Reflections:</p>				

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**SUBJECT: MATHEMATICS****GRADE 11****LESSON PLAN 4****TIME : 9 HOURS**

Context: Mathematical

Link with previous lesson: Solutions of trigonometric equations.

KNOWLEDGE (K): Solving trigonometric equations

SKILLS (S): Reasoning, interpretation, calculation

VALUES (V): appreciation

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		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			

justifications and attempt to prove conjectures.						
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				
<b>TEACHING ACTIVITIES</b>	<b>LEARNERS ACTIVITIES</b>	<b>RESOURCES</b>		<b>ASSESSMENT</b>	<b>DATE COMPLETED</b>	
<p>Activity 1 : Solving trigonometric equations</p> <p>Teacher provides worksheets to revise what learners did in grade 10.</p> <p>Teacher gives guidance to learners on how to get different solutions in different quadrants.</p> <p>Teacher consolidates.</p> <p>Teaching Methods</p> <p>Discussion</p>	<p>Learners to work on the activity.</p> <p>Learners to investigate solutions in different quadrants</p>	<p>Text books</p> <p>Worksheet</p> <p>Calculator</p>		<p>Class work</p> <p>Home work</p> <p>memo</p>		

Question and answer				
Investigative approach				
<p>Activity 2 : General solutions of trigonometric equations</p> <p>Teacher to find from learners their understanding of specific solution vs. general solution.</p> <p>Teacher explains the difference between the two solutions; further explain why there is general solution and notation involved.</p> <p>Teacher provides work sheets for learners to find general solutions.</p> <p>Teacher closely monitors learner's progress and make interventions where necessary.</p>	<p>Learners will attempt to answer the questions.</p> <p>Learners work on the exercise.</p>	<p>Text books</p> <p>Worksheet</p> <p>Calculator</p>	<p>Class work</p> <p>Home work</p> <p>memo</p>	
Homework: Exercises given from selected textbooks and various resource material				
Enrichment/Expanded Opportunities: Home works, Tutorial				
Teacher Reflections:				

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**SUBJECT: MATHEMATICS****GRADE 11****LESSON PLAN 5****TIME : 9 HOURS**

Context: Business

Link with previous lesson: Linear equation and Inequalities,

**KNOWLEDGE (K):** Formulation of equations, Feasible region, Optimization **SKILLS (S):** Drawing, interpretation, analysing **VALUES (V):** appreciation

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		11.2.4 Manipulate algebraic		11.3.5 Derive and use the values of the			

formulae to solve problems (including straight line depreciation and depreciation on a reducing balance) ( <i>link to Learning Outcome 2</i> ).		expressions: (a) by completing the square; (b) simplifying algebraic fractions with binomial denominators		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	√				
<b>TEACHING ACTIVITIES</b>	<b>LEARNERS ACTIVITIES</b>			<b>RESOURCES</b>		<b>ASSESSMENT</b>	<b>DATE COMPLETED</b>
<p>Activity 1</p> <p>Linear inequalities</p> <p>Teacher gives word problems to form linear inequalities.(Constraints)</p> <p>Teacher gives a set of linear inequalities in a worksheet.</p> <p>Teaching Methods</p> <p>Discussion</p> <p>Question and answer</p>	<p>Learners interpret and form linear inequalities from the given word problem using variables.(Constraints)</p> <p>Learners represent all the inequalities in a graph by shading.</p>			<p>Worksheets</p> <p>Graph paper</p> <p>Mathematical set</p>		<p>Class works</p> <p>Home works</p>	

<p>Activity 2</p> <p>Feasible region and optimal value</p> <p>Teacher provides a word problem derived from a real life situation e.g. factories, finance, transport etc.</p> <p>Teacher will take learners through some questions leading to the optimum value in feasible region.</p>	<p>Learners will form a set of constraints for the given situation.</p> <p>Draw straight lines on a graph paper.</p> <p>Shading the common area(feasible region)</p> <p>Learners identify optimal point either by inspection or solving simultaneously.</p>	<p>Worksheets</p> <p>Graph paper</p> <p>Mathematical set</p>	<p>Class works</p> <p>Home works</p> <p>Short informal test</p>	
<p>Homework: Exercises given from selected textbooks and various resource material</p>				
<p>Enrichment/Expanded Opportunities: Tutorials, homework's, assignments</p>				
<p>Teacher Reflections:</p>				

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